MAYOR OF LONDON

London Plan Guidance

Digital Connectivity Infrastructure

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London Plan Policy

Policy SI 6 Digital connectivity infrastructure (DCI) – The requirements of SI 6 A (1) are now met by the Building Regulations[1] and are not covered further within this LPG.

Exemptions under the Building Regulations are sufficient exemptions to the provisions of this LPG.

Local Plan making

The requirements of SI6 6 B – Planning authorities should use this LPG as a technical and practical guide for preparing a Local Plan to support the delivery of DCI.

This LPG should be considered when implementing the audit requirements set out in London Plan Policy H14 D and E for Gypsy and Traveller accommodation in local planning authority owned sites.

Planning application type and how the LPG will be applied

The requirements of S16 A parts 2 to 4 will apply to:

- all major development planning applications (includes new-build, changes of use and conversions)
- non-major development planning applications if required by a Local Plan
- all DCI (also known as telecommunications infrastructure) installations requiring 'full planning permission'.

Exemptions apply to single-household planning applications and other types of consents. See Appendix 1 for full list.

The requirements of S16 A part 4 (set out in Section 2 of this guidance) will also apply to:

- DCI prior approvals[2] under Part 16 Schedule 2 of the Town and Country Planning (General Permitted Development) (England) Order 2015 (as amended); or any future Order.

[1] Gov.uk, Infrastructure for electronic communications: Approved Document R (2022), 4 October 2022. See Volume 1 and Volume 2 for key building regulation requirements.
[2] This means Section 2 of the guidance could also support any DCI proposals including 'masts, antennae or other apparatus' requiring prior approval notifications received by the local planning authority (LPA). The prior approval procedure means that the principle of development is not an issue, but the LPA will only be able to consider the siting and appearance of the proposal.

Who is this guidance for?

This guidance is for planning officers to determine planning applications and help inform the preparation of Local Plans as appropriate.

It also supports applicants, local planning authorities (LPAs), developers, telecommunications industry operators and their consultants, community groups, and others.

2 About this document

2.1 Purpose of the LPG

2.1.1 This Digital Connectivity Infrastructure (DCI) London Plan Guidance (LPG) is intended to provide practical guidance, from the initial pre-application and design stages and throughout the planning application process. It aims to:

1) clarify the key requirements for developments to provide/support DCI delivery

2) avoid impacts on existing DCI, and address impacts of individual DCI

3) guide plan-making for DCI through Local Plans.

2.2 What is Digital Connectivity Infrastructure?

2.2.1 DCI is physical digital infrastructure, including mobile and fixed (e.g. broadband) connections to the internet and other physical equipment. Examples of these are as follows:

1) Fixed broadband network infrastructure includes ducting, telephone/telegraph poles, the exchange, fibre to the cabinet (FTTC), fibre to the premises/home (FTTP/H, also known as full fibre).

2) Mobile network radio-based infrastructure involves individual mobile masts and antennae, of different generations (3G/4G/5G). Macro cells provide wide-area radio coverage infrastructure for a mobile network. The antennae for macro cells are mounted on ground-based masts, rooftops and other existing structures. ‘Small cells’ is an overarching term for low-powered radio access nodes that help provide service to both indoor and outdoor areas. Further terminology is provided in the glossary (see Appendix 2).

2.2.2 For the purposes of this LPG, the term ‘DCI’ only refers to physical infrastructure such as full fibre, ducting, telecommunications masts, base stations, cabinets and associated equipment that delivers digital connections. It includes all the infrastructure defined in this section.

2.2.3 Mobile coverage is the area where a device (such as a handset) can connect to the mobile network. Capacity is the amount of traffic and users the network can handle, and the speeds at which it can deliver.

2.2.4 Digital exclusion refers to instances where individuals cannot access the benefits of digital communication or the internet because they lack the right digital connectivity via the physical infrastructure; a suitable device; skills; and/or the means to pay for connectivity. This LPG seeks to support improvements in fixed and mobile infrastructure provision and mobile

connectivity across London through the planning process. It therefore seeks to help improve digital inclusion and access to services.

2.3 Minimum requirements for improved DCI delivery

2.3.1 All relevant applicants should set out in their planning application how they are complying with Policy SI 6. This includes whether the proposal is exceeding the minimum requirements of Building Regulations[3] and/or justification for any exemptions.

2.3.2 All relevant development proposals should seek to meet the expected demand for digital connectivity for all end-users and support the effective and appropriate use of rooftops and the public realm to accommodate well-designed and suitably located DCI.

2.3.3 All relevant applications would benefit from highlighting, in their plans and elevations, details of any proposed DCI. These should be supported by visuals and photomontages; and should include any explanatory DCI information that could be incorporated within a Planning Statement[4]. All relevant applicants should show evidence of engagement[5] with broadband and/or mobile operators and others. Applicants should also make use of the many relevant toolkits that reflect the latest design principles. This should include confirmation that a suitable provider has offered to provide a connection to a gigabit-capable network for each dwelling/unit; and details of which technology will be used to deliver DCI in the development (e.g., full fibre, satellite, fixed wireless or other technologies). Where possible development proposals should demonstrate that the development will be 'connection-ready' on first occupation.

2.3.4 Each local planning authority (LPA) must decide the relevant appropriate conditions as part of, or separate from, the approved plans; or as a legal agreement, where appropriate. Planning conditions imposed in relation to a

[3] Infrastructure for electronic Communications: Approved Document R (2022): Approved Document R Volume 1 provides guidance on how to comply with the requirement to install gigabit-ready physical infrastructure, and a connection to a gigabit-capable public electronic communications network, when new dwellings (or a building containing one or more dwellings) are erected. Volume 2 provides guidance on how to comply with the requirements for in-building physical infrastructure for high-speed electronic communication networks when new buildings are erected; or when existing buildings are subject to major renovation works.

[4] e.g. where relevant it could include: the area of search, details of any consultations undertaken, details of the proposed DCI, any technical justification and information about the proposal.

[5] The government provides further best practice and advice that could be useful to planning applicants via the Code of practice for wireless network development in England.

prior approval must only be related to the subject matter of the prior approval.[6]

2.4 Supporting information that may be needed with a planning application

2.4.1 As appropriate supporting evidence may include the following:

2.4.2 **Evidence of prior consultations:**

1) Development proposals, where relevant, should include details of any early engagement/consultation at pre-application stages with network providers (including mobile network operators (MNOs)); the outcome of consultations with organisations that have an interest in the proposed DCI development; and formal agreements regarding the installation of equipment, as well as ducting, cabling and maintenance arrangements.

2) Applicants should include evidence of any community engagement, including with relevant neighbourhood planning bodies, nearby schools and colleges, and other groups, where relevant.

3) Applicants should consult, where possible, all mobile operators with mast sites within 250 metres of a major development site, with regard to the potential impact on mobile connectivity. Applications should provide evidence of such consultation as part of the planning submission. If there are mast sites within 250 metres of a major development, applicants will also need to meet health and safety risks that have been identified in the Construction Design and Management Regulations 2015, specifically schedule 3 Regulation12(2), and meet any other standards/regulations as required.

4) For a new mast or base station, evidence that the applicant has explored the possibility of erecting antennae on an existing building, mast or other structure.

2.4.3 **Transport assessment:** Where relevant, this should address the potential impact of DCI installation on highways and circulation. This includes the potential impact of any ground-based mast/equipment on traffic and circulation, including pedestrian flows, cycle traffic, public transport infrastructure and vehicle movement, if required.

2.4.4 **Heritage assessment:** This may be relevant for any proposed DCI installation and associated ductwork to avoid impacts on designated or non-designated heritage assets, or their setting, as appropriate. Pre-application

[6] When is permission required?, published 6 March 2014, updated 26 July 2023.

advice should be sought, and consideration given to both the impact on historic fabric, and the visual/other impacts on the building's appearance and the settings of heritage assets. Further guidance is available via Historic England guidance.[7]

2.4.5 **Future upgrade/maintenance/access:** Where relevant, this should plan for dual entry through Communal Entry Chambers, as well as flexibility to address future technological improvements; and/or details on ducting approach for safe, timely and high-quality street works, e.g. using the Dig-Once approach. All new development should incorporate future-proofed DCI to accommodate utilities connection requirements; and be designed to accommodate access and safety considerations. Applicants may provide information (i.e. in a planning statement) of any proposed routes for DCI that require excavation in the highway. Where possible, new DCI should use existing infrastructure – for example, empty ducting previously installed at strategic locations or abandoned utility assets, piped subways, etc. The GLA's Infrastructure Mapping Application dataset[8] may be useful for this.

2.4.6 **Appropriate agreements:** These should be used where applicable and available to support the feasibility of the proposed development. The GLA has produced best-practice example agreements and guidance for wayleaves, mobile infrastructure, rooftop and greenfield sites (see the GLA's webpage on Connected London Resources[9]). Government 'guidance on access agreements'[10] sets out best practice principles that could be useful for local authorities when giving communications network operators the right to access their land and assets.

2.4.7 **Appropriate connectivity rating:** For major developments, applicants are encouraged to undertake an assessment of the connectivity levels using a certification process such as WiredScore,[11] with a view to achieving a rating of, or equivalent to, WiredScore 3. This should demonstrate that developments can meet expected demand for mobile connectivity generated by the development for end-users. Where relevant, applicants may also provide evidence that the proposed DCI is sufficiently capable for its services to reach at least a 'good' (100dBm) or 'fair' (110dBm) signal strength using

[7] The Installation of Telecommunications Equipment, Including Broadband and Mobile, in Churches and Other Listed Places of Worship
[8] Infrastructure Mapping Application dataset
[9] Connected London Resources
[10] Government guidance on access agreements
[11] WiredScore standard assesses and certifies digital connectivity to help improve connectivity and user experiences in buildings.

the Reference Signal Received Power (RSRP) coverage values offered by Ofcom.[12]

2.4.8 **International Commission on Non-Ionizing Radiation Protection (ICNIRP) self-certification statement:** Applicants should self-certify that the DCI, when operational, will meet ICNIRP guidelines. These will be required where there is a new mast or base station, or an addition to an existing one.

2.4.9 **Streetscape assessments:** Where relevant, this should consider the appearance, size, positioning, grouping and colour of DCI and their impact on the streetscape. This should include assessing the impact of any existing, poorly maintained assets owned by telecommunications and network operators, in locations where new assets are proposed; and how this could be addressed through removal of assets.[13]

[12] Ofcom has set out what it views as 'good' (100dBm) and 'fair'(110dBm) values in its method for the UK. This will be particularly relevant when reporting on mobile 5G availability predictions. Signal strengths refer to control channel signals – for further detail see Connected Nations 2022 Methodology.

[13] For further advice see the Streetscape Guidance (2022)

3 Better design for DCI delivery

3.1 Mobile digital infrastructure

3.1.1 Development proposals, where applicable, should seek to meet the expected demand for mobile connectivity; avoid worsening mobile connectivity; and mitigate any adverse impacts through adherence to key design guidance suggested in this section.

3.1.2 They are encouraged to optimise the use of rooftops and existing structures in the public realm (such as street furniture and bins) to accommodate better-designed, better-located mobile DCI. The siting of cabinets, transformers, masts and other equipment in the public realm should avoid obstructing public access and restricting movement along highways/pavements. This consideration of appropriate siting should include disabled people (including people affected by sight loss; wheelchair users; people with visible and invisible disabilities); and older people.

3.1.3 As demand for digital infrastructure in a location increases (for example, when a new development is occupied) the capacity provided by a mast site can be used up. This effectively 'shrinks' the coverage area around the mast. In some cases, it can cause gaps in coverage between the serving mast and adjacent masts, requiring corrective action to plug the gap. Corrective action can range from adjusting the antennae of adjacent sites (thus filling these gaps) to building new sites. To meet the estimated demand from new developments, mobile operators will rely on a combination of site types and spectrum to provide coverage and capacity to meet user needs, as shown in Table 1 below.

Table 1 Site types and spectrum for mobile coverage and capacity

Types of sites	Location	Coverage
Macro sites	Rooftop or individual tower	To provide coverage over a kilometre or so in an urban area
Monopole sites (commonly known as street works sites)	Often sited on highways land	Increasingly important in adding additional capacity to the network
Small-cell sites	Lamp posts or other furniture	To provide additional capacity in high footfall – user demand areas and might cover an area no greater than 250 metres

3.1.4 Mobile coverage, both indoor and outdoor, can be affected by architectural design, building height and the building materials used, including insulation. Developers may choose to provide bespoke in-building coverage and signal boosting solutions (i.e. Distributed Antenna System (DAS))[14] where needed to ensure effective mobile coverage throughout a development site. For major developments, site-specific solutions should be considered at the early design and planning stages. These should take into account the impact of new development, including footprint and height, on area-wide wireless services, and network coverage and demand locally.

3.1.5 Developers should assess, in consultation with mobile operators, the expected demand for mobile connectivity to be generated from proposed developments; whether it would worsen mobile connectivity for existing neighbours; and, where relevant, mitigate any adverse impacts. This should be assessed in the project planning and design stages for futureproofing of digital networks. It will depend on the development type, scale and major socio-economic trends (e.g. hybrid working), which all affect the mobile connectivity demand and capacity needed.

3.1.6 The GLA Connected London Map provides estimated coverage by broadband network services.

3.2 Rooftop sites

3.2.1 Development proposals are encouraged to optimise the use of rooftops to accommodate better-designed, better-located mobile DCI. The Code of Practice for Wireless Network Development in England sets out that mobile operators should seek to use existing buildings and structures before deploying ground-based equipment.

3.2.2 DCI equipment on the top of buildings should be integrated into the building design to ensure that it does not negatively impact on the design quality of the building itself or the quality and character of the skyline.

3.2.3 Rooftop installations are site-specific in nature and depend on the following technical constraints:

- Antennae should be positioned on the edge of the roof or elevated in the centre of the roof, to avoid ‘clipping’ (where the edge of the building blocks the mobile signal) and cluttering.

[14] In-building solutions such as DAS require the use of multiple antennae that form a network facilitating wireless cellular connectivity for an area, structure or building. These can help to distribute cellular network coverage to heavily populated buildings, such as offices, high-rise apartments, shopping centres, etc. As technology in this arena is fast changing, other solutions will be relevant to applicants to put forward in development proposals.

- Antennae positioning should maintain sufficient ICNIRP exclusion zones, which may restrict siting locations on the rooftop.

- Rooftop mast sites require ancillary equipment, such as equipment cabinets, and assets related to the safe operation of the rooftop space for example handrails or grills.

- In the case of major development and/or tall buildings, consideration needs to be given to any existing development with a mobile mast site, to avoid blocking mobile signals in the vicinity by casting a shadow to the surrounding areas. Developers should mitigate the impact to existing mobile network.

- Rooftop mast sites should consider the impact of reflective building materials such as metal sheeting and steel frames; traditional thick stone walls and slate roofs; and newer glazing and materials used for insulation on wireless signal transmission.

- The competing needs for rooftop space from other rooftop plant and infrastructure should be considered when designing rooftop installations.

3.2.4 The visual impact of rooftop mast sites should be minimised. Mobile operators should make every effort to camouflage antennae. Measures may include use of rooftop radio-transparent glass reinforced screening in front of rooftop masts and plant rooms; coloured film wrapping; or other types of screening (where suitable). Film wrapping can allow visual adaptation whilst avoiding the overheating risk associated with painting and other measures. Antennae should also be considered in terms of more concealed designs such as flagpoles, slimline poles or telegraph pole style designs, or using existing structures such as church towers (generally behind the louvres). These techniques may not be appropriate for larger antennae or where ancillary development needs to be located around antennae.

3.2.5 Best practice on ways to reduce the visual impact of the rooftop electronic communication apparatus is encouraged to be shared across LPAs and the industry.

3.2.6 Consideration should be given to designing in adequate space for DCI on the rooftops of any proposed development that may form part of the planning application or prior approval notification.

3.2.7 Special considerations will apply where the building is located within a designated heritage asset (for example a conservation area or registered park and garden) or is itself a designated heritage asset (for example a listed building) or is a non-designated heritage asset (such as locally listed building). Such historic contexts benefit from additional protection because of their heritage significance. This protection includes Sections 66 and 72 of the Planning (Listed Buildings and Conservation Areas) Act 1990, Chapter 16 of

the National Planning Policy Framework, London Plan policies HC1, HC2, HC3 and HC4 and local plan policies.

3.2.8 In the case of a listed building, Listed Building Consent will be needed for any installation on a listed building or structure. In cases where Planning Permission is needed, special regard will need to be paid to the impact on the heritage asset or its setting. In all cases the policy test is the impact on the significance of the heritage asset. In some cases, DCI installations may be inappropriate in principle. In other cases, good design and the exploration of options, for example, setting back from the roof edge (by at least 2 metres) may reduce visual impacts and harm to significance. Where DCI installation is being considered in or on a heritage asset, pre-application advice should be sought from the LPA. Further guidance is available via Historic England.[15]

[15] The Installation of Telecommunications Equipment in Places of Worship

Figure 3.1 Building within a conservation area with poorly located DCI that is highly visible and dominates the building roofline.

3.3 Mobile digital infrastructure in the public realm

3.3.1 Siting of mobile DCI in the public realm – including macro sites such as ground-based individual masts, equipment cabinets and small cells on street furniture – should ensure that applicants consider and minimise impacts on the accessibility and capacity of footways and access to properties. They should ensure access for all, including wheelchair users and those with other disabilities such as visual disabilities. The assessment of the impact on footways should have regard to Transport for London's "Pedestrian Comfort Guidance for London",[16] and current and anticipated future pedestrian flows; and avoid reductions in pavement widths where possible. Development proposals should observe the following design and access principles in Table 2, below.

Table 2 – Design principles of mobile infrastructure in the public realm

Category	Design principles
Highways	Comply with visibility and line of sight requirements.
Highways	Not obscure highway nameplates.
Highways	Avoid obstructing existing means of access (including vehicular, cyclist and pedestrian access) and public or private rights of way.
Highways	To ensure access for all users (including wheelchair users and those with other disabilities), the siting of cable boxes and other equipment must avoid restricting pavement width and/or impeding public access and flows.
Highways	Where cable protectors are used on the footway these should also have wheelchair ramps. They should be used only for the shortest possible period.
Highways	DCI intended for use by the public should be designed in an inclusive way, so that it is accessible and convenient to use by all.
Highways	Avoid (including during maintenance) interfering with transport infrastructure or operation, including bus stops, cycle hire docking points, stations and enforcement cameras.

[16] See Pedestrian Comfort Guidance for London (2019) and "Inclusive Mobility" guidance (2021)

Category	Design principles
Visual amenity/open space	Include design solutions to mitigate visual impact by responding to local context and character. DCI should not have a negative impact on the visual amenity of designated open spaces, where possible.
Decommissioning of digital infrastructure	Decommissioned DCI should be removed, and components reused or recycled in line with circular economy principles.

3.3.2 **Ground-based masts** – Existing ground-based masts should be used for network deployment wherever viable. This is to reduce the need for new development and when installing equipment, to minimise the visual impact of new development on the surrounding area as far as possible.

3.3.3 Where new ground-based masts are required, potential environmental and visual impacts should be reduced by siting the masts next to similar vertical infrastructure such as street lighting columns, an existing group of trees, vegetation, or other natural features.

3.3.4 Ground-based mast siting should avoid obstructing public access and restricting movement along highways/pavements. For example, ground-based masts and associated equipment should avoid siting in cycle lanes and in areas of pavements that block movement for pedestrians and cyclists (see Figure 2.2).

3.3.5 **Equipment cabinets –** Equipment cabinets should be the smallest size possible, whilst still being sufficient to host the required operating equipment and allow air circulation to avoid overheating.

3.3.6 Equipment cabinets should be sited to minimise impacts on the accessibility of footways and access to properties (see Figure 2.2). Where relevant, accessibility could be aided by moving away from using telephone poles, and towards burying cables within ducts on streetscapes; and/or removing existing poorly maintained assets where new ones are proposed.

3.3.7 When installing equipment, the visual impact of new development on the surrounding area should be minimised as far as possible (see Figure 2.3). For example, this could mean locating DCI on the edge, rather than centre, of pedestrianised spaces to avoid restricting access or visually impacting users of the space.

3.3.8 Major commercial developments will provide a communal chamber on-site for telecommunications equipment; or make appropriate provision in the vicinity.

3.3.9 Where new small cells or other DCI are proposed for installation on existing assets owned by third parties, a maintenance plan of all assets should be

agreed with the relevant highway authority. This is to ensure that the streetscape environment, and health and safety of the public, are not impacted.

Figure 3.2 Examples of poor siting where siting of DCI obstructs and restricts movement for pedestrians and/or cyclists.

Figure 3.3 A well-designed pedestrian space incorporating DCI, where the monopole and cabinets are sited on the periphery to avoid restricting movement.

4 Local Plan-making and wider council approaches

4.1 Local Plan-making process

4.1.1 Where possible, use opportunities for early engagement with telecommunications operators or digital industry; to share any future plans for network expansion and anticipated timescales; and engage with the wider community to identify opportunities for potential mast sites and other infrastructure locations.

4.1.2 When preparing Local Plans and other interventions, LPAs are encouraged to understand the borough's existing mobile connectivity, capacity and physical infrastructure provision and identify any gaps or shortfall in provision. For example, if an area is identified as suffering from poor digital connectivity, there should be contact with broadband and mobile providers to understand future plans for improved connectivity, and/or identify any barriers to this; and help coordinate improvements where possible.

4.1.3 Accessing Ofcom's latest connectivity coverage reports[17] or their equivalent can be helpful for understanding the connectivity in the given area. It can also help in identifying opportunities for more targeted local actions. The GLA's Connected London Map is a good resource for this work. This type of evidence could help inform the local development plan policies; any infrastructure development plan; and/or other wider council strategies, such as a digital infrastructure strategy or digital inclusion strategy, where appropriate.

4.1.4 Planning policies for DCI may include the following considerations:

- seek to join up the requirements of London Plan Policy SI 6 with any wider council strategies or social and economic initiatives, such as infrastructure delivery planning and digital inclusion strategies
- set clear and achievable gigabit broadband and mobile connectivity targets for the borough; these include spatial and capacity targets (where feasible, map borough DCI locations and/or connectivity/capacity levels)

[17] Ofcom make their measurement data available for download on their website through Ofcom's open data initiatives. The data is released under the open government licence.

- set out design principles considering specific local conditions – in particular the impacts on visual amenity, access, noise and vibration of DCI installations

- mitigate environmental impacts,[18] such as heat from telecommunications apparatus contributing to city-wide environmental issues (for example, the heat island effect)

- set out clearly the responsibilities of developers and telecommunications operators to engage in pre-application and in the early design and planning stages.

4.2 Recommended best practice for site allocation

4.2.1 SI6 B states development plans should focus on areas with gaps in connectivity and barriers to digital access. Hence, Local Plan-making processes should identify and safeguard suitable sites for DCI in major growth areas in the borough to address any identified gaps in connectivity and coverage. This can be done by proactively inviting telecommunications operators to submit proposals for site allocations for DCI; or requiring developers to engage with telecommunications operators on major development sites to address this requirement.

4.2.2 Telecommunications operators should submit potential sites for individual telecommunications infrastructure developments – for example, macro individual towers and ground-based masts, to be allocated in the "call for sites" exercise at the start of the plan-making process. Telecommunications operators should demonstrate that DCI installation is viable on the proposed site allocation, within a reasonable timescale. They should also demonstrate that the proposal represents optimal use of the site, whether individual or part of a development, in accordance with Policy D3 Optimising site capacity through a design-led approach.

4.2.3 For large sites, local planning policies should require applicants to engage with telecommunications operators. This is so infrastructure providers can understand the anticipated scale of growth and the potential demand from future proposed developments. This should also include connectivity targets.

[18] See London Plan policy SI 4 Managing heat risk; para. 9.4.5. The Chartered Institute of Buildings Services Engineers (CIBSE), through TM 59, TM 52 and TM 49, has produced guidance on assessing and mitigating overheating risk in new developments.

4.3 Joining up with wider council strategies

4.3.1 For large sites, LPAs should require applicants to engage with telecommunications operators, so infrastructure providers can understand the anticipated scale of growth and the potential demand from future proposed developments. This should also include connectivity targets.

4.3.2 Improving digital connectivity is a key part of addressing digital exclusion. LPAs could consider aligning DCI policies with wider council initiatives and resources. This can help address digital exclusion and gaps in coverage and capacity in local areas, such as addressing any gaps in connectivity caused by the cumulative impacts of notices-to-quit in the borough.

4.3.3 Some LPAs have adopted digital inclusion strategies that include initiatives to install DCI in low-income housing/areas. These initiatives include the establishment of social broadband portfolios by network providers; and low-income tariffs for qualifying households to access broadband and mobile connectivity at an affordable rate. A digital inclusion or infrastructure strategy, where one is in place, could help inform local planning policies to maximise opportunities for infrastructure provision and affordable, equitable digital connectivity[19] – which will benefit affordable housing occupiers; and people living in temporary accommodation, and/or on Gypsy and Traveller pitches, for example.

4.3.4 Where possible, LPAs should use opportunities to encourage providers to consider the needs for improved digital infrastructure, and good connectivity provision on existing or new Gypsy and Traveller sites. On LPA-owned Gypsy and Traveller sites and pitches, the adequacy of DCI provision should be considered as part of the audit requirements for such sites, and any relevant issues including DCI provision be addressed in line with London Plan Policy H14 D and E on Gypsy and Traveller accommodation.

4.3.5 Improving digital connectivity, including supporting mobile capacity, and free public Wi-Fi in key locations, is becoming increasingly important to businesses in town centres and high streets. Good wireless internet access for town centre visitors, whether through Wi-Fi or fast mobile connections, could encourage longer dwell time in the town centres, increasing expenditure in local shops and services. As part of Local Plan-making process, engagement with business improvement districts and other town centre managers is vital to understand current and future development plans.

[19] Ofcom has defined an affordable connection as one that costs less than £45 per month. The Universal Service Obligation (USO) provides a legal right to request a decent broadband connection, up to a cost threshold of £3,400 per premises.

4.3.6 Where possible, any public DCI provision should be designed to be integrated into the public realm – for example within street furniture, fitness equipment, wayfinding totems, interactive installations or pavilions. The Barbican's Lakeside Terrace exemplifies best practice[20] of the integration of DCI, through comfortable lounge-style seating with plug sockets and free Wi-Fi, provided without users feeling pressure to move on or purchase.

4.3.7 As technologies that improve efficiency and help reduce resource-usage continue to develop, digital policy approaches will need to consider how data capacity in mobile networks is provided to make use of the latest innovations to help support requirements around initiatives such as the zero-carbon targets and the Healthy Streets Approach.

[20] See Expanding London's Public Realm

5 Appendices

5.1 Appendix 1 – Summary of all the types of planning applications where exemptions may apply.

NB: All applicants must check with the LPA to see if there are any additional regulatory and local requirements to be met outside of this LPG.

LPG exemptions – please note this is not an exhaustive list
Householder full planning applications
Consent under a Tree Preservation Order and a Notification for Work to Trees in Conservation Areas
Advertisement Consent applications
Certificate of Lawfulness applications
Permitted Development & Prior approval[21] (general) – applicants should check the regulations for latest requirements[22]
Variation of Condition (Section 73 or 73A) applications
Application for Non- Material Amendments to an Existing Permission
Listed Building Consent applications and other heritage assets[23] Further guidance can be found in: The Installation of Telecommunications Equipment, Including Broadband and Mobile, in Churches and Other Listed Places of Worship

[21] Prior approval means that an applicant has to seek approval from the LPA that specified elements of the development are acceptable before work can proceed. The matters for prior approval vary depending on the type of development; these are set out in full in the relevant Parts in Schedule 2 to the General Permitted Development Order.
[22] When is permission required?, published 6 March 2014, updated 26 July 2023
[23] For example: where the proposed site is a listed building, listed building consent will be required for the works; where the proposed site is a scheduled monument, scheduled monument consent will be required for the works; where the site is within a conservation area, planning permission may be required.

5.2 Appendix 2 – Glossary

Communal Entry Chamber

These are installed in the public highway to provide quick and easy access for telecoms services into new office developments. The chambers allow greater coordination of telecoms connections to new developments; and reduce the number of telecoms provider manholes in the street. See Infrastructure Coordination's case study on Communal Entry Chambers and early installation in the City of London.

Distributed Antenna System (DAS)

DAS consists of a network of antennae that facilitate wireless cellular connectivity for an area, structure or building. It is most often used to distribute cellular network coverage to heavily populated buildings, such as offices, high-rise apartments, shopping centres or sports stadiums. In-building DAS antennae are usually mounted discreetly to a hard or tiled ceiling.

Full fibre/Fixed broadband

Fixed broadband network infrastructure includes ducting; telephone/telegraph poles; the exchange; fibre to the cabinet (FTTC); and fibre to the premises/home (FTTP/H), also known as full fibre.

Ground based mast

The traditional latticed mobile towers that sit in their own access-controlled compound of land. The compound will typically feature an equipment cabin to house radio equipment and termination equipment for fibre 'backhaul' links, which carry the radio traffic to and from the operator's core network where calls are connected.

ICNRP

International Commission on Non-Ionizing Radiation Protection (ICNRP) provides scientific guidance on the health and environmental effects on humans of exposure to radio frequency electromagnetic fields associated with applications such as mobile networks and Wi-Fi.

Macro cells

Macro cells provide wide-area radio coverage infrastructure for a mobile network. The antennae for macro cells are mounted on ground-based masts, rooftops and other existing structures.

Major development

For a full definition, see Part 1 of the Town and Country Planning (Development Management Procedure) (England) Order 2015. Generally, major developments are developments where 10 or more dwellings are to be provided, or the site area is 0.5 hectares or more; or development of other uses, where the floor space is 1,000 square metres or more, or the site area is one hectare or more.

Mobile infrastructure

Mobile network radio-based infrastructure involves mobile masts and antennae, of different generations (3G/4G/5G). These include macro cells; the antennae for macro cells; small cells etc.

Mobile network operators (MNOs)

The role of an MNO is often to provide wireless communication services to its customers. It is made up of a network of cell sites spread out across a specific geographic area.

Reference Signal Received Power (RSRP)

This is used as a vital measure in cellular networks for coverage; and to illustrate the strength of the signal. It provides insight into the ability of a user/mobile device to be contactable, or to use their cellular services. A good RSRP does not mean a mobile broadband connection will be of good quality, but it does mean a more reliable connection. The range is as follows: -90dB or above (to zero) is good; -102 dB to -90 dB is fair; and anything less than -102 dB is poor. At -138 dB there would be no useable signal.

Small cell

A small cell is a shoebox-sized radio intended to provide mobile network capacity over a small service area (circa 250 metres). Small cells are designed to be attached to street furniture such as lamp posts; or integrated inside street furniture such as bus shelters. Small cells are typically used by MNOs in high-footfall areas with high traffic demand, such as outside stations or on major shopping streets.

Street works site/monopole site

These terms are used to describe the pole structures that are frequently sites on highways land. They may have multiple supporting equipment cabinets near the base of the pole structure.

Tower companies

Many London rooftops have been developed by tower companies that lease rooftop space from the landlord and install structures. These structures are then sublet to mobile operators that install their antennae and radio equipment on the tower company owned structures.

Telegraph pole

The traditional wooden ‘telegraph pole’, typically used by Openreach in sub-urban and rural areas to support the old ‘copper’ telephone network. Telegraph poles are now being used in fibre network deployment, with fibre lines running from the telegraph pole to connect homes gradually replacing the copper network lines.

WiredScore

A certification scheme that provides an independent assessment of buildings' connectivity. It uses several metrics including: connectivity quality, infrastructure, and readiness, providing a benchmark against a single standard. WiredScore can be used to certify both residential and commercial buildings (existing or new builds) and also neighbourhood areas.

Wholesale infrastructure providers (WIPs)

WIPs provide site and kit for MNOs to use. These may include masts, cabinets and other equipment. Their network operators' equipment, such as fibre and antennae, help create electronic communications networks. They are effectively neutral hosts providing a range of infrastructure and operational management services to MNOs who might share the site with other operators. However, they can also be MNOs.