Appendix H: Digital Infrastructure & Connectivity

Streetscape Design Guide 2025

Worcestershire County Council

worcestershire county council

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1. Introduction

a) The purpose of this appendix is to outline the requirements for the provision of digital infrastructure within the highway or public areas of the scheme/project when working within the Worcestershire County Council (WCC) area.

b) The information provided in this appendix should be read in conjunction with information provided in the UKs Digital Connectivity Portal[1], the UK Wireless Infrastructure Strategy[2], the National Planning Policy Framework (NPPF) 2024[3], the 'Digital Infrastructure and Connectivity' section of the relevant District's Local Development Plan and any Worcestershire County Council approaches to any of the National Guidance[4]. In particular 'Digital Infrastructure' may be considered alongside Electric Vehicle Charging and Streetlighting infrastructure as all require power, they may share physical assets (e.g. columns) and have 'data' requirements.

c) The Local Development Plans in Worcestershire, which have been updated since 2019, outline the requirement for developers to include Fibre to the Premises (FTTP) broadband infrastructure to all properties and a request to engage with Mobile Network Operators (MNOs) in respect of the provision of mobile infrastructure in areas they are developing. It is equally important that homeowners, developers, and their consultants, include and make considerations for digital infrastructure and connectivity in formulating designs and making applications for planning permission and subsequent highways legal agreements on the county's highways, public spaces (indoor and outdoor), major and minor projects, not just considering them as a conduit to deliver to homes and businesses but for those spaces themselves to be digitally connected.

2. Background

a) The UK Government is committed to improving the availability of broadband and mobile connectivity across the UK, as well as driving innovation in telecommunications and wider technology sectors, the country requires the necessary digital infrastructure to support these ambitions.

b) Specifically, Building Digital UK (BDUK) has the remit to ensure Gigabit Capable broadband infrastructure reaches 99% of UK premises by 2030 and improve access to 4G mobile network in hard-to-reach areas. Whilst the UK Wireless Infrastructure Strategy aims to deliver

[1] https://www.gov.uk/guidance/digital-connectivity-portal

[2] https://www.gov.uk/government/publications/uk-wireless-infrastructure-strategy/uk-wireless-infrastructure-strategy

[3] **National Planning Policy Framework - GOV.UK**

[4] https://www.worcestershire.gov.uk/digital-worcestershire/digital-connectivity-worcestershire

nationwide coverage of standalone 5G to all populated areas by 2030, ensuring that we can bring its full benefits to villages and rural communities well beyond cities and towns, as well as a strategy for 6G.

c) Locally, Shaping Worcestershire's Future 2022-2027, is equally ambitious aiming to provide gigabit capable broadband connectivity to 90% of our homes and businesses in Worcestershire by 2027, support improvements in mobile telecommunications and continue to explore leading edge digital technologies, such as 5G. Referencing that digital connectivity and digital solutions will:
   i. support Worcestershire's economy for the next generation and maximise opportunities associated with our changing ways of work and life.
   ii. Ensure our residents are equipped to access future opportunities as we experience a shift in working patterns and value quality of life alongside earning potential.
   iii. Ensuring people and places are connected, physically and digitally, is vital to supporting continued economic growth, and unlock further expansion in high-tech and knowledge intensive industries.
   iv. Attract and retain high-tech and knowledge intensive businesses and build a resilient and dynamic economy for the future.
   v. Help to enhance connection between our communities and services.
   vi. Support our management and decision making through the provision of real-time data and trend analysis. This will support our data-driven decision-making approach, ensuring we focus our resources on key areas that will provide the best outcomes for Worcestershire.

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d) To assist with the achievement of these aims, the Government has created the 'Digital Connectivity Portal' [5]including toolkits to support delivery and have recently conducted several consultations to the Electronic Communications Code (ECC), which is set out in Schedule 3A of the Communications Act 2003[6]. The ECC is a set of rights that are designed to facilitate the installation and maintenance of electronic communications networks, by operators with 'Code Powers', and further information around the ECC can be found on the UK Gov and Ofcom websites[7], whilst Ofcom also holds the list of operators with 'Code Powers'[8].

e) Recognising that to achieve the UK Government ambitions and the powers granted to named operators within the ECC it is imperative that to avoid new developments being 'dug up' or

[5] **Digital Connectivity Portal - GOV.UK**

[6] https://www.legislation.gov.uk/ukpga/2003/21/schedule/3A

[7] https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/policy/electronic-comm-code#:~:text=The%20electronic%20communications%20code%20(the,maintenance%20of%20electronic%20communications%20networks.

[8] https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/policy/electronic-comm-code/register-of-persons-with-powers-under-the-electronic-communications-code

having poles and masts unsympathetically retrofitted, it is imperative that the digital infrastructure needs of today and tomorrow need to be included either within the development or at least future provision designed in. **We have a clear goal that developers take a 'Dig Once' approach to any new developments or improvements.** The sections below set out the main considerations we expect developers and their consultants to make in terms of digital infrastructure, recognising the fast-changing nature of digital connectivity and connected services.

3. Required considerations for broadband and wired infrastructure.

a) All new developments will be expected to include the provision of full fibre gigabit capable network infrastructure / Fibre to the Premises (FTTP) to enable broadband services for premises and all occupiers in the case of shared units.

b) Within all new developments, ducting infrastructure should be provided to at least 120% of the capacity requirements of the proposed development to provide for future growth, including for ducting to support wireless backhaul. The additional capacity will allow for future proofing supporting digital connectivity for other solutions such as fibre connectivity to mobile or smart community applications, which, for example, could provide energy efficient lighting or traffic management solutions for development.

c) Developers and their agents should consult with the major fibre network providers, including, but not limited to, Airband, City Fibre, Full Fibre, Openreach and Virgin Media O2 as well as the Council's Digital Infrastructure and Connectivity team to understand what digital infrastructure already exists, may be already planned or could be installed as part of commercial or gap-funded programmes. Guidelines for the installation of duct networks should be in line with the requirements of the Highways Authority and to those of network infrastructure providers; Openreach produces minimum install requirement guidelines that are available on their website.

d) Where streetlighting is being installed then fibre connection pots should be made available to columns in key locations such as junctions or tight bends, as these have more 'lines of sight' to other columns, allowing for wireless point-to-point networks to be effectively installed later as required.

e) In some exceptional locations outside populated areas, an equivalent alternate solution may be acceptable if developers are unable to facilitate an FTTP solution, although FTTP is the preferred option, and the burden of proof lies with the developer as to why an alternative solution is required. In any case, developers must, as a minimum, make sure that broadband services reach ultrafast speeds and are available to all premises.

f) The migration away from analogue services over the copper network is already underway; in 2015, BT announced it would be switching off the Public Switch Telephone Network (PSTN) and Integrated Services Digital Network (ISDN) by 2025, now delayed until 2027, with a plan eventually to fully retire the copper network in the 2030s. For this reason, any development or re-development that includes street furniture, which may use digital connectivity e.g. bus

shelters, digital signage, traffic-controlled junctions, should have fibre pots available and provision of cabinets as required, if not to have access to 'wireless/mobile connectivity services.

g) The development of transport hubs and sites incorporating business parks should also consider the need for resilience and additional required infrastructure within the development to ensure appropriate digital connectivity for the site. As an example, high value manufacturing and businesses that rely on connectivity for mission critical operations, value a second option for fibre, should the primary route fail. Equally businesses, or busy areas may seek Multi Access Edge Compute (MEC) facilities in the shape of a communications room or access to a communications cabinet, provision / space for such facilities should be built into designs allowing for their install later when the anticipated demand arrives.

h) To promote a dig once approach, ducting should be laid throughout a development, with chambers installed at appropriate intervals / tight bends and at the boundaries of the new development / scheme / project, in line with guidelines to reduce any need to dig again. Whilst Worcestershire does not currently have their own 'dig once' policy, strong examples exist in other areas, including Cambridge[9], London[10] and Berkshire[11]. Wherever practicable when redeveloping a site, if existing network is direct buried armoured cable or telegraph poles are present then developers are encouraged to work with network providers to install underground ducting.

4. Required considerations for mobile and wireless infrastructure

a) The UK Wireless Infrastructure strategy should be referred to for background information on the benefits and changing scene of wireless connectivity in the UK. Mobile and other wireless infrastructure are increasingly important for when people are on the move, monitoring assets and as alternative ways to connect fixed locations when full fibre is cost prohibitive or otherwise impracticable.

b) All new developments will be expected to consult with recognised Mobile Network Operators (MNOs) or third-party telecommunications infrastructure providers / providers of neutral host networks, to determine how the new development may impact upon existing and planned mobile services around the proposed development, including line of sight and capacity. As well as the expected requirements of the new development and to work with MNOs, third parties and their agents to install or design future need requirements into developments and schemes.

[9] https://www.connectingcambridgeshire.co.uk/about/enabling-digital-delivery/fibre-ducting-in-transport-schemes-dig-once-policy/

[10] https://www.london.gov.uk/programmes-strategies/better-infrastructure/infrastructure-coordination/streets-service/dig-once-approach

[11] https://www.berkshiredig.org.uk/dig-once-strategy

c) Developers and their agents are asked to note that all the MNOs have plans to switch off the 2G and 3G networks, the 3G network switch off commenced in 2023 for most operators, with the 2G networks to follow within the next 7 years, this will place additional needs onto the 4G, 5G and future 6G networks

d) There may also be a need for other wireless technologies to be deployed into a development such as low powered wide area network technologies, Internet of Things (IoT), fixed wireless, and Wi-Fi. Developers are expected to indicate and justify inclusion of these technologies within the design or for omitting them, considering them against the changing shape of transport / public and private sector services. Both outdoor and indoor spaces need to be able to connect. Increasingly 'small cells' are deployed to cater for high demand areas or for indoor spaces. It is expected that developers should make provision of suitable locations for outdoor macro-masts and their associated ground level cabinets and for siting of small cells both indoors and outdoors, these may be on buildings, dedicated mounts or shared with other streetscape infrastructure on columns or poles. New PAS 190 and PAS 191 are available for columns and poles hosting communications equipment[12]. Appropriate space should also be provided to support communications equipment, e.g. MEC, public radio network equipment and potentially private networks in a specified room or cabinet that can be accessed as required for maintenance and network management. Liaison with the MNOs here is crucial as there may be appetite for active or passive sharing of infrastructure and potential adoption of neutral host models that may reduce the amount of equipment and space required. As indicated in section 3, wired infrastructure and ducting will be preferred to be available to key assets to support backhaul for the wireless edge of the network. Designing the locations for digital infrastructure is particularly important considering the power available to ECC code operators and the expectation of end-users. Without it there is the risk that an operator with ECC code powers may retrospectively install equipment, with a greater risk that multiple operators will then do this, not only causing short term inconvenience but impacting on the aesthetics of the site as it was designed. It is recognised that some developments may seek to have a more active role in provision of network, including managed services and neutral host, it is important that developers who consider this approach should consult the latest guidance from the market and Ofcom as the regulator. As a minimum, there is a need for any provision of wireless network infrastructure to be designed to:

- Follow International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines[13] and / or any other relevant guidance in place at the time of the application) for safe emissions to be met.
- Avoid interference with existing electrical equipment, air traffic services or other licensed spectrum in line with Ofcom requirements.

[12] PAS 190:2023 | BSI (bsigroup.com) and PAS 191:2023 | BSI (bsigroup.com)

[13] **ICNIRP**

- Consider the provision of in-building solutions for telecommunications technology.
- Consider the impact of the development on its surroundings with the following criteria:
  - The siting and appearance of the proposed apparatus and associated structures should seek to minimise the impact on the visual amenity, character, landscape, or appearance of the surrounding area, particularly if it is proposed in an area of historic built environment or natural environment designations. All location of equipment considerations should be considered through Government guidance.
  - If on a building, apparatus and associated structures should be sited and designed to seek to minimise the impact on the external appearance. When choosing a suitable location for the apparatus, ongoing access at appropriate and suitable times should be considered.

5. Contact details

Please contact the Digital Infrastructure and Connectivity Team at Worcestershire County Council for further information or queries relating to the guidance included within this Appendix.

Email: Broadband@worcestershire.gov.uk
Website: **Digital Connectivity | Worcestershire County Council**