

Mitigating the Environmental Effects of Telecommunication Masts and Cabinets in the London Borough of Hillingdon and beyond



The Review of Mobile Technology and Telecommunications Equipment in Hillingdon Borough and beyond

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Chairman's Foreword

We all use mobile phones and other wireless technology and there is no doubt that this technology is here to stay. However, the consequences are quite clear. To enable us to use this technology we need masts and cabinets. It's a paradox - on one hand we want mobile phones but on the other we don't want the necessary masts and cabinets to blot our environments.

It's not a Hillingdon problem. It's not just a UK problem, it is an International one. The issues we cover in this review and the recommendations made are just as pertinent to Harrogate, Hamburg, Helsinki, Houston and Havana.

I would like to thank my fellow Committee members for their diligence and patience in carrying out this review. There has been much to learn, question and debate. Thanks must also go to members of the Mobile Operators Association. They have been most supportive and given us much guidance and support.

Finally, our thanks go to external witnesses who attended evidence enquiry session and to internal officers including James Rodger, Head of Planning at Hillingdon, whose expertise and enthusiasm for this review was invaluable and to Natasha Dogra and Nadia Williams from Hillingdon's Democratic Services, whose support, particularly in researching facts and figures, has helped make this review possible. I commend the recommendations to Cabinet and beyond.



Councillor Michael Markham
Chairman, Residents' and Environmental Services Policy Overview Committee

Introduction

It's all about communication. The need for one person to connect to another person when they are beyond shouting distance.

Over time man has used hand signals, written on slate, papyrus and paper. We have used smoke, mirrors, flags, telegraphs, letters, the telephone and fax. Each channel of communication was, at the time of its launch, perceived to be the ultimate in technology.

We're in the same position today. With the introduction of new methods of communication. This time, however, it's about mobile phones, iPhones, laptops and iPads. It's about broadband, wireless, Facebook and Twitter, web sites, 'surfing', 'tweeting' and 'googling'.

Most of us use these methods and many of us can't survive without them for personal or business use. Additionally, we expect to be able to use this mobile technology whenever and wherever we want. The fact of the matter is that mobile and wireless technology is here to stay and we have to accept that.

However, the consequence with this march of technology is an increasing number of telephone masts and cabinets spreading throughout our geographical environment.

This has caused much upset with residents determined to protect their environment; and this is reflected by the number of objections made by them in relation to planning applications from mobile telephone operators.

What became clear during this review, is that whilst we couldn't stop progress, there were a number of relatively simple actions that could be undertaken by the London Borough of Hillingdon, other UK local authorities, as well as regional and national government and by telephone operators themselves, that would do a great deal to mitigate the environmental effects of mobile and broadband technology.

The main elements that the overview committee examined during this review are as follows:

- views of residents and key stakeholders
- the future demand for mobile technology
- the effect on transmission facilities required
- how technology could be shared by mobile phone operators
- how operators might be encouraged, by public opinion, or required by regulation, to use their technology in a way as to alleviate residents' concerns, particularly over siting and appearance
- current Hillingdon, regional and national planning policies

This review appears to be the first to take an impartial and pragmatic approach to a national and international problem. Further, the review puts forward recommendations that, if adopted, will do much to protect even to improve the environment whilst not inhibiting the growth of this industry.

EVIDENCE & ENQUIRY

Witnesses

The year long review by the Committee sought evidence from a number of witnesses ranging from Local Authority Planning Departments to private companies. Witnesses are listed below:

- T Mobile UK
- Orange
- Vodafone
- 3
- O2
- Mobile Operators Association
- Apple
- BT
- Virgin Mobile
- Ofcom
- Brunel University
- London School of Economics
- London Borough of Hillingdon ICT Service
- London Borough of Hillingdon Arts Service
- Birmingham City Council
- East Lincolnshire Council
- Haringey Council
- Greater London Authority
- European Union: Council for Communications
- London Borough of Hillingdon Local Development Framework team
- The Phone Mast Company
- Mobile Broadband Networks Limited
- Chairman of Hillingdon Planning Committees
- Residents' Associations
- London Borough of Hillingdon Corporate Property and Construction service
- Institute of Engineering and Technology
- Centre for Public Scrutiny
- Hillingdon Association of Residents' Associations
- Northwood Residents' Association
- Northwood Hills Residents' Association
- Ruislip Residents' Association
- Hillingdon Council of Leaseholders
- European Union Council for Communications
- Greater London Authority
- Imperial University London
- Sony UK
- Panasonic
- Airwave Solutions Ltd

Part I

Future demand

The UK telecommunications market is expected to see record growth over the next five years. In 2011, total revenue increased by 2% to £35.6 billion and is expected to see slightly stronger annual growth levels of between 3% and 4% in the following four years. In 2015, the value of the market is forecast to reach £40.7 billion (at 2010 prices), equivalent to cumulative growth of 17% in real terms compared with 2010.

Mobile phone and broadband uptake, along with technological advancements are believed to facilitate growth during the forecast period.

The market is expected to be particularly driven by the popularity of smart phones, mobile broadband services, and increased demand for data services and mobile applications. The recent surge in popularity of laptops and iPads has boosted the need for further telecommunications coverage across the UK and beyond. This demand has in turn led to an increase in telecommunications equipment erected nationwide. The services offered are used for business purposes, recreational use and even by Emergency Services and the Ministry of Defence.

In 2011 there were 4 planning applications for new masts and 23 applications for free-standing cabinets to be erected in Conservation Areas. The 4 masts received 41 individual objection letters from local residents.

There are now so many telecom cabinets that when asked BT and Virgin advised Council highway engineers they did not know how many thousands of cabinets were in Hillingdon. Data on telecom masts is more accurate though. The London Borough of Hillingdon now has a total of 118 T-mobile & 3 masts, 111 Vodaphone masts, 103 O2 masts and 69 Orange masts located within the borough.

The future demand for these services is expected to increase and with services such as 4G and 5G being constantly developed, it is anticipated that the amount of telecommunications equipment will rise in Hillingdon and across the United Kingdom.

We are aware of the new products being introduced and in the pipe-line. It seems that almost every day we can read about some 'revolutionary' product that will assist us in communicating with each other. The growth of wireless technology within the home and workplace is constantly progressing: gadgets such as Smart televisions and accessing the internet through a television with a wireless keyboard are becoming very popular. The digital media receiver launched by Apple Inc is designed to play digital content straight on to a widescreen high definition television screen. This constant technological progression makes it very difficult to anticipate what the future holds - the only thing that is certain is that this industry will never stand still.

We were interested to learn how the 'experts' saw the future developing and contacted a number of professional institutions, universities and companies asking for them to do some 'blue sky' thinking and to let us know their views. There was no response. We have been led to believe that the reason why no one was sharing their ideas for the future was quite simple: they worked for the industry and were bound by confidentiality agreements or they were fearful of losing commercial advantages.

Thus, we have no idea what the future holds, other than it will be different. What is definite is that the reasons for carrying out this review are as valid today as they probably will be for some years to come.

1. The Committee recommend that the London Borough of Hillingdon Planning Service Officers monitor the development of wireless technology and industry updates and recommend to the Cabinet Member for Planning, Transportation & Recycling how the Council's planning policies may need to be adapted.

Part II

Technical

2012 will see the introduction of 4G technology, operated on two new frequencies - 800MHz and 2600MHz. The lower frequency will travel further while higher frequencies are less powerful. The frequency for National Rail radios was 900MHz while the Police operated at the frequency of 450MHz. Witnesses said the 4G technology was still being investigated and the frequencies and issues of mast sharing were yet to be determined.

Operators are increasingly sharing masts with different companies: '3' and 'T-mobile' shared almost 100% of their telecommunication masts and ancillary equipment. Vodafone and O2 were also investigating ways of developing joint sites.

Whilst masts and boxes are being shared, there is a limit on how much equipment can be stored inside a roadside cabinet - or a POW (Portastor Optima Weatherproof cabinet) i.e. 12 data cards, the size of an average laptop, could be kept within one cabinet. The amount of data on each site is different and therefore the amount of equipment differs. The depth of most cabinets is 1.5m, increasing to 2.2m when the cabinet door is open. The preferred location for a cabinet is on the grass verge. Cabinets must be located 1.5m away from the road, with an absolute minimum distance of 1.2m.

Applications for cabinets are usually received by the London Borough of Hillingdon electronically from mobile operators e.g. Vodafone and 3, and utility companies e.g. BT and Virgin. The application describes the exact location of the cabinet in relation to the phone mast (if applicable) and the adjoining footway.

Following the current procedure, the relevant companies apply for works on the public highway to be undertaken. This application is processed online via software used nationally that all utilities companies are privy to. In this application, the company specifies when the work will be carried out, what work is to be performed, traffic management issues, the date and time of the work and checks to be undertaken at the site.

Once the work has been completed spot checks on the site are carried by Council Officers within a 2 year guarantee period. During this time if there is a fault with the site the operator would be contacted to fix the fault. If the fault poses a danger to the public there is a 2 hour time limit within which the site must be accessed by the operator. For non-dangerous damage there is a 10-day time limit. For dangerous damage, Council Officers remain at the site until the operator arrives. If the operator does not attend within the time limit they are charged. The operator would also be charged for the make-safe actions taken on the site, along with, officer time, traffic management issues and any other inconvenience caused.

Approximately 250 applications are received for cabinets used in conjunction with phone masts and cabinet repairs each year. Over 200 site visits by Council officers each year are undertaken to check for site safety and cabinet maintenance.

Planning officers have an influence over the placement of a cabinet when it is being located within a conservation area; otherwise, all applications are considered by Highways Engineers.

As new technology is introduced, existing masts and cabinets can become redundant. However, we were most concerned to learn that much of this redundant equipment is left in-situ, even though companies are required to remove it.

Telecommunication operators are required to remove equipment ‘as soon as reasonably practical after it is no longer required for telecommunications purposes’ under the Town and Country Planning (General Permitted Development) Order. In practice this means there is no precise timeframe for equipment to be removed, nor is there any way for Councils to know if equipment has become obsolete. The matter of whether a condition is required to ensure removal of obsolete telecommunications equipment has been discussed at Committee meetings. In short the Legislation does require its removal, but to no specified timescale, the legislation does also require the land to be restored to its former state (which in practice means the operator would have to plant grass seed if appropriate etc..)

The Head of Planning has advised a condition wording which would ensure equipment is removed within one calendar month, thus removing the ambiguity:

“All equipment not required for telecommunication purposes shall be removed from the site in its entirety and the site returned to its former state either within one calendar month of the equipment no longer being required or as soon as is reasonably practical, whichever is the sooner.”

There is a high rate of cabinet vandalism, with doors and wires sometimes being stolen. These issues are faced by most Local Authorities nationwide, and are not specific to Hillingdon alone.

We questioned that cabinet manufacturers appeared to be unable to produce more secure products. Bearing in mind the cost to operators in paying for the Council to oversee damaged cabinets and subsequent repair charges and it appeared to us that it must be more economical to purchase more secure cabinets.

Utility companies pay the Borough in the region of £120,000 per annum for sample inspection costs. New parliamentary legislation brought in on 29 November 2011 awarded Local Authorities new powers to impose on utilities companies and require payment of approximately £250,000 to the Borough to carry out the works for cabinets.

2. The Committee Recommend:

i. that the London Borough of Hillingdon’s Highways Department undertake periodic checks to ensure that masts and cabinets are sited where agreed/specified in original application.

ii. that the London Borough of Hillingdon’s Planning department works with Utility Operators to ensure that telecommunication and broadband cabinets are more secure.

iii. that the London Borough of Hillingdon Planning Service requests that when Operators are asked to remove redundant masts and cabinet, they report such activity to the Local Authority Planning Department.

iv. that the Head of Planning requests that operators, as part of their annual roll out plans, identify any obsolete equipment and a timescale for its removal.

v. that Hillingdon Planning department add a condition to mast approvals requiring obsolete equipment to be removed within one month. The Head of Planning has advised a condition wording which would ensure equipment is removed within one calendar month, thus removing the ambiguity:

“All equipment not required for telecommunication purposes shall be removed from the site in its entirety and the site returned to its former state either within one calendar month of the equipment no longer being required or as soon as is reasonably practical, whichever is the sooner.”

Part III

Planning

The London Borough of Hillingdon is responsible for dealing with all applications for telecommunications development in the borough and working towards minimising the visual impacts of such development.

The majority of telecommunications applications dealt with in Hillingdon are for prior approval. These are smaller developments, such as new phone masts under 15m in height, which are classed as permitted development under Part 24 of the Town and Country Planning (General Permitted Development) Order 1995 as amended, subject to detailed consideration of their siting and design. These applications must be determined within 56 days or they are automatically permitted.

Major telecommunications development (e.g. masts over 15m high), proposals in Conservation Areas, on Listed Buildings or on buildings/structures where there is already a significant amount of telecommunications development, require full planning permission and are dealt with in the same way as a normal planning application. Some minor development such as the erection of an additional equipment cabinet, additional dishes or antennas to an existing installation, the erection of some antennas on the roof of a building, or very small installations are not subject to any planning control. Full details of what telecommunications equipment requires planning permission is contained within Part 24 of the Town and Country Planning (General Permitted Development) Order.

Planning applications and prior approval applications are determined by the Council's area planning committees.

As Local Authorities are the responsible authority for telecommunication masts located within their boroughs, any questions regarding planning and environmental issues raised by residents are conveyed to the Council.

Although a number of questions relate to the location of masts, Hillingdon residents have contacted the Council on numerous occasions to record concerns in respect of the installation of cabinets.

The main concerns about cabinets were:

- The size and locations of the cabinet
- Health and safety for pedestrians using the street
- Vandalism of the equipment
- Environmental damage
- Visual pollution

The Council's Corporate Property and Construction Service manage the land, properties and assets owned by the Council. In 2007, a moratorium on the siting of masts and cabinets on Council owned land and properties was lifted. The Corporate Property and Construction Service informed the Committee that there were occasions when the installation of a mast or cabinet could devalue the land.

Operators may request to place masts on Council owned land or properties for a rental fee. Last year some £15,000 was paid to the Council for use of such land and property.

Each telecommunications application considered by the Planning Authority must hold an ICNIRP certificate to indicate that the mast site had been investigated and does not pose any health and safety issues. Mast applications received by the London Borough of Hillingdon did include ICNIRP certificates but did not state what the signal strength would be or what exclusion zone had been decided.

An exclusion zone emanating from a transmitting antenna is the physical area either partially or completely enclosing the antenna where the power density exceeds the relevant guidelines [ICNIRP]. The shape of these zones is determined by the type of antenna. The size of the zone is determined by the amount of power being transmitted by the antenna.

Most modern communications systems have varying power levels depending on the amount of traffic on the site. This means that the exclusion zones are actually changing size during operation, and may for instance be negligible in off peak hours.

We are of the view that such certificates submitted with planning applications should include signal strength and exclusion zone parameters. The Head of Planning has advised that the Council maintains what is called a 'local list'. The local list indicates what documents are required to support different types of planning application to enable them to be registered (re: Applicants must submit the required information to get their application determined). The Head of Planning advises that the local list can be adapted to require this information for telecom masts that require full planning permission.

As cabinets are, arguably, more environmentally intrusive than masts, there is increasing concern at the number and size of cabinets being installed.

Outside of conservation areas, there appears to be little that a local authority can do to influence the size: this is dictated by the technical aspects and, particularly in the case of BT and Virgin, their location. Furthermore, it appears that these two companies are under no obligation to seek approval from a local authority as to where they install their cabinets.

We have been unable to discover when such freedom was given or by whom. It is of great concern that Planning departments have no control over the siting of their cabinets and we are of the view that this should change.

The Committee submitted a survey to Local Authority Planning departments London wide and further afield in order to get their views on telecommunication masts in their areas.

The majority of respondents did not think that full planning permission should be required for all telecommunication installations (as is the case in Scotland and Northern Ireland).

This was because they considered that there would be a complete lack of resources to deal with the sheer volume of applications that would be received. Furthermore, some installations should continue to benefit from permitted development rights and where relevant, the prior approval process.

Results from the survey indicated that respondents believed that the scope of what could be covered by a prior approval application should be tightened to require full planning permission in more cases.

With regards to communication between the Local Authority and operators, the majority of respondents suggested that there was partnership work between the local authority and mobile phone operators evident in planning applications received by their council most of the time.

Coverage charts

We were advised that very often in the applicant's written evidence the 2006 coverage map is submitted to support a need for a stronger 3G signal in an area, i.e. "*... a new mast...is out of date.*"

Current information carried on the Mobile Broadband Coverage checker website frequently shows a stronger coverage than the 2006 map submitted with the application.

The above point is pertinent, as quite simply, in deciding whether to approve a scheme, the Planning department checks whether there is, in fact, a need for the mast by looking at coverage diagrams submitted by the applicant. If there was really very little benefit in terms of coverage, we were told that the local Planning Authority would be less willing to approve masts which impact on visual amenity, but that it doing this based on what it assumes are accurate coverage diagrams.

The operators all have coverage maps which are required by OFCOM to be kept up to date showing their network coverage. This suggests that decisions are being made by the Planning department based upon out of date or misleading information.

National Planning Policy

The National Planning Policy Framework has very limited guidance on how local Planning Authorities should deal with telecommunications proposals. What policy there is encourages growth of telecommunications infra-structure and reduces local planning caveats.

Subsequently, local Councils have to consider policies individually to deal with the issues that arise from telecommunications infra-structure growth. This method however is problematic as telecommunications growth is a National issue. At the moment there is widespread proliferation of cabinets in local streets and issues such as having more than one design for cabinets would be easier led at a National level than a local level. It is therefore the Committee's view that the Government should re-consider whether it is appropriate to have a policy vacuum on telecommunications infra-structure.

3. The Committee Recommend:

- i. that the Head of Planning requests that all agents submitting applications on behalf of mobile phone operators be required to ensure that all planning proposal coverage maps submitted with proposals tally with the operators most up to date coverage charts**
- ii. that Hillingdon's Corporate Property and Construction Service adopt a more flexible approach to the siting of masts and cabinets on Council owned land, with the Corporate Director for Planning, Environment, Education & Community Services arbitrating when a conflict of opinion is created between the Planning department and the Corporate Property and Construction Service.**
- iii. that the telecommunications policy in the Development Management Document (DMD) which is being prepared as part of the Local Development Framework reflects the recommendations in this report.**

The DMD will cover the Councils detailed development control policies, including those covering telecommunications. Such policy would be expected to be designed to protect the character and appearance of the Borough, but it is also considered that such policy should include:

(a) The need for telecommunication operators to utilise technologies to miniaturise/camouflage or improve the visual appearance of any telecommunications apparatus, in particular cabinets which should be appropriately designed, coloured and landscaped to take account of their setting.

(b) That development proposals should have the right information on ICNIRP/ signal strength and exclusion zone parameters

(b) The policy should emphasise the importance of sharing facilities, such as masts, cabinet boxes and antennas and that telecom operators must demonstrate they have fully considered all possible options for equipment sharing

(d) That full account is given of heritage assets and whether different materials or colours should be used for telecom masts and cabinets because of the location of the proposed equipment

(e) That interference with television and other telecommunications equipment is properly considered.

(e) That security of equipment, in particular of cabinets should be considered as part of the planning process

iv. that the department of Communities and Local Government is asked to provide more guidance to Local Planning Authorities on dealing with telecommunications infrastructure, taking into account the recommendations of this report

v. the telecommunications operators submit with their ICNIRP certificates the signal strength and exclusion zone parameters with each planning application

Part IV

Regulation

Mobile operators are regulated by OFCOM under the Communications Act 2003. OFCOM is an independent-of-government body and is answerable to Parliament. It has followed government policy in encouraging the development of wireless technology across the UK. Its remit from Parliament gives it special powers in relation to the sharing of equipment.

Their powers are contained in the Communications Act Section 73(3). In summary, it states that if providers of electronic communications networks and associated facilities with code powers put up barriers to sharing, then the Director (of OFCOM) has the power to impose a condition to secure sharing of apparatus, where there are no viable alternative arrangements.

We were of the view that this was an interesting fact as we had been told by a representative of the London Planning Association that its members were under the impression that they alone were championing the sharing of telecommunications equipment - it appears that OFCOM have been rather tardy in publicising its powers.

In detail the Act states:

(2) Access-related conditions may include conditions relating to the provision of such network access and service interoperability as appears to OFCOM appropriate for the purpose of securing—

(a) efficiency on the part of communications providers and persons making associated facilities available;

(b) sustainable competition between them; and

(c) the greatest possible benefit for the end-users of public electronic communications services.

(3) Access-related conditions may include conditions appearing to OFCOM to be appropriate for securing that persons to whom the electronic communications code applies participate, in cases where there are no viable alternative arrangements that may be made, in arrangements for—

(a) sharing the use of electronic communications apparatus; and

(b) apportioning and making contributions towards costs incurred in relation to shared electronic communications apparatus.

4. The Committee Recommend:

i. that OFCOM communicate their responsibilities under the Communications Act Section 73(3) to Local Authorities nationwide.

ii. that the London Borough of Hillingdon Planning Department request OFCOM's support in ensuring the sharing of telecommunication equipment.

Part V

Design

There is considerable resident concern as to the appearance of masts and, particularly, of roadside or pavement based cabinets - including those used by BT and Virgin for their broadband services.

Operators are well aware of these concerns and much has been written about the various ways that operators have, for example, 'disguised' masts.

The most common suggestion has been to make masts appear to be trees, particularly evergreen fir trees. This may well work in an area where such trees are common but would look very out of place in Hillingdon. Indeed, we were told that masts could be 'disguised' as other tree species. The problem being that such trees would be man-made with leaf covered branches and whilst they might not look too out of place in summer, come autumn they would be the only 'trees'; with leaves on.

We were also told that some antenna have been placed inside church towers or clock towers or, in the case of Guildford Cathedral, to have the appearance of an Angel on the roof top.

Operators are, it seems, able to 'disguise' masts, but are reluctant to do so, generally in view of the additional costs they will have to bear.

It is also important to bear in mind, that masts are not just placed in what one might call 'rural' areas. They are also placed on top of buildings and rooftop antenna can be particularly visually intrusive.

We understand that many rooftop based short antennas' could be 'hidden' by placing glass fibre 'domes' over them. We appreciate that such action might create further planning and environmental issues, however, we are of the view that the benefits might out-way the disadvantages and that this is an approach that might be adopted where applicable.

When it comes to cabinets, the same point is made. Cabinets are simple metal boxes that are painted green.

No one knows why that colour was chosen or, indeed, which government department sanctioned the colour. It just seems to be a practice that has developed over time and which follows the original green brand colour of the General Post Office (the Government department responsible for both postal and telephone services until split into the Royal Mail and British Telecommunication -BT)

Cabinets are used to store technical equipment that makes the system work. They have to be a certain shape and they have to be a certain size, although they are getting bigger as the demand grows and the technology develops. However, they are only metal boxes - they are just the packaging in which the product is delivered.

Whilst the physical size and design of a cabinet is dictated by technical issues, we are of the opinion that the colour can be an aspect that could be changed. The appearance of cabinets could reflect the environment in which they are placed i.e. areas of historic interest or the countryside.

A representative of the Mobile Phone Operators Association confirmed at a committee meeting that giving authorities colour options was, indeed, an option that could be explored. The London boroughs of Southwark and Kensington and Chelsea have showed that with imagination and collaboration with operators, cabinets can, in fact, be made an integral part of the urban landscape.

In Southwark both BT OpenWorld and Virgin Media were active partners in a project led by Southwark Council. Local artists were invited to put forward a design for cabinets as part of a street art competition with the winning designs being applied.

Hammersmith and Fulham Council introduced a similar scheme to combat graffiti and fly-posting.

Both boroughs report positive feedback from residents. To date none of the cabinets have been graffiti-ed, vandalised or fly posted.

The agreement between Southwark council and BT (see appendix 2) shows that, for this project, there were no costs to BT and we see no reason why this type of agreement cannot be reached with all telephone and mobile operators.

Indeed, we would argue that it is in the interest of mobile and telephone/broadband operators to take a pro-active approach to the issue of mast and cabinet design.

To see for ourselves the benefits of 'painting' cabinets to reduce detrimental environmental effects, a research exercise is being carried out with the support of the London Borough of Hillingdon's Arts Service.

Three BT cabinets have been identified in Uxbridge town centre and are to be the subject of a design competition. The winning designs being implemented during summer 2012.

Comments from residents suggest that such schemes would be broadly welcomed, with the caveat that designs applied to cabinets should reflect the local environment and not all be the basis for street art.

Much time and therefore money, not least on fees charged by their planning consultants, is spent in dealing with issues raised by residents, councillors and planning departments, in making planning applications that are then turned down, in identifying alternative sites, in resubmitting applications and in taking refused applications to appeal.

Bearing in mind, the sums the industry spends on promoting their products and services it would seem logical that a very small percentage of the industry's promotional budget should be allocated to building and maintaining better relationships with residents and planning departments by encouraging better design of the public face of the technology - masts and cabinets.

5. The Committee Recommend:

- i. that the results of the 'Street Art' research exercise using funding from the Hillingdon Champion for the Arts be reported back to the Committee and act as a model for future design exercises.**
- ii. that Local Authorities ask operators to prepare a catalogue of designs and colours for cabinets from which Local Authority Planning Department's can choose a design appropriate to an area, particularly conservation and historic areas.**

Part VI

Health

Research from Central Government, the World Health Organisation and ICNIRP suggested that the frequencies of these waves are very low and therefore not harmful to humans.

Each antenna had either an 'occupational exclusion zone' or 'public exclusion zone' set around it. Occupational exclusion zones were for people working close to the top of the antenna where the equipment was situated. The exclusion perimeter was dependant on the strength of the waves. Special equipment is worn by antenna maintenance personnel.

Public exclusion zones were set for members of the public. For example, for 3G signal the occupational equipment was situated. The exclusion perimeter was dependant on the strength of the waves. Special precautions are taken by antenna maintenance personnel.

Public exclusion zones were set for members of the public. For example, for 3G signal the occupational exclusion zone was set at 1m in front of the top of the antenna. The point made to us was that the public cannot access the top of masts unless they climbed the pole. We obtained no evidence that the poles themselves were harmful.

National Government had indicated that so long as base stations conform to International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines they were not dangerous to health.

These guidelines were issued in 1998 and were constantly reviewed by ICNIRP which consists of scientists from across the world. In 2009/10 ICNIRP undertook a full scientific review of their guidelines which resulted in no major changes being made to their policy. The organisation set guidelines for every frequency.

A majority of survey respondents thought that the International Commission on Non-Ionizing Radiation Protection (ICNIRP) compliance certificates should be verified by an independent authority rather than the present system of self certification by the telecommunications operator.

ICNIRP would be holding their first ever meeting in the UK in 2012 in Edinburgh to undertake a full scientific review of their policies.

Therefore, current science is that as the danger point is at the very top of the masts, many metres off the ground, anyone walking past a mast is quite safe.

Health concerns are often one of the main concerns of objectors to proposed installations. The London Borough of Hillingdon follows the following Government advice on telecommunications developments as set out in the National Planning Policy Framework

"...the planning system is not the place for determining health safeguards. It remains central Government's responsibility to decide what measures are necessary to protect public health. In the Government's view, if a proposed development meets the ICNIRP (International Commission on Non-Ionising Radiation Protection) guidelines for public exposure, it should not be necessary for a local planning authority, in processing an application for planning permission or prior approval, to consider further the health aspects and concerns about them."

As such, providing an application meets ICNIRP guidelines the Council cannot reasonably refuse an application on the basis of direct health grounds. This approach has been confirmed by numerous planning appeal decisions and in the courts

6. The Committee Recommend:

i. that the London Borough of Hillingdon use FOI powers to require ICNIRP monitoring reports of a sample of existing masts in Hillingdon (from a limited sample of sites identified from the planning database) and to report back their findings to the RESPOC committee.

ii. that OFCOM assume responsibility to independently verify that telecommunications operators are complying with ICNIRP health standard.

A mast is a freestanding structure which supports antennas at a height where they can transmit and receive radio waves. When you make a call, your mobile phone transmits a signal to the nearest base station; the signal is then transmitted through mobile and fixed line networks to connect to the person receiving the call.

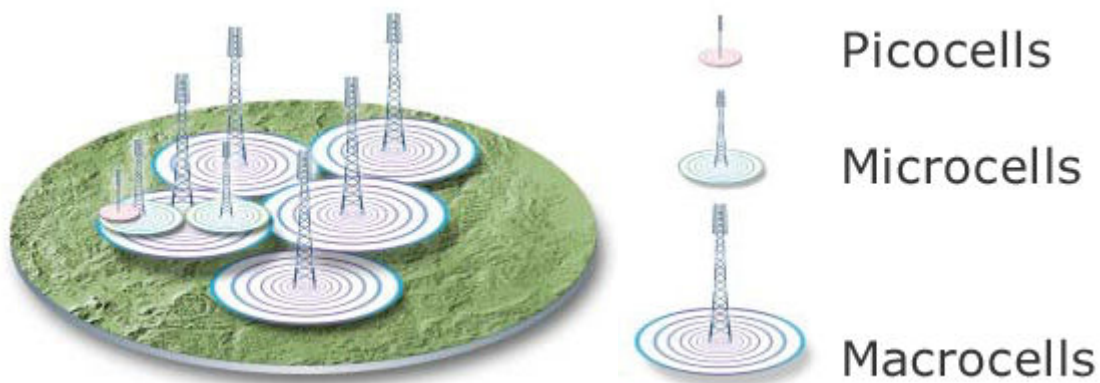
There are about 70 million mobile phones in use in the UK - more than one phone for every person. Many people have a work and a personal mobile, or a mobile and a laptop data card, and mobile phones are used in at least 85 per cent of all households.

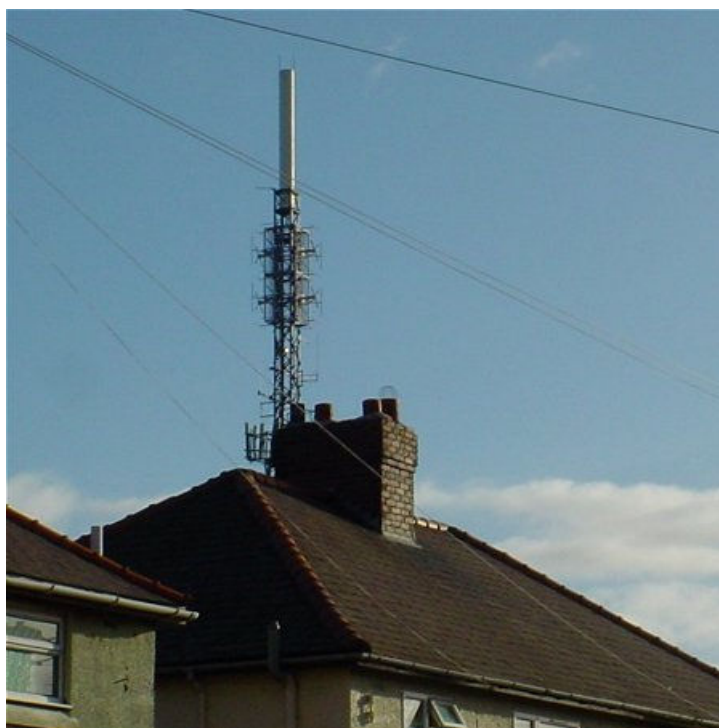
This large number of mobile phones cannot work without the network infrastructure needed to route connections. And installations must be placed close to where people use their phones.

Government policy is to help the growth of new and existing telecommunications systems while minimizing the environmental impact.

How mobile phone networks operate

A mobile phone must have a wireless connection to a base station in order to make a call. A base station is no more than a wireless telephone exchange, designed to provide local connections, with wider links to other national and international networks.





Each base station provides coverage over a limited area, or cell, in the area around the site. That's why in some countries mobile phones are called cell phones. To offer comprehensive network coverage, the cells must overlap each other like a patchwork quilt, so that users can move from one cell to another without breaking connection. As each cell can only handle a limited number of calls, the density of base stations has to be high in areas of heavy use.

The UK government received £22.6 billion from selling the 3rd generation licences in 2000, and total mobile phone related tax revenue now exceeds 20 billion pounds per year. Neither Government nor industry wants to restrict the use of phones or the location of the base stations.

There are many factors that affect the signal levels at any location. These include the number of operators and systems; the tilt and angle of the antennas; the geography of the area and the distance the base-station needs to cover. Microwaves are reflected off flat surfaces. The level of microwaves in an area will depend on things like metal roofs, lamp posts and other structures, building materials and structural additions, cars and lorries, etc.

The only way to know for certain how a particular place, such as a house, flat, school or workplace, is affected by environmental microwave radiation is to measure the exposure.

There is a UK government website which has a reasonably accurate map of the masts currently integrated into the national network. Details are only put up when the mast is up and running. Ofcom, which maintains the site, depends on the phone operators to give them accurate information about the base station. They update the site every 3 months.

Some mobile phone operators are going to extraordinary lengths to conceal the masts that form their networks. They are being disguised as chimneys, clocks, windows, drainpipes, even as weathervanes, all in an effort to meet the demands of planning departments.

Controversy often surrounds applications to site phone networks. Mobile operators were recently barred from putting the masts close to schools in the UK; many parents had said they were

worried about health and safety implications. But the number of masts around the country is set to increase, as networks upgrade to second and third generation mobile technologies.

Each British mobile network has about 8,000 cells, which means about as many masts, and the maximum size of a cell is 35km. In third generation (3G) mobile networks the cell can be a maximum of 8km wide, which means they need lots more masts.

Masts used to be about 30 metres high but as technology improves shrink. Some operators have used fake trees as masts, particularly Scots pines, together with bird droppings and visual effects of pollution. The result is that phone masts almost become invisible.

Indeed, the support pole for the golden angel weathervane on Guildford Cathedral is actually a mobile mast and supports several antennas. In return for using the site, which sits on a hilltop and is a coveted location, the angel was regilded. The street sign for Northumberland Avenue in Westminster is also a plastic sign hiding a few antennas. Dotted around Britain are fake chimney pots, fake flagpoles, fake drainpipes and fake signs all made of glass-reinforced plastic and concealing mobile antennas.

At the Town Hall clock in Hungerford in Berkshire antennas are mounted at the centre of each of the four faces of the clock next to the hands. The four faces have been renewed and the clock hands themselves have been replaced with glass-reinforced plastic versions that have been balanced to ensure the clock keeps the right time.





Definitions

Antenna

The part of the radio system through which a radio signal is transmitted and received.

Transmitter

The electronic equipment needed to generate and send radio waves which are fed to the antenna.

Mast

The structure that supports the antenna in a position high enough for signals to reach over a wide area.

Base station

Mast, transmitter, receiver, antenna and any other supporting equipment.

GSM

Global System for Mobile communications, the second generation (2G) digital technology originally developed for Europe but which now has in excess of 71 per cent of the world market.

3G

A new standard for mobile phones that will allow the transmission of much larger amounts of data - a type of mobile 'broadband'. With 3G internet service, download speeds tend to average slightly more than 1 mbps (megabits per second). The average upload speed on a 3G connection is approximately 225 kbps, depending on signal strength and network congestion.

4G

This is the fourth generation of cellular mobile communications standards. It is a successor of the third generation (3G) standards. A 4G system provides mobile ultra-broadband Internet access, for example to laptops with USB wireless modems, to smartphones, and to other mobile devices. Conceivable applications include amended mobile web access, IP telephony, gaming services,

high-definition mobile TV, video conferencing and 3D television, with average download speeds of 3 to 6 mbps.

Microwave

Microwave means 'very small wave' and refers to the fact that radio signals in this band have shorter wavelengths - and higher frequencies - than long, medium or short-wave radio.

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