

Code of Best Practice on Mobile Network Development in England

This document has been developed and is owned by a working group comprising: Arqiva; English Heritage; the Mobile Operators Association; National Parks England; and the Planning Officers Society.

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Introduction

This Code of Best Practice provides guidance primarily to mobile network operators, their agents and contractors, and to local planning authorities in England. It supersedes the Code of Best Practice on Mobile Phone Network Development (2002). Since that Code was drawn up, there have been significant changes in planning policy and law, in technology, in the way we use mobile devices, and in the structure of the mobile industry.

This Code has been developed by a Working Group consisting of representatives of: Arqiva; the Department for Communities and Local Government; the Department for Culture Media and Sport; the Department for Environment, Food and Rural Affairs; English Heritage; the Mobile Operators Association; National Parks England; and the Planning Officers Society.

1. Scope

1.1 The scope of this Code of Best Practice is to provide guidance in England to Mobile Network Operators, their agents and contractors, and local planning authorities. A separate code applies to fixed line operators.

1.2 Other wireless communications operators should follow the principles of this Code, where appropriate.

1.3 The principal aim of this Code is to ensure that the Government's objective of supporting high quality communications infrastructure is achieved in a timely manner, but in a way that also minimises the potential impact that can be associated with such development.

1.4 The Code also has an important role in making sure that appropriate engagement takes place with local communities and other interested parties.

1.5 The Code applies to all forms of wireless development, but very obviously is most relevant to proposals for new masts or base stations and significant additions or extensions to existing sites

2. Planning Policy

2.1 The National Planning Policy Framework sets out the Government's planning policies for England, and how they are expected to be applied. Section 5 of the National Planning Policy Framework sets out the policy for supporting high quality communications infrastructure.

2.2 The National Planning Policy Framework states that the purpose of the planning system is to contribute to the achievement of sustainable development, which it states has three dimensions: economic, social and environmental and that local planning authorities should work proactively with applicants to secure developments that improve the economic, social and environmental conditions of the area.

2.3 How sustainable development can be achieved is set out in paragraphs 6 to 10 of the National Planning Policy Framework. At the heart of which is the presumption in favour of sustainable development, which should be seen as a golden thread running through both planning and decision-making which is set out in paragraphs 11 to 16 of the Framework:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf.

2.4 Section 5 of the National Planning Policy Framework sets out the principles on which this Code of Best Practice is based. They are:

- Advanced, high quality communications infrastructure is essential for sustainable economic growth;
- The development of high speed broadband technology and other communications networks play a vital role in enhancing the provision of local community facilities and services.
- The numbers of radio and telecommunications masts and sites for such installations should be kept to a minimum consistent with the efficient operation of the network.
- Existing masts, buildings or other structures should be used unless the need for a new site has been justified; and
- Where new sites are required, equipment should be sympathetically designed and camouflaged where appropriate.

2.5 The following key points in the National Planning Policy Framework are also relevant to this code:

- The significant potential to improve efficiency and effectiveness of the planning application system for all parties through early engagement in appropriate circumstances. and
- The need for any information requirements in the development management process to be proportionate, relevant, necessary and material to the application in question.

3. Special Operational and Technical Considerations

3.1 There are many special operational and technical considerations associated with mobile phone network development and these have changed over time as the technology and demand for services have changed. Detailed information on the evolution of mobile phone networks and how mobile networks function is set out below.

3.2 The National Planning Policy Framework is clear that local planning authorities should not seek to prevent competition between operators or question the need for the telecommunications system. The systems tend to be demand-led or to fulfil coverage obligations. With over 82 million subscribers and the ever increasing demand for data hungry applications available to a range of connected devices, such as smart phones and tablets, the pressure on networks is constant. The requirement to upgrade and improve networks through changes to existing sites and the development of new sites is constant. As most parts of the country move

onto a superfast highway, so the need to bring coverage to 'not spots' (i.e. areas where there is no mobile coverage from any operator) and improve coverage in 'partial not spots' (i.e. where there is some coverage, but not from all operators) intensifies.

3.3 If local planning authorities are concerned about proposals, they should not normally look to refuse an application. Paragraph 187 of the National Planning Policy Framework places a clear responsibility on them to work pro-actively with the Mobile Network Operators to look for solutions. Where new infrastructure is proposed covering several locations in a local planning authority's area and/or requires a series of local interested parties meetings, it may be appropriate to put in place a planning performance agreement between the local planning authority and the Mobile Network Operators.

3.4 Further detailed guidance on the principles that relate to the siting and design of telecommunications infrastructure equipment are contained in Appendix B of this Code.

4. The Evolution of Mobile Networks

4.1 As technology has evolved, we have been able to do more and more with our mobiles. Second Generation (2G) technology gave us voice calls and text messages, and Third Generation (3G) gave us access to the Internet and other data on the move. More recently, 4G brings superfast mobile broadband at speeds roughly equivalent to those you would expect from a fixed broadband connection.

4.2 Because data, i.e. accessing the internet, puts more pressure on network capacity, the move from 2G to 3G resulted in the need for more base stations to keep pace with customer demand. More base stations were also needed because the higher frequencies originally used for some 3G services meant signals did not travel as far, so each base station covered a smaller area. However, at the same time, the operators have been streamlining their networks, sharing more base stations and working in groups to significantly reduce the amount of infrastructure they need to use. This makes good business sense and minimises the impact on communities and the environment at the same time as bringing them the services they demand.

4.3 Operators anticipate largely using existing network infrastructure for the provision of 4G services, and are also similarly upgrading their 2G and 3G network infrastructure to improve capacity and coverage. However, this does not mean that there will not be a need for any new base stations. For example, more base stations will be needed in areas where there has previously been only limited or no coverage, and where coverage and capacity needs to be enhanced in line with Government

policy and customer demand. Some new sites will also be needed to deliver Government programmes. Similarly, some new sites will be required to replace existing sites that are lost, for example, through redevelopment of an existing building. Some existing masts may need to be redeveloped to enable an upgrade to take place.

5. Mobile Connectivity in the 21st Century

5.1 Mobile phones and other devices are now ubiquitous. Mobile connectivity is now about far more than simply making calls and texts, but is also about mobile broadband. The majority of mobile phones in the UK are Internet-enabled smartphones, and large numbers of people also now own tablet devices.

5.2 Even when they have a fixed broadband connection available, people are increasingly choosing to access the Internet using a mobile device, and the numbers doing so are growing, as ownership of Internet-enabled devices rises.

5.3 By the start of the second decade of this century, the greatest increase in traffic across mobile networks was in data, i.e. Internet use. As the Secretary of State for Culture Media and Sport, said in September 2012: “High-speed mobile Internet access...is absolutely crucial to the country’s future as well as how we now expect to lead our daily lives.”¹

5.4 In terms of the wider economic impact of mobile connectivity, research by Deloitte on the economic impact of mobile broadband across a range of countries, showed that a doubling of mobile data use leads to an increase of 0.5 percentage points in the Gross Domestic Product per capita², while another study put the benefit of 4G mobile broadband to the UK economy at £75 billion over a decade.³

5.5 Good mobile connectivity also promotes social inclusion. Across the UK as a whole, research by Ofcom has shown that in recent years, more people rely on a mobile phone than rely on a landline; and that people on lower incomes are even more likely to live in a mobile-only household, or to access the Internet using a mobile connection.

¹ http://blogs.culture.gov.uk/main/2012/10/faster_better_mobile_going_for.html

² <http://www.gsma.com/newsroom/gsma-and-deloitte-release-comprehensive-research-into-the-impact-of-mobile-telephony-on-economic-growth/>

³ <http://www.4gbritain.org/mobile-broadband-and-the-uk-economy/>

5.6 Mobile connectivity also helps in the delivery of public services. Central and local government are increasingly encouraging people to access services online. In the NHS, studies show that lives are more likely to be saved when a 999 call is made from a mobile than from a landline. Text message reminders also improve compliance with treatment regimes for those taking a cocktail of medicines, as do many elderly patients, or people with HIV, for example. Telehealth, which relies on digital connectivity, is increasingly being used to support people to have greater choice, control and confidence in their care and wellbeing; enable safer, effective and more personalised care; and deliver better outcomes for patients⁴.

5.7 Good mobile connectivity also promotes sustainability, both for individual communities and across the economy as a whole. For example, it enables home working, thus reducing the need for travel, and so contributes to minimising pollution, and mitigating climate change and the move towards a low carbon economy.

5.8 The mobile telecommunications network is a crucial piece of national infrastructure in both economic and social terms. However, it is built locally, with planning permission, where applicable, being decided by the 338 local planning authorities in England.

5.9 Increasing consumer demand, especially for data is putting demands on mobile operators for improved connectivity and more capacity on their networks. This is driven by the widespread adoption of smartphones and the rapid uptake of tablet devices, and the way consumers are now using them, often choosing to do so when they have a fixed connection available. In addition, the Government has ambitious aspirations for improving connectivity and coverage, especially in rural areas. All these factors result in the need to upgrade and improve mobile networks, which will not function without the necessary infrastructure on which they rely.

⁴ http://www.audit-scotland.gov.uk/docs/health/2011/nr_111013_telehealth_km.pdf

6. How the Mobile Networks Function

Base Stations, Signal and Coverage

6.1 In order for mobile networks to function, they need a substantial network of base stations⁵ to provide sufficient radio coverage in any geographical area to handle customer voice, text, or data. A mobile device, such as a phone or tablet, converts data or the human voice into radio waves. These signals are transmitted from the device to the nearest base station.

6.2 Once a signal reaches the base station, it is then connected nationally in a similar way to landline calls, using similar cables, fibres or point-to-point microwave links. It is then transferred to the network of the device receiving the information and will then be sent to their device from the nearest base station.

6.3 Base stations are sited to maximise coverage to a locality. A base station covers a limited geographic area, and can only handle a finite amount of traffic at any one time; base stations need to be sited where there is customer demand for connectivity. Mobile services use a range of different frequencies on the radio spectrum, and the frequency used on a particular base station will have an impact on size of the area covered by that base station.

6.4 The public and media often refer to all mobile telecommunications base stations as 'masts'. However, mobile networks are made up of a mix of different types of infrastructure: roadside masts, rooftop equipment and small cell technologies – many being largely unnoticed by passers-by. The large, free-standing mast structures, such as those found on the side of motorways for example, represent only one element of the mobile network infrastructure, and small cells are an increasingly large proportion of networks.

6.5 All operators of radio transmitters are under a legal obligation to operate transmitters in accordance with the conditions of their licence. Operation of transmitters in accordance with the conditions of their licence fulfils the legal obligations in respect of interference to other radio systems, and as such will not cause significant and irremediable interference with other electrical equipment, air traffic services or instrumentation operated in the national interest.

⁵ Only a minority of base stations are 'masts', and although the terms are often used interchangeably, they are in fact two different things. The antenna and associated equipment is what enables the mobile network to function. A 'mast' is simply a freestanding structure that supports antennas at a height where they can transmit and receive radio waves.

Factors Affecting Infrastructure Siting, Coverage and Capacity

6.6 In urban areas, increased call and data transfer volumes put high demand on the networks, potentially leading to the need for more infrastructure. In some urban areas, such as conservation areas, the number of potential sites suitable for base stations might be constrained.

6.7 In rural areas, connecting a base station to the rest of a network poses particular challenges. For example, while in urban settings, connecting a base station to the main network may only mean digging a trench a few metres, in rural areas, in circumstances where a microwave link cannot be provided, it may be kilometres. Base stations also need an electricity supply. In urban areas, this is rarely a problem. However, in some rural areas, connecting to the supply can be difficult and the cost prohibitive.

6.8 In rural areas, these economic factors are made all the more significant because of the low population density and the consequent lack of revenue available to cover the capital expenditure and on-going operating costs.

6.9 Coverage in some areas is also limited because of geographic and terrain issues. 'Not spots' can occur in remote locations and 'partial not spots' may occur because of local topography or the built environment.

6.10 In all areas, the quality of indoor signal coverage will be affected by the type of building in which the device is being used. For example, a stone building or one with metalised windows may have poorer indoor coverage because these materials attenuate the signal, not least from the mobile device itself which is also a transmitter.

7. Working Together to Deliver Connectivity

7.1 No single agency working in isolation can deliver the connectivity that is essential to the country's economy and society: central Government has a role in setting the overall strategy for connectivity, and in framing appropriate policy and regulation. Local planning authorities are encouraged by the Government to identify existing and potential sites by making suitable local authority owned property available to users. Mobile operators deliver mobile network infrastructure, and must do so in a responsible manner. Local planning authorities have a role in facilitating

network development through the operation of the planning system and, for example, in helping to find land and structures suitable for mobile infrastructure. Local planning authorities can also ensure that the planning function works in tandem with other relevant departments, such as economic development, in order to facilitate digital connectivity. This section sets out the main principles and responsibilities of the various interested parties in more detail.

1) The Role of Central Government

Communications and Planning Policy

7.2 Central Government sets the overall strategy for connectivity in the UK, with the Department for Culture Media and Sport having lead responsibility for all media and communications policy. The Department for Communities and Local Government is responsible for planning policy, legislation, and guidance in England.

Health Policy

7.3 Central Government also determines health policy in relation to any potential health issues relating to radiowaves. Public Health England, an executive agency of the Department of Health, oversees this area, on the advice of the Advisory Group on Non-Ionizing Radiation, an independent advisory group of scientific experts, whose terms of reference are: to review work on the biological effects of non-ionizing radiation relevant to human health and to advise on research priorities. Its current advice is that telecommunications systems should comply with guidelines laid down by the International Commission on Non-Ionizing Radiation Protection⁶. Consistent with the advice set out in paragraphs 46 of the National Planning Policy Framework, local planning authorities should avoid duplicating health and safety matters that are subject to separate controls. Providing applications are accompanied with an International Commission on Non-Ionizing Radiation Protection certificate, planning authorities are not required to make any further judgement on health and safety issues.

2) The Role of the Mobile Operators

7.4 The mobile operators believe that communication and consultation are vital in ensuring the process of developing mobile phone networks is transparent and that the public and their representatives are appropriately involved and informed.

⁶ <http://www.icnirp.de/>

7.5 The operators thus remain committed to responsible network development, using appendix A: The Operator's Ten Commitments and Appendix B: Siting and Design Principles, and are committed to:

- **Location of base stations sites:** ensure, working with local government, that there is publically-available information on the location of operators' radio base stations in the UK.
- **Site sharing:** continue to work together to locate base stations on existing structures, and to share sites wherever viable in order to reduce the need to build new masts on which to locate their equipment and to minimise the number of base station sites in the UK.
- **Detailed consultation with local planning authorities:** participate in pre-application consultation with local planning authorities where appropriate.
- **Consultation with communities:** maintain clear standards and procedures and continue to deliver, with other interested parties, high quality consultation with local communities, in consultation with local planning authorities where appropriate.
- **Standardised documentation for planning submissions:** provide standardised supporting documentation for all planning submissions whether for full planning or prior approval⁷; and ensure that documentation with planning applications contains full contact details, including telephone numbers and email addresses.
- **Compliance with guidance laid out in the International Commission on Non-Ionizing Radiation Protection public exposure levels guidance:** continue to ensure all sites are compliant and that certificates of International Commission on Non-Ionizing Radiation Protection compliance are provided with all applications. A Declaration of Conformity with International Commission on Non-Ionizing Radiation Protection Public Exposure Guidelines is at Appendix E.
- **Prompt responses to enquiries:** provide staff resources to respond to complaints and enquiries about radio base stations, within ten working days.
- **Workshops for planning authorities:** continue to provide professional development workshops on technological and other developments within telecommunications for local planning authority officers and elected members.
- **Design:** operators will ensure, especially in the case of new sites, that equipment is sympathetically designed, in line with the principles set out in the National Planning Policy Framework.

A copy of the operators' 'Ten Commitments' is at Appendix A.

⁷ Operators will provide a range of supporting information supporting their planning applications, including a Supplementary Information Template and ICNIRP Declaration (Appendix E). The information will not be identical for all applications. Less information will be required for a relatively small alteration to an existing site than would be required for an application for a new, large, free-standing mast.

3) The Role of Planning Authorities

7.6 Providing high quality mobile telecommunications to individuals, communities and business across the UK is a partnership between mobile operators and planning authorities. In order to keep pace with customer demand for connectivity within their local areas, it is imperative that there is a strong commitment from local planning authorities to engaging with Mobile Network Operators. Local planning authorities therefore commit to:

- **Incentivising connectivity:** include a pro-connectivity policy in the Local Plan and take a 'joined-up' approach to the telecoms planning process, especially taking into account local economic development, sustainability, and social inclusion considerations.
- **Facilitating Sites:** not to have moratoria, 'no-go' or defined exclusion zones around 'sensitive sites' or from their own property or land; and where Mobile Network Operators have alerted local planning authorities to proposals for potential new sites, meet Mobile Network Operators and other local authority departments, if appropriate, to explore possible options for new site requirements.
- **Pre-application:** pre-application discussions should be based on a meaningful dialogue. Respond positively to requests for pre-application consultation; provide a clear point of contact for that consultation; provide guidance on preferred locations on proposed new sites or guidance on proposals for significant upgrades on existing sites: provide information on any relevant forthcoming infrastructure plans such as major new developments; agree commensurate and proportionate information requirements for applications as and when required.
- **Planning applications:** where resolvable issues are raised to help the Mobile Network Operator to find solutions; ensure timely decisions on planning applications; and not impose unduly onerous or unreasonable conditions on planning permissions for sites, for example duplicating other regulatory conditions such as those on health and safety, but rather aim to give approval to applications for base stations in line with national policy and local plans.
- **Information:** ensure that members of the public can access information about the location of base stations within their area.
- **Communications:** send communications electronically to an appropriate addressee at Mobile Network Operators or their representatives.
- **Training:** Maintain an appropriate level of knowledge on telecommunications for their planning officers and members of planning committees. Consider appointing specialist officer/s who are familiar with the special operational and technical considerations of the Mobile Network Operators and can be the main point of contact.

8. The Planning Process in Practice

8.1 The following tables set out the agreed best practice for both operators and planning authorities for the different stages of the planning process:

STAGE 1: Area Wide Local Planning Authority Information	
<p>Mobile operators are committed to sending details of the location of their existing sites to every local planning authority on an annual basis. This provides transparency and also a valuable opportunity for local planning authorities and operators to share information. Detailed, site specific, consultation about proposed new development is covered at Stage 2 and Stage 3.</p>	
Best practice	
Operator	Planning Authority
<ul style="list-style-type: none"> • Issue annual update on the location of existing sites, including: <ul style="list-style-type: none"> ○ Cell no. ○ Site name. ○ Address. ○ Postcode. ○ National Grid Reference. 	<ul style="list-style-type: none"> • Acknowledge receipt of site location information and request further information if required.

Stage 2a New Sites Site Selection, Local Planning Authority Consultation and Identification of Consultation Strategy	
<p>Meaningful pre-application consultation is highly valuable. It should be seen as a two-way partnership process between the operator and the local planning authority and, if conducted in this way, it can lead to a more efficient process and better outcomes for all involved. Note that Stage 2a relates to the selection of new sites. It would not normally apply to upgrades/alterations to existing sites (including redevelopment of an existing site to facilitate an upgrade or sharing with another operator).</p>	
Best practice	
Operator	Planning authority
<p>Information gathering and site identification</p> <ul style="list-style-type: none"> • Check local planning authority mast register if available. • Examine existing databases. • Identify sites in search area. • Identify site options (site availability, viability, suitability). • Allocate initial Traffic Light Ratings for Options. 	<ul style="list-style-type: none"> • Ensure any mast register, where available, is up to date.
<p>Local planning authority consultation and opinion:</p> <ul style="list-style-type: none"> • Identify local planning authority case officer. • Request their opinion on sites identified. • Identify areas of concern. • Discuss and agree if community consultation is required (see below). • Record views in Consultation Plan. • Review Traffic Light Ratings for Options. 	<ul style="list-style-type: none"> • Provide details of relevant officer. • Provide opinion within a reasonable timeframe. • Agree where possible community consultation strategy.
<p>Site selection:</p> <ul style="list-style-type: none"> • Select preferred option based on: <ul style="list-style-type: none"> ○ Technical requirements; ○ local planning authority opinion; ○ Community information. • Review Traffic Light Rating for preferred option. 	
<p>Identify consultation strategy, where required.</p> <ul style="list-style-type: none"> • Identify: <ul style="list-style-type: none"> ○ Who to consult; ○ How to consult. • Record strategy in Consultation Plan. 	
<p>Offer pre-application meeting:</p> <ul style="list-style-type: none"> • Discuss merits of preferred site and other options. • Discuss design options. 	<p>Agree to pre-application meeting as appropriate and provide meaningful and timely feedback.</p>
If appropriate	
Operator	Planning Authority
<p>Offer site visit or tour of options to discuss merits of preferred site and other options.</p>	<p>Take up invitation as appropriate.</p>

Stage 2b Upgrade of Existing Sites Local Planning Authority Consultation and Identification of Consultation Strategy	
<p>Meaningful pre-application consultation is highly valuable. It should be seen as a two-way partnership process between the operator and the local planning authority and, if conducted in this way, it can lead to a more efficient process and better outcomes for all involved. Note that Stage 2b relates to significant upgrades/alterations to existing sites (including redevelopment of an existing site to facilitate an upgrade or sharing with another operator).</p>	
Best practice	
Operator	Planning authority
<p>local planning authority consultation and opinion</p> <ul style="list-style-type: none"> • Identify local planning authority case officer. • Request their opinion on proposal. • Identify areas of concern. • Discuss and agree if community consultation is required (see below). • Allocate Traffic Light rating for proposal. 	<ul style="list-style-type: none"> • Provide details of relevant officer. • Provide opinion within a reasonable timeframe. • Agree where possible community consultation strategy. • Ensure any mast register is up to date.
<p>Identify consultation strategy, where required.</p> <ul style="list-style-type: none"> • Identify: <ul style="list-style-type: none"> ○ Who to consult; ○ How to consult. • Record strategy in Consultation Plan. 	
<p>Offer pre-application meeting:</p> <ul style="list-style-type: none"> • Discuss merits of proposal. 	<p>Agree to pre-application meeting as appropriate and provide meaningful and timely feedback.</p>
If appropriate	
Operator	Planning Authority
<p>Offer meeting to discuss merits of proposal.</p>	<p>Take up invitation as appropriate.</p>

Stage 3: Community Consultation	
The mobile operators are committed to proportionate community engagement and will undertake appropriate pre-application consultation in addition to any carried out by the Planning Authority once the application is submitted.	
Best practice	
Operator	Planning Authority
<p>Carry out community consultation strategy (as defined in Stage 2) and record in Consultation Plan.</p> <p>Write to local Ward Councillors for red/amber sites as identified under the Traffic Light Model, in consultation with the local planning authority (see appendix C).</p> <p>Write to Parish/ Town Council for red/amber sites, as identified under the Traffic Light Model.</p> <p>Record in Consultation Plan.</p>	<p>Councillors respond with any relevant information or comments in line with agreed Probity Standards.</p> <p>Advise operators as to the need to write to local Ward Councillors.</p>
optional	
Operator	Planning Authority
<p>Consult with other interested parties as appropriate:</p> <ul style="list-style-type: none"> • Consultation letter. • Site Notice. • Informal 'Drop in' Session. • Key Stakeholder Briefing. • Leaflets. • Notice placed in Local Press. <p>Record in Consultation Plan.</p>	

Stage 4: Planning Application Submission	
Operators will provide a range of information supporting their planning applications, including a Supplementary Information Template and International Commission on Non-Ionizing Radiation Protection Declaration (Appendix E). The information will not be identical for all applications. Less information will be required for a relatively small alteration to an existing site than would be required for an application for a new, large, free-standing mast.	
Best practice	
Operator	Planning Authority
Prepare planning submission: <ul style="list-style-type: none"> • Checklist of documents. • Complete standard planning application templates. • Provide standard supporting information. • Ensure that email and telephone contact details are included in the application. 	
Submit planning application.	Acknowledge receipt of application.
Application support: <ul style="list-style-type: none"> • If appropriate, provide additional information to support the application as requested by local planning authority. 	Request any further information as required in a timely manner.
	Carry out Statutory Consultation
	Determine planning application/prior approval application: <ul style="list-style-type: none"> • Assess application on planning merits. • Assess in accordance with National Policy and policies in Local Plans. • Make a timely decision in line with statutory timescales.
If appropriate	
Operator	Planning Authority
Site meeting with planning officer: <ul style="list-style-type: none"> • Discuss merits of proposal. Discuss merits of proposed design in relation to alternative design solutions. 	Respond positively to meeting request.
Attend Planning Committee meeting: <ul style="list-style-type: none"> • Present and respond as appropriate. 	

Determination of the Prior Approval Application

8.2 Under the prior approval regime a local planning authority has 56 days beginning with the date on which it receives a valid application, to make and notify its determination on whether prior approval is required to siting and appearance and to notify the applicant of the decision to give or refuse such approval. The requirement for what constitutes a valid application is defined in the General Permitted Development Order There is no power to extend the 56-day period. If no decision is made, or the local planning authority fails to notify the developer of its decision within the 56 days, permission is deemed to have been granted.

Timescales

8.3 The 56-day period starts on the date of receipt of a valid application by the local planning authority. The period finishes on the day of the receipt by the applicant of a decision or, if no decision has been made, when 56 days from receipt of a valid application by the local planning authority has elapsed.

8.4 At the beginning of the process, registration needs to be completed within a matter of a few working days. This includes checking whether the submission is valid (i.e. the minimum requirements as set out in the General Permitted Development Order have been met), identification of consultation and publicity requirements (including for parish and town councils) and setting these in motion, plus allocating the file to a named officer. A standard checklist may be a useful means of ensuring that all the above tasks are completed.

8.5 Court decisions have shown that it is not sufficient for a local planning authority to have made a decision within 56 days for the requirements of the legislation to have been met. It is the receipt of that decision (in the form of a valid legal notice) by the applicants that constitutes compliance. Reliable and verifiable means need to be used to ensure that there is no room for doubt regarding when an applicant received a decision. The responsibility rests with the local planning authority to decide what means it uses for ensuring that the applicant receives a valid decision within the 56-day period.

Maladministration

8.6 A “deemed approval” arising from an inability of a local planning authority to make a decision and notify within the 56-day period where they have decided that prior approval is required for the siting and/or appearance of the development may constitute maladministration.

Delegation

8.7 The 56-day period may make it difficult for authorities to use the committee system in determining prior approval applications and therefore effective arrangements to delegate decision making to officers may be needed.

9. Monitoring and Review

9.1 To ensure the effectiveness of the Code of Practice is kept under review: Mobile Network Operators and local planning authority representatives should meet to review the effectiveness of the Code of Practice initially after 18 months following publication, and then every 18 months after that to share learning and to resolve any issues. The meetings shall be convened by the Department for Culture, Media and Sport, and chaired independently. A summary of these meetings shall be provided to the Department of Culture, Media and Sport who will consider it, together with any other representations received, in relation to the effectiveness of the Code of Practice.

10. Dispute Resolution

10.1 As a matter of good practice and in accordance with Commitment 9 (see appendix A) each operator has a procedure to handle complaints and enquiries from members of the public and other interested parties about base stations.

10.2 Each operator will continue to:

- Deal with complaints in a professional manner;
- Provide for the complaints to be escalated to a higher level within their organisations / partner organisations as appropriate;
- Be transparent with a formal written response to the complainant detailing the reasons for accepting or rejecting any complaint;
- Provide specific staff resources for complaints to be dealt with in a diligent and timely manner;
- Keep records of the numbers of formal complaints, time to action, and the outcome.

Appendix A: The Operators' Ten Commitments

The Operators' Ten Commitments are:

1. Consultation with communities

Maintain clear standards and procedures and continue to deliver, with other interested parties, high quality consultation with local communities.

2. Detailed consultation with planners

Participate in appropriate pre-application consultation with local planning authorities.

3. Site sharing

Work together to locate base stations on existing structures, and to share sites wherever viable in order to reduce the need to build new masts on which to locate their equipment and to minimise the number of base station sites in the UK.

4. Workshops for local planning authorities

Continue to provide professional development workshops on technological and other developments within telecommunications for local authority officers and elected members.

5. Standardised documentation for planning submissions

Continue to provide standardised supporting documentation for all planning submissions whether for full planning or prior approval.

6. Stakeholder research

Continue to monitor operators' performance in meeting and responding to the needs of planning officers and the general public.

7. Information about base station sites

Work with local planning authorities to ensure that there is publically-available information on the location of members' radio base stations in the UK.

8. Compliance with International Commission on Non-Ionizing Radiation Protection Public Exposure Levels Guidance

Continue to ensure all sites are International Commission on Non-Ionizing Radiation Protection compliant and that certificates of International Commission on Non-Ionizing Radiation Protection compliance are provided with all planning applications.

9. Prompt responses to enquiries

Provide staff resources to respond to complaints and enquiries about radio base stations, within ten working days.

10. Support research into health and mobile phones

Continue to support independent scientific research into mobile telecommunications and health, in line with the World Health Organisation Research Agenda and the UK Government's Mobile Telecommunications and Health Research programme.

Appendix B: Siting and Design Principles

Siting and Design

The National Planning Policy Framework says that ‘in preparing Local Plans, local planning authorities should support the expansion of electronic communications networks, including telecommunications and high speed broadband. They should aim to keep the numbers of radio and telecommunications masts and the sites for such installations to a minimum consistent with the efficient operation of the network. Existing masts, buildings and other structures should be used, unless the need for a new site has been justified. Where new sites are required, equipment should be sympathetically designed and camouflaged where appropriate’.⁸

General Principles for Telecommunications Development

The Government’s general policy on telecommunications development is to facilitate the growth of efficient and effective telecommunication systems whilst keeping the environmental impact of such development to a minimum. The siting and design of telecommunications equipment, if undertaken with care and sensitivity, will be vital in achieving this policy aim. Good siting and design should not only be respected in environmentally sensitive areas but should also be applied to all telecommunications development. In all circumstances, the sensitivity to context of the proposed development should be considered.

In particular, the following general design principles should be regarded as important considerations in respect of telecommunications development:

- Proper assessment of the character of the area concerned
- Design should be holistic and three dimensional showing an appreciation of context;
- Analysis of the near and far views of the proposal and to what extent these will be experienced by the public and any residents;
- Proposals should respect views in relation to existing landmarks and distant vistas;
- Proposals should seek to consider the skyline and any roofscapes visible from streets and spaces;

⁸

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

- Choice of suitable designs, materials, finishes and colours to produce a harmonious development and to minimise contrast between equipment and its surroundings.

The options for the design used by an operator will be affected by site conditions, technical constraints, landscape features and coverage and capacity requirements. The main options would include:

- Mast and/or site sharing;
- Installation on existing buildings and structures;
- Camouflaging or disguising equipment where appropriate;
- Using small scale equipment;
- Erecting new ground based masts.

Mast and Site Sharing

It has been a longstanding Government policy objective to encourage telecommunications operators, wherever viable, to share masts and sites as a means of minimising overall mast numbers. The National Planning Policy Framework states that local planning authorities 'should aim to keep the numbers of radio and telecommunications masts and the sites for such installations to a minimum consistent with the efficient operation of the network. Existing masts, buildings and other structures should be used, unless the need for a new site has been justified'⁹.

Operators also support site sharing wherever viable. If operators are able to share sites, and install more equipment on each site, this reduces the overall visual impact of network infrastructure, because even though shared sites will tend to be slightly bigger, it means that fewer sites are needed to improve coverage and capacity, infrastructure becomes more feasible, and is more cost-effective to deploy. In fact, sharing of sites is now the norm, and network operators now share much of their network infrastructure via joint venture commercial arrangements.

There are also a number of infrastructure providers who between them own or control several thousand installations or buildings available for potential sharing subject to commercially viable contracts existing.

Whilst mast sharing or use of other infrastructure should always be considered, it should be borne in mind that mast sharing may not be an appropriate environmental or technical solution in all cases. Masts with several Mobile Network Operators' systems can lead to increased visual intrusion. Other constraints on mast sharing could include:

- **Coverage problems.** The existing mast may be poorly located or not have the sufficient height to give the required coverage;

⁹ Ibid.

- **Radio interference.** Antennas need a set amount of vertical separation. This could lead to the visual impact of the mast significantly increasing;
- **Structural loading.** The existing mast may not be able safely to hold extra equipment. The existing masts may need to be strengthened or replaced with a bigger structure with a consequent effect on visual amenity.

Masts with several systems can lead to increased visual intrusion, so where practicable operators should explore opportunities to share headframes or use the same style of headframes already present on a mast. Where extending masts, operators should consider the opportunity for environmental enhancements, such as the removal of redundant brackets and fixings, and using designs that have the effect of topping off a structure, for example, by tapering a lattice mast. Where replacing masts, especially older style masts of unsympathetic design, operators should look to bring forward a solution from the range of light weight lattice or pole masts now available in consultation with the local planning authority and other relevant interested parties.

Installation on Existing Buildings and Structures

The use of existing buildings and structures by the operators as sites for the installation of their telecommunications equipment is an established measure which has greatly helped to reduce the environmental impact of their networks. Examples of buildings and structures which may be suitable include:

- Office blocks
- Churches
- Water towers
- Streetworks such as lighting columns
- Floodlighting towers
- Electricity pylons
- Chimneys
- Broadcast masts

Operators will need to bear in mind the height, scale and architectural style of the building or structure as this will have a significant influence on the design of the equipment used. Extra care will need to be taken when installing equipment on listed buildings, within scheduled monuments or on structures and/or buildings located in areas of historic and architectural importance or in designated areas, such as National Parks, Conservation Areas, World Heritage Sites, Sites of Special Scientific Interest, or Areas of Outstanding Natural Beauty and registered parks and Gardens and Battlefields.

When placing equipment on buildings and/ or structures operators should aim for development to:

- Keep in proportion to the building or structure;
- Respect architectural style;
- Have minimal impact above the roof line commensurate with technical constraints;
- Not be detrimental to important views and skyline;
- Avoid creating clutter;
- Use clean lines and maintain symmetry
- Be painted to correspond with the background or to reduce contrast.

It is important that the siting of equipment on buildings and structures does not come across as being ill-considered. Careful planning and placing of equipment, to achieve symmetry and balance can help to overcome this. In addition, when using pole mounts operators should consider the feasibility of setting apparatus away from the edge of buildings to reduce prominence and minimise the need for potentially intrusive edge protection (e.g. health and safety hand railings).

In using existing buildings and structures, operators and local planning authorities should bear in mind structural limitations that may restrict their use as potential sites. For example, many older buildings are not designed to take on the extra weight of telecommunications equipment. It is vital that operators discuss with the local planning authority any matters that could restrict siting options as a result of this type of consideration.

In order to facilitate the use of buildings and structures to site telecommunications equipment, local planning authorities may wish to encourage the designers of new buildings and structures to include a provision to this effect within their plans and designs. This may include space especially below the roofline for the siting of antenna and the use of Glass Reinforced Plastic which will enable antenna to be placed behind the facade of a building. Effective provision in this way will enable telecommunications equipment to be seen as integral to the building itself rather than “bolted on” as an afterthought.

Opportunities could be considered where dual benefits could be gained from the refurbishment of disused or derelict buildings or structures to house telecommunications equipment.

Sympathetic Design and Camouflaging

Since the introduction of mobile networks, operators have made great strides in developing their techniques for camouflaging their equipment, where appropriate. This can be seen in the newer, more modern masts which are frequently able to blend into their surroundings far more

effectively in contrast to some of the older, larger masts that were first built over 25 years ago. The innovative use of colours and shapes by operators has been successful in disguising equipment and this practice should be encouraged to continue wherever appropriate. The use of street furniture may also be suitable for siting small antennas.

Larger antennas may also be effectively concealed by similar methods. These can include familiar features such as:

- Flagpoles;
- Street lamp posts/telegraph pole style designs;
- Signs;
- Church towers.

In addition, the use of Glass Reinforced Plastic, which can be moulded into any shape and coloured appropriately, can be very useful in harmonising features into the landscape. It can, for example, be used to simulate masonry and stone features such as chimneys and plinths.

Which option to choose depends on the local conditions and factors as well as the sensitivity of the area. All of the options have the advantage of using existing features. Local planning authorities are encouraged to explore with operators other possible structures within the locality on which antennas can be concealed in this way.

Another option is to use masts disguised as trees. However, their effectiveness can be lost if poorly sited or designed so it is important that they:

- Mix well with the existing local tree types;
- Are placed with groups of other trees;
- Are placed with newly planted trees.

Using Small Scale Equipment

Since mobile networks were first introduced, operators have increasingly used small cell technologies such as microcells and picocells to improve the capacity of their networks, particularly, though not exclusively in urban areas. Such small cells are likely to be an increasing proportion of network infrastructure in future although should not be seen as a replacement for macro sites. They provide capacity over often very small areas such as individual streets and buildings.

Additional ways in which small scale antenna can be concealed include:

- installing them in areas that are inconspicuous;
- keeping equipment to the minimum and as uncluttered as possible;
- avoiding contrast with or compromising architectural detail;
- concealing cable runs or exploiting architectural detail to minimise impact;
- painting them to reduce contrast with their background;

Some minor operations or changes of use of land may not constitute development which requires planning permission. For example, many of the smallest antenna systems may be covered by the normal principle of de minimis; or they may not have a material effect on the external appearance of the building on which they may be installed, and therefore may not fall within the legal definition of development. Most conventional television aerials and their mountings or poles have long been treated this way, and this approach should continue to be applied to small telecommunications apparatus in general (regardless of who installs it).

Erecting New Ground Based Masts

Taking into account all the options discussed in this section for effective siting and design, there will still be instances when there is no viable alternative to a free standing ground based mast. However, this does not mean that the principles of good siting and design are any less important. There are many ways by which the environmental and visual impact of a ground-based mast can be greatly reduced. These include:

- Placing a mast near to similar structures. For example, industrial and commercial premises, road signs, lamp posts;
- Placing a mast within an existing group of trees (this may also include planting new trees to help integrate it into the landscape). This option is obviously more successfully implemented in or near wooded areas. However, care should be taken to avoid the unnecessary loss of existing trees. In addition, it should be borne in mind that the top of a mast placed in trees will need to be above the tree-line in order for the equipment to work and for the allowance of future tree growth
- Using simple and unfussy designs. Masts which have complex designs are more likely to dominate and be in discord with the landscape and have adverse visual impacts;
- Appropriate colouring. Masts seen against the sky, for example, are best left in their galvanised state or painted pale grey. Against a wooded backdrop a matt green or brown colour scheme would be more applicable.

Protected Sites and Area Guidance

Operators should bear in mind that there are certain locations where sensitive siting and design are of increased importance. These include:

- (i) World Heritage Sites
- (ii) Conservation Areas;
- (iii) Scheduled ancient monuments and their settings;
- (iv) Listed buildings and their settings;
- (v) Registered Parks and Gardens
- (vi) Registered Battlefields
- (vii) National Parks;
- (viii) Areas of Outstanding Natural Beauty; and
- (ix) Sites of Special Scientific Interest.

In these areas, particular attention will need to be paid to the nature of the proposals, the significance of the location, the impact that the proposals could have and the need to reduce any adverse impact. Operators may be able to avoid a specific site (e.g. a Listed Building) but not an entire protected area (e.g. a National Park) in which case they should seek to minimise the impact through sensitive design and appropriate siting of the proposals.

Designated Heritage Assets

Of those mentioned above, i) - vi) are defined as Designated Heritage Assets within the National Planning Policy Framework. Government policy on the approach to the Historic Environment, and that of heritage assets, designated or otherwise, is set out in the National Planning Policy Framework and in particular in paragraphs 126-141. It is important that the significance of the heritage assets, including the contribution made by their setting, is understood, in order to then assess the impact that the proposal will have on this significance. Paragraph 132 of the National Planning Policy Framework states that “when considering the impact of proposed works on the significance of a designated heritage asset, great weight should be given to the asset’s conservation”, and that significance can be harmed or lost through alteration of the heritage asset or development within its setting. Causing “substantial harm” to a designated heritage asset of the highest significance, notably scheduled monuments, battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens and World Heritage Sites “should be wholly exceptional”.

For proposals which affect designated heritage assets, operators are advised to seek a meeting at the earliest possible stage with the local planning authority’s conservation officer and where appropriate English Heritage. Further guidance on how to approach these matters is set out below.

Conservation Areas and World Heritage Sites

For sites located within a conservation area or a World Heritage Site, the siting and location of any apparatus can be critical to the visual impact. In conservation areas, when putting forward proposals special attention should be paid to the desirability of preserving or enhancing the character and appearance of the conservation area. For World Heritage Sites, attention should be paid to the protection of the "outstanding universal value" of the site - which would be set out in the inscription of the World Heritage site by the World Heritage Committee. Any proposal should be judged against the potential harm it would cause to the designated heritage asset, as set out in National Planning Policy Framework paragraph 132-3.

Registered Parks and Gardens and Battlefields

For any site within or adjacent to a Registered Park or Garden or Battlefield, the operator needs to take into account the visual impact of the proposals on the significance of the site and its setting.

Listed Buildings and Scheduled Monuments

Listed buildings and scheduled monuments are protected under two different areas of legislation. For listed buildings, listed building consent is required amongst others, for any works of alteration which would affect its character as a building of special architectural or historic interest. A listed building is defined as a building which is for the time being included in a list compiled or approved by the Secretary of State and any object or structure fixed to the building and any object or structure within the curtilage of the building which although not fixed to the building forms part of the land and has done so since before July 1 1948. In determining a listed building consent application, special regard is to be had to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.

For scheduled monuments, scheduled monument consent will be required for amongst other things making any alterations or additions to the scheduled monument. In determining scheduled monument consent applications, the Secretary of State will consider the impact the proposed works would have on the significance of the monument and consent that would result in the loss of the whole or a material part of the significance will only be granted where there is clear justification of necessity of the works in accordance with the Government's policy on scheduled monuments and their settings.

In considering any proposed telecommunications works for installing equipment on a listed building or scheduled monument, operators and planning authorities should bear in mind that any such developments require listed building consent from the local planning authority/scheduled monument consent from the Secretary of State whether or not planning permission or 'prior approval' is required. If works are proposed to a scheduled monument, a meeting at the earliest possible stage with English Heritage is advised.

In all these matters listed above, consideration of the impact of the proposals on the setting of the heritage assets is just as important. Setting is defined in the National Planning Policy Framework as "the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral." As noted above, as significance can be harmed or lost through alteration of the heritage asset or development within its setting it is critical that there is an understanding of the asset, and following which the potential impact of the proposal on significance can be appropriately dealt with. Early discussions with the local planning authority and English Heritage as appropriate will therefore assist.

Sites of Special Scientific Interest

Public Bodies such as local planning authorities, statutory undertakers and public authorities when exercising their statutory functions on this land, need to be aware that the interest features of Sites of Special Scientific Interest may be affected.

The legislation places a general duty on all public bodies to take reasonable steps, consistent with the proper exercise of their functions, to further the conservation and enhancement of the special features on Sites of Special Scientific Interest. Section 28G of the Wildlife and Countryside Act 1981 (as amended) states that public bodies must "take reasonable steps, consistent with the proper exercise of their functions, to further the conservation and enhancement of Sites of Special Scientific Interest"

Natural England expects that public bodies will take full account of these responsibilities under this duty whenever their actions may affect Sites of Special Scientific Interest and more information can be found in the Department Environment Food and Rural Affairs publication: Sites of Special Scientific Interest Encouraging Positive Partnerships:

Rural Areas

At the heart of the National Planning Policy Framework is a presumption in favour of sustainable development. Specifically in respect of protected landscapes, the National Planning Policy Framework states that planning policies should support economic growth in rural areas in order to create jobs and prosperity by taking a positive approach to sustainable new development. It also says that appropriate weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to landscape and scenic beauty. The conservation of wildlife and cultural heritage are important considerations in all these areas, and should be given great weight in National Parks and the Broads.¹⁰

At the same time, those who represent rural areas recognise that a modern telecommunications infrastructure network is vital for a modern economy and society, and is particularly important in preventing a rural/urban digital divide; while operators recognise the need to respect the environment, particularly in sensitive areas such as National Parks and in siting development in rural areas, operators will take these principles into account.

¹⁰ Ibid

Appendix C: Traffic Light Model and Consultation Strategy

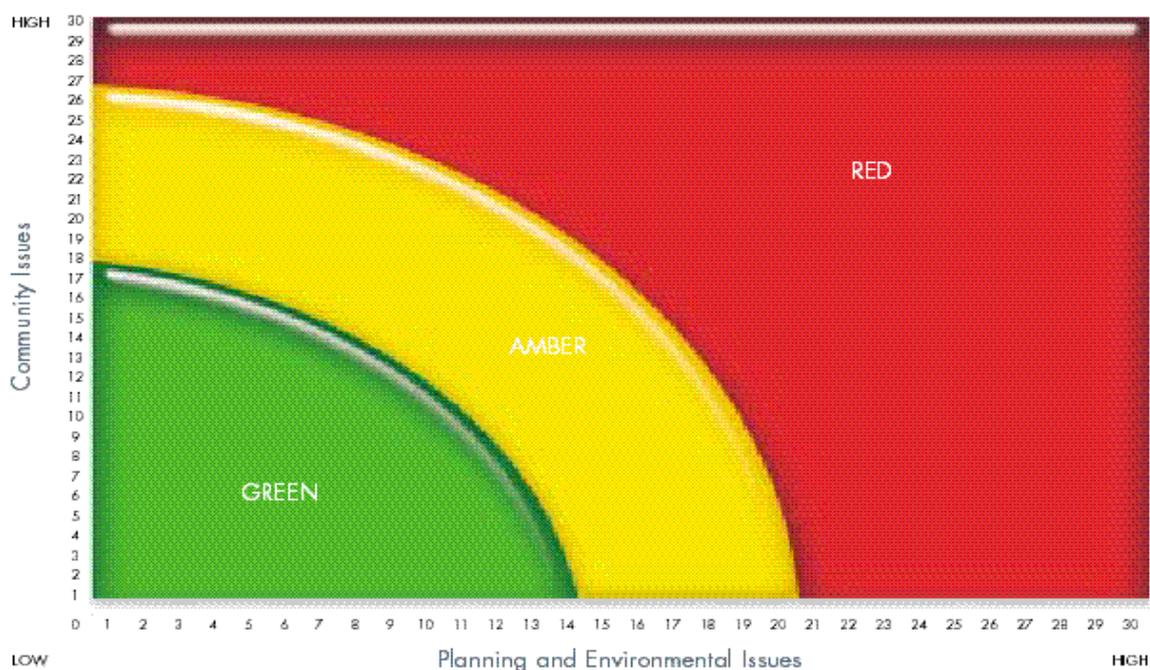
The mobile operators are committed to proportionate community engagement and will undertake appropriate pre-application consultation in addition to any carried out by the Planning Authority once the application is submitted

The **Traffic Light Rating Model** allows a site to be rated by the operator according to its likely sensitivity in terms of environmental, planning and community considerations. Depending on that rating a plan is devised that sets out the likely appropriate level of consultation.

Essentially, the Traffic Light Rating Model, together with the **Guide**, can be used to determine the rating of a site as green, amber or red. The Model operates along two axes – Planning and Environmental issues (horizontal) and Community issues (vertical). This Appendix provides an outline of the Traffic Light Model and the Guide provides further details on how this is carried out. The **Consultation Strategy** sets out the different types of consultation activity which may be applicable for a site depending on its rating.

It should be stressed that a rating of Red (or Amber) does **not** mean that the proposal should not be progressed. Rather, it simply indicates that a higher level of public consultation may be needed prior to the planning application being submitted.

Traffic Light Rating Model for Public Consultation



Community Issues

Views and attitudes of local people	Previous residents activity and likely community view	0-15
Social/Political	Council policy on telecommunications/views of local planning authority. Level of influence of local and key stakeholders and Non Governmental organisations. Involvement of MP, local planning authority own land and property.	0-10
Media	Likely media interest, regional/local media coverage, previous media interest, other sites that have raised the profile of the issue.	0-5

Planning and Environmental Issues

Sensitive Land Use	Site in relation to residential property, homes and schools and other sensitive land uses such as nurseries, playgroups, playgrounds and hospitals.	0-15
Siting and Appearance	<p>Site in relation to residential property, homes and schools and other sensitive land uses such as nurseries, playgroups, playgrounds and hospitals.</p> <p>Siting – existence of topographical features and natural vegetation, flora and fauna, impact on skyline or horizon, townscape clutter, site in relation to existing masts, structures or buildings (including historical or traditional character), views of recognised importance.</p> <p>Appearance - height in relation to surrounding land; appearance of the installation; materials, colouration, dimensions (other than height), overall shape; solid or open framework, transmission solutions (i.e. impact of dish).</p> <p>Type of site - new site, upgrade, swap out, mast share.</p>	0-10
Planning	Development Plan Policies including Green Belt designation, Precedents/Site History, Impact on sites of special land use designation such as National Parks, AONB, Conservation Area, SSSI, Listed Buildings.	0-5

The Traffic Light Rating Model must be used to give an overall Rating for each proposed new site or significant upgrade of an existing site. The Model combines elements of subjectivity and objectivity and is intended as a guide to the degree of consultation necessary. Once the Rating has been determined then the Consultation Strategy is used to provide the options available in respect of the level of public consultation. It is important to seek local planning authority input into the process where possible. The rating for each site is to be reviewed at least once – in particular after pre-application consultation with the local planning authority.

Guide to Using Traffic Light Rating Model for Public Consultation

This guide is to assist in ascertaining the amount and type of public consultation that is required for any proposed site or significant upgrade of an existing site. The public consultation that is carried out under this process will be in addition to that which will be carried out by the local planning authority once the planning application has been submitted.

The graph should be used to rate a site as green, amber or red. The Traffic Light Rating Model operates along two axis; 'Planning and Environmental issues' (horizontal) and 'Community issues' (vertical).

Planning and Environmental Issues – Horizontal Axis

The horizontal axis is used to ascertain planning and environmental issues relating to the proposal. The axis is graded 0-30, where 0 indicates very low concern or no concern, and 30 where there are likely to be major concerns about the proposal.

The grading along this axis is made up from three categories: Sensitive Land Use, Siting and Appearance, and Planning. Each category identifies the key elements that will determine the level of consultation required. The categories have different levels of influence and have, therefore, been given different levels of weight.

The Sensitive Land Use category is graded from 0 – 15, the Siting and Appearance category from 0 – 10, and Planning from 0 – 5.

The highest score within each category will apply and not a cumulative score.

The person using the Traffic Light Rating Model will use the tables below to determine the score in each of the categories. Some of the categories are objective (Sensitive Land Uses) whilst the others allow some form of subjectivity. A degree of common sense must be applied when giving a Site a Rating as there may be other reasons not mentioned in this Guide that will affect its sensitivity.

The horizontal axis rating is calculated by adding the score given in each of the categories on that axis.

Sensitive Land Use 0 – 15

Residential property or homes 0 – 15

Location of site in relation to building

Located on a residential tower block	10 - 15
next to	10 – 15
in close proximity	5 – 10
far from	0 – 5

Schools 0 – 15

Location of site in relation to boundary

Located on	15
next to	10 – 15
close proximity	5 – 10
near to	0-5
Far from	0

Nurseries, playgroups, play grounds, recreation grounds (with children's areas) 0 – 15

Location of site in relation to building

next to	10 – 15
in close proximity	5 – 10
far from	0 – 5

Hospital Property 0 - 10

Buildings or grounds

Located on	0 – 10
Elsewhere	0

Other sensitive land use to be treated on its own merits but could score 0 – 15.

Siting and Appearance 0 - 10

This category is more subjective based on the factors set out in the box. A score must be given based on the implications of the issues in the category for that particular site.

Siting and Appearance 0 – 10

High Environmental Impact	5 – 10
Low Environmental Impact	0 – 5

Siting – matters to be considered include existence of topographical features and natural vegetation, flora and fauna, impact on skyline or horizon, townscape clutter, site in relation to existing masts, structures and buildings (including historical or traditional character), views of recognised importance.

Design – matters to be considered include height in relation to surrounding area, appearance of the installation, material, colouration, dimensions (other than height), overall shape, solid or open framework, transmission solutions (i.e. impact of dish).

Site type – new site, upgrade, swap out, mast share. In respect of upgrades, swap outs, or mast shares it is anticipated that the score under siting and appearance will be less than for new installations. The matter that is being given consideration is the impact of the proposed alteration in comparison to the existing installation.

Planning 0 – 5

Development Plan policies (site specific) 0 – 5

Positive stance towards proposal	0
Neutral stance	0
Negative stance	5

Precedents/Site history 0 – 5

Previous applications refused	5
No history of telecommunications proposed	0
Previous applications successful	0

Located within special land use 0 – 5

National Park AONB SSSI Others i.e. World Heritage Site, Registered Park or Garden, Archaeological site, Special Landscape Area, Heritage Coast Zone, National Nature Reserve.	5
In Green Belt land Within 50m of Conservation Area	0 – 5

Location in relation to sensitive site 0 – 5

On a Listed Building	5
Within 50m of Listed Building	0 - 5
Greater than 50m	0

Community Issues – Vertical Axis

The vertical axis is used to ascertain community issues. The axis is again graded 0-30, where 0 indicates low concern and 30 where there are likely to be major concerns about the proposal.

The grading along the vertical axis is made up from three categories: Views and attitudes of Local Communities; Social and Political; and Media. Each category identifies the key elements that will determine the level of consultation required. The categories have different levels of influence and have, therefore, been given different levels of weight.

Views and Attitudes of Local Communities is graded from 0 – 15; Social and Political from 0 – 10; and finally Media from 0 - 5.

The highest score within each category will apply and not a cumulative score.

The person using the Traffic Light Rating Model will use the tables below to determine the score in each of the categories. A degree of objectivity has been provided but a score can be given anywhere between the upper and lower limits.

The vertical axis rating is calculated by adding the score in each of the categories on that axis.

The vertical axis is the most likely to be reviewed, in particular, the stance of the Ward Councillor. Views and attitudes of local communities, level of influence of local and key stakeholders, views and attitudes of local communities, and Media. In the event that there is a major change such as the formation of a resident's objection group then this would warrant a review, but in any event a review should be carried out after the pre-application consultation.

Views and attitudes (or likely) of local communities 0 – 15

Previous residents' activity

Considerable opposition	10 – 15
Some opposition	5 – 10
Little opposition	0 – 5

Social Political 0 – 10

Council Policy on Telecommunications	0 - 10
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Stance of Planning Committee 0 – 10

All refusals	10
Some refusals (less than 50%)	5
Mostly approvals (greater than 50%)	0

Local and key stakeholders and Non Government Organisations 0–8

Active interest	8
Some interest	4
No interest	0

Involvement of MP 0 – 10

Significant previous involvement	10
No previous involvement	0

LPA own land and Property 0 - 10

Moratorium* on all land and property	10
Partial Moratorium* i.e. residential	5
No moratorium	0

* Paragraph 44 of the National Policy Planning Framework¹¹ states that: '*Local planning authorities should not impose a ban on new*

¹¹

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

telecommunications development in certain areas, impose blanket Article 4 directions over a wide area or a wide range of telecommunications development or insist on minimum distances between new telecommunications development and existing development.'

Media 0 - 5

Previous media interest 0 – 5

Significant negative publicity	5
No interest	0

Does the Rating feel Right?

It is important to appreciate that a degree of common sense must be applied in determining a Rating for a particular site. Once the Rating has been given and it is obvious that it is not appropriate, then a final review should be undertaken. The Rating can be amended but only if there are compelling reasons, in other words this 'health check' should only be used on rare occasions.

Consultation Strategy

The operator should draw up a Consultation Strategy detailing the methods to be employed together with who is to be consulted and in what manner. The Consultation Strategy sets out the different types of consultation activity that may be applicable for a site depending on its rating. It will normally be advantageous to all parties if the consultation strategy is drawn up in consultation with local planning officers.

Under the Traffic Light Rating Model, if a site is rated green then generally the statutory consultation is deemed to be sufficient. If the site is rated amber or red, the operator should as a minimum send letters to the Parish Council and Ward Councillors. A minimum period of fourteen days from the date of the letter should be allowed for comments to be made on the proposals. In the letter details of the preferred proposal, possible alternatives (if there are any) together with any other options considered and rejected should be given.

There are a number of additional consultation tasks that could be undertaken by the operator depending on the characteristics of a site:

- Consultation letter
- Site notice;
- Informal, drop-in session;
- Key stakeholder briefing session;
- Leaflets; and
- Public notice placed in local press.

The operator should consider on a case by case basis whether these additional consultation methods should be employed.

The Consultation Strategy below should be read in conjunction with 'The Planning Process in Practice', Section 8, on pages 14-20 of this Code of Best Practice.

STAGE 1- Area Wide Local Planning Authority Consultation

This provides every local planning authority with details of existing sites in their area on an annual basis.

Consultation Method	Party Consulted	Objective of Consultation	Timing
Annual update letter	Local planning authority - Officers	Provide information on existing sites	Annually

STAGE 2a and 2b Site Selection (for new sites) Local Planning Authority Consultation & Identify Consultation Strategy

Consultation Method	Party Consulted	Objective of Consultation	Traffic Light Rating		
			Green	Amber	Red
Pre-Application contact with local planning	Local planning authority - Officers	Obtain local planning authority view on the preferred and other options	●	●	●
Pre-Application Meeting Offer	Local planning authority - Officers	Obtain local planning authority view on the preferred and other options	●	●	●

STAGE 3 – Pre-Application Site Specific Community Consultation

Consultation Method	Party Consulted	Objective of Consultation	Traffic Light Rating		
			Green	Amber	Red
Letter to Ward Councillor	Ward Councillor	Obtain feedback from local representatives	○	●	●
Letter to Parish Council	Parish Council	Obtain feedback from local representatives	○	●	●
Erect Voluntary Consultation Notice	All (local community)	Obtain feedback from local community	*	○	○
Informal 'Drop In' Session	All (local community)	Obtain feedback from local community/ others	*	○	○
Key Stakeholder Briefing session	Invite all stakeholders	Obtain feedback from local community/others	*	○	○
Leaflets	All (local community)	Obtain feedback from local community/ others	*	*	○
Public Notice Placed in Local Press	All (local community)	Obtain feedback from local community/others	*	*	○

STAGE 4 – Planning Submission

Consultation Method	Party Consulted	Objective of Consultation	Traffic Light Rating		
			Green	Amber	Red
Site meeting with Planning Officer	Local planning authority - Officers	Gain local planning authority officer support	*	○	○
Planning Committee Meeting	Planning Committee Members	Gain local planning authority Member support	*	○	○

KEY

● Should be undertaken	○ Optional	* Generally not necessary
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Appendix D: Consultation with Schools and Colleges

Since 2001, planning guidance has advised that, where it is proposed to install, alter or replace a mobile phone base station on or near a school or college, operators should discuss the proposed development with the relevant body of the school or college of further education concerned before submitting an application for planning permission or prior approval to the local authority. This guidance was originally drawn up when mobile telephony was relatively new, when there had been much less research into its possible effects, and when public concern about mobile phone masts was greater than it is now. Since then, there has been a great deal of research into the possible health effects of mobile phone technology and The World Health Organisation's current advice¹² is that a large number of studies have been performed over the last two decades, and that to date, no adverse health effects have been established as being caused by mobile phone use. The World Health Organisation's agency, the International Agency for Research on Cancer has concluded that *'typical exposures to the brain from mobile phone base stations are several orders or magnitude lower than those from handsets.'*¹³

Nevertheless operators recognise that some parents can be concerned about the possible health effects of mobile phone masts, and therefore, as a matter of good practice, carry out a specific pre-application consultation exercise with schools and colleges where appropriate. This will give them the opportunity to feed in their comments and concerns and to have them considered by the operators at an early stage. However, it is important to reiterate that there is no evidence that supports any health-related concerns about masts that operate within international guidelines. Health and safety issues are dealt with under a separate regulatory regime.

Operators should discuss and agree with local planning authorities in advance which particular schools and colleges should be consulted. In any cases of doubt, consultation with the school or college should be undertaken. The following guidelines may be of help in determining which schools or colleges should be consulted.

A **school** is an institution providing education for children within the nursery (2-5), primary (5-11), and secondary (11-16) education ranges. Schools can be maintained (i.e. funded by Government through local education authorities) or non-maintained/independent (i.e. funded and run by other means).

¹² <http://www.who.int/mediacentre/factsheets/fs193/en/index.html>

¹³ <http://monographs.iarc.fr/ENG/Monographs/vol102/index.php>

A **college of further education** is an institution providing full- or part-time education for students over the age of 16. This includes sixth form colleges (16-19). Institutions may be maintained by a local education authority, a further education corporation (e.g. the institution's governing body) or be an institution designated under section 28 of the Further and Higher Education Act 1992.

Where school or college playing fields are separate from the institutions themselves the guidelines should be applied to the playing fields separately.

There are no hard and fast rules for determining whether a base station is near a school or college for the purposes of pre-application consultation. The institutions concerned need to be considered on a case-by-case basis, in the light of local circumstances.

In determining whether a school or college should be consulted the following factors should be taken into account by operators and local planning authorities:

- The proposed site is on school/college grounds;
- The proposed development would be seen from the school/college or its grounds;
- The site is on a main access point used by pupils/students to the school/college;
- There is a history of concern about base stations within the local community;
- The local planning authority has requested consultation with the school/college;
- The school/college has requested that it be included in any consultation (Department for Education and Science has advised schools and colleges that if they wish to be consulted about base station in their locality they should notify the local planning authority setting out the circumstances in which they would wish to be consulted).

For consultation purposes the following actions should take place as a minimum:

- Two copies of the standard letter (see below) should be sent recorded delivery to the school/ college, one to the Head Teacher (or Principal in the case of Further Education Colleges) and one to the chair of school governors or equivalent body for Further Education colleges.
- The operator should wait a minimum of 14 days from the date of the letter to allow an opportunity for the school to respond prior to submitting an application for planning permission or prior approval.

To ensure a complete record of the consultation process is kept, a copy of the completed consultation assessment and any consultations with the school/college should be retained on the operator's site files. This will ensure accurate records that can be referred back to in discussions with the local authority in respect of any subsequent planning submission. Copies of the consultations undertaken should be included with any subsequent application if required by the local authority.

Standard Letter to Schools and Further Education Colleges

RECORDED DELIVERY

Our ref:

Date:

Chairman of School Governors

Further Education College Board of Governors

Dear

Proposed XXX (company name) Telecommunications site at XXX

XXX (company name) is in the process of seeking a suitable site in the XXX area for a new mobile radio base station. The purpose of this letter is to provide you with information as to the proposal and the opportunity for you to seek further detailed information about the site from us should you wish to do so.

Government Guidance states that it is good practice for mobile telecommunications operators to notify you as Chairman of Governors (or as appropriate) of our proposal to install a telecommunication site where it is near to a school.

A site has been selected at this location because (justification as appropriate.) We would value your comments on this proposal, in advance of our formal planning submission to XXX (local authority name). This will help us to address any queries or comments you may have in respect of our proposed development.

The site, as currently proposed, is*Provide site details e.g. type of structure, use of existing building, precise location (plan and address), drawings (if available), design initiatives utilised, approx distance to school boundary. Brief description of proposed development.*

Emissions from radio base stations must meet the International Commission on Non-Ionizing Radiation Protection guidelines for public exposure adopted in the UK. I confirm that the above proposed installation

will comply with these guidelines. In fact, because of the very low power utilized by telecommunications sites, the emissions will be many times lower than the International Commission on Non-Ionizing Radiation Protection threshold.

We would be grateful if you could consider this letter and the accompanying information about the proposals and let us know your views no later than 14 days from the date of this letter. Any comments received from you within this period will be considered by us and will be submitted with our application to the Council.

Should you require any additional information in respect of the above proposals then please do not hesitate to contact XXX (as appropriate-maybe individual or help line no, needs to include name, address, email, and telephone number).

Yours sincerely

CC Head Teacher
Principal of College

Appendix E: Supplementary Information Template

SUPPLEMENTARY INFORMATION

1. Site Details

Site Name:		Site Address:	
National Grid Reference:			
Site Ref Number:		Site Type: ¹⁴	

2. Pre Application Check List

Site Selection (for New Sites only)

(Would not generally apply to upgrades/alterations to existing sites)

Was a local planning authority mast register available to check for suitable sites by the operator or the local planning authority?	Yes	No
If no explain why:		
Were industry site databases checked for suitable sites by the operator:	Yes	No
If no explain why:		

Annual Area Wide Information to local planning authority

Date of information submission to local planning authority	
Name of Contact:	
Summary of any issues raised:	

¹⁴ Macro or Micro

Pre-application consultation with local planning authority

Date of written offer of pre-application consultation:		
Was there pre-application contact:	Yes	No
Date of pre-application contact:		
Name of contact:		
Summary of outcome/Main issues raised:		

Ten Commitments Consultation

Rating of Site under Traffic Light Model:	Red	Amber	Green
Outline Consultation carried out:			
Summary of outcome/Main issues raised:			

School/College

Location of site in relation to school/college (<i>include name of school/college</i>):
Outline of consultation carried out with school/college (<i>include evidence of consultation</i>):
Summary of outcome/Main issues raised:

Civil Aviation Authority/Secretary of State for Defence/Aerodrome Operator consultation (only required for prior approval applications)

Will the structure be within 3km of an aerodrome or airfield?	Yes	No
Has the Civil Aviation Authority/Secretary of State for Defence/Aerodrome Operator been notified?	Yes	No
Details of response:		

Developer's Notice

Copy of Developer's Notice enclosed?	Yes	No
Date served:		

3. Proposed Development

The proposed site:

Enclose map showing the cell centre and adjoining cells:

Type of Structure (<i>e.g. tower, mast, etc</i>):	
Description:	
Overall Height:	
Height of existing building (<i>where applicable</i>):	Metres
Equipment Housing:	
Length:	Metres
Width:	Metres
Height:	Metres
Materials (<i>as applicable</i>):	
Tower/mast etc – type of material and external colour:	
Equipment housing – type of material and external colour:	

Reasons for choice of design:

Technical Information

	Yes	No
<p>International Commission on Non-Ionizing Radiation Protection Declaration attached (see below)*</p> <p>International Commission on Non-Ionizing Radiation Protection public compliance is determined by mathematical calculation and implemented by careful location of antennas, access restrictions and/or barriers and signage as necessary. Members of the public cannot unknowingly enter areas close to the antennas where exposure may exceed the relevant guidelines.</p> <p>When determining compliance the emissions from all mobile phone network operators on or near to the site are taken into account.</p> <p>In order to minimise interference within its own network and with other radio networks, (NAME OF OPERATOR) operates its network in such a way the radio frequency power outputs are kept to the lowest levels commensurate with effective service provision</p> <p>As part of (NAME OF OPERATOR)'s network, the radio base station that is the subject of this application will be configured to operate in this way.</p> <p>All operators of radio transmitters are under a legal obligation to operate those transmitters in accordance with the conditions of their licence. Operation of the transmitter in accordance with the conditions of the licence fulfils the legal obligations in respect of interference to other radio systems, other electrical equipment, instrumentation or air traffic systems. The conditions of the licence are mandated by Ofcom, an agency of national government, who are responsible for the regulation of the civilian radio spectrum. The remit of Ofcom also includes investigation and remedy of any reported significant interference.</p> <p>The telecommunications infrastructure the subject of this application accords with all relevant legislation and as such will not cause significant and irremediable interference with other electrical equipment, air traffic services or instrumentation operated in the national interest.</p>		

4. Technical Justification

Enclose predictive coverage plots if appropriate, e.g. to show coverage improvement. Proposals to improve capacity will not generally require coverage plots.

Reason(s) why site required e.g. coverage, upgrade, capacity

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5. Site Selection Process

Alternative sites considered and not chosen (not generally required for **upgrades/alterations to existing sites** including redevelopment of an existing site to facilitate an upgrade or sharing with another operator).

Site	Site Name and address	National Grid Reference	Reason for not choosing

If no alternative site options have been investigated, please explain why:

Additional relevant information:

Contact Details

Name: (Agent)
Operator:
Address:

Telephone:
Fax no:
Email Address:

Signed:

Date:

Position:

Company:

***Declaration of Conformity with International Commission on Non-Ionizing Radiation Protection Public Exposure Guidelines**

(Operator name)

(Operator address)

Declares that the proposed equipment and installation as detailed in the attached planning / General Permitted Development Order application at:

(Address).....

.....

.....

.....

.....

.....

is designed to be in full compliance with the requirements of the radio frequency public exposure guidelines of the International Commission on Non-Ionizing Radiation Protection as expressed in EU Council Recommendation of 12 July 1999 * "on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz)".

* Reference: 1999/519/EC

Date:

Signed:

Name:

Position:

(Footer - operator name and registered number / office)

Appendix F: Guidance on Applications – Prior Approval and Full Planning

Local planning authorities should be familiar with what information must be submitted to constitute a valid application under the regulations, and what additional information is submitted as defined in this Code of Best Practice.

Development that requires an application for prior approval or planning permission

The quality of information submitted as part of an application for telecommunications development is very important. It should always be clear and complete. Good quality submissions can help explain to local people and consultees as well as officers and elected members exactly what is being proposed and its likely impact. By adopting high standards unnecessary time and effort in trying to explain proposals can be avoided and help allay concerns that ambiguous and incomplete information can cause. In addition, good quality submissions are likely to result in speedier and better informed decisions. Commitment Five of the operators' Ten Commitments to Best Siting Practice is to use standard supporting documentation for all planning submissions whether for planning permission or prior approval.

By adhering to the guidance set out below, operators will be able to achieve the quality of submissions that this Code is seeking to deliver.

Drawings

Site Location Plan – (minimum scale 1:2500 although within primarily rural areas a scale up to 1:50000 may be appropriate). Should show:

- General location of the site within the area clearly outlined;
- The position of buildings within 100m of the site;
- At least two public highways for reference where feasible.

Site Layout Plan – (minimum scale 1:500). Should show:

- The boundaries of the site;
- The position of existing and proposed equipment including all antennas and radio equipment housing as well as ownership by individual operator;
- Any means of enclosure;
- The position of any adjoining buildings and/or trees;
- Any landscaping proposals;
- The means of access.

A clear differentiation between existing and proposed equipment should be made. If this cannot be achieved on a single drawing then separate drawings should be submitted.

Elevations – (minimum scale 1:100). Should show:

- Details of height, width, materials and external appearance of the equipment and any radio equipment housing. Also any colour proposals;
- Similar details of any structure and/or buildings to which the equipment will be attached;
- Details of any equipment that is to be removed (if applicable);
- Any adjacent buildings, trees, safety/ security fencing or other telecommunications equipment.

Equipment on buildings

Where proposals relate to the installation of equipment on buildings the following additional plans may be required:

Roof Plan – (appropriate scale e.g. 1:100). Should show:

- The whole roof of the building;
- Details of existing and proposed equipment including all antennas, radio equipment housing, access platforms and air conditioning plant.

Existing and Proposed Cross sections. This should be provided where proposed equipment is partially hidden in the elevations by other existing equipment or roof structures.

Maps

An Ordnance Survey base map to an appropriate scale (usually 1:25,000) showing the cell centre and existing sites within the cell and also the location of adjoining cells and sites.

An Ordnance Survey base map to an appropriate scale (usually 1:50,000 or 1:25,000) highlighting all alternatives that have been considered (if appropriate) This should focus on existing masts and structures and include all alternatives detailed in Section 6 of the Supplementary Information Template (Appendix E).

Notifications

General Permitted Development Order applications for prior approval. Evidence that the Developer's Notice was served before the application was submitted should be provided.

Applications for planning permission. Evidence should be provided that the owner or agricultural tenant of the land to which the application relates, has been notified of the proposed development.

Declaration of Conformity with International Commission on Non-Ionizing Radiation Protection Public Exposure Guidelines

All applications for planning permission or prior approval should be accompanied by a signed declaration that the equipment and installation has been designed to be in full compliance with the requirements of the radio frequency public exposure guidelines of the International Commission on Non-Ionizing Radiation Protection. An example of the International Commission on Non-Ionizing Radiation Protection declaration of conformity is contained within Appendix E (Supplementary Information Template).

The International Commission on Non-Ionizing Radiation Protection public exposure guidelines have been taken as the numerical basis for the EU Council recommendation of 12 July 1999 (Reference 1999/519/EC) “on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz)”.

Compliance with the International Commission on Non-Ionizing Radiation Protection public exposure guidelines is normally determined by mathematical calculation, and implemented by careful location of antennas, access restrictions and/or barriers and signage as necessary. Operators shall ensure that members of the public cannot unknowingly enter areas close to the antennas where exposure may exceed the guidelines.

The calculation of the radio frequency field produced by an antenna should be based on recognised, standard methods. Examples of the calculation methods that can be used are defined in CENELEC EN 50383: “Basic Standard for the calculation and measurement of electromagnetic field strength and SAR related to human exposure from radio transmitters”.

The emissions from all mobile phone network operators’ equipment on and near to the site are taken into account when determining compliance.

Appendix G: Glossary of Terms

2G

2G, the second generation or GSM, was the first digital technology used in the operation of mobile phones. It was introduced in the early 1990s, replacing earlier first generation analogue technology, and enabled mobile access to some data services, such as email.

3G

3G, or third generation, is the generic term used for the mobile communications systems first introduced in the UK in 2002. 3G allows multimedia and internet access and the ability to view video footage, as well as the voice and text messaging provided by 2G. The third generation technology used in the UK is called UMTS.

4G

4G, or fourth generation, is the successor to 3G and 2G. It delivers significantly faster mobile broadband services – approaching today's ADSL home broadband speeds – and thus support a wide range of data services that are fast becoming essential features of the modern world.

Antenna

A device that transmits and receives radio waves. There are different designs in operation including Omni-directional antennas, sectored antennas and dual/triband antennas.

Analogue

First mobile phone technology, which was phased out in the UK in 2001 with the introduction of second generation technology (GSM).

Base Station

A base station is a macrocell, microcell, picocell or femtocell site and consists of radio transmitters and receivers

Cabin/Cabinet

A structure that protects radio transmitters and receivers from damage. They can be in the form of large cabins or smaller cabinets.

Cell

A geographic area over which a radio base station transmits and receives radio signals to and from customers to provide service coverage.

Dish Antenna

Dish antennas operate on a line of sight basis and transmit and receive highly focussed low powered radio waves in one direction. Dish antennas usually have the function of linking a base station, sometimes through a series of links, to a base station control site. It is usually by this means that a base station is integrated into the wider network.

Electromagnetic Waves/Fields

Electromagnetic waves are emitted by many natural and man-made sources. Electromagnetic waves are used to transmit and receive signals from mobile phones and their base stations. The type of electromagnetic waves mobile phones use is called radio frequency waves/fields.

Feeder cable

The co-axial cable that connects an antenna to a base station transmitter or receiver.

Femto-cell

A femto-cell is a small base station. Indoor femto-cells allow mobile phone users to make calls inside their homes via their Internet broadband connection. The base station tends to be of the size and appearance of a typical Wi-Fi router used in homes to connect a computer wirelessly to the Internet. It is a plug and play device that allows a mobile phone subscriber to use their mobile phone to make voice and data calls via their broadband connection to their mobile phone provider's phone network. Outdoor femto-cells provide localised area coverage over a greater area and to more users than indoor femto-cells. They are typically used to provide a signal in areas which traditional mobile coverage has been unable to reach. A number of outdoor femto-cells would be placed at several locations across a rural village. The units, about the size of a small carry on suitcase, use existing broadband services to deliver a mobile signal. Femto cells should not be seen as a replacement for macro sites

Fourth Generation

See 4G.

Frequency

Frequency is the number of times per second at which an electromagnetic wave oscillates. It determines the wave's properties and usage. Frequencies are measured in hertz (Hz). 1 Hz is one oscillation per second, 1 kHz a thousand, 1 MHz is a million and 1GHz is a thousand million. Frequencies between 30 kHz and 300 GHz are widely used for telecommunication, including broadcast radio and television, and comprise the radio frequency band. Mobile telephone systems currently operate at between 800 MHz and 2600MHz.

GSM

GSM - Global System for Mobile Communications is the international, pan-European operating standard for the current generation of digital cellular mobile communications. It enables mobile phones to be used across national boundaries.

Hand-off

As a mobile customer moves from one cell to another the call is automatically transferred from one base station to another in a process known as hand-off.

International Commission on Non-Ionizing Radiation Protection

Is an independent scientific body that has produced an international set of guidelines for public exposure to radio frequency waves. The Government has adopted these guidelines, and all mobile network base stations operate within them.

LTE

Long Term Evolution (LTE) was the next step from 3G technology, and will deliver very fast data speeds of up to 100Mb/s downlink and 50Mb/s uplink (peak rates), and will be 'backwards-compatible' with existing GSM networks.

Macrocell

A macrocell provides the largest area of coverage within a mobile network. The antennas for macrocells can be mounted on ground-based masts, rooftops or other existing structures. They must be positioned at a height that is not obstructed by terrain or buildings. Macrocells provide radio coverage over varying distances depending on the frequency used, the number of calls made and the physical terrain. Macrocell base stations have a typical power output in tens of watts.

Mast

A ground-based or roof-top structure that supports antennas at a height where they can satisfactorily send and receive radio waves. Typical masts are of steel lattice or tubular steel construction. New slimmer versions of masts are now available which can be painted to blend in with their surroundings, disguised as trees or telegraph poles or used in conjunction with street lighting and CCTV cameras. Masts themselves play no part in the transmission of the radio waves for mobile telecommunications.

Microcell

Microcells provide additional coverage and capacity where there are high numbers of users within urban and suburban macrocells. The antennas for microcells are mounted at street level, typically on the external walls of existing structures, lamp-posts and other street furniture. Microcell antennas are usually smaller than macrocell antennas and when mounted on existing structures can often be blended into building features. Microcells provide radio coverage over distances, typically around 100m and operate at power levels substantially below those of macrocells. Microcells should not be seen as a replacement for macro sites.

Mobile Network Operators

Mobile Network Operator means a firm that owns both mobile network infrastructure and is licensed by Ofcom, under section 1(1) of the Wireless Telegraphy Act 1949, to hold spectrum and for the purpose of providing a public phone network using a radio link. There are currently four Mobile Network Operators in the UK – EE (formerly Orange, & T-Mobile in the UK) Telefónica UK, Three UK, and Vodafone.

Mobile Switching Centre

All base stations have to be linked to a Mobile Switching Centre, which will have a significant number of radio dishes linked by direct line of sight to outlying base stations. These can be installed on large radio masts or on buildings. The Mobile Switching Centre integrates each base station into the network and enables the calls to be connected within the same or a competing network. The Mobile Switching Centre also controls the handing off process as customers move from one cell to another.

Picocell

A picocell provides more localised coverage than a microcell. These are normally found inside buildings where coverage is poor or there are a high number of users such as airport terminals, train stations or shopping centres. Picocells should not be seen as a replacement for macro sites.

Pole Mounts

Roof mounted supports normally between 4 – 6 metres in height from the base of the roof, used to affix a combination of sector and dish antennas and unlike a stub mast (see below), used in series to provide 360 degree coverage in sectors.

Radio Base Station

See base station.

Second Generation

See 2G.

Sectored Antenna

Antenna which transmits or receives higher signal levels in a horizontal direction. The antenna is split into several sectors (typically 3 or 6) to provide 360 degree coverage.

Small Cell

Small cell is a catch-all term covering a variety of small base stations, such as femto-cells, microcells, and picocells.

Stub Mast

A roof-mounted mast structure that supports multiple antennas at a height where it can satisfactorily send and receive radio waves. A stub mast is typically 4m - 6m high and of steel lattice construction. Stub masts themselves play no part in the transmission of radio waves.

Third Generation

See 3G.

Transmitter

Electronic equipment that generates radio frequency electromagnetic energy and is connected to an antenna via a feeder cable.

UMTS

Universal Mobile Telecommunication System (UMTS) is part of the international vision of a global family of third generation mobile communication systems. The UK refers to this as 3G.

Wavelength

Wavelength is the distance in metres between any two 'similar' points on a radio wave. This portion of the wave is referred to as one complete cycle. The lower the frequency of a wave, the longer the wavelength.