

Digital Infrastructure Strategy



Introduction

Connectivity between people, places and things is a feature of our everyday lives, working best when we don't have to think about how we access it.

Connectivity opens up opportunities for new insights, new learning, new conversations, allowing us to do things differently.

Quite simply, being connected enables us to do things better together - solve problems, create experiences, enhance lives, preserve and build on what is important to us.

Our ability to connect to each other and the world around us is already unlocking huge potential for new applications, changing the way we live.

We continue to see the emergence of innovative uses for connectivity in everyday life and commercial applications, such as automation across industry, machine learning and predictive modelling to help us plan, widespread use of sensors to monitor our urban and natural environments for example the flow of traffic, how we power our homes, our biodiversity.

These innovations can increase productivity, conserve resources, create high quality employment opportunities and attract inward investment.



As connectivity becomes increasingly important to us all it is vital that it is underpinned by scalable, resilient and sustainable digital infrastructure.

West Sussex County Council, together with the county's District and Borough councils¹ recognise the importance of high quality, accessible and affordable digital infrastructure in supporting the county's resilience, enabling sustainable growth and responding to environmental challenges.

1. The eight West Sussex local authorities (Adur District Council, Arun District Council, Chichester District Council, Crawley Borough Council, Horsham District Council, Mid Sussex District Council, Worthing Borough Council and West Sussex County Council)

Strategic priorities

Our ambition is to ensure that we have the digital infrastructure needed to support our economy to thrive, to improve our quality of life and to protect our natural environment. We will continue to build on our solid foundations to further enable innovation, efficient use of resources, productivity gains, connected places, people and things.

Our strategic priorities are:

- SP1** to enable future-ready infrastructure that will support our diverse economy and stimulate growth and innovation
- SP2** to enable the creation of connected places, unlocking value for communities, businesses, public services and the environment
- SP3** to improve access to connectivity in hard to reach areas, reducing the digital divide and unlocking the potential of our rural economy



We will deliver these priorities by working with partners across the public and private sectors through our established OpenDigital programme. We will build on previous investments such as our West Sussex Full Fibre Programme national pilot Gigabit Framework, our dark fibre OpenNetwork, the county's OpenAsset approach to street furniture, and BDUK's² national Project Gigabit for hard to reach areas.

We will also expand our programme to include new areas of work such as accelerating infrastructure that can enable innovation ecosystems, including the role of open data in public and private sector innovation; enabling connectivity that supports environmental action on climate change, habitat restoration; facilitating networks that enable better public services and create more opportunities for commercial investment.

2. Building Digital UK (BDUK) is helping to bring fast and reliable broadband and mobile coverage to hard-to-reach places across the UK - transforming people's lives. BDUK is an executive agency, sponsored by the [Department for Science, Innovation and Technology](#)

Work we will continue

All 8 West Sussex councils have been working effectively together for several years already making the best use of resources and securing value for money to deliver our digital ambitions. We have successfully built a strong partnership able to plan and deliver shared strategic outcomes in alignment with local priorities.

We will continue to work together with committed leadership from West Sussex councils' Chief Executives and Leaders. By building on our OpenDigital partnership foundations, together we will develop further convergence across partners to improve digital connectivity across the county.

In recent years we have worked collaboratively to develop a diverse local and regional telecommunications market including a substantial number of alt nets (alternative network providers). We bring diverse stakeholders together, aggregate demand for connectivity and in some circumstances act as a neutral host (an impartial owner of infrastructure that is made available on an open access basis) to facilitate commercial network build.

We will continue to work closely with the market to support the expansion of commercial telecommunications networks, facilitating co-operation to avoid unnecessary overbuild and encouraging build in hard to reach places.

We have worked extensively with Government and telecoms providers to bring fibre and dark fibre networks to business parks of all sizes and to key economic hubs. We have also enabled access to better connectivity for thousands of small and micro-businesses across the county.

We will continue to support economic growth across diverse sectors including the visitor economy, farming and land management, creative digital, renewable energies, manufacturing and engineering, logistics. Since leading the Better Connected superfast project (2012-18), West Sussex councils have worked together to maintain focus on rural connectivity. Our OpenDigital programme remains committed to this agenda.

We will continue to improve connectivity in the hardest to reach areas in addition to Government's national Project Gigabit, targeted with reaching 99% of UK premises with gigabit capable connectivity by 2030.

Work we will start

Innovation can give businesses a competitive edge by creating new products and increasing productivity. It also benefits communities, individuals and our environment as new services become available conserving resources.

We will work more effectively with universities, colleges, research and development agencies by being more agile and leveraging opportunities together, including the sharing of data and designing open data solutions that support innovative ecosystems. These innovators can develop new applications of technology for both West Sussex, the wider region and potentially contribute to the UK's knowledge economy.

We will work more closely with private sector investors and private enterprise to accelerate the development and deployment of private networks and technologies that can make a positive impact to lives and places in West Sussex as well as our economy.

We have been working effectively across the public and private sectors within the county to improve digital infrastructure. We will now seek to establish digital infrastructure partnerships within the wider region. Having successfully worked with Brighton and Hove City Council to extend our OpenNetwork³ to the Brighton Digital Exchange and other key sites in Brighton we are keen to explore other joint initiatives with neighbouring local authorities.

We will build a "regional" digital infrastructure approach where connectivity can leverage additional benefits for the region across county boundaries, enabling our region's infrastructure to become more than the sum of its parts.



3. Currently over 100km of open access network comprising duct and dark fibre in public ownership between West Sussex County Council, Mid Sussex District Council, Brighton and Hove City Council

Technology themes

Our digital infrastructure strategy puts fibre and mobile connectivity front and centre. Businesses require reliability, speed and resilience in order to grow and full fibre and 5G are widely heralded as the future proof technologies with the potential to develop innovative new technologies that can transform productivity, make significant advances in transport and health care, and support action on climate change.



This strategy will continue to evolve, allowing us to shape and integrate our collective ambition for digital place making. It comprises a set of areas of action structured around four underpinning technology themes to achieve our strategic priorities.



The technology themes are:

1. **Regional connectivity** - e.g. spines for backhaul⁴; open access dark fibre⁵ and duct; point to point/multipoint secure dark fibre for collaboration, innovation
2. **Local connectivity (access networks⁶)** to premises e.g. Full Fibre, Gigabit capable (1000Mbps), and Superfast Broadband >30 Mbps;
3. **Mobile connectivity** – e.g. wireless technologies such as 4G; 5G small cell networks; macro sites; satellite, fixed wireless access etc
4. **IoT (Internet of Things)** - connectivity for sensor networks, machine to machine (M2M) communications underpinning 'Smart Places'.

4. Backhaul is the fibre spine infrastructure that connects the smaller "access networks" to the rest of the world via the internet.
5. Dark fibre – unlit fibre that ISPs or customers can light up. It is scalable, secure and flexible. Can be used as backhaul to internet exchange points.
6. Access networks connect to backhaul and deliver broadband to individual premises

Our strategy in action

We have a good understanding of connectivity needs across the county based on coverage, local challenges and opportunities, alongside assumptions of future need based on wider technology, socio-economic and environmental trends. This picture is made up of many moving parts and is constantly evolving. It forms the evidence-base underpinning the areas of action needed to achieve our Strategic Priorities (SP):

SP1:

Enable future-ready infrastructure that will support our diverse economy and stimulate growth and innovation.

West Sussex boasts an array of large and small business and enterprise parks. It has a vibrant creative digital sector, high tech engineering and technology sectors, established visitor and horticulture economies and growing sustainable energy production. These are solid foundations for economic growth but there is still unlocked potential. Digital infrastructure has a role to play in shaping higher value, knowledge intensive sectors where businesses value connectivity and the potential to cluster.

In addition to enabling local connectivity (to individual premises via access networks), we recognise that digital infrastructure also has the potential to lift the wider region, boosting the social, cultural, environmental and economic value of both rural and urban areas. By considering places together, our experience has shown that the whole can become more than the sum of its parts. This is especially true of connectivity, whereby the more connections there are, the more applications of technology are possible – a significant driver for innovation and growth. We understand the role regional connectivity can have in creating the conditions that can accelerate the economic and social benefits associated with well-connected places and a thriving digital economy.

We want to achieve a future ready digital foundation for West Sussex capable of improving productivity and quality of life. A key challenge is being able to get ahead of the demand curve given the fast-paced technology environment and the comparatively long build times to deploy infrastructure.

Our strategy will test how digital infrastructure can create the conditions to support further innovation and how it could enable businesses and industry sectors across West Sussex to fulfil their potential with future ready infrastructure.



We will do this by:

- Removing barriers to accelerate the provision of backhaul, fixed and wireless access networks through making available open access public sector infrastructure, shared and no dig opportunities, supporting business parks to access high quality fibre connectivity including dark fibre where appropriate, e.g by aggregating demand, adopting a multi-connectivity “connected spaces” approach, making publicly owned assets available for telecommunications infrastructure
- working with developers and planners to ensure new development sites have future-ready digital infrastructure well beyond the minimum of gigabit capable connectivity mandated by Government policy
- supporting areas where economic growth and innovation can be unlocked through improved connectivity either through current generation or next generation infrastructure as appropriate.
- working in partnership with industry, academia, technology partners and infrastructure providers to bring investment to the region.

SP2:

Enable the creation of connected places, unlocking value for communities, businesses, public services, researchers and the environment.

Connected places are characterised by numerous seamless, secure and instant interactions between people, places and things. The internet of things (IOT)⁷, underpinned by 4G, is already commonplace across many aspects of modern life. Unlike its predecessor, 5G (and future “generations” or “Gs”⁸) can capture and process huge amounts of data in milliseconds opening up opportunities in virtual and augmented reality, robotics and automation.

Wireless technologies are playing an increasingly important role in the UK telecoms infrastructure landscape, as the Government sees ‘future telecommunications’ as one of five critical technologies essential to the UK’s economic performance. The recently published Wireless Infrastructure Strategy¹⁰ positions fixed wireless access networks, mobile 4G and future 5G/6G networks and satellite broadband networks as front and centre in the effort to provide nationwide coverage of standalone 5G by 2030. Whatever the technology, the transformative potential of wirelessly connected places for individuals, communities, industry, and our planet represents a significant leap forward. Our connected spaces need to be future-ready for the next generations of mobile connectivity.

Other wireless technologies such as WiFi and long range options such as LPWAN⁹ and LoRaWAN also have a vital role to play in current and future wireless sensor networks and can be cost effective options in connected places.

Our strategy will support the acceleration of deployment of mobile 4G and 5G networks, enabling providers with access to our public sector assets to site equipment and increase the density of data services available to people and devices.



We will do this by:

- working with mobile network operators (MNOs) to encourage deployment of private and public mobile infrastructure to support mobile phone coverage and IOT/5G applications
- allowing MNOs to access existing public sector assets including duct, dark fibre and street furniture, roof tops to reduce disruption and avoid unnecessary masts and cluttered street scenes
- working with technology companies to explore how non digital infrastructure (e.g. EV charging points, signage, buoys etc) can be adapted to also serve as discreet platforms for small cells and explore how new public infrastructure can serve multiple purposes.
- collaborating with research and development organisations to understand how IOT/5G sensors can be used to test and monitor spaces (e.g. air, water quality, footfall/traffic flow, the natural environment etc) supporting smart management of spaces through remote or autonomous activities.

7. Current IOT It uses 4G services to send and receive data and then take action, typically by turning something on or off, contacting a 3rd party or making an adjustment

8. For example, 6G and other generations being developed (alongside Edge computing, AI etc)

9. Low-power wide-area networks (LPWANs) deliver IOT connectivity (small amounts of data) at low cost over great distances for many years on a single battery. The LoRaWAN is an open standard, low-power, wide area networking protocol.

10. UK Wireless Infrastructure Strategy – GOV.UK

SP3:

Improve access to connectivity in hard-to-reach areas, reducing the digital divide and unlocking the potential of our rural economy.

With more than half of the land area of West Sussex designated as protected countryside, our geography itself presents a number of challenges and opportunities. Premises within Areas of Outstanding Natural Beauty and in the South Downs National Park have historically been difficult to serve in terms of broadband connectivity given the challenging terrain and long distances involved, along with the low density of premises. Network builders have cited a lack of accessible backhaul⁴ in certain areas of West Sussex as a barrier to their investment as it makes extended connectivity cost-prohibitive. This must be overcome to attract large and small alternative network providers to rural and semi-rural areas that have effectively suffered from lack of investment from the broader market with some premises expected to be too costly even for Government funded programmes.

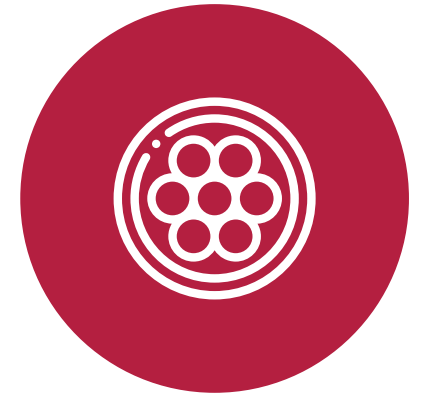
This has impacted our ability to unlock the full potential of our rural economy and will limit access to crucial enabling technologies in the future (5G and its successors for example). Having worked with rural communities, business parks, SMEs, landowners and growers across viticulture, horticulture and agriculture we have clear evidence of benefits from diverse connectivity use cases.

We are working with BDUK on the Government's national Project Gigabit deployment that will bring gigabit capable speeds to 99% of the UK by 2030. However, we know that laying fibre in the hardest to reach rural areas takes time and that for some businesses and communities, faster connectivity - regardless of whether it is gigabit or not - is the immediate concern.

However, we know that laying fibre in the hardest to reach rural areas takes time and that for some businesses and communities, faster connectivity - whether fibre broadband or not - is the immediate concern. We will therefore continue to work with communities and telecoms operators to explore alternative gigabit-capable solutions that provide long-term connectivity, and which may be a mix of fibre and wireless technologies, e.g. advanced wireless/5G. In the interim, we will continue to explore targeted solutions that may not be gigabit-capable but can provide immediate benefits and do not preclude premises benefiting from Project Gigabit.

We will do this by:

- working with the telecoms market to accelerate commercial investment in both fixed and wireless infrastructure by making public assets available and facilitating access to private land to benefit community projects
- investing in extensions of the Council's OpenNetwork where an investment case can be made to make duct and fibre available to the telecoms market (e.g. Council role as a neutral host)
- investing in and facilitating the deployment of private networks where there are demonstrable benefits to communities, public service delivery, the environment and/or the economy
- encouraging alternative technologies to reduce the digital divide in the very hardest to reach areas where gigabit capable connectivity cannot reach.
- trialling digital use cases supporting rural activities based on natural capital (e.g. growing, re-wilding, protecting our environment and heritage, visitor economy)



In Summary

This strategy demonstrates our continued commitment to ensuring that connectivity in West Sussex meets our economic, environmental and social needs now and in the future and will benefit all who visit, live and work in the county.



We will continue to work together to achieve our strategic priorities, building on strong partnerships with Government and the telecoms market. We also look forward to working more extensively with innovation and technology partners, Industry, communities and regional stakeholders so that together we can make a more positive impact.

We all have different needs and aspirations and will want to use technology in different ways but fundamentally it should be about making life better. Making it easier for us all to do the things we want to do. Creating an environment for new ideas to thrive. Getting the right information to make choices now and for the future. Helping us to look after what is most important to us.

