



GEORGE MUNICIPALITY: TOWN PLANNING POLICY ON BASE TELECOMMUNICATION STATION INFRASTRUCTURE

APRIL 2023

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A. BACKGROUND

In 1994 the Global System for Mobile Communication was launched in South Africa and since then, communities have grown more dependent on technology and the advantages of conglomerated in-network coverage. To ensure municipal-wide coverage, telecommunication providers are required to install base telecommunication stations across the municipal area to ensure that every user is able to benefit from the use of mobile services. Approximately 63% of South Africa's population resides in urban areas and therefore the need for effective communication is rapidly rising. George is the second-largest city in the Western Cape and with rapid urbanisation and migration from metros, sustainable planning is essential.

Base telecommunications stations are constructed to provide geographic coverage and additional network capacity where needed. The services rendered from the base telecommunication stations are frequently improved and updated (e.g., 4G and 5G) and requires additional, technology-specific, base stations. The International Telecommunications Union (ITU) statistic database has shown that about 6 billion mobile cellular subscriptions commenced in 2011 globally. Moreover, the number of cellular subscriptions and associated base telecommunication station infrastructure is expected to increase significantly with the rollout of 5G.

What is Base Telecommunication Station Infrastructure:

Base telecommunication station infrastructure is commonly seen as the 15m to 25m high cellular masts on top of tall steel poles or towers and cellular masts on top of or the side of buildings. These masts are accompanied by associated infrastructure comprising 2 or 3 sets of sector antennas attached to the mast, microwave dishes attached to the mast, and up to 4 equipment containers. The total ground coverage of the infrastructure is about 100m² and many times are secured by a 2.1m high palisade fence so that it cannot be accessed by the public.

B. PROBLEM STATEMENT

The increasing demand for communication facilities and the intense competition for more comprehensive coverage of the cellular communication (and data) industry in urban areas is reflected in the rising numbers of base telecommunication station infrastructure applications submitted to the Municipality. This sub-section aims to highlight some of the challenges relating to the development of such base telecommunication station infrastructure.

Procedural Delays

Most delays in the development process are caused by bureaucratic and time-consuming administrative permission processes, lack of coordination with operators, or sometimes, mere obstruction at a local level. A growing level of concern exists that, with the rollout of the 5G network, municipalities will not be able to keep up with the number of development applications for base telecommunication station infrastructure.

Health Implications

People all over the world are exposed to (EMF) to varying degrees, and the levels of exposure will increase as technology advances. These EMF are found in the non-ionizing part of the electromagnetic spectrum (between 0 and 300 GHz) and are emitted from common sources such as power lines and cellular phones. Health implications is a public concern with most base

telecommunication station infrastructure applications. It is essential to mitigate health implications within the social context of the George Municipality.

Visual Intrusiveness

Base telecommunication station infrastructure provides a radio signal which is dependent on line of sight for good reception. The signal becomes weaker with distance or obstructions. Therefore, the masts require a location from which transmission can cover a large area as possible with a minimum of physical obstruction. A wide range of telecommunication structures exist including freestanding base telecommunication stations and rooftop base telecommunication stations, and monopole (light pole) structures. Within the current level of development, the need for new or additional base telecommunication stations within George Municipality and the co-location (optimising) of existing infrastructure has not been explored to an extent which metropolitan municipalities have done.

These self-supported mast structures developed as freestanding or on a rooftop (commonly three- or four-legged angular structures and monopole structures), have the most marked visual impact. Rooftop and freestanding base telecommunication station applications received within George Municipality consists mostly of self-supported structures (which is the most visually intrusive). The co-location of masts on existing structures, such as buildings, bridges and lampposts are common practice in cities and higher populated areas and also has minimal visual impact and should be explored within the context of George Municipality.

Volatile Area of Coverage

The number of devices that are dependent on the base telecommunication station infrastructure grow with population trends and, coherently, the function and output of devices is ever-increasing which directly correlates to masts' coverage area to decrease. This leads to a continual need to provide more masts as the quality of coverage either decreases or is lost – the distance between the masts is reducing.

C. PURPOSE OF THE POLICY

The purpose of the Base Telecommunication Station Infrastructure Policy is to formulate uniform set of parameters, objectives, and guidelines for the planning, design, assessment and construction of base telecommunication station infrastructure within the George Municipality. This policy has therefore been compiled to assist telecommunication service providers, their agents and built environment professionals with the planning, designing, motivating and implementing of their development proposals, but will be primarily used to support the George Municipality's Directorate: Human Settlements, Planning and Development in executing their development management mandates.

Role players & Stakeholders

The base telecommunication station infrastructure industry is a key role player in economic development that is constantly evolving. Therefore, a legislative framework is required to guide development proposals and to ensure operations within the law.

The base telecommunication station infrastructure service provider or appointed representative will be required to submit their land use applications in line with this policy, while the Directorate: Human Settlements, Planning and Development be required to consider the policy's objectives and guidelines, as part of their basket of considerations, when assessing these applications.

The environmental and visual impact of the proposed telecommunication mast will be held in high regard and communication between role players are essential.

Scope of the Policy

- I. This policy shall apply within the area of jurisdiction of George Municipality;
- II. This policy applies to the erection of equipment and infrastructure relating to Base Telecommunication Stations and similar infrastructure;
- III. This policy excludes the development and installations of optic fibre and point-to-point infrastructure (cable);

Desired Outcomes

The main objective of document is to create a policy framework and establish procedural requirements to facilitate the provision of base telecommunication station infrastructure in the George Municipal area, streamline the application process for both the applicant and the affected community, while also promoting efficiency - being cognisant of the resources already available within the municipal area.

The Base Telecommunication Station Infrastructure Policy aims to:

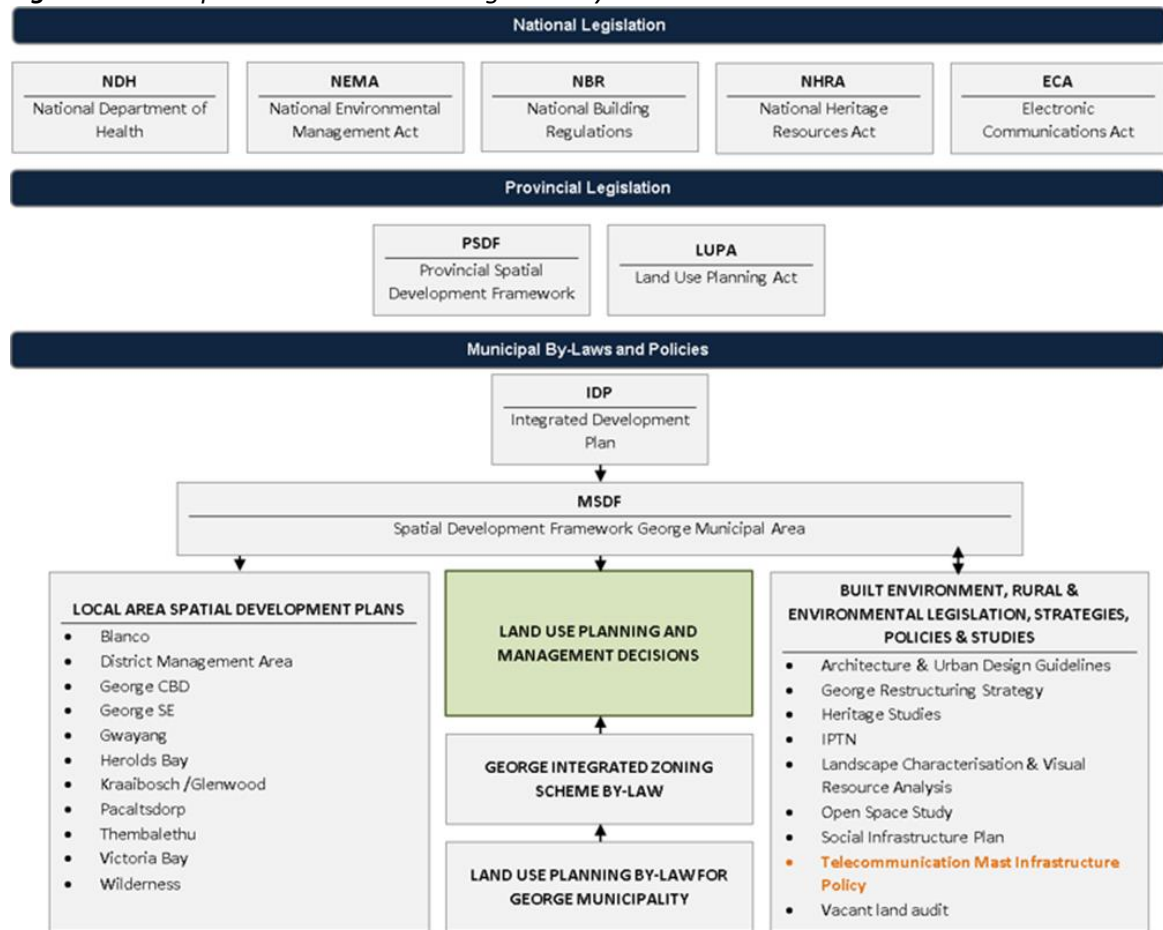
- I. Establish procedural requirements and policy guidelines for all parties involved in the development of base telecommunication station infrastructure;
- II. Promote technological infrastructure and economic activity for the community of George Municipality;
- III. Minimise cumulative visual impacts of new telecommunication masts;
- IV. Give due recognition to the importance of public participation as part of the application process;
- V. Establish mechanisms to improve the efficiency and quality of decision making (i.e. exemptions for small installations or certain site upgrades and 'one-stop-shop' for licencing procedures); and
- VI. Ensure efficiency and optimisation of infrastructure provision – recognising the available / existing / approved base telecommunication station infrastructure sites while allowing for the development of new infrastructure in under resourced areas.

D. LEGISLATIVE FRAMEWORK

In terms of the Constitution of the Republic of South Africa (Act 108 of 1996) and the Municipal Systems Act (Act 32 of 2000), the Municipality has a responsibility to provide mechanisms and processes that are necessary to move progressively towards social and economic upliftment of local communities. The Council of a Municipality has a duty to, inter alia, promote a safe and healthy environment in the Municipality and to promote and undertake development in the area of the Municipality. Within this context, Council has a responsibility to its community to develop and apply a policy that pertains to base telecommunication station infrastructure.

The Base Telecommunication Station Infrastructure Policy forms part of a supportive legal framework within the municipal-wide land use management system, as illustrated in **Figure 1** below.

Figure 1: municipal-wide land use management system



Spatial Planning and Land Use Management Act, 2013 and Western Cape Land Use Planning Act, 2014

In terms of Section 22(1) of SPLUMA, a Municipality may not take a decision on a land use application which conflicts with its Municipal Spatial Development Framework unless site specific circumstances exist as contemplated by Section 22(2). Notwithstanding Section 22(2), the decision-making authority must, when considering an application, be guided by:

- (a) The development principles contained in Section 7 of SPLUMA (and Section 56 of LUPA);
- (b) Policies and directives aimed at protecting agricultural land;
- (c) National and provincial government policies;
- (d) The (guidelines and policies of) Municipal SDF;
- (e) Constitutional transformation imperatives and related duties of the state;
- (f) All relevant facts and circumstances applicable to the application;
- (g) The rights and obligations of all parties affected;
- (h) Impact on services infrastructure, social services and needs for open space;
- (i) Compliance with applicable laws and administrative processes;
- (j) Compliance with applicable environmental legislation;

In consideration of the above, the decision-maker will need to, among others, address the following questions when assessing base telecommunication station infrastructure applications:

Table 1: Section 65 Evaluation Checklist

NO	EVALUATION CHECKLIST (S. 65)
1.	Does the application submitted comply with the provisions of this bylaw?
2.	Has the motivation submitted been considered?

3.	Were the correct procedures followed in processing the application? (see land use application process checklist)
4.	Was a condonation required and granted with regards to the process followed? (<i>see land use application process checklist</i>)
5.	Have the desirability guidelines as issued by the provincial minister to the utilise land for the proposed land uses been considered? (<i>not yet applicable</i>)
6.	Have the comments received from the respondents, any organs of state and the provincial minister been considered? (<i>s. 45 of LUPA</i>)
7.	Have the comments received from the applicant been considered?
8.	Have investigations carried out in terms of other laws and that are relevant to the application being considered?
9.	Was the application assessed by a registered town planner? (<i>see land use application process checklist</i>)
10.	Has the impact of the proposed development on municipal engineering services been considered?
11.	Is the application in line, consistent and/or compatible with the IDP of the Municipality?
12.	Is the application in line, consistent and/or compatible with the municipal SDF?
13.	Is the application in line, consistent and/or compatible with the local SDF applicable to the area?
14.	Is the application in line, consistent and/or compatible with any other municipal policy or by-law applicable to the proposed land use?
15.	Is the application in line the consistent and/or compatible with the principles as contained in Section 7 of SPLUMA / 59 of LUPA?
16.	is the application in line with the applicable provisions contained in the applicable zoning scheme by-law?
17.	Will the natural environment and/or open space systems be negatively affected?
18.	Will application result in trees/ indigenous vegetation being removed on site or in the road reserve?
19.	Does the application have any negative impact on heritage resources?
20.	Will the character of the surrounding area be negatively affected?
21.	Will the architectural character of the streetscape be negatively affected?
22.	Will there be any negative impact on vehicle traffic and pedestrian safety?
23.	Will there be a negative impact on traffic movement?
24.	Will there be a negative impact on vehicle sight distances?
25.	Is there adequate on-site parking / loading facilities provided?
26.	Is there adequate vehicle access/ egress to the property?
27.	Will the neighbour's amenity to sunlight be negatively affected?
28.	Will the application result in overshadowing onto neighbours properties?
29.	Will the neighbours amenity to privacy / enjoyment of their property/views be negatively affected?
30.	Will the proposal have a negative impact on scenic vistas or intrude on the skyline?
31.	Will the intended land use have a negative impact on adjoining uses?
32.	Will the land use pose a potential danger to life or property in terms of fire risks, air pollution or smells or compromise a person's right to a safe and secure environment?

33.	Will there be a negative impact on property values?
34.	Will the application result in a nuisance, noise nuisance, and disturbance to neighbours?
35.	Will adequate open space and/or recreational space be provided (for residential developments)?

The following principles of Section 7 of SPLUMA and Section 56 of LUPA must also be considered in land use applications.

Table 2: Principles of Section 7 of SPLUMA and Section 56 of LUPA

1.	Redress spatial and other development imbalances of the past through improved access to and use of land
2.	Address the inclusion of persons and areas previously excluded in the past, specifically informal settlements and areas characterised by wide-spread poverty and deprivation
3.	Consider the potential impact of the development proposal on the value of the affected land /properties
4.	Recognise the impact of the application on the existing rights of the surrounding owners
5.	Promote a spatially compact, resource frugal development form
6.	Accommodate development within the existing fiscal (budget), institutional and administrative means of the Municipality
7.	Promote and stimulate the equitable and effective functioning of land market
8.	Promote development that is sustainable, discourages urban sprawl, encourages residential densification and promotes a more compact urban form
9.	Promote development that will result in or enable the establishment of viable communities
10.	Strive to ensure that the basic needs of all the citizens are met in an affordable way
11.	Sustain and/or protect the economic potential of the relevant area or region
12.	Mitigate against the potential impacts of climate change
13.	Include measures to reduce consumption / conserve water and energy resources
14.	Consider geological formations and topographical (soil and slope) conditions
15.	Promote development that benefit the long-term social and economic priorities for the area over any short-term benefits
16.	Development should contribute towards the optimal use of existing resources, infrastructure and/or facilities
17.	Development should contribute towards social, economic, institutional and physical integration aspects of land use planning
18.	Promote the availability of employment and residential opportunities in proximity to each other or the integration thereof
19.	Promote the establishment of a diverse combination of land uses
20.	Contribute towards the correction of distorted spatial patterns of settlements within the town/city/village
21.	Contribute towards and /or promote the creation of a quality and functional open spatial environment does the development
22.	Make an area or town more spatially resilient to ensure a sustainable livelihood for the affected community most likely to be affected by economic and environmental shocks

Key to the above is to ensure that the policy promotes the 5 key development principles of SPLUMA, being spatial sustainability, spatial justice, equality, spatial resilience and good governance. The policy therefore needs to assist decision-makers in establishing sustainable,

flexible, diverse, healthy, risk adverse settlements that responds to the environmental, social and economic needs of the community concerned.

National Environmental Management Act, 1998

The National Environmental Management Act (NEMA) provides principles for decision-making on matters affecting the environment. The Department of Environmental Affairs and Planning (DEADP) is the competent authority to authorise the construction of masts or towers of any material or type used for telecommunication broadcasting or radio transmission purposes in:

- I. Estuaries;
- II. Rural areas; and
- III. Urban areas that are outside commercial and industrial areas;
- IV. Where the base telecommunication station infrastructure is to be placed on a site not previously used for this purpose; and
- V. Where the base telecommunication station infrastructure will exceed 15 meters in height, excluding attachments to existing buildings and masts on rooftops.

It should be noted that construction activities that may be required for base telecommunication station infrastructure may also trigger other listed activities in terms of NEMA.

National Building Regulations and Building Standards Act, 1977

The National Building Regulations and Building Standards Act (Act 103 of 1977) (NBR) promotes uniformity in law relating to the erection of buildings in the areas of jurisdiction of local authorities and for prescribing building standards. NBR requires the Municipality to be satisfied with proposals for buildings or structures and that the proposed structures must not disfigure the area, that they must not be unsightly or objectionable and that they must not derogate from the value of adjoining or neighbouring properties.

Base telecommunication station infrastructure is considered to be a structure, as defined in the NBR and will therefore require approval in terms of such Act by the Municipality.

The National Heritage Resources Act , 1999

The National Heritage Resources Act (Act 25 of 1999) (NHRA) provides principles for governing heritage resources management throughout South Africa. The following sections might be applicable for the development of base telecommunication station infrastructure and cognisance should be taken thereof:

- I. Section 34 of the NHRA states that a permit is required for any alteration or demolition to a structure older than 60 years issued at the provincial heritage resources authority; and
- II. Section 38 that states that a permit is required for development which will change the character of a site.

George Municipal Spatial Development Framework, 2019

The Base Telecommunication Station Infrastructure Policy aims to support the mission statement of the George Municipal Spatial Development Framework (2019) which is to “*Develop George as a resilient regional centre of excellence for inclusive, smart urban and rural prosperity*”. The George Municipal Spatial Development Framework (MSDF) is required to translate the vision strategy of the Integrated Development Plan (IDP) into a desired spatial form for the Municipality.

The purpose of the George MSDF, as set out in SPLUMA, is to, among others:

- (a) Interpret and represent the spatial development vision of the Municipality;
- (b) Guide planning and development decisions across all sectors of government – including municipal and provincial government spatial planning and land use management decisions;
- (c) Provide clear and accessible information to the public and private sector and provide direction for investment purposes;

- (d) Include previously disadvantaged areas (townships) and informal settlements, and address their inclusion and integration into the spatial, economic, social and environmental objectives of government;
- (e) Address historical spatial imbalances in development;
- (f) Provide direction for strategic developments, infrastructure investment, promote efficient, sustainable and planned investments by all sectors and indicate priority areas for investment in land development;
- (g) Promote a rational and predictable land development environment to create trust and stimulate investment;
- (h) Assist in integrating, coordinating, aligning and expressing development policies and plans emanating from the various spheres of government;

The George MSDF plays a leading role in the broader municipal planning system. It is the spatial expression of the IDP and the long term spatial vision for the municipal area that also considers the vision, principles and policy directives set out in national and provincial legislation, strategies, policies and plans. All municipal land development policies must be aligned to the vision, spatial strategies and plans set out in the MSDF. The MSDF also leads the Municipality's policy-driven Land Use Management System. The MSDF provides the long term spatial framework for decisions made in terms of the Land Use Planning By-Law for George Municipality (2015) and George Integrated Zoning Scheme By-Law (2017).

It is important to note that a MSDF does not confer or take away land use rights, but guides decisions associated with the awarding and management of such rights. When deciding on an application, the Municipal Planning Tribunal, or any other authority required or mandated to make a land development decision must make a decision which is consistent with the MSDF (S22 of SPLUMA, 2013).

The MSDF also sets out to provide coherent information on opportunities and constraints to develop the municipal area and offer a vision for sustainable development. Specific reference to the development of base telecommunication station infrastructure is not made within the MSDF. However, the development of base telecommunication station infrastructure speaks to the Municipality's first, third and fourth strategic goal of its IDP. The five strategic goals as listed in the MSDF are as follows:

- I. Develop and grow George
- II. Keep George safe, clean and green
- III. Deliver affordable quality service
- IV. Participative partnership
- V. Ensure good governance and human capital in George

George Integrated Zoning Scheme By-Law, 2017

Land use management within the jurisdiction of George Municipality is governed by the George Integrated Zoning Scheme By-law (GIZSB), 2017 approved in terms of the LUPA. The GIZSBL regulates and control municipal zoning with the purpose to, inter alia, give effect to the municipal spatial development framework. The GIZSBL plays an integral part in decision-making of land use planning and management.

The GIZSB describes to forms of base telecommunication station infrastructure, namely:

1. **"FREESTANDING BASE TELECOMMUNICATION STATION"** means a freestanding support structure on land or anchored to land and used for base telecommunication station infrastructure to transmit or receive electronic communication signals, and may include any access roads to such facility; and

2. **“ROOFTOP BASE TELECOMMUNICATION STATION”** means a support structure attached to the roof, side or any part of a building and used to accommodate telecommunication infrastructure for the transmitting or receiving of electronic communication signals.
3. **“TELECOMMUNICATION INFRASTRUCTURE”** means any part of the infrastructure of a telecommunication network for radio or wireless communication and—
 - (a) includes voice, data and video telecommunications, which may include antennae; and any support structure, equipment room, radio equipment or optical communications equipment (laser or infra-red);
 - (b) includes any ancillary structures needed for the operation of telecommunication infrastructure; and
 - (c) does not include fibre optic installations and point-to-point copper (cable) installation and rooftop base telecommunication stations.

Section 31 of the GIZSB provides the following provisions for the installation and decommissioning of base telecommunication station infrastructure:

31. (1) A rooftop base telecommunication station may not extend more than 3 metres in height above the building that it is attached to without the prior approval of the Municipality.
- (2) No rooftop base telecommunication station or transmission tower granted as a consent use in terms of this by-law may be modified or have its radio-frequency emissions altered without prior written approval from the Municipality.
- (3) The following provisions apply with regard to decommissioned antennae or rooftop base telecommunication stations:
 - (a) the owner or operator must remove all decommissioned infrastructure;
 - (b) if the site has been disturbed, the owner or operator must rehabilitate the site to its original state or to a state acceptable to the Municipality;
 - (c) if the owner or operator fails to comply with paragraphs (a) or (b), the Municipality may remove that infrastructure, and rehabilitate the site at the expense of the owner or operator.

Freestanding and Rooftop base telecommunication stations are permitted in the GIZSB as either a primary of consent use rights in all land use ones except for Single Residential Zones I and III (dwelling houses), General Residential Zones I to III (double dwelling units, group housing and town housing), and General Residential Zone V (guest lodge) – meaning that such infrastructure is not deemed appropriate within residential environments and should be located an appropriate distance from such properties.

The pole-mounted sites, micro sites and small cells that are anchored to existing structures that serves to support the basic network layer (macro sites) are not regarded as a land use matter. Land use approval is therefore not required. However, licencing should be implemented to ensure a regulated development approach. Provision should be made in the GIZSB to accommodate micro sites within all land use zones. The licencing of the micro site can see to it that the proposed infrastructure adheres to the following;

- (a) International Commission on Non-Ionizing Radiation Protection standards;
- (b) The Institute of Electronic Engineers Standards;
- (c) International Telecommunications Union’s recommendations on electromagnetic field limits;
- (d) The terms and conditions listed in Section 8 of the Electronic Communications Act (36 of 2005);
- (e) Compulsory report updates and EMF radiation transparency to all inhabitants of George (see subsequent point);
- (f) Documentation showing that transmitting power levels are in compliance with ICASA licence conditions;
- (g) Motivation of alternative options explored (cable and fibre optics); and
- (h) Optimal design of the proposed structure with minimal visual impact.

The role of the George Integrated Zoning Scheme By-Law is further discussed under Section F: Implementation.

Electronic Communications Act (36 of 2005)

The Electronic Communications Act (36 of 2005) and ICASA regulates all forms of base telecommunication station infrastructure and the issuing of approvals and licences. Documentation must be provided showing that transmitting power levels are in compliance with ICASA licence conditions. The frequency and other requirements of base telecommunication station infrastructure 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.

E. POLICY GAP ANALYSIS

The comprehensive principle of the Base Telecommunication Station Infrastructure Policy is to create a policy framework and establish procedural requirements which will facilitate the provision of base telecommunication station infrastructure, streamline the application process for both the applicants and the affected community while at the same time being cognisant of the existing base telecommunication station infrastructure resources already available within the Municipal area.

A gap analysis was undertaken to identify the challenges, shortcomings, and proposed solutions to ultimately consolidate all information within one uniform framework. During the review of existing municipal base telecommunication station infrastructure policies from the local government sphere of across South Africa, the following gaps were identified:

1. There was not clarity regarding guidelines, objectives, requirements and evaluation measures. These factors are intertwined within the policy creating confusion for the municipal officials as well as the service providers and their agents.
2. There was no clear indication of evaluation measures to assess applications. This is the main objective of establishing the policy, to provide guidelines and evaluation measures for municipal officials and to make it clear to consultants what measures to adhere to.
3. There were no clear guidelines, measures and requirements to assist an applicant in preparing and motivating land use applications for base telecommunication station infrastructure.
4. There was a lack of effective public participation guidelines which appeared to be a source of public discontent.

The policy structure was therefore formulated in the following manner:

Table 3: Policy Structure Example

Objectives	Evaluation Parameters	Requirements
<ul style="list-style-type: none">○ Objectives obtained to be in line with MSDF.	<ul style="list-style-type: none">○ Guiding the applicant/ how to comply with objective.○ Guiding the Municipality on how to assess the application.	<ul style="list-style-type: none">○ Application requirements for applicant.

With the structure of the policy defined, the contents of all existing policies were unravelled and categorised into objectives, evaluation parameters and requirements in accordance with the tabled above. In conclusion to the gap analysis, the following Policy Focus Areas were identified as themes relevant to the categories identified, namely: (i) Location; (ii) Site Selection; (iii) Co-

Location; (iv) Access; (v) Environmental; (vi) Heritage; (vii) Visual Impact; (viii) Public Health & Safety; (ix) Existing Infrastructure, Utilities & Services; and (x) Noise.

F. POLICY MEASURES

These categories are linked and grouped with the Objectives, Evaluation Parameters, and requirements to ultimately form the basis of the policy as follows:

Table 4: Policy Focus Area A: Location and Site Selection

Policy Focus Area A: Location and Site Selection		
Objectives	Evaluation Parameters	Requirements
<ul style="list-style-type: none"> Encourage the optimal site selection and location of base telecommunication station infrastructure so that there is maximum coverage and it has minimal impact on the surrounding land uses. Ensure that the identification of a site for base telecommunication station infrastructure has considered all the environmental, visual aspects as well as the impact on health, well-being and safety. Ensure that sites selected for base telecommunication station infrastructure are located in appropriate areas where such use of the site is compatible with adjacent land uses. 	<ol style="list-style-type: none"> No application for base telecommunication station infrastructure may be approved or permitted where there is a residential, educational or health facility within a 50-metre zone directly in front of the antennae. In the case of office buildings, no antenna or mast will be permitted where there are similar uses in adjacent buildings. <div data-bbox="636 414 1429 847" data-label="Diagram"> <p>5m occupational safety zone (no go)</p> <p>30m public safety zone (EME levels may be approaching ICNIRP public guidelines)</p> <p>17m</p> <p>50m</p> <p>Habitable Buildings</p> <p>50m public safety zone (EME readings must be below ICNIRP public exposure guideline)</p> </div> Wherever possible or feasible the location of base telecommunication station infrastructure should be located in industrial / commercial / business areas. Base telecommunication station infrastructure should be limited to 15m in residential areas. The use of existing structures to accommodate base telecommunication station infrastructure is encouraged e.g. power lines, rooftops, water towers, highway overpasses, bridges, tall buildings, utility poles, light masts, billboards and smokestacks where possible – provided that this does not conflict with any other relevant legislation. Base telecommunication station infrastructure should preferably be located within areas where they have the least visual impact. All possible site location alternatives should be explored early in the planning process to minimize visual impact rather than relying only on mitigation measures to reduce such impact. Wherever the integration of base telecommunication station infrastructure is not possible all measures must be taken to minimise the negative impact of this land use on the amenity of the surrounding area. 	<ol style="list-style-type: none"> The applicant shall provide a coverage plan to accompany the application to provide motivation in terms of coverage requirements. The Municipality may request a Site Acquisition Report (SAR) or similar document to accompany the application to provide proof of other possible locations for site selection and reasons why those sites were not pursued. In the case a site was not selected due to unfavourable technical site circumstances with the service provider/real estate company, the Municipality may require the relevant report to accompany the Site Acquisition Report. The Municipality may request comments from South African Civil Aviation Authority if deemed necessary. The Municipality may request comments from Western Cape Department of Education or Western Cape Department of Health if deemed necessary.

Table 5: Policy Focus Area B: Co-Location

Policy Focus Area B: Co-Location		
Objectives	Evaluation Parameters	Requirements
<ul style="list-style-type: none"> Ensure the co-location (co-use or sharing of) existing base telecommunication station infrastructure before a new site is approved to optimally use existing sites and minimise impact. 	<ol style="list-style-type: none"> Wherever possible the co-sharing of sites for the installation of base telecommunication station infrastructure shall be encouraged. Wherever possible new proposed FBTS is required to provide opportunity for co-sharing. New proposed base telecommunication station infrastructure within 500m of existing base telecommunication station infrastructure in urban areas, or 1000m in rural areas is not encouraged and must be motivated in terms of site specific circumstances. An application for base telecommunication station infrastructure shall present an analysis of the benefits of co-location which will be weighed up against any possible negative effects. The opportunity for co-location should not be considered as more important than other considerations identified by the Municipality, local communities or these guidelines. Such consideration could include:- <ul style="list-style-type: none"> Increasing the height of a support structure to accommodate other service providers which may result in a tower that becomes visually unacceptable; The potential for an increase in power output from one location; The physical and technical limitations of a telecommunication tower or antenna which may not be able to support additional infrastructure; and The location may not be suitable for the required planned coverage needed by a service provider. 	<ol style="list-style-type: none"> An application submitted to a Municipality shall indicate if the proposed base telecommunication station infrastructure, base tower or antenna is a shared or stand-alone facility and provide reasons for such decisions. An application submitted to a Municipality must include a structural design report to ensure proposed structures can accommodate additional service providers. An application submitted to a Municipality must include possible co-location sites as possible alternatives and motivate why the co-location is not sufficient and a new structure is required. An application submitted to the Municipality must include a locality map indicating all other base telecommunication station infrastructure within a 750m of the proposed base telecommunication station infrastructure.

Table 6: Policy Focus Area C: Visual Impact

Policy Focus Area C: Visual Impact		
Objectives	Evaluation Parameters	Requirements
<ul style="list-style-type: none"> Address the visual impact of base telecommunication station infrastructure on urban and rural landscapes. Prevent the visual impact of base telecommunication station infrastructures in natural environments, environmentally sensitive and landscape areas where tall structures located on high points can be intrusive. Encourage innovative design for base telecommunication station infrastructure and its ancillary uses. Promote the provision of appropriate landscaping in and around base telecommunication station infrastructure sites so that the amenity of the surrounding areas is not adversely affected. 	<ol style="list-style-type: none"> Wherever possible, the design and location of base telecommunication station infrastructure and associated ancillary land uses, building or containers should be designed so that they can be integrated into the surrounding land uses. The design and location of base telecommunication station infrastructure should be undertaken so that it minimises any potential negative visual impact on the character and amenity of the local environment including viewpoints e.g. prominent landscape features, general views in a specific locality and individual significant views. Base telecommunication station infrastructure located in residential areas must be located, designed and constructed so as to have a minimal impact on or to mitigate or avoid adverse impacts on the visual character and amenity of the area. Wherever possible or feasible, the design and attachment of base telecommunication station infrastructure to an existing building or support structure shall be undertaken in an integrated manner. Antennae shall not be attached to the side of a building in a haphazard fashion or protrude above the top or apex of the roof. It shall form an integral part of the building structure and conform to the building design and colour scheme. There are a number of design techniques which may be utilised to minimise the adverse visual impacts for rooftop base telecommunication station infrastructure, and these include: <ul style="list-style-type: none"> An adjustment to the overall size (height and scale); The use of colour or cladding materials to match adjacent walls, or to complementing a facade thereby maintaining visual balance and integrity; and The creation of an architectural feature such as a spire, column, finial or screening to minimise visibility of the facility from adjacent areas. Freestanding base telecommunication station infrastructure can also utilise design measures to address negative visual impact as outlined above, but may also consider:- <ul style="list-style-type: none"> An adjustment to the overall size (height, width and dimension); Specific colour coding to match the predominant background (e.g. sky, vegetation); The design of the infrastructure as a work of urban art; 	<ol style="list-style-type: none"> A service provider will need to motivate for the design of the support structure and indicate its applicability to the context of the site. Generally, the normative design for new base cellular towers is a slim line monopole in an urban context and a lattice mast in a rural context. A departure from the normative design must be motivated for as part of the application. The applicant shall provide a description of what measures are to be taken to improve the aesthetic impact of the telecommunication base tower or mast. Any application for the erection of a freestanding mast or antennae on the roof of a multi-storey building will show measures taken to reduce the visual impact of the mast including the location and siting of ancillary uses e.g. maintenance sheds or containers. Where necessary, an application may include a landscaping plan to demonstrate how the impact on the visual amenity has been addressed. An application for the establishment of new base telecommunication station infrastructure will include the specific design and mitigation measures undertaken to lessen the visual impact which will include the colour, cladding and camouflage used on site. If required, an applicant will have to submit an alternative design option for the establishment of the base telecommunication station infrastructure that has a lower visual impact on site, e.g. adjustment in height, type of structure (a monopole or lattice), measures undertaken to disguise the structure, the use of natural colour and/or locality. A Visual Impact Assessment may be requested from the applicant if the potential negative impact of the

Policy Focus Area C: Visual Impact		
Objectives	Evaluation Parameters	Requirements
	<ul style="list-style-type: none"> - Using stealth camouflage e.g. disguising the tower as another structure (e.g. a flagpole, a signpost, or a tree); - Matching or complementing a fencing style or type of roof pitch and repeating this design for the equipment room; and - Using stone cladding for the equipment room to compliment natural boulders or stones on site. <ol style="list-style-type: none"> 7. An equipment room or container, which has an ancillary use, should be enclosed with a wall or fence constructed of appropriate materials e.g. metal, stone, wood or brick. 8. Alternatively, an equipment room could be housed in a specifically designed building that matches the other buildings on the site. 9. Where a container is utilised as an equipment room on a rooftop, such a container shall be set back as far as possible from the edges of the roof so that it is not visible from street level. 10. Wherever it is possible, underground cables should be used unless it is impractical to do so and there is no significant effect on visual amenity. 11. The use of ridgelines for base telecommunication station infrastructure should be avoided. Especially on ridgelines visually observed from the N2 scenic corridor. 12. The use of appropriate sites with vegetation (trees), landforms or other features which will assist with the screening and reduce the visual impact of base telecommunication station infrastructure should be encouraged. 13. Where necessary, additional landscaping or the planting of trees shall be undertaken to reduce the visual impact of base telecommunication station infrastructure, the base tower and ancillary uses. In some instances, additional new tree line planting may be required to protect or screen the tower from more distant areas. Plants and trees shall be complementary to the natural vegetation and support biodiversity. 14. The obstruction of established viewpoints by base telecommunication station infrastructure e.g. significant vistas, important landmarks or any element of the cultural landscape should be avoided. 15. No commercial advertising or signage is allowed on base telecommunication station infrastructure unless it has been approved under the applicable bylaw of the Municipality. 16. Sites used for Base telecommunication station infrastructure should be lit. Such lighting should be screened, energy efficient and tilted downwards. 	<p>base telecommunication station infrastructure should warrant this additional information.</p> <p>(viii) Photographic examples of the proposed design of the base telecommunication station infrastructure may be requested as an additional element of an application.</p>

Policy Focus Area C: Visual Impact		
Objectives	Evaluation Parameters	Requirements
	<p>17. Where the lighting from base telecommunication station infrastructure has a negative impact on surrounding land uses, additional shielding for lights may be required in order to mitigate visual disturbance.</p> <p>18. Wherever possible the location of base telecommunication station infrastructure shall not interfere with a public viewing point or landscape view open to the public.</p> <p>19. In open areas, avoid placing base telecommunication station infrastructures in visually sensitive zones see “Factors affecting visual sensitivity in Appendix C, such as:</p> <ul style="list-style-type: none"> - On highly visible skyline locations, such as ridges and coastal promontories. - In stark open fields, particularly on hillcrests – rather relate the mast to other structures or clumps of trees in the area. <p>20. In instances where the negative visual impact or impact on the amenity of a base tower structure is such that it requires additional mitigation measures, a Municipality may, in its conditions of approval, require that the developer makes an optional positive contribution that would directly benefit the local community where the structure is located. Such mitigation measures may include greening interventions e.g., the planting of trees or the establishment of a community garden, hard and/or soft landscaping and/or the provision of public amenities (e.g., street furniture, lighting, benches / dustbins.)</p>	

Table 7: Policy Focus Area D: Environmental & Heritage

Policy Focus Area D: Environmental & Heritage		
Objectives	Evaluation Parameters	Requirements
<ul style="list-style-type: none"> Ensure that base telecommunication station infrastructure sites are developed with minimal disruption and removal of natural vegetation. Ensure that wherever possible base telecommunication station infrastructure is not located within an area of environmental or heritage significance. Ensure that if base telecommunication station infrastructure has to be located within an area of environmental or heritage significance, the necessary guidelines are available to mitigate its impact on the amenity and importance of these areas. Ensure that where base telecommunication station infrastructure is located adjacent to such environmentally sensitive areas or heritage sites, that its design and management is undertaken in such a manner that the integrity of the landscape or resource is not negatively impacted on in any way. Identify a typology of typical environmental, architectural and heritage sensitive sites which will require careful consideration in terms of mitigating impacts from base telecommunication station infrastructure. 	<ol style="list-style-type: none"> Wherever possible base telecommunication station infrastructure should not be erected in an area which has biodiversity, environmental or heritage significance. Base telecommunication station infrastructure attached to heritage buildings, buildings of architectural merit, or those buildings older than 60 years and subject to an Heritage application approval must be designed and located in such a manner as to preserve the integrity of the building. Where proposed base telecommunication station infrastructure is situated or a new power supply is required to support a base station site and excavation works are necessary, all alien vegetation shall be removed but no indigenous mature trees or vegetation may be affected. Applications for base telecommunication station infrastructure located on a listed site, in terms of NEMA regulations, will need to comply with those regulations for approval. In the construction of base telecommunication station infrastructure in environmentally sensitive areas, appropriate methods must be used to ensure that disruption to, and damage of, the natural habitat is minimised. Natural habitats disturbed during construction shall be rehabilitated by the service provider at their own cost and to the satisfaction of the Municipality and the provincial Department of Environmental Affairs and Development Planning (DEA&DP). Base telecommunication station infrastructure should when developed within or abutting an area of environmental or heritage significance be located and positioned on the property where it will have the least impact on the surroundings. An application for base telecommunication station infrastructure in or adjacent to areas that are environmentally sensitive or have heritage status, will need to comply with NEMA, this policy guideline and other requirements of the Municipality within which the site is located. (see Appendix B). All possible alternative site locations must be explored during the feasibility stage of the planning process with a view to minimizing the impact of the base telecommunication station infrastructure on such sensitive environments, rather than relying only on camouflage to reduce the impact. 	<ol style="list-style-type: none"> Where a new site for base telecommunication station infrastructure is proposed and the tower is 15 meters or more in height, compliance with the List 3 of the NEMA regulations, published in 2012, is required. For the construction of base telecommunication station infrastructure on sites that are environmentally sensitive or have a heritage status, a site plan/landscape plan will be provided indicating the natural vegetation and how it is to be retained or rehabilitated or re-planted. Where an application indicates the proposed removal of trees or vegetation from a site, it must also provide a strategy for the potential relocation of adult trees to alternative sites and the replanting of natural vegetation in the post construction phase. An application must demonstrate what consideration has been given to the environmental impact of the base telecommunication station infrastructure on the site and what remedial measures are to be taken to address any adverse impacts of the proposal. An Environmental Management Programme (EMPr) including rehabilitative strategies for the site can be requested from an applicant or service provider as an additional component of an application and can include any ancillary works or access roads.

Table 8: Policy Focus Area E: Access, Existing Infrastructure, Services & Utilities

Policy Focus Area E: Access, Existing Infrastructure, Services & Utilities		
Objectives	Evaluation Parameters	Requirements
<ul style="list-style-type: none"> Ensure that base telecommunication station infrastructure is located and operated in a manner so as not to interfere with any other service or utility functions. 	<ol style="list-style-type: none"> Direct vehicle access to freestanding base telecommunication station sites are encouraged. Where the construction of new access roads is required to service a free-standing base telecommunication station infrastructure site, such roads will be appropriately landscaped with plants, trees and/or ground covers. Additional landscaping may be required in areas in and around the site that is not within the freestanding tower site itself. Wherever possible the use of an underground electricity supply is to be used to provide for base telecommunication station infrastructure and meet ESKOM/ municipal supply, operational and safety standards. Base telecommunication station infrastructure sites located on roof tops shall have their electrical cabling placed in a properly sealed metal channelling. The use of green energy sources e.g. wind and solar power, where the current electricity supply is inadequate, should be considered. Public access to base telecommunication station infrastructure sites (base towers and roof top installations) is to be restricted through the installation of appropriate safety measures as stipulated in Public Health & Safety Guidelines. Redundant infrastructure not utilized for telecommunication purposes must be removed and rehabilitated. See General policy measure No. 8. 	<ol style="list-style-type: none"> An application for base telecommunication station infrastructure must address access to the infrastructure including arrangements, ROW, etc. An application for base telecommunication station infrastructure must address what security measures are to be put in place to prevent the unauthorised access to the base telecommunication station infrastructure, base tower or antenna located on the roofs of buildings. This will include safety doors, fencing, secured access points and warning notices on site, in buildings and along access roads. All necessary safety measures shall be provided to ensure that no member of the public or unauthorised person shall be able to gain access to rooftop antennae or come within 5 meters thereof. An application for the establishment of base telecommunication station infrastructure shall include a review of potential conflict with other infrastructure and how this has been addressed by the service provider.

Table 9: Policy Focus Area F: Public Health, Noise & Safety.

Policy Focus Area F: Public Health, Noise & Safety.		
Objectives	Evaluation Parameters	Requirements
<ul style="list-style-type: none"> Outline a set of normative measures required for base telecommunication station infrastructure to ensure that the health, well-being and safety of the residents are protected. Encourage the use of alternative green energy production, e.g. wind turbines to support base telecommunication station infrastructure where possible depending on the location and noise impact. Reduce the levels of noise emitted by a base telecommunication station infrastructure site, where energy production is reliant on generators, through the installation of noise reduction panels. 	<ol style="list-style-type: none"> Where necessary, appropriate precautionary measures, preventive action and reactive investigation and remedial measures may be needed to address EMR levels above acceptable levels of safety. All antennae will need to be constructed and positioned so that no habitable structures are within a zone of 50 meters directly in front of them at the same height. No base telecommunication station infrastructure may be placed on the roof of a building that is lower than the surrounding buildings Once a base telecommunication station infrastructure site is operational, the Municipality may request an independent test be carried out by a certified company to ensure that the EMR levels emitting from that site are compliant with (ICNIRP) guidelines for public safety. The cost of carrying out such tests shall be borne by the service provider. Service providers submitting an application to the Municipality for base telecommunication station infrastructure will ensure that at no time will the public be exposed to EMR levels that exceed the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines or those prescribed under other policies or national legislation for public exposure. Base telecommunication station infrastructure will not be permitted on educational or health facility sites unless there is adequate safety zone distances between the antennae and the buildings that ensure the safety of users (e.g. 50 meters from classrooms, playing fields, offices, consulting rooms.) This parameter is subject and may change based on the relative department's comments on the proposal. E.g. Education and Health. 	<ol style="list-style-type: none"> An application for base telecommunication station infrastructure which requires power from a generator must indicate whether the use of green technology is possible, and if not, what measures are to be taken to prevent the negative impact on the amenity of the surrounding area through noise abatement measures. An application for the installation of base telecommunication station infrastructure that requires a generator for power must include the mitigation measures taken to reduce noise. The Municipality may request service providers of base telecommunication station infrastructure to include in their application an additional form which confirms their adherence to ICNIRP Public Exposure Guidelines. The Municipality may request service providers of base telecommunication station infrastructure to include a safety zone plan indicating the extent of EMR from the mast for a delineated area of 50 to 500 meters. When required in terms of point (iv) the safety zone plan shall indicate both the central and side EMR radiation beams and where there are more than two antennae (e.g. on shared towers) will illustrate the full extent of the EMR from all antennae mounted on the mast. When required in terms of point (iv & v) the safety zone plan shall indicate distances on a Site plan as part of the application. A notice not larger than 400 mm x 500 mm in size shall be erected on all sites where base telecommunication station infrastructure and antennae are constructed and shall include warnings to the general public in writing and pictogram format.

G. IMPLEMENTATION

The Base Telecommunication Station Infrastructure Policy will be effective from the date it is approved by Council and will not be applied retrospectively to applications that are already in the system. The Policy will be applied within the Municipality's existing development application process and will need to be considered by officials in the assessment of development applications.

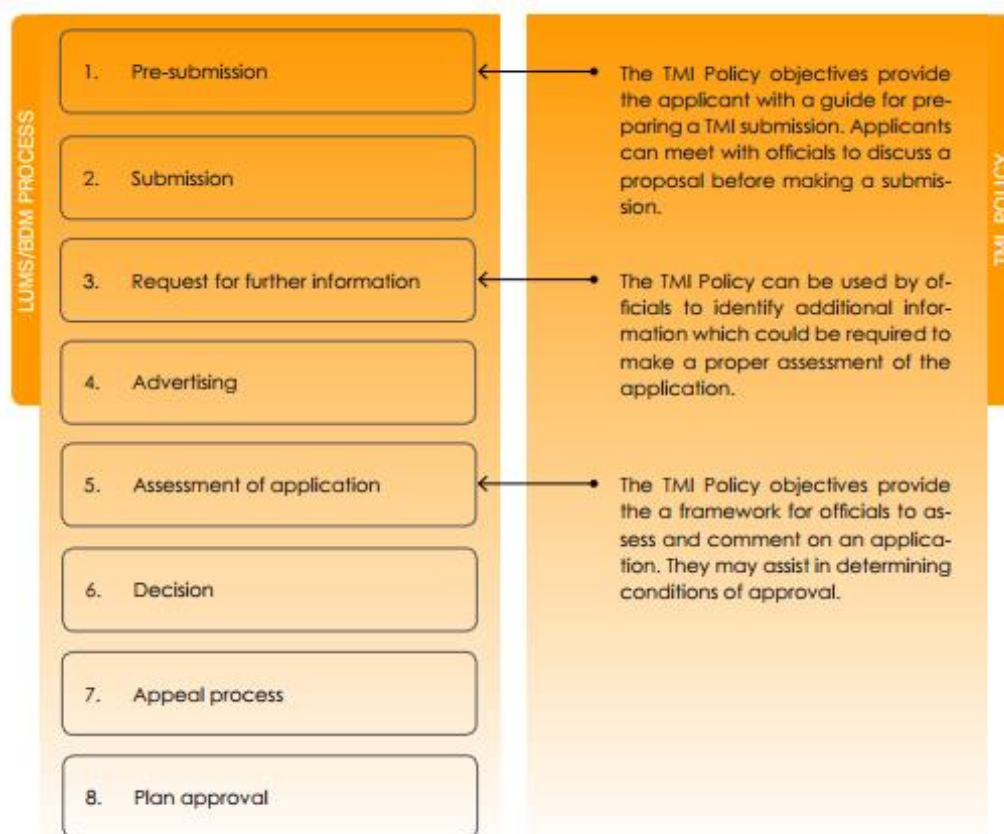
It is the applicant's responsibility to ensure that where parallel processes are required in terms of other legislation, these processes are integrated as far as possible and to ensure that design measurements are considered in order to streamline all levels of approvals and minimise risk.

Application Process

The applications process will be done in accordance with the guidelines for compilation and submission of a land use applications in terms of Section 15(2) of the Land Use Planning By-law for George Municipality, 2015 dated August 2021. An illustration of the process is depicted below.

Note: 'TMI Policy' in the diagram below refers to the George Municipality: Town Planning Policy on Base Telecommunication Infrastructure.

Figure 2: Land Use Planning Process



General Policy measures

The following general policy measures are proposed for base telecommunication station infrastructure applications throughout the George Municipality:

1. When applying for the establishment of a freestanding or rooftop base telecommunication station infrastructure, applicants shall submit to the Municipality a detailed motivation report which addresses the following matters, over and above the requirements stated in the Municipality's application submission guidelines:

- i. The proximity to other development, including, importantly, residential;
 - ii. The possibility of using other appropriate structures;
 - iii. The current state and usage of the site;
 - iv. The aesthetic compatibility with surrounding land uses;
 - v. The proximity of the base telecommunication station infrastructure to other communication installations;
 - vi. The proximity of the site to sensitive environment areas, wilderness areas, nature reserves, ecotourism destinations, nature conservation areas or biodiversity reserves; and
 - vii. The proximity of the proposed base telecommunication station infrastructure to air fields and airports.
2. The application shall include the programme for consultation with interested and affected parties.
3. The application for base telecommunication station infrastructure shall include a locality plan showing adjacent land uses.
4. Applications for base telecommunication station infrastructure shall comply with the relevant requirements of the National Environmental Management Act (Act No. 62 of 2008) and EIA Regulations.
5. Any application for the establishment of base telecommunication station infrastructure in the form of a Lattice Tower will need to provide documentation and a detailed plan indicating that the facility is compliant with the requirements of the White Paper on Telecommunications 1996 as regulated by the Electronic Communications Act (Act No. 36 of 2005), the National Building Regulations and any other relevant legislation, bylaws and municipal policy guidelines.
6. An application for the establishment of base telecommunication station infrastructure shall indicate whether it is a shared or stand-alone facility.
7. An application shall provide a natural rehabilitation and maintenance plan for the post construction phase of the base telecommunication station infrastructure site and surrounding area.
8. A condition of approval for base telecommunication station infrastructure should be included for the removal of the infrastructure once it is redundant/ deserted or decommissioned for a period longer than 1 year.
9. All land use applications are subject to:
 - (a) A comprehensive public participation process, as per regulations of the Land Use Planning By-law of George Municipality;
 - (b) A visual analysis of the proposed structure and potential visual impacts;
 - (c) Compliance with George Integrated Zoning Scheme By-Law;
 - (d) Compliance with National Building Standards and Building Regulations Act 103 of 1977;
 - (e) Compliance with Electronic Communications Act (36 of 2005);
 - (f) Compliance with Hazardous Substances Act (Act 15 of 1973);
 - (g) Compliance with National Environmental Management Act (Act 107 of 1998 as amended), where applicable;
 - (h) Compliance with National Heritage Resources Act (Act 25 of 1999), where applicable;
 - (i) Compliance with International Commission on Non-Ionizing Radiation Protection standards; and
 - (j) Documentation showing that transmitting power levels are in compliance with ICASA licence conditions.

George Integrated Zoning Scheme, 2017 Compliance

Each application received for a base telecommunication station infrastructure should be assessed on merit and consider the site-specific (not in terms of SPLUMA S22) circumstances which may arise.

Compliance with the following definitions and descriptions are compulsory:

Table 10: Land use descriptions of telecommunication stations

Type of Telecommunication Station	Referred to in GIZSB as	Land Use Description as per GIZSBL
Freestanding Base Telecommunication Station	FBTS	A freestanding support structure on land or anchored to land and used for base telecommunication station infrastructure to transmit or receive electronic communication signals and may include any access roads to such facility.
Rooftop Base Telecommunication Station	RBTS	A support structure attached to the roof, side or any part of a building and used to accommodate base telecommunication station infrastructure for the transmitting or receiving of electronic communication signals.

The GIZSB permits freestanding base telecommunication stations and rooftop base telecommunication stations as primary uses or consent uses in accordance with Table 11 below.

Table 11: Summary of zones that allow base telecommunication station infrastructure as primary use or consent use.

Zoning	Primary Use	Consent Use	
		Freestanding	Rooftop
Agricultural Zones			
Agricultural Zone I	-	FBTS	-
Agricultural Zone II	-	FBTS	RBTS
Agricultural Zone III	-	FBTS	RBTS
Single Residential Zones			
Single Residential Zone I	-	-	-
Single Residential Zone II	-	-	RBTS
Single Residential Zone III	-	-	-
General Residential Zones			
General Residential Zone I	-	-	-
General Residential Zone II	-	-	-
General Residential Zone III	-	-	-
General Residential Zone IV	-	-	RBTS
General Residential Zone V	-	-	-
General Residential Zone VI	-	-	RBTS
Business Zones			
Business Zone I	RBTS	FBTS	-
Business Zone II	-	FBTS	RBTS
Business Zone III	-	-	-
Business Zone IV	-	-	RBTS
Business Zone V	-	-	RBTS
Industrial Zones			
Industrial Zone I	-	-	RBTS
Industrial Zone II	RBTS, FBTS	-	-
Industrial Zone III	RBTS, FBTS	-	-
Industrial Zone IV	-	-	-
Community Zones			
Community Zone I	-	FBTS	RBTS
Community Zone II	-	-	RBTS
Community Zone III	-	-	RBTS
Resort Zones			
Resort Zone	-	FBTS	RBTS
Open Space Zones			
Open Space Zone I	-	-	-

Open Space Zone II	-	-	-
Open Space Zone III	-	FBTS	RBTS
Open Space Zone IV	-	FBTS	RBTS
Transport Zones			
Transport Zone I	-	-	-
Transport Zone II	-	-	-
Transport Zone III	-	-	-
Utility Zone	RBTS, FBTS	-	-

Note: The Municipality is in the process of amending the GIZB (2017) and thus, the table must be updated when the amended GIZB (2023) is adopted.

Any base telecommunication station infrastructure which is erected in contravention of approval given by the Municipality may be required to be rectified in terms of a notice served on the landowner or telecommunication provider, as deemed necessary.

Public Participation & Visual Impact Compliance

Public participation in terms of base telecommunication station applications must be conducted in terms of the Municipality's public participation guidelines issued in terms of the Land Use Planning By-law for George Municipality, 2015. In circumstances where the public may be influenced by extensive visual impact or health effects, an APE (Area of Potential Effect) may be implemented by the Municipality.

APE's referred to in this policy document are designated to assess potential visual impacts to scenic resources such as publicly travelled ways, scenic landscapes and corridors, scenic drives, rural and natural vistas or landscapes, waterbodies, or public land, including parks, squares, beaches, and protected areas; as well as heritage resources (buildings, sites and complexes).

Assessment of potential impacts to heritage resources is a separate process, conducted with advice from the officials and may require surveying existing structures within a larger or smaller area, depending on site characteristics.

EXPLANATORY NOTE:

Areas of Potential Effect.

The APE is an established distance from the proposed base telecommunication station infrastructure, in all directions, within which the Municipality will request an assessment on potential visual impacts. Generally, the APE determines where the applicant should search for public resources that potentially could have a view of the proposed base telecommunication station infrastructure. Larger or smaller APEs may be appropriate depending on the characteristics of a proposed facility. The height, design, and location of the proposed structure can be used to approximate likely visual impacts, but each proposal is different and there are some factors that can affect how large an APE the Municipality may recommend. No matter the size of the APE, its outer limit should not be a "hard line". If a significant public resource exists just outside of the APE, then the applicant's methodology should also include consideration of potential visual impacts on that resource.

In some instances, there may be reason to change the size of the APE due to specific characteristics of the proposal. For Factors that may influence potential visual impacts and the size of the APE please refer to **Appendix C**.

Requirements for submission of Land Use Applications

The LUP By-law as well as the Municipality's application submission and PPP guidelines sets the minimum requirements for submitting land use applications, procedures that must be followed in processing a land use application, the general considerations that must be considered when deciding on an application, and the procedure for addressing illegal land uses and buildings. Other

requirements as indicated in this policy or requested by the Municipality must accompany the land use application.

Review

- i. The telecommunication infrastructure industry, as a primary stakeholder of the development of the infrastructure, must realise and accept their role in the development, and consequently, the procedures pertaining to it, of said infrastructure.
- ii. As this is the first policy of its kind in South Africa, the effectiveness thereof in facilitating land use application processes and decision-making must be monitored over at least 18 months. The Policy will also need to be updated on the release of the WCG guidelines for base telecommunication station infrastructure.
- iii. The Policy should be reviewed every five years thereafter.

H. Appendixes

The policy includes Appendixes that contains supplementary material that is not an essential part of the text itself, but which may be helpful in providing a more comprehensive understanding of the policy content or information that is too cumbersome to be included in the body of the paper.

The appendixes are listed as follows:

APPENDIX A – Policy Illustration Guidelines

APPENDIX B – Typical Areas of Environmental and Heritage Significance

APPENDIX C – Factors affecting visual Impact

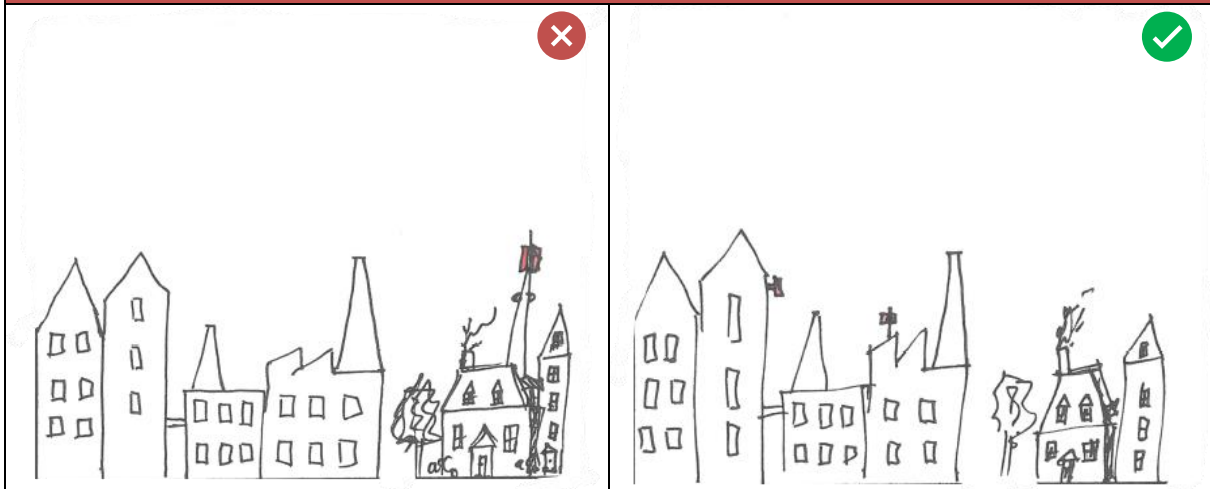
APPENDIX D – Types of Telecommunications Infrastructure

APPENDIX E – Understanding Health Concerns.

APPENDIX A – Policy Illustration Guidelines

The following section will assist and illustrate the guidelines and requirements as indicated in Section F of the Policy.

Policy Focus Area A: Location & Site Selection



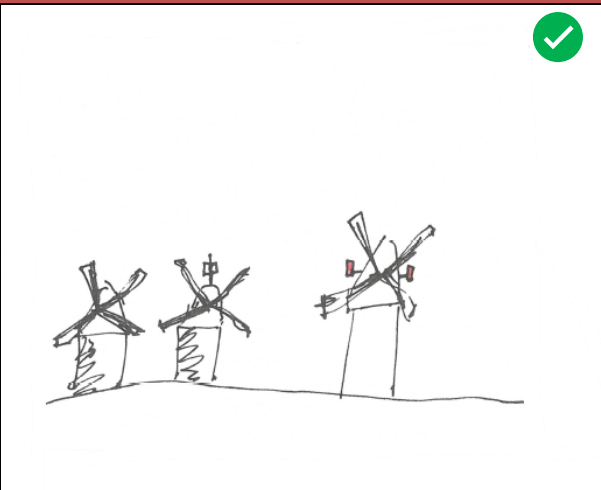
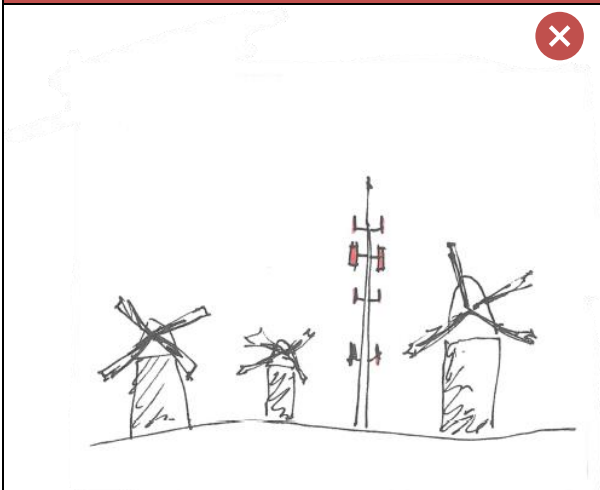
Evaluation Parameter 2: Wherever possible or feasible the location of base telecommunication station infrastructure should be located in industrial / commercial/ business areas. Base telecommunication station infrastructure will be limited to 15m in height in residential areas.

Policy Focus Area A: Location and Site Selection



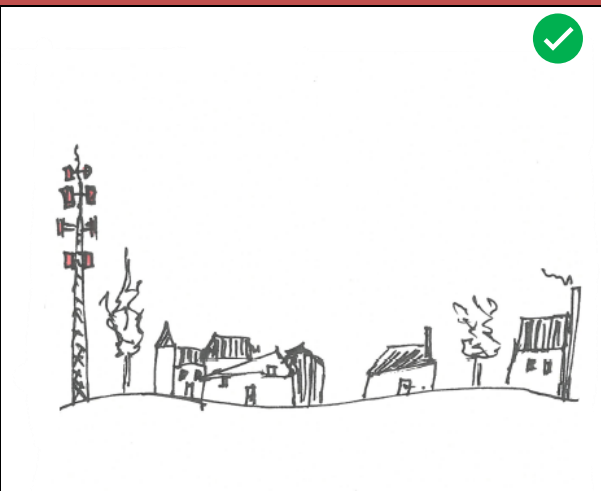
Evaluation Parameter 3: Where possible the use of existing structures to accommodate base telecommunication station infrastructure is encouraged

Policy Focus Area A: Location and Site Selection



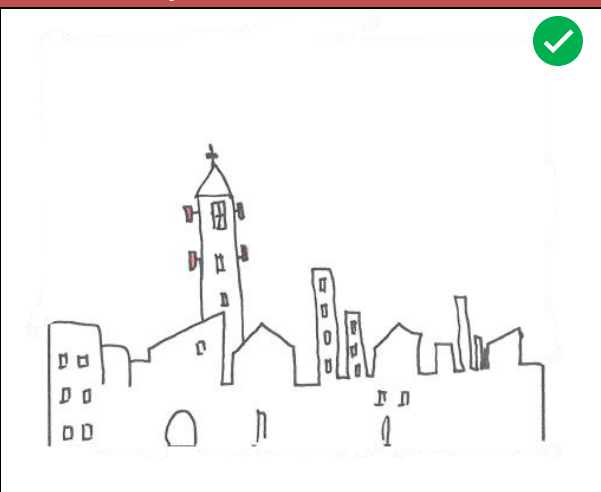
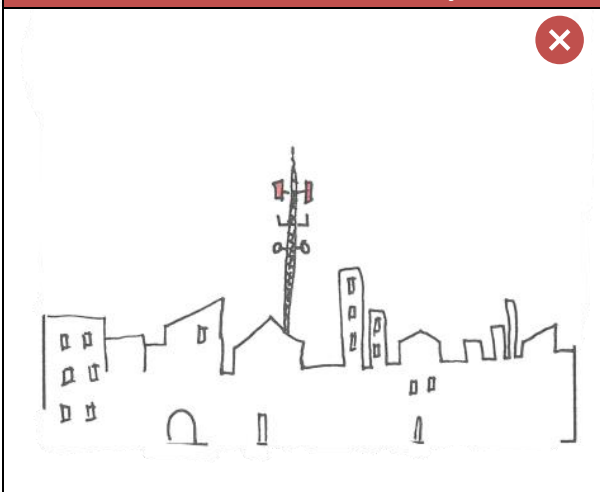
Evaluation Parameter 4: Subject to all other relevant criteria base telecommunication station infrastructure should preferably be located within areas where they have the least visual impact.

Policy Focus Area B: Co-Location



Evaluation Parameter 2: Wherever possible the co-sharing of sites for the installation of base telecommunication station infrastructure shall be encouraged.

Policy Focus Area C: Visual Impact



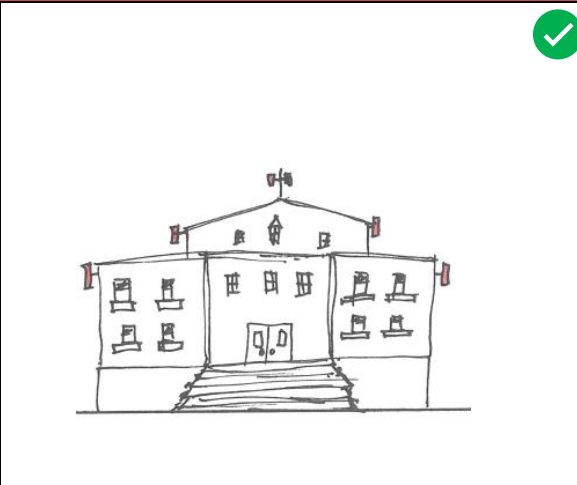
Evaluation Parameter 1: Wherever possible, the design and location of base telecommunication station infrastructure and associated ancillary land uses, building or containers should be designed so that they can be integrated into the surrounding land uses.

Policy Focus Area C: Visual Impact



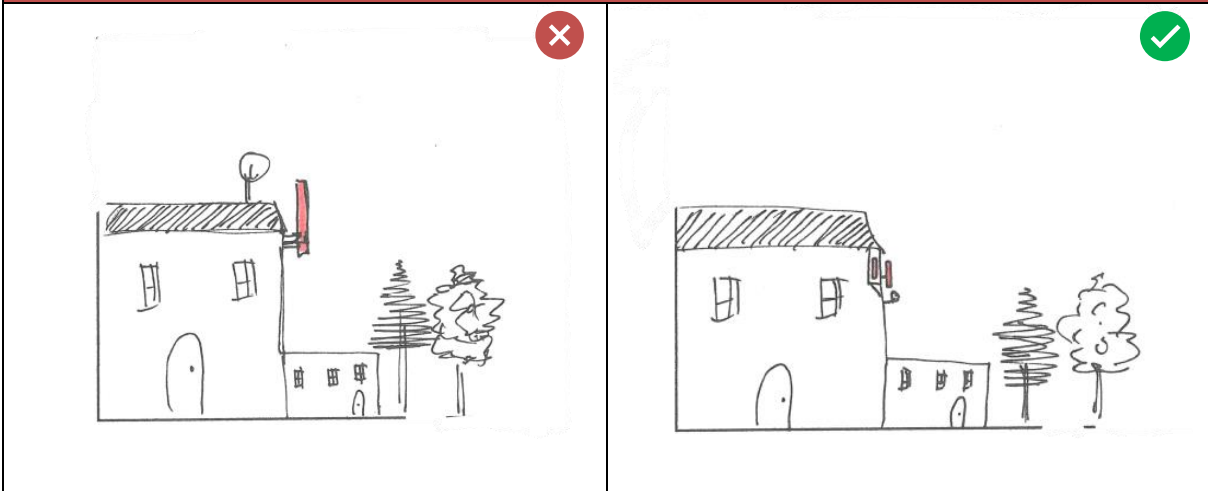
Evaluation Parameter 3: Base telecommunication station infrastructure located in residential areas must be located, designed and constructed so as to have a minimal impact on or to mitigate or avoid adverse impacts on the visual character and amenity of the area.

Policy Focus Area C: Visual Impact



Evaluation Parameter 4: Wherever possible or feasible, the design and attachment of base telecommunication station infrastructure to an existing building or support structure shall be undertaken in an integrated manner. It shall form an integral part of the building structure and conform to the building design and colour scheme.

Policy Focus Area C: Visual Impact



Evaluation Parameter 5: There are a number of design techniques which may be utilised to minimise the adverse visual impacts for rooftop base telecommunication station infrastructure, and these include:

- An adjustment to the overall size (height and scale);
- The use of colour or cladding materials to match adjacent walls, or to complementing a facade thereby maintaining visual balance and integrity; and
- The creation of an architectural feature such as a spire, column, finial or screening to minimise visibility of the facility from adjacent areas.

Policy Focus Area C: Visual Impact



Evaluation Parameter 6: Free standing base telecommunication station infrastructure can also utilise design measures to address negative visual impact as outlined above, but may also consider:-

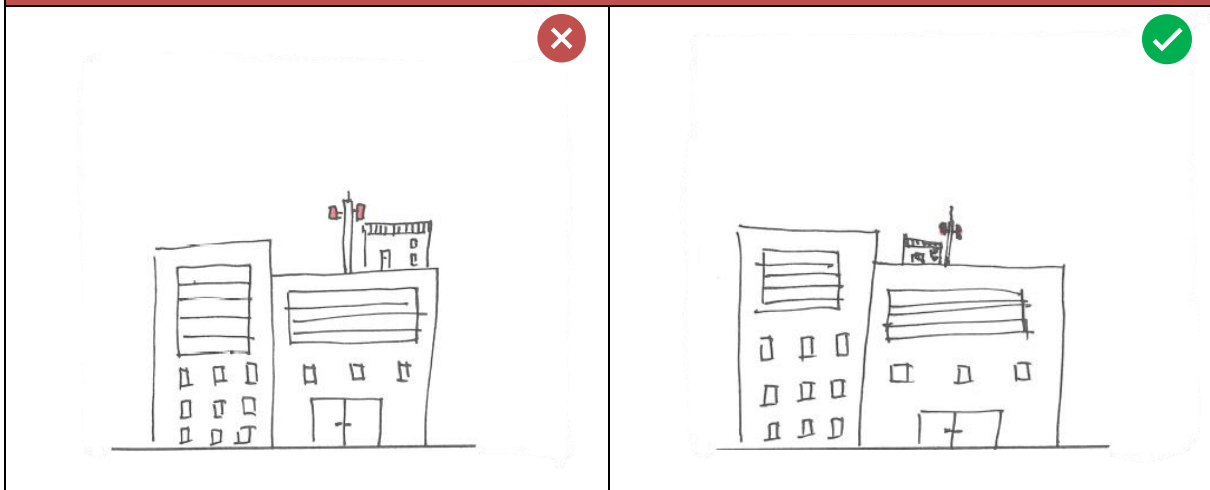
- An adjustment to the overall size (height, width and dimension);
- Specific colour coding to match the predominant background (e.g. sky, vegetation);
- The design of the infrastructure as a work of urban art;
- Using stealth camouflage e.g. disguising the tower as another structure (e.g. a flagpole, a signpost, or a tree);
- Matching or complementing a fencing style or type of roof pitch and repeating this design for the equipment room; and
- Using stone cladding for the equipment room to compliment natural boulders or stones on site.

Policy Focus Area C: Visual Impact



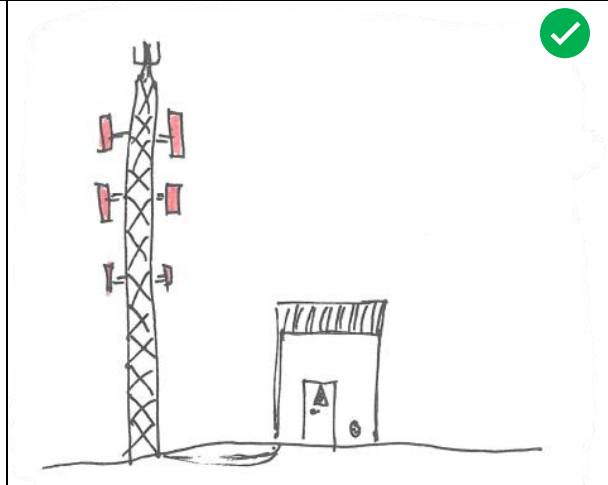
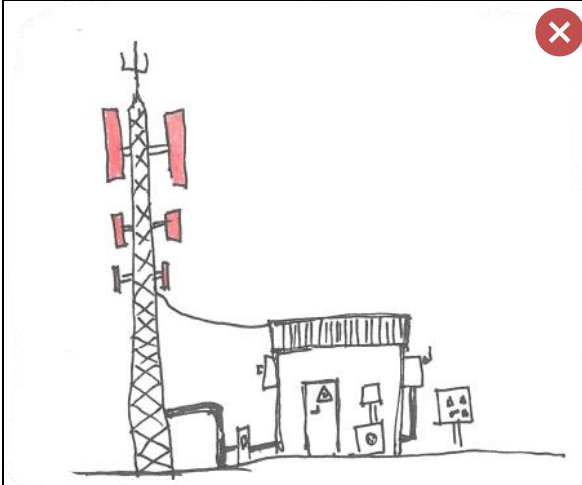
Evaluation Parameter 7: An equipment room or container, which has an ancillary use, should be enclosed with a wall or fence constructed of appropriate materials e.g. metal, stone, wood or brick.
Evaluation Parameter 8: Alternatively, an equipment room could be housed in a specifically designed building that matches the other buildings on the site.

Policy Focus Area C: Visual Impact



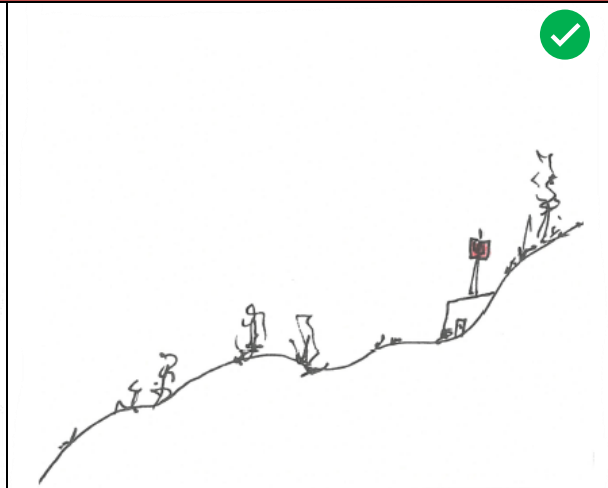
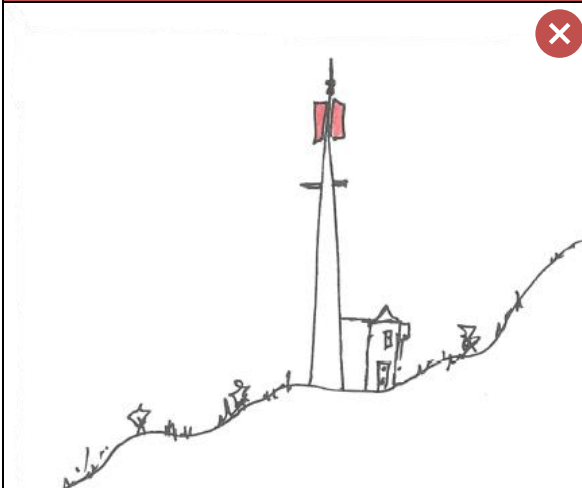
Evaluation Parameter 9: Where a container is utilised as an equipment room on a rooftop, such a container shall be set back as far as possible from the edges of the roof so that it is not visible from street level.

Policy Focus Area C: Visual Impact



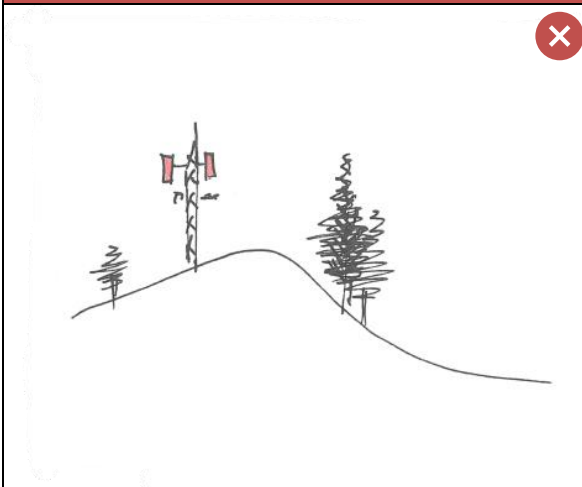
Evaluation Parameter 10: Wherever it is possible, underground cables should be used unless it is impractical to do so and there is no significant effect on visual amenity.

Policy Focus Area C: Visual Impact



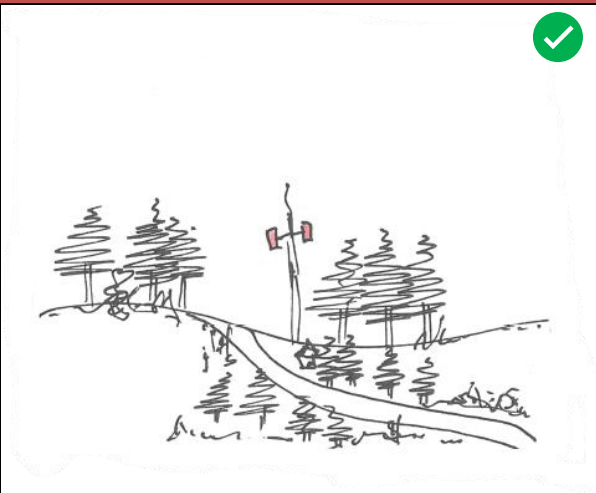
Evaluation Parameter 11: The use of ridgelines for base telecommunication station infrastructure should be avoided. Especially on ridgelines visually observed from the N2 scenic Corridor.

Policy Focus Area C: Visual Impact



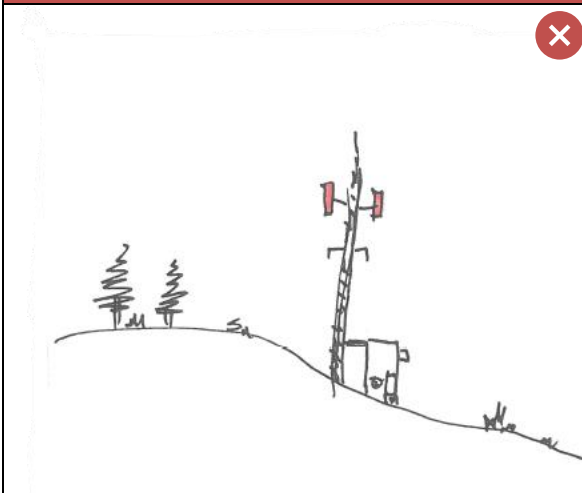
Evaluation Parameter 12: The use of appropriate sites with vegetation (trees), landforms or other features which will assist with the screening and reduce the visual impact of base telecommunication station infrastructure should be encouraged.

Policy Focus Area C: Visual Impact



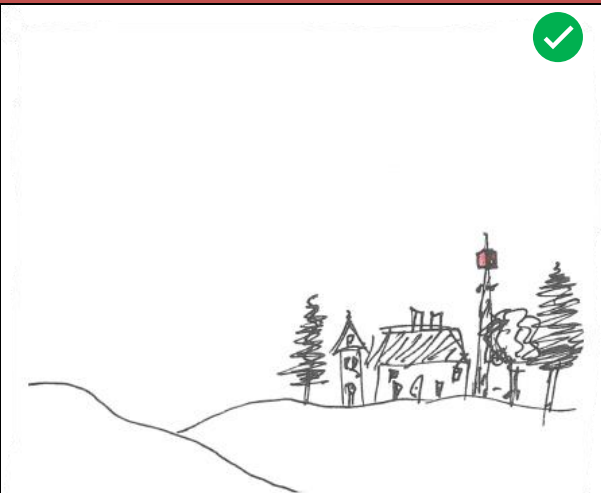
Evaluation Parameter 13: Where necessary, additional landscaping or the planting of trees shall be undertaken to reduce the visual impact of base telecommunication station infrastructure, the base tower and ancillary uses.

Policy Focus Area C: Visual Impact



Evaluation Parameter 14: The obstruction of established viewpoints by base telecommunication station infrastructure e.g. significant vistas, important landmarks or any element of the cultural landscape should be avoided.

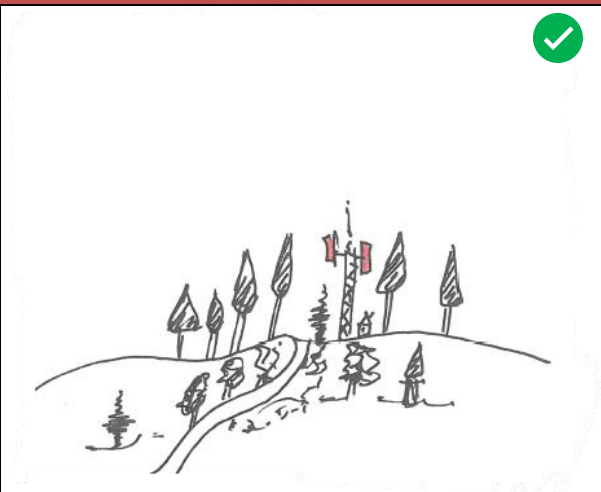
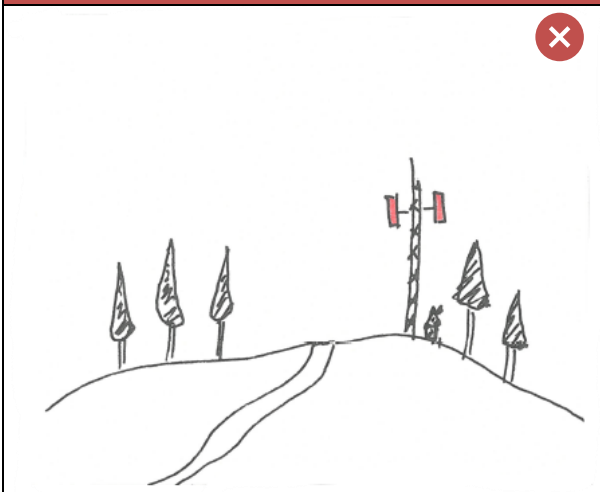
Policy Focus Area C: Visual Impact



Evaluation Parameter 18: Wherever possible the location of base telecommunication station infrastructure shall not interfere with a public viewing point or landscape view open to the public.

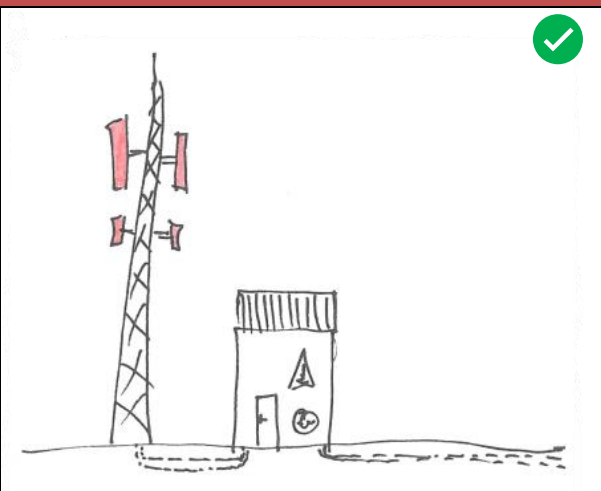
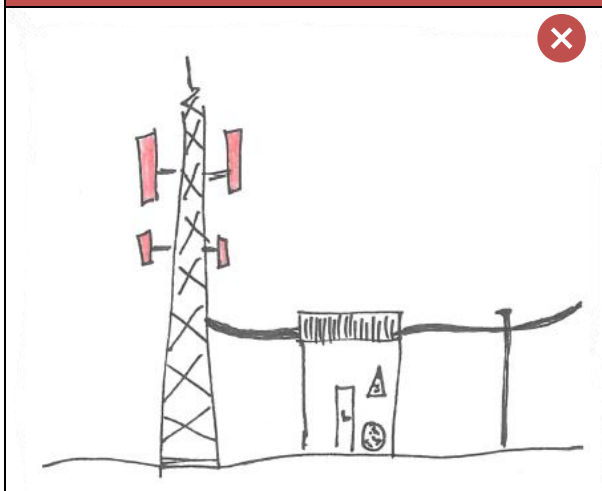
Evaluation Parameter 19: In open areas, avoid placing base telecommunication station infrastructures in visually sensitive zones see such as in stark open fields, particularly on hillcrests – rather relate the mast to other structures or clumps of trees in the area.

Policy Focus Area E: Access, Existing Infrastructure, Services & Utilities



Evaluation Parameter 2: Where the construction of new access roads is required to service a freestanding base telecommunication station infrastructure site, such roads will be appropriately landscaped with plants, trees and/or ground covers. Additional landscaping may be required in areas in and around the site that is not within the freestanding tower site itself.

Policy Focus Area E: Access, Existing Infrastructure, Services & Utilities



Evaluation Parameter 3: Wherever possible the use of an underground electricity supply is to be used to provide for base telecommunication station infrastructure and meet ESKOM/ Municipal supply, operational and safety standards.

Policy Focus Area E: Access, Existing Infrastructure, Services & Utilities



Evaluation Parameter 7: Redundant infrastructure not utilised for telecommunication purposes must be removed and rehabilitated. See General policy measure No. 8.

APPENDIX B - Typical Areas of Environmental and Heritage Significance

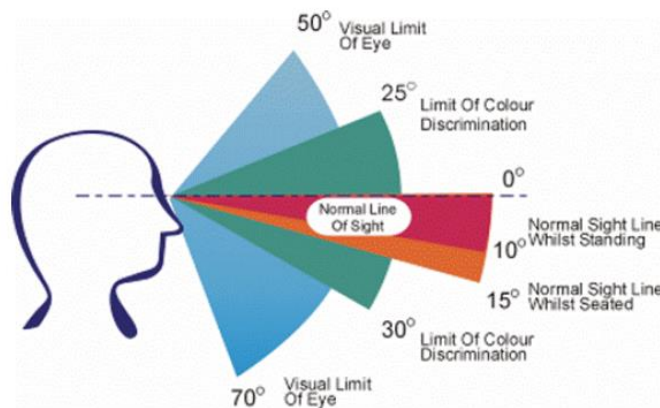
1. Land zoned Public Open Space or Conservation ;
2. Large Boulders / rocky outcrops on the site;
3. Site abutting Vacant / Open space / public passage;
4. Site abutting or is within a conservation / nature area or place with Provincial / Local protection / status.;
5. River/stream/drainage channel on or within 32 metres of the site;
6. Wetland/dam/water body/marshy area/high water table on or within 32 metres of the site;
7. A site that naturally stays filled with water in wintertime;
8. The floodplain of a river / wetland (within 1:50 year flood line/ 1:100 year flood line);
9. Coastline / beach / or within 100m of the high water mark of the sea;
10. Coastal dunes, coastal forests / thickets on the site;
11. Estuaries;
12. A site outside or abutting the urban edge or constituting the last row of properties on a mountainside, rural / smallholding edge or a horticultural area;
13. Steep slopes (>1:4);
14. Site abuts / is within a scenic drive / reserve;
15. Significant tourism gateways / viewing platforms /vantage points / vistas;
16. Tree lined avenues or similar historical plantings on site (tree avenues/hedges) used on farmlands to delineate boundaries and road servitudes;
17. Mature indigenous and alien trees on site with a trunk circumference of both of an adult's arm's length;
18. Cultural landscapes, historic farms, historical plantings on site (tree avenues/hedges);
19. Existing Buildings / any part of a structure older than 60 years;
20. Existing building or site which is an old National monument, or a provincial heritage site identified in terms of the Western Cape Heritage.
21. A declared / proposed urban conservation area or heritage area / zone;
22. Special Areas or Protected Areas;
23. Surveyed heritage areas e.g. battle grounds;
24. Graves / burial grounds / cemeteries on the site; and,
25. A place of known social / cultural significance, for example, certain places of worship, a male initiation site, rain making sites, a place of oral traditions/stories/legends, or struggle history.

APPENDIX C – Factors affecting visual Impact

New communication towers generally need to be taller than their surroundings to provide adequate coverage. As a consequence, communication towers stick out and can potentially disrupt or alter views. The design and location of proposed communication facilities can greatly influence what kind of visual impacts are likely from a proposed facility. A simple assessment of

A person's natural or normal line of sight is normally a 10° cone of view below the horizontal and, if sitting, approximately 15°.

the visual impact of a 12m building considering only a 5% of the cone of view is illustrated below
Vertical field of view



Objects, which take up 5% of this cone of view ($5\% \text{ of } 10^\circ = 0.5^\circ$) would only take up a small proportion of the vertical field of view and are only visible when one focuses on them directly. Objects that take up such a small proportion of the vertical view cone are not dominant, nor do they create a significant change to the existing environment when such short objects are placed within a disturbed or man-modified landscape.

Table 12: Visual Impact Based on Vertical Field of View

Vertical Line of Sight	Impact	Distance from an Observer to a 12m high building
< 0.5° of vertical angle	<u>Insignificant</u> A thin line in the landscape.	>1.3km
0.5° – 2.5° of vertical angle	<u>Potentially noticeable</u> The degree of visual intrusion will depend on the development's ability to blend in with the surroundings.	275m-1.3km
> 2.5° of vertical angle	<u>Visually evident</u> Usually visible, however the degree of visual intrusion will depend of the width of the object and its placement within the landscape.	<275m

General influence on visual impact and APE (Area of Potential effect) include:

Presence of scenic resources.

If there are unlikely to be sensitive shorelines, recreational or community resources, or other similar features nearby, then the Municipality may require a smaller APE. However, if a project is located near sensitive shorelines and other recreational or community resources, then the Municipality may require a larger APE.

Design characteristics.

Generally, the smaller a proposed tower, considering height, mast width, and construction materials, the less visually disruptive it is likely to be. If the proposed design would lead to greater visibility than a typical communication tower, then the Municipality may request a larger APE. If a tower is intended to be temporary, then a smaller APE may be sufficient to assess potential visual impacts.

Landscape type.

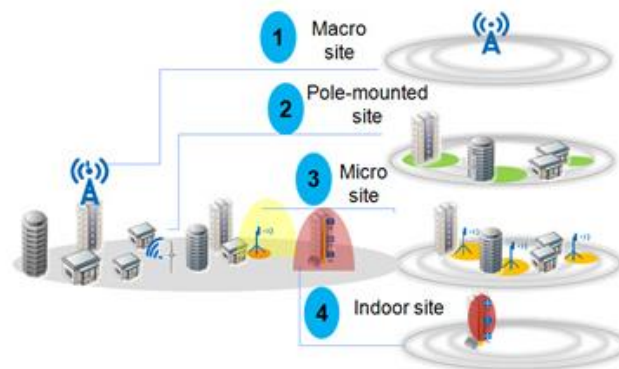
A communications tower proposed in a natural setting, which may be clearly visible due to its design or lack of vegetative screening, may contrast significantly with its undeveloped surroundings and have greater visual impact on the scenic character of the area than a similar tower in a developed setting. Therefore, the Municipality may designate a larger APE in order to fully assess potential views of some towers from nearby publicly travelled ways, waterbodies, or public lands. In more developed settings, a new tower that may be visible from publicly travelled ways, waterbodies, or public lands may contrast less with its already developed surroundings and so a smaller APE may be more appropriate for some towers.

APPENDIX D - Types of Telecommunications Infrastructure

The emerging 5G mobile services are inevitable and are developing at a rapid pace. A fixed service called “5G at Home” became the first available commercial network in Africa in September in 2019 in Johannesburg and Tshwane. The service provider is planning to extend to Cape Town, Durban and other areas within 2020. 5G can rely on higher radio frequencies, meaning the networks have to be denser than previous-generation networks, which only exacerbates challenges of building enough base telecommunication station infrastructure to provide adequate coverage.

Multi-layer Network

5G requires a multi-layer network that makes use of macro sites, pole-mounted sites, micro sites (or cell towers) and indoor sites. Macro towers will consist of a mixture between 4G and 5G antennas below is an illustration of the multi-layer network that drives the 5G evolution.



5G multi-layer network (Source: EMF SA, 2019)

The macro site

The first layer is a wide, continuous and shallow coverage that fulfils basic coverage and capacity requirements. The continuous coverage provided by macro sites is the basic network layer and fulfils basic data service requirements. This includes Freestanding Base Telecommunication Stations and Rooftop Base Telecommunication Stations.

Pole-mounted sites

The second layer, offers quick, comprehensive and intensive coverage provided by pole-mounted sites. Operators often deploy these sites on lamps, electricity and billboard poles to resolve insufficient indoor coverage and hotspot capacity issues. These sites vary in height based on the existing infrastructure and covers a radius of 100 to 200 meters. Pole-mounted sites have extra functions such as video surveillance, lighting and alarm reporting.

Micro sites

The third layer provide intensive indoor coverage. These sites are suitable for densely inhabited residential areas. These outdoor micro sites are often deployed at varied heights for a coverage of a radius of 50 to 150 meters.

Indoor sites

The fourth and final layer, provide high-value, intensive indoor coverage. Service volumes are often exceeded in land uses such as office buildings, airports, stations and hotels. These sites help to cover these high-value areas and improve user experience.

A detailed breakdown in terms of the types of telecommunications infrastructure is explained below.

Base telecommunication station infrastructure types

Monopole type

Monopole type towers generally can be up to 45m Above Ground Level (AGL₂) without guy wires and can be much taller with additional structural support. In order to achieve the necessary height to support adequate coverage areas they may need to be fairly tall, requiring either a more robust mast, or guy wires to safely support the structure. Guy wires allow construction of taller, skinnier, cost-effective towers that would otherwise be structurally unsound. However, the addition of guy wires can potentially impact birds and mammals, which can collide with, or become entangled by, the additional structural elements. A monopole tower can also have smooth or less textured surfaces than other designs, which can increase its contrast with the landscape in the background, particularly if it is brightly coloured, and may make the structure more reflective and obtrusive.



Lattice, or Self-Supporting type

Lattice, or self-supporting type, communication towers can be quite tall and support more antennas and other appurtenances⁴ at a greater height due to their structural stability, increasing co-location opportunities for future service providers. These towers generally have 3-4 steel “legs” and hold a variety of antennas that can support various telecommunications services. Due to their height and variety of appurtenances, these towers can potentially be quite visually disruptive. However, despite being large and quite visible, their textured appearance can sometimes help them blend into the background, particularly if unlighted and painted a flat, neutral colour (such as grey or forest green if located in front of a forested backdrop). The lattice structure of the tower is broken up and consists of many small pieces, reducing contrast with the background. and allowing the viewer to essentially see through the structure, as opposed to viewing one smooth surface.

Factors such as height, lighting, design, and construction materials can make a difference in the visibility of a new facility. Towers over 10m tall are required by the Civil Aviation Authority (CAA) to have night lights, so as to be visible to passing aircraft. These lights are intended to contrast starkly with their surroundings and are highly visible during the day and even more so at night when viewed against a darkened sky. Bright colours, smooth surfaces, or other discordant structural features can increase the tower’s contrast with its background, making it more visible. The addition of guy wires can also potentially make the tower more visible as they increase the total area occupied by the development within the viewscape, and create straight edges for the viewer, the irregularities of which can attract attention when viewed in contrast with a surrounding natural setting.



Small Cells

Network providers also make use of “Small Cells” which are radio access points with low radio frequency power, equipped with short-range wireless transmission systems to cover a small geographical area. The figure below illustrates examples of small cells and how they can be implemented throughout a city.



APPENDIX E – Understanding Health Concerns.

World Health Organisation

The World Health Organisation's (WHO) primary goal is to combat diseases and to build a better, healthier future for people globally. The WHO partners with countries, the United Nations system, international organisations, civil society, foundations, academia and research institutions to direct and coordinate international health work through collaboration.

The World Health Organization (WHO) fact sheet on base stations and wireless technologies states that:

"...There is no convincing scientific evidence that the weak RF (radio frequency) signals from base stations and wireless networks cause adverse health effects."

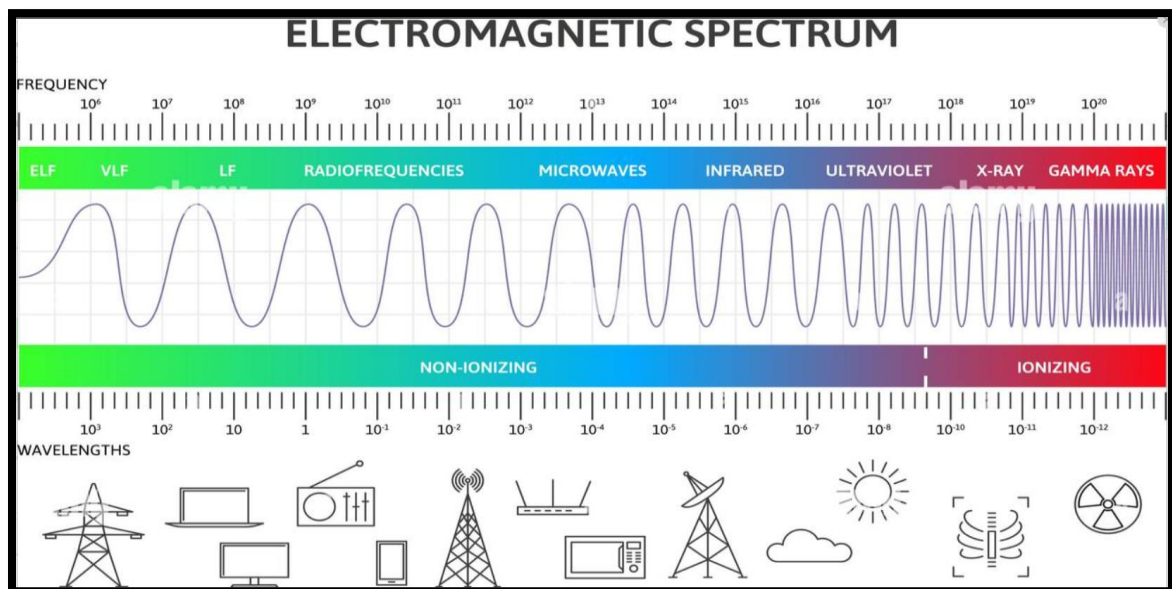
WHO's Electromagnetic Fields Project

The WHO's Electromagnetic Fields Project was established in 1996 and investigates the health effects of EMF and coherently advises national authorities on EMF radiation protection. It has been found that no major health risks have emerged from several decades of EMF research. However, uncertainties remain. The challenges pertaining to the EMF Project includes:

- There is no clear understanding if and how the EMF, at the low levels emitted by common appliances, might cause damage to cells;
- If a common EMF exposure were to cause a disease, it would likely be a rare disease. Demonstrating such a relationship would require complex population studies; and
- New EMF emitting technologies are constantly being introduced on the market, which results in different types of exposure.

In March 2020, the RF-EMF international standard was set at 100kHz to 300GHz (GSMA, 2021) and it was identified by WHO that there is no adverse health impact for the identified international standard. Whole body exposure occurs over a span of 30 min while local exposure transpires in 6min. Radio Frequency exposures from base stations range from 0.002% to 2% depending on a variety of factors such as the proximity to the antenna and the surrounding environment.

Figure 3: Figure 3: Electromagnetic Spectrum



There is no standard that states the distance dwelling units should be placed from telecommunication stations only that exposure to non-ionizing radiation is limited. Open communication with all stakeholders should be obtained to ensure the safety and understanding of the public regarding telecommunication stations.

The WHO states that national authorities should adopt international standards to protect their citizens against adverse levels of radiofrequency fields. National authorities should also restrict

access to areas where exposure limits may be exceeded. International exposure guidelines have been developed to provide protection against established effects from radiofrequency fields by the International Commission on Non-Ionizing Radiation Protection and the Institute of Electrical and Electronic Engineers.

International Commission on Non-Ionizing Radiation Protection (ICNIRP)

The International Commission on Non-Ionizing Radiation Protection (ICNIRP) aims to protect people and the environment against adverse effects of non-ionizing radiation. To this end, ICNIRP develops and disseminates science-based advice on limiting exposure to non-ionizing radiation. The ICNIRP published Guidelines in 1998 for human exposure to time-varying EMFs. The guidelines are periodically revised and updated in accordance with advances made in relevant scientific knowledge and has been revised in 2020. The guidelines described in this said document are for the protection of humans exposed to radiofrequency EMF in the range 100kHz to 300GHz. It is stated that the ICNIRP adopts a conservative approach to each of the steps involving in deriving the ICNIRP's guidelines in order to ensure that its limits would remain protective even if exceeded by a substantial margin.

All network providers must comply with the ICNIRP standards on non-ionising radiation protection with respect to safety standards (ICNIRP Guidelines for Limiting Exposure to Electromagnetic Fields [100kHz to 300GHz], Published in: Health Phys 118[5]: 483 – 524; 2020). The EMF guidelines set out by the ICNIRP are endorsed by WHO and International Telecommunications Union.

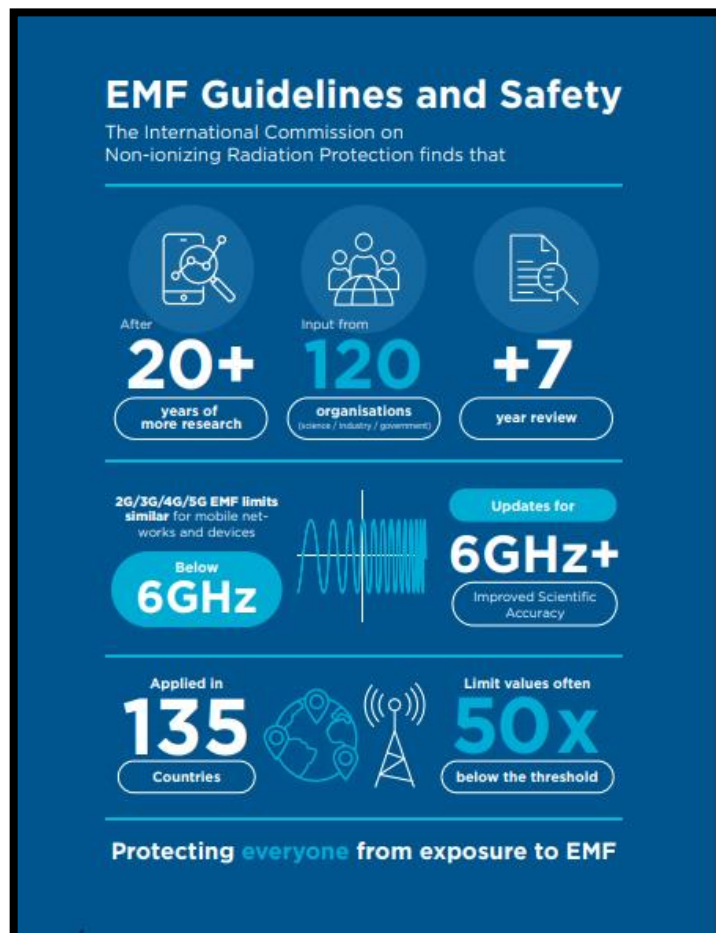


Figure 4 EMF Guidelines and Safety (ICNIRP, 2020)

Institute of Electrical and Electronic Engineers

The IEEE has released a standard (referred to as: IEEE Std C95.1TM-2019) that defines exposure criteria and associated limits for the protection for people against established adverse health effects of exposures to magnetic, electric and EMFs within the frequency range 0Hz to 300GHz. The application of IEEE Std C95.1TM-2019 is intended to offer protection to all people in unrestricted exposure environments, such as public areas, residential areas and workplaces, as well as to people permitted in restricted environment.

As stated above, the WHO advises national authorities to adopt international standards (compiled by ICNIRP and IEEE) to protect their citizens against the adverse levels of radiofrequency.

International Telecommunications Union

The International Telecommunications Union (ITU) is the United Nations specialised agency for information and communication technologies.

The ITU undertakes studies on the numerous communication and regulatory mechanisms developed by countries in order to increase information and awareness to populations as well as to facilitate the deployment and operation of telecommunication systems.

National Department of Health

A section within the National Department of Health, Directorate: Radiation Control, is responsible, from the viewpoint of human health, for regulating electronic products producing non-ionising EMFs. In carrying out this responsibility, the Directorate has been utilising the WHO's International EMF Project as its primary source of information and guidance with respect to the health effects of EMF.

The National Department of Health confirms that it is not able to make any pronouncements about the specific levels of EMF that a member of the public would experience at any particular base station site when it is in operation. However, generally-speaking, unless a person would climb to the top of a mast (or other structure supporting an antenna) and position him/herself not more than a few meters away right in front of the active antenna, such a person would have no real possibility of being exposed to even anywhere near the ICNIRP guideline (see sub-section 0) limits. Based on the results of numerous global and local surveys, the experience has been that the exposure to base station EMF at ground level is typically in the range of between 0.001 – 1.0 % of the ICNIRP guideline limits (see sub-section 0) (Department of Health: Health Effects Of Cellular Base Stations And Handsets, 2019).

The National Department of Health has the mandate and responsibility to administer the provisions of the Hazardous Substances Act (Act 15 of 1973) with respect to electronic products and radionuclides. Devices that produce non-ionizing radiation and is included in the Schedule of Listed Electronic Products (Regulation R1302 of 1991) are declared as "Group III" hazardous substances in terms of the Hazardous Substances Act. The relevant provisions listed under the Hazardous Substances Act therefore applies, consequently, the National Department of Health is the legally mandated national authority for regulating public exposure to radiation and endorses the safety standards, as listed by the ICNIRP.