SUPPLEMENTARY INFORMATION

1. Site Details

Site Name:	Ruthin Road	Site Address:	Footway of Ruthin Road, Opposite Morrisons, Wrexham LL13 7TU
National Grid Reference:	E: 332543 N: 350034		
Site Ref Number:	CS_20804421	Site Type:[1]	Macro

2. The Proposal

Brief summary of the proposal:

Installation of a 20m slim-line monopole supporting 6 no. antennas, 1 no. transmission dishes, 1 no. equipment cabinets, 1 no. meter cabinet and ancillary development thereto including GPS module.

Cornerstone and Vodafone Limited UK (VF) are in the process of progressing a suitable site in the Ruthin Road area for a radio base station capable of providing the latest 4G and new 5G technologies.

As part of VF's continued network improvement program, there is a specific requirement for a new installation at this location to provide improved 4G and new 5G coverage and capacity, ensuring that this area of Wrexham has access to the latest technologies. This is fully in line with the Government's aim to ensure that everyone is connected to the superhighway.

3. Pre-Application Check List

Site selection:

Was the industry site database checked for suitable sites by the operator?	Yes	
If no explain why:		

Annual area wide information to planning authority

Can the annual area wide information be provided on request?	Yes	

[1] Macro or Micro

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If no explain why:		

Pre-application consultation with planning authority

Was there pre-application contact:	No
Date of pre-application contact:	N/A
Name of contact:	N/A
Summary of outcome/Main issues raised: A pre-application consultation letter, consultation plan and set of proposed plans were sent to the Chief Planning Officer of the Local Planning Authority via email, dated 13/06/2024. No comments were received.	

Stakeholder Consultation

Outline consultation carried out: A pre-application consultation letter and a set of proposed plans were sent to the local ward councillor for Brynyffynnon (Councillor Phil Wynn) via email, dated 13/06/2024. A pre-application consultation letter and a set of proposed plans were sent to the Wrexham MS (MS Lesley Griffiths) via email, date 13/06/2024. A pre-application consultation letter and a set of proposed plans were sent to the Wrexham MP (MP Sarah Artherton) via email, dated 13/06/2024. A pre-application consultation letter and a set of proposed plans were sent to the Clerk of Offa Community via email, dated 13/06/2024. A pre-application consultation letter and a set of proposed plans were sent to the local ward councillor for Offa (Councillor Kate Wilkinson) via email, dated 11/07/2024.
Summary of outcome and main issues raised: No comments were received.

Schools/Colleges

Location of site in relation to school/college (include name of school/college): Ysgol Clywedog, 17 Ruthin Road, Wrexham LL13 7UB
Outline of consultation carried out with school/college (include evidence of consultation):

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A pre-application letter and a set of proposed plans were sent to the Headteacher and the Chair of Governors for Ysgol Clywedog via email, dated 11/07/2024.
Summary of outcome/main issues raised (include copies of main correspondence): No comments were received.

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

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

Developer's Notice (only required for an application for prior approval)

Copy of Developer's Notice enclosed?	Yes	
Date served:	Developer's notice served on the Wrexham Borough Council Highways Department via Special Delivery, dated 25/07/2024. Please see enclosed copy of the notice, plans and confirmation of delivery.	

4. Pre-Application Check List

Type of Structure *(e.g. tower, mast, etc):* Apollo Monopole	
Description: The proposal compromise of the installation of 20m high monopole, 6 no. antennas, 1 no. cabinet, 1 no. meter cabinet, 1 no. transmission dish and ancillary thereto development including GPS module.	
Overall Height:	20m
Height of existing building *(where applicable):*	N/A
Equipment Housing: Cheshire Plus	
Length:	0.600 Metres
Width:	2.723 Metres
Height:	1.648 Metres
Equipment Housing: SFMC 160	
Length:	0.251 Metres
Width:	0.263 Metres
Height:	1.000 Metres
Materials *(as applicable):*	

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Tower/mast etc – type of material and external colour:	Steel – Grey
Equipment housing – type of material and external colour:	Steel - Green

Application Background:

If there is any planning history to the current proposal? Have other operators gained consent (via application or appeal) for sites nearby?

Background:

Cornerstone is the UK's leading mobile infrastructure services company. They acquire, manage and own over 20,000 sites and are committed to enabling the best in class mobile connectivity for over half of all the country's mobile customers. They oversee works on behalf of telecommunications providers and wherever possible aim to:

- Promote shared infrastructure.
- Maximise opportunities to consolidate the number of base stations.
- Significantly reduce the environmental impact of network development.

As part of Cornerstone's network improvement programme, Vodafone Ltd UK (VF) is in the process of progressing a number of suitable sites for radio base stations, which will provide improved 4G coverage and capacity and new 5G service provision. This is fully in line with the Government's aim to ensure that everyone is connected to the superhighway.

Vodafone requires the latest 4G coverage and capacity and the new 5G technology for its network in this cell area. The operator is limited in siting options as there is a requirement to fill the existing gap in the operator's network in this area of southwest Wrexham.

The proposal compromises of the installation of 20m high monopole, 6 no. antennas, 1 no. equipment cabinet, 1 no. meter cabinet, 1 no. transmission dish and ancillary thereto development including GPS module.

The proposed radio base station is situated on the footway of Ruthin Road, southwest of the city centre, in a mixed-use area comprising a blend of commercial and residential properties. The site selection aimed to minimise visual impact while ensuring optimal coverage of the target area.

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Map 1. The site location.

To the east and west of the proposed site, Ruthin Road hosts a mix of commercial and residential properties. Directly north, across Ruthin Road, is Morrison's Petrol Station with an associated car park, and further beyond, a Morrison's supermarket. To the southeast, adjacent to the site, is The New Cochin Inn with its own parking area.

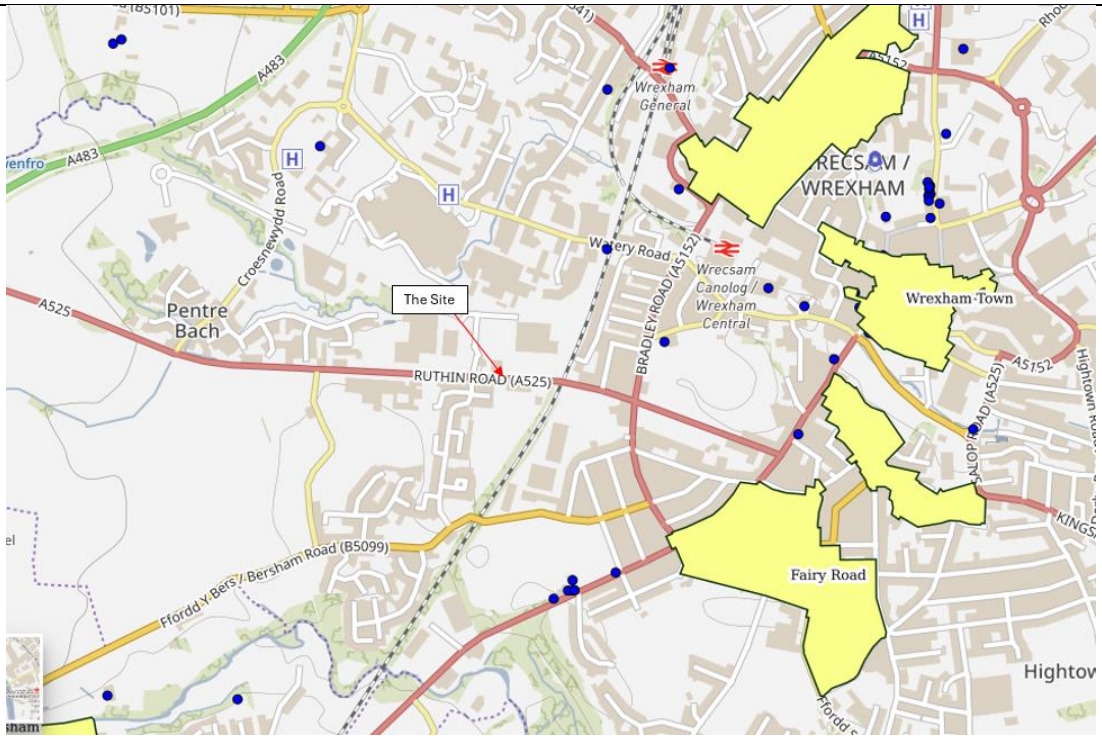
Southwest of the proposed radio base station lie residential properties, positioned at a 90-degree angle relative to the development. These properties are shielded by a hedgerow on site, ensuring that visual impact on them is minimised.

There are a number of other linear street furniture items in the surrounding vicinity such as lighting columns, telegraph poles, road signage, commercial signage, bus stop shelter, traffic lights, CCTV supporting poles, and pedestrian guard rail, as well as semi-mature and mature which will help to assimilate the proposed radio base station to the surrounding area.

The proposed site is not located within any designation area such as Conservation Areas or near any listed buildings or other heritage assets. The nearest Conservation Area is located over 590 meters to southeast, and the nearest listed building is over 400 meters away to the northeast. Given the distance between these assets and the proposed site, no impact on the heritage assets is expected.

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Map 2. Site location in relation to heritage assets.

The proposed site is located on a footway of Ruthin Road (A525), a busy route leading towards Wrexham City Centre. Due to the significant number of daily commuters, as well as the residents and businesses in the area, there is a high demand for high-quality 4G, and 5G coverage. The proposed site will provide 4G coverage, as well as new 5G coverage, to meet this demand.

Without this site and provision of the improved coverage, the operator's customers will not be able to use their handheld devices as intended. This absence of coverage would result in buffering and dropped calls, leaving customers with unreliable service in this area and creating a gap in coverage.

Design Statement

How the proposal complies with planning policy and guidance – How the proposal meets the siting and appearance factors listed in PPW and Code of Best Practice on Mobile Phone Network Development. How the design minimises impact, subject to technical and operational constraints. Reasons for the type of design: what alternative design solutions were considered and discounted, how the design fits in to the site and surroundings and minimises visual impact. Describe any landscaping schemes or justify why it was not required.

In line with Planning Policy Wales 12 and the Code of Best Practice, the operator has carefully considered the design of the proposed mast. The operator is proposing the most sensitive

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design currently available to provide the necessary coverage and capacity to the surrounding area. Due to all the technologies that will be available at this location, 4G and 5G, the antennas need to be installed at the top of the slim-line monopole. The antennas are split into a dual stack formation where 3 antennas will be located at the top and the other 3 will be located underneath. The antennas will provide the 4G service provision. The new antennas will also ensure that the site will provide 5G coverage in this area of the Wrexham. In order for the antennas to operate effectively the whole of the antenna needs to be clear of any obstruction from tree foliage and urban clutter. Thus, if the column were to be any lower, the antennas would not be able to clear the trees and urban clutter and as such would not be able to operate effectively.

The proposed height at 20m is essential in order to provide enhanced coverage to the target coverage area. 5G new radio technologies operate in higher frequency bands than older technologies. Since it operates at higher frequencies where attenuation of the radio signal is naturally higher, and the effects of clutter are greater it will normally require a higher structure to achieve the same coverage footprint. To increase capacity and data speeds to the user, the antenna will normally need to be mounted higher than conventional antennae. These factors drive a requirement for an increase in antenna height in 5G.

The new antennas are all unshrouded for technical reasons. However, they have been designed to be as tight as possible and virtually the same width as the main column, to minimise their visual appearance. The higher the radio frequency the more signal attenuation there is. The higher frequency 5G antennas are unable to operate effectively through the Glass Reinforced Plastic that the shroud is made up of and as such if these antennas were to be shielded then they would not be able to provide the necessary coverage to the target coverage area. An additional installation would be needed elsewhere within the cell area, leading to the proliferation of masts.

This is the slimmest design possible which will enable all technologies to be supported from this site. If the column and antenna width were to be any slimmer than the technology would not fit in the one column and another radio base station would be required, which would lead to the proliferation of masts contrary to national guidance contained in Planning Policy Wales 12 and The Code of Best Practice. Similarly, if the column were to be a uniform width throughout then the overall width would have to increase which would appear more visually prominent in the street scene, than the proposed design.

The proposed design is more visually sensitive and much easier to assimilate into a street scene than lattice towers or unshrouded pole designs with bulky headframes. These non-stealth designs are preferred by operators as they are structurally capable of hosting more equipment and give greater scope for antenna orientation and are thus more efficient structures. However, such designs would appear alien in this location. Therefore, the operator has compromised on obtaining maximum coverage in order to better assimilate into the street scene.

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The design of the column resembles as closely as possible the other existing vertical structures within the immediate area including lighting columns, traffic lights, telegraph poles, CCTV supporting poles, road signage, and commercial signage.

The proposals fully accord with the Code of Best Practice. The design of the column is a simple, functional, vertical structure which will not appear incongruous within the street scene. This is especially so given its careful siting on a footway of Ruthin Road, along other vertical elements of street scene including a lighting column, traffic lights, telegraph poles, CCTV supporting poles, road signage, and commercial signage, as well as semi-mature and mature trees in a wider area which will all help the column assimilate with its surroundings and not appear out of place. The column is proposed to be coloured grey to match the existing road signage and lighting columns; the proposed grey colour will also better assimilate with an often-grey sky. Although it can be coloured any colour that the Council considers appropriate.

There are not existing sites within the search area that could or nearby that could be utilised for a site sharing. The nearest existing site is located over 820m northeast away from the proposed site, therefore it is too far away to provide the coverage to the target coverage area.

The cabinets are designed to appear like other statutory undertakers' equipment cabinets, including in the immediate street scene. They are to be located adjacent to the proposed column. The proposed equipment cabinets are small for telecommunications apparatus. Their colour is proposed to be Green to blend in with the other equipment cabinets in the street scene and other statutory operators' equipment cabinets commonly found in urban areas.

The ground-based equipment cabinets have a similar appearance to other communications and electrical service boxes found in most street scene such as Openreach equipment cabinets. Indeed, there are existing similar designed equipment cabinets along Ruthin Road. The site is likely to be visited infrequently approximately once or twice a year, and generally for maintenance purposes only. Access to the site will be by foot in order to gain access to the equipment housed within the cabinets. In the event of the antennas within the mast needing to be maintained this will be achieved by siting a cherry picker with a hydraulic platform alongside the base station.

The transmission dishes are essential to link the installation back into the Mobile Network Operator's wider network and relay the data. The dish antennas used by mobile phone networks are relatively small, in this case they are proposed to be 300mm in diameter. They are used to link individual radio base stations to each other and, through a series of links, into the wider mobile phone and fixed line networks. In order to communicate with each other, dish antennas must have a clear line of sight, sometimes known as point-to-point communications. They must be in clear view of each other without any physical obstructions such as trees or buildings which would reduce or disrupt the low-powered signal. For this reason, dish antennas are always mounted high on rooftops or tall structures. In this instance,

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in order to obtain a clear line of sight the minimum centre line height needs to be 15.30m above ground level.

It is therefore considered that the proposal before you strike a good balance between environmental impact and operational considerations. The proposed height and design represent the best compromise between the visual impact of the proposal on the surrounding area and meeting the operator's technical requirements for the site. Taking all matters into account it is considered that this proposal, to provide the latest 4G service provision and new 5G ready coverage providing high quality dense coverage and capacity, would not appear out of place within the street scene.

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

A mobile phone transmitter is designed to cover a specific area and links its coverage to the next site in the network, creating a patchwork of overlapping coverage 'cells' across the country. So, if a person is on the move, the network will transfer their calls from one site to the next. However, in certain areas there will be gaps between these cells, resulting in an absence of coverage. This can be for a variety of reasons, the most common being topography or buildings which block the path of the signal. The operators' network rollout programme is designed to identify and address these gaps within their coverage and ensure the people can use their phones whenever and wherever they are.

There is specific requirement for a new radio base station at this location to allow Vodafone to provide new 5G coverage and capacity and 4G service provision to this Wrexham area.

An installation located outside of this search area would not allow the operator to provide their desired level of new 5G coverage or 4G service provision and therefore would not adequately fill the current 5G coverage gap. Continuous coverage is also required in order to ensure that calls are not 'dropped' within the operators target coverage area.

It is extremely important to remember that due to the physics of radio frequency, each base station can only provide service to a limited geographic area and this is reduced further by topography and population density, amongst other things such as 'clutter' which is a technical term referring to near or distant line of sight obstruction or 'clutter' between the base station and the areas it is trying to provide service to. This 'clutter' can take the form of high trees or buildings in the wider area which obstruct the signal and severely disrupt the service or make a base station redundant entirely.

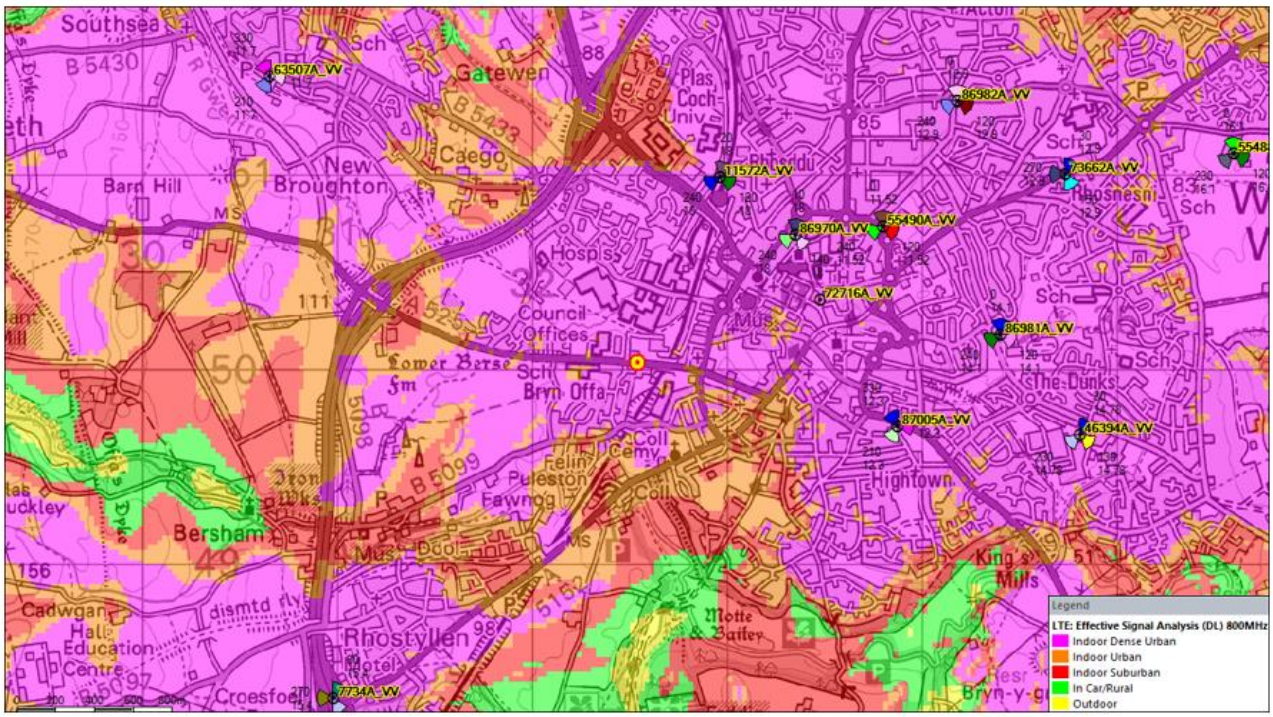
The fact is, these base stations are required **where the service is required**, where there is a population who demand service provision, placing an installation a distance away from a population means the installation cannot provide the service to where it is needed.

The installation of this ground-based installation will enable 4G coverage and capacity to the surrounding area as well as provide new 5G service provision for one of the Cornerstone's operators to ensure high0quality customer experience is obtained as demands on the network increase and technologies change.

The below coverage plots, presents the changes to 4G coverage provision in the area.

Existing 4G coverage:

Existing 4G Coverage

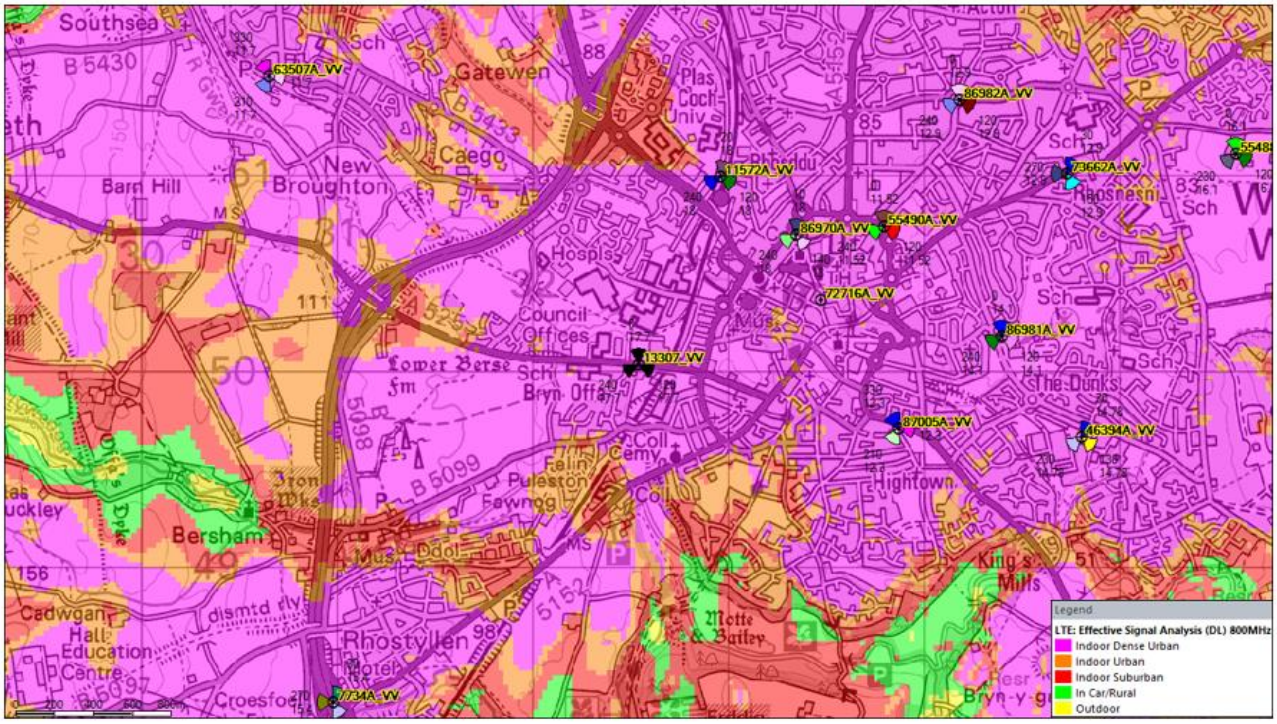


Proposed 4G coverage:

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Proposed 4G Coverage



The proposed location and height will allow for the optimum level of coverage to be provided to the target coverage area. As demonstrated in the coverage plots submitted with this application the levels of high-quality, reliable 4G coverage that will be provided to this area is significant. The 5G coverage is not shown on the coverage plots, however, it will follow the 4G coverage footprint.

Base stations use radio signals to connect mobile devices and phones to the network, enabling people to send and received calls, texts, emails, pictures and downloads. Without base stations, mobiles and devices will not work. Baser stations are made up of three main elements. The cabin which contains the equipment used to generate the radio signal. A supporting structure such as a mast which holds the antennas in the air and the antennas themselves.

Base stations are connected to each other and telephone exchanges by cables or wireless technology, such as microwaves dishes, to create a network. The area each base station covers is called a cell. Each cell overlaps with its neighbouring cells to create a continuous network. The size and shape of each cell is determined by the features of the surrounding area, such as buildings, trees and hills, which can block signals. When people travel between cells, the signal is transferred between base stations without a break in service. However, each base station can cover a certain area only and can only handle a limited number of calls at once. As mobile phones and devices become more popular more base stations are needed to ensure continuous coverage.

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Individual base stations can only handle a certain number of calls or data downloads. If the number of calls or data requests exceeds the base stations capability then local network users will experience a reduction in data download speeds and reduced call quality. We call areas without good coverage 'blackspots' and all mobile phone networks suffer from them. You can experience them wherever you are, even in cities with lots of base stations.

To keep up with growing demand the operators need to upgrade existing base stations or build new base stations to improve the capacity. Capacity is the maximum data or calls that can be processed by a base station.

Reason site chosen:
Outline the main reasons the site was chosen.
The operator is seeking to install a new radio base station to provide and enable enhanced 4G coverage and capacity to the surrounding area as well as new 5G services for Vodafone to ensure high quality customer experience is obtained as demands on the network increase and technologies change. The 4G provision allows internet access, video calling, data down streaming, accessing social media networks and emailing to name just a few of the benefits. Therefore, to maintain high quality indoor 4G services into this area would promote activity in line with the general population demand as the ownership of smart devices increases. New 5G service provision will bring faster, more responsive and reliable connections than ever before. The radio base station site is designed to provide 4G in this cell area whilst at the same time providing new 5G coverage and capacity. The operator uses the coverage footprint of the existing technologies as a guide for providing 5G service. There is currently no 5G service provision in this part of Wrexham. The installation is required in order to provide high quality coverage to the whole of the cell area, providing continuous indoor and outdoor 5G coverage between the adjacent cells. Consequently, users of their 5G enabled handheld devices in this area would be able to utilise them for the purposes in which they were intended. In turn, this would provide significant social and economic benefit to the residents and businesses in the wider area. A site in this location is wholly appropriate and in line with the guidance set out in the Code of Best Practice for Mobile Phone Network operators regarding site selection and network deployment considerations.

Planning Policy Framework/Development Plan Policy

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National Planning Guidance

Planning policy is provided at the national level by Planning Policy Wales Edition 12. It is a material consideration in planning decisions. Planning Policy Wales 12 is very similar to Planning Policy Wales 12 in relation to telecommunications development and remains largely the same in this respect.

Planning Policy Wales Edition 12 was issued in February 2024. It refreshes PPW 12 incorporating the National Development Framework (published as Future Wales – the National Plan 2040) to set out how the planning system at a national, regional and local level can assist in delivering the Government's requirements through Strategic Development Plans (SDPs) and Local Development Plans (LDPs).

Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is supplemented by Welsh Government Circulars and policy clarification letters, which together with PPW provide the National Planning Policy Framework for Wales. PPW, MTANs and policy clarification letters comprise National Planning Policy.

The primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required by the Planning (Wales) Act 2015, the Well-Being of Future Generations (Wales) Act 2015 and other key legislation and resultant duties such as the Socio-economic Duty. A well-functioning planning system is fundamental for sustainable development and achieving sustainable places.

PPW sets out Welsh Government Duty. The Well-being of Future Generations (Wales) Act 2015 places a duty on public bodies that they must carry out sustainable development. PPW defines sustainable development as:

> *'The process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle, aimed at achieving the well-being goals.*
>
> *Acting in accordance with the sustainable development principle means that a body must act in a manner which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs.'*

Paragraph 1.18 of PPW12 states that legislation secures a presumption in favour of sustainable development in accordance with the development plan unless material considerations indicate otherwise to ensure that social, economic, cultural and environmental issues are balanced and integrated.

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Paragraph 2.8 of PPW12 states '*planning policies, proposals and decisions must seek to promote sustainable development and support the well-being of people and communities across Wales. This can be done through maximising their contribution to the achievement of the seven well-being goals and by using the five Ways of Working* [consideration of involvement; collaboration; integration; prevention; and long-term factors]*, as required by the Well-being of Future Generations Act. This will include seeking to maximise the social, economic, environmental and cultural benefits, while considering potential impacts when assessing proposals and policies in line with the Act's Sustainable Development Principle*'.

PPW12 at paragraph 2.26 provides advice relating to the sustainable benefits of development. '*Planning authorities should ensure that social, economic, environmental and cultural benefits are considered in the decision-making process and assessed in accordance with the five ways of working to ensure a balanced assessment is carried out to implement the Well-being of Future Generations Act and the Sustainable Development Principle'*.

The Well-being of Future Generations (Wales) Act sets out 7 well-being goals to help ensure that public bodies are all working towards the same vision of a sustainable Wales. Two of these goals are relevant to telecommunications development: A Prosperous Wales and A Wales of Cohesive Communities.

PPW sets out its goals for 'A prosperous Wales' which includes the development of modern and connected infrastructure to allow everybody to have a good quality of life by living in strong and safe communities, with access to decent jobs. It also acknowledges in Chapter 5 that 'A Prosperous Wales' can be achieved through increased economic activity across all sectors and at all scales. This is realised through the availability of inter alia reliable telecommunications networks. An installation in this location would fully meet this national policy requirement.

PPW states that to foster Cohesive Communities development will need to be well-connected. It goes on to acknowledge in Chapter 5 that Cohesive Communities are created by people who have access to fulfilling work which is easily reached locally through sustainable transportation infrastructure and who can communicate effectively and safely with their friends and neighbours. Having access to a high quality, reliable and advanced telecommunications network fully complies with Chapter 5 of the PPW.

PPW notes the importance of high-quality telecommunications. Paragraph 3.61 states that 'adequate and efficient infrastructure' including services such as '*telecommunications is crucial for economic, social and environmental sustainability. It underpins economic competitiveness and opportunities for households and businesses to achieve socially and environmentally desirable ways of living and working*'.

The Welsh Government's continuing strong support for telecommunications is demonstrated within the revised edition 12 of PPW because the telecommunications section is still included within the 'Productive and Enterprising Places' Chapter.

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Chapter 5 of PPW12 continues to include telecommunications in the Productive and Enterprising Places which includes telecommunications. It defines Productive and Enterprising Places as '*those which promote our economic, social, environmental and cultural well-being by providing well-connected employment and sustainable economic development. These places are designed and sited to promote healthy lifestyles and tackle the climate emergency'*.

Places which are productive and enterprising contribute to the seven goals of the Well-being of Future Generations Act which include inter alia:

A Prosperous Wales can be achieved through increased economic activity across all sectors and at all scales. This is realised through inter alia reliable communication networks.

A Healthier Wales can be achieved through the reduction in emissions and air pollution.

A more Equal Wales can be achieved through promoting sufficient employment and enterprise opportunities for people to realise their potential and by recognising and building on the existing economic strengths of places to assist in delivering prosperity for all.

Cohesive Communities are created by people who have access to fulfilling work which is easily reached locally through sustainable transportation infrastructure and who can communicate effectively and safely with their friends and neighbours.

A Globally Responsible Wales is promoted by reducing our carbon footprint.

Productive and Enterprising outcomes are acknowledged as being inter alia:

- Promoting physical and mental health and well-being.
- Convenient access to goods and services.
- Minimising the need to travel.
- Not car dependent.
- Good connections.
- Embraces smart and innovative technology; and
- Enables easy communication.

The proposed radio base station would meet all the above objectives.

PPW identifies key issues for the Productive and Enterprising Places theme as being inter alia:

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- Readying Wales for further technological innovation in the mobile and broadband sector so it can adapt to future change while ensuring that all parts of Wales have access to modern communication systems.
- Increasing the use of integrated digital communications and technology to create 'smart places' and the implications of this for the way we travel, communicate, work and socialise;
- Supporting and enabling…infrastructure to support progress towards a circular economy.

Providing the digital infrastructure to provide high quality 4G in the Wrexham area is a precursor to enable all the above key issues to be addressed. Without access to mobile connectivity the above cannot come to fruition.

The revised PPW continues to acknowledge that new developments should be electronically connected to enable efficient access to the internet and communications system to drive forward economic competitiveness, increase flexible working opportunities and minimise digital exclusion.

Chapter 5 outlines the benefits of economic infrastructure. Section 5.1 sets the context and notes that infrastructure, be it physical, electronic or digital, plays a pivotal role in maintaining the economic well-being of Wales. It enables people to connect and interact with each other, either in person or electronically, to increase prosperity. It enables effective communication between people and businesses and provides a place for people to work and enjoy our natural and cultural assets. Poor infrastructure can be both a disincentive to investment and growth, and have a detrimental impact on quality of life, prosperity and the well-being of communities. A radio base station in this area of Wrexham is vital for the economic well-being of the area and the surrounding community.

Section 5.2 relates specifically to electronic communications and notes '*affordable, secure electronic communications infrastructure is essential to people and businesses. The availability and exchange of information afforded by telecommunications ensures people are connected to important services, their communities and the wider world and essential for long term prosperity. Fast reliable connections are essential to meet the needs of businesses and other organisations, and to those at home whether accessing new digital services or working. Greater numbers of individuals working from home are a growing trend and planning authorities should take this into account when preparing their development plans.* Providing access to 4G services fully meets the PPW in this respect.

Paragraph 5.2.2 acknowledges the importance of high-quality communications. It states that '*modern society demands reliable fast and high-capacity communication networks to ensure large amounts of data can be easily accessed or exchanged. It is the Welsh Government's objective to offer fast and reliable broadband to every property in Wales and to support the deployment of mobile infrastructure across the country*'. The proposed installation fully meets this Welsh Government objective.

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PPW offers guidance on telecommunications stating at paragraph 5.2.5 that '*the planning system should help support telecommunications infrastructure where it is required, whilst taking in to account the status of protected land and buildings as well as amenity considerations to protect what is valued most in our communities and environment*'.

Paragraph 5.2.10 makes it clear that '*planning authorities should not question the need for the telecommunications system nor seek to prevent competition between different operators'*.

PPW encourages the efficient use of telecommunications infrastructure noting that '*mobile operators should share telecommunications masts where possible to ensure the efficient use of infrastructure and to minimise environmental impact*' (paragraph 5.2.13). The proposed monopole has been specifically designed minimising the impact on the surrounding landscape.

Paragraph 5.2.14 goes on to state that '*the sharing of masts and sites is strongly encouraged where that represents the optimum environmental solution… for example in designated or sensitive landscape areas. The design of masts will be an important consideration where sharing is likely to be the preferred approach and efforts to disguise apparatus should be pursued where necessary. Wherever possible, use should be made of existing buildings and other structures to site new equipment…Siting should allow for the greatest possible coverage while, so far as is practicable, minimising the impact on amenity and the external appearance of a building*'. There are no existing buildings or structures within the operator search area which are suitable to provide the necessary coverage to the target coverage area. As such, a ground-based installation is proposed. The height is the minimal possible to provide high quality 4G service provision and new 5G coverage into the Wrexham area and the surrounding community. The slimline nature of the will helps it to blend within the existing street furniture in the area.

PPW provides clear advice regarding health matters at paragraph 5.2.18 and states that:

> *'Provided that the development meets the International Commission on Non-Ionising Radiation Protection (ICNIRP) guidelines, planning authorities should not consider the health aspects of mobile telecommunications equipment. All new base stations are expected to meet the ICNIRP guidelines' (Paragraph 5.2.18).*
>
> *Planning authorities should not implement their own precautionary policies, such as imposing a ban or moratorium on new telecommunications development or insisting on minimum distances between new telecommunications development and existing development'* (Paragraph 5.2.19)'.

A declaration of ICNIRP compliance has been provided with the application documentation for this proposed radio base station and as such in line with PPW there is no requirement to consider health matters as part of this application.

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The National Development Framework – Future Wales the National Plan 2040 (February 2021)

Future Wales forms part of the statutory development plan. It was published on 28 February 2021. Statutory Development Plans (SDPs) and Local Development Plans (LDPs) must be in general conformity with Future Wales. The Planning Act requires the Welsh Ministers to produce and keep up to date the National Development Framework (Future Wales). Future Wales must cover a 20-year period accommodating government priorities into a single document, coherent direction, indicating the land use implications for key goals and objectives.

Future Wales sets out the Welsh Government land use priorities and provides a national land use Framework for SDPs and LDPs. It concentrates on development and land use issues of national significance, indicating areas of major opportunities and change, highlighting areas which need protecting and enhancing and helping to co-ordinate the delivery of Welsh Government policies to maximise positive outcomes.

It is a development plan with a strategy for addressing key national priorities through the planning system, including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of our communities.

Future Wales is a spatial plan, which means it sets a direction for where we should be investing in infrastructure and development for the greater good of Wales and its people. Future Wales sets the challenge of delivering these improvements to the public, private and third sectors. It makes clear the importance of planning new infrastructure and development in such a way that they are complementary rather than competing priorities, ensuring opportunities are maximised and multiple benefits are achieved.

Julie James MS Minister for Housing and Local Government stated in the Foreword to Future Wales that:

> *'By co-locating different land-uses we can minimise the amount of travelling we need to do to reach work, open spaces, shops and public services from our homes. Not only is this environmentally sound planning, it offers great social, economic and cultural benefits too…*
>
> *...this Government is committed to supporting and delivering more active travel and sustainable transport infrastructure, new renewable energy schemes, improved digital communications infrastructure and new public services and facilities. In all these areas our decisions can contribute towards decarbonisation, healthy and active lifestyles, a resilient and diverse environment and increased economic prosperity and fairness'.*

As part of the Overview of Future Wales there is a reflection on the COVID Pandemic and what has been highlighted as important in our lives:

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> *'There was a collective appreciation of the value of parks and green spaces, walking and cycling routes, local shops and amenities, and the cleaner air that emerged during the lockdown. The essential nature of good broadband and telecommunications connections to enable people to work from home, access services, and to stay in touch with one another has also been highlighted during this period. Good digital communications can have a positive effect on well-being. Among the many important challenges in the recovery period will be ensuring all communities enjoy access to these fundamentally important things.'*

The installation of this radio base station will fully meet the Future Wales acknowledged importance of good digital communications to help in the recovery period of the Pandemic allowing customers access to this essential service.

As the national development framework, Future Wales is the highest tier of development plan and is focused on solutions to issues and challenges at a national scale. Its strategic nature means it does not allocate development to all parts of Wales, nor does it include policies on all land uses. However, such is the importance of good mobile communications for Wales that it has set out two policies to support the provision digital telecommunications service across Wales in the form of Policies 13 and 14.

Policy 13 relates to supporting digital communications. It states that:

> *'The Welsh Government supports the provision of digital communications infrastructure and services across Wales. Planning authorities must engage with digital infrastructure providers to identify the future needs of their area and set out policies in Strategic and Local Development Plans to help deliver this. New developments should include the provision of Gigabit capable broadband infrastructure from the outset'.*

There is currently no 5G service provision for Vodafone in this busy area of the Wrexham. Providing high quality 4G and new 5G coverage will fully meet Policy 13 of Future Wales.

Policy 14 relates to planning in Mobile Action Zones and states that the Government will identify areas where there are little to no mobile telecommunication coverage and where this coverage will need to increase:

> *'The Welsh Government supports increased mobile phone coverage and the associated economic and social benefits it brings. The Welsh Government will identify Mobile Action Zones, showing locations where there is little or no mobile telecommunications coverage. The Welsh Government, planning authorities and mobile telecommunications operators must work together to achieve increases in mobile coverage within Mobile Action Zones'.*

Whilst the Mobile Action Zones have yet to be identified, the proposed installation meets the essence of Policy 14 and its aspiration to provide good quality mobile connectivity to the surrounding area.

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Page 90 of Future Wales sets out its unequivocal support for telecommunications including mobile telecommunications:

> *'The Welsh Government supports the roll-out of digital communications infrastructure across Wales. Modern, reliable mobile telecommunications and fast broadband services are essential to our everyday lives, as highlighted by the number of people working and learning from home during the COVID-19 pandemic. Digital communications infrastructure is crucial to the future success and economic competitiveness of Wales' businesses and supports community and individual needs, including access to key services and facilities.'*

Clearly, a radio base station in this location would fully meet the Welsh Government drive to improve connectivity throughout Wales due to the well-versed socio-economic benefits such digital infrastructure is known to bring to an area.

It goes on to acknowledge the Welsh Government support for telecommunications development:

> *'The Welsh Government supports the provision of new and improved digital communications infrastructure across Wales'…*
>
> *…The Welsh Government, planning authorities and digital communications infrastructure providers must work together to ensure both mobile telecommunications and fast broadband infrastructure and services are provided…*
>
> *Planning authorities must also be alert and responsive to the positive effects of forthcoming 5G services…They should work with infrastructure and service providers to consider the potential impacts of these technologies and the needs of business, public services, communities and individuals'…*

Mobile Action Plan – Welsh Government (October 2017)

Following on from the Welsh Ministerial Statement, the Welsh Government published its Mobile Action Plan at the beginning of October 2017. It has two main sections which are relevant to telecommunications applications Mobile Connectivity in Wales and Planning.

The Mobile Connectivity in Wales section highlights the importance of mobile connectivity and how it is growing. It notes that the expectations of the mobile signal are rising, with customers wanting mobile connectivity where they live, work and want to travel. Businesses too want to take advantage of the opportunities that connectivity affords them and do not want to endure the lost opportunities that lack of connectivity costs them.

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The Welsh Government recognises the growing importance of mobile technologies and wants to create the right environment to encourage further investment in mobile infrastructure and to promote innovation in mobile technologies.

The Mobile Action Plan goes on to state that mobile connectivity not only directly supports the United and Connected theme through connecting people and communities but also supports the other 3 themes by enabling business connectivity, the delivery of public services and learning opportunities. Access to a useable mobile phone signal also **supports all of the Well-Being of Future Generations Act Goals** (emphasis added).

The challenges that Wales faces are highlighted in the Ofcom Connected Nations 2016 report which reveals that for the majority of coverage measures Wales is less well served than the other UK nations. The Ofcom Connected Nations 2019 Report which was republished in March 2020 notes that there is still a wide variation in geographic coverage of mobile operators' networks which remains poor in many areas. Indeed, it states that only 58% of Wales is able to receive 4G data services from all operators compared to 81% in England. An installation in this location to provide the latest 4G and new 5G service provision for Vodafone will help to address this imbalance.

The mix of significant population in mountainous and very rural areas creates very specific challenges which require significantly more infrastructure to provide coverage than other areas of the UK. If mobile coverage is going to improve there will need to be an increase in the number of mobile infrastructure sites in Wales, including in more scenic areas.

The Action Plan section on Planning acknowledges that the planning system has a key part to play in maximising mobile phone coverage across Wales. It is important that the planning regime is fit for Wales and reflects its topography and population distribution.

Building Better Places: The Planning System Delivering Resilient and Brighter Futures: - Place Making and The COVID Recovery (Welsh Government July 2020)

This document sets out the Welsh Government's planning policy priorities to assist in taking action in the recovery period after the COVID-19 pandemic crisis. The planning system should be centre stage in the consideration of built and natural environmental issues that have arisen from this situation.

It notes that the pandemic crisis has highlighted the need for good quality places for people to live, work and relax in. It has further emphasised how important the quality of our living and working environments are and how much more they matter as we require more flexibility to support new working, living and learning needs.

The Government acknowledges that the COVID-19 crisis has emphasised the importance of considering health and well-being throughout the planning system to ensure communities across Wales are healthy, vibrant and inclusive.

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The document sets out a number of priorities and actions for places post COVID-19. It states that in the immediate post COVID-19 phase there will be particular areas of policy which should be the focus of consideration and action, to act as a catalyst for a recovery across the pillars of sustainable development. They fall in to 3 categories:

- *'How we experienced the direct impacts of the COVID-19 lockdown period and the permanent positive changes we need to see in places and as part of new development.*
- *The lessons we have learned over this time and how we can help to make places more resilient and adaptable to future pandemics, should they happen again.*
- *Aiding the recovery post pandemic and restrictions eased to ensure it benefits all parts of society and helps us to decarbonise, tackle climate change, reverse biodiversity decline and improve health and general well-being.'*

The document identifies key issues which bring individual policy areas together to ensure that action is the most effective, inter alia:

- *'Digital places – the lockdown lifeline'*

The report goes on to state:

> '*This is a once in a generation opportunity for planning to have a positive effect on the future well-being of people in Wales and these policy considerations should be applied immediately to ensure we affect change in the most positive way possible'*.

The document expands on Digital Places and the lockdown lifeline. It acknowledges that staying connected through digital means was one of the few opportunities for social interaction with friends and family and has become mainstreamed as part of our working lives throughout the lockdown period. The quality of our mobile phone and broadband connections became linked to our emotional well-being in a way that many people had not appreciated before.

The report goes onto state that with homeworking now likely to be more prevalent across the country, having reliable and good quality communications systems in place is more important than ever before to help the economic and social recovery. The proposed radio base station will be a lifeline for those wanting to work more flexibly and just to go about a more modern way of living and keeping in touch more easily with friends, family and work colleagues.

The Government document notes that the planning system can play a vital role in the position of electronic communications systems…new developments should provide sufficient infrastructure so that our homes and businesses can benefit from high quality service provision from occupation. The planning system can be used to influence the provision of new services in areas where current provision is poor…

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The document states that **planning applications for new digital infrastructure should be recognised as essential to the COVID-19 recovery period and should be given priority for determination by planning authorities** (emphasis added).

The publication goes on to note that the National Sustainable Place making outcomes are set out in PPW and are highly relevant at this time. This includes inter alia: Creating and Sustaining Communities – community based facilities and services; Growing Our Economy in a Sustainable Manner – Fosters economic activity, enables easy communication and embraces smart and innovative technology and Facilitating Accessible and Healthy Environments – minimises the need to travel, provides equality of access, feels safe and inclusive, good connections, convenient access to goods and services and promotes physical and mental health and well-being.

National Infrastructure Commission for Wales Annual Report 2020 (December 2020)

The Commission's aim is to give everyone the chance to improve their well-being through new and improved infrastructure that boosts economic growth and protects the Environment. It addresses three themes: Digital; Energy and Transport.

The Report acknowledges the importance of Digital Connectivity on pages 3 and 4 stating[2]:

> *'Digital connectivity has been vital during the pandemic, enabling many of us to work from home, access services and maintain social contact. Those without good digital connectivity have been greatly disadvantaged.*
>
> *…evidence shows households and businesses stand to gain substantial economic benefits from both fibre to the home and 5G. The quality of these communications is critical in determining where new, high growth businesses locate and where young people choose to live…*
>
> *…we also think that too much attention has been paid to promoting fibre to the home and not enough to mobile broadband provision. We think Wales can and should do more with its mobile infrastructure. Only 3% of all data carried on UK networks is carried on mobile networks today, a much lower proportion than elsewhere in Europe'.*

Digital Communication in Wales Report and Recommendations of the National Infrastructure Commission for Wales (December 2020)

The Report presents the findings of the National Infrastructure Commission for Wales investigation into digital communications infrastructure in Wales. The work was undertaken between mid-2019 and mid 2020 but disrupted by the COVID-19 pandemic after March 2020. The report notes that households and businesses have already obtained very significant

[2] https://gov.wales/sites/default/files/publications/2020-12/national-infrastructure-commission-for-wales-annual-report-2020.pdf

economic and social benefits from adopting new digital communications technologies like superfast broadband or 4G.

Page 4 of the Report highlights the importance of digital connectivity during the pandemic:

> *'The pandemic also underlined the critical role that is played by digital communications in modern societies in allowing people to continue to live their lives without regard to the physical distances between them.'*

The report goes on to acknowledge that young people and businesses place great importance on connectivity and will move to where there is a good reliable connection:

> *…'businesses and young people cannot afford to wait in the hope that a fibre connection will become available 10 years from now. They will move to somewhere where fast reliable broadband is already available in the meantime...*
>
> *…the evidence shows that nations that are leaders in digital communications in one technology cycle tend to remain the leaders for subsequent generations. The opposite is also the case'…*

On pages 4 and 5 of the report the Commission sets out that more attention should be paid by policy makers to supporting mobile connectivity:

> *'…we think too much attention has been paid by policymakers to promoting fibre to the home technology in the UK and not enough on improving mobile broadband provision, including using 4G and 5G connections to provide home broadband services instead of, or ahead of, fibre connections. The UK is behind most other countries in this regard, and only 3% of the total data traffic in the UK is carried over mobile networks today, much less than in most other countries. We think Wales can and should be doing more with this mobile infrastructure'.*

Page 5 goes on to note:

> *'Mobile broadband technologies offer benefits which fixed broadband connections cannot offer, both in terms of availability whilst on the move and, importantly, the speed at which the infrastructure itself can be rolled out. 'Home' mobile broadband connections can be a good, low-cost option for households in rural areas, either until fibre turns up or on a permanent basis. The latest generation of mobile technology will also support a range of new applications for businesses and public authorities which prioritise significant economic and social benefits over the next 10-15 years. Importantly, the adoption and use of new mobile technologies tends to occur more quickly than with new fixed broadband technologies.'*

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The Commission's findings fully support home broadband services delivered over 4G and 5G mobile networks. This is because they are best placed for households and businesses to obtain access to significantly better broadband than they have today.

Code of Best Practice on Mobile Phone Network Development for Wales (March 2021)

The latest version of the Code of Best Practice on mobile phone network development was published on 10 March 2021[3]. This document replaces the code of best practice published by the Welsh Government in 2003. It has been produced jointly between Welsh Government, planning authorities and the mobile industry in the light of changes to the planning legislation and policy and is intended to facilitate the smooth roll-out and upgrading of mobile telecommunications apparatus in Wales.

The purpose of the Code is to encourage better communication and consultation between telecommunications operators, local planning authorities and local communities, and to help standardise planning procedures and operator practices to improve consistency of decision making and implementation. The Code also helps explain technical features of mobile systems and provides good practice guidance on the siting and design of new telecommunications development.

The previous Code was issued in 2003. Whilst many of the principles outlined in that document are still relevant today, significant changes in the telecommunications industry have taken place including changes in technology and societal expectations relating to telecommunications and the infrastructure required to support mobile phone networks. The number of mobile devices has continued to grow, both in terms of mobile phones and other internet connected devices. The advent of 4G has seen a dramatic increase in the amount of digital data used by mobile devices, and the growing demand for services has led to the deployment of more telecommunications infrastructure across Wales.

The latest version of the Code outlines the importance of current and future mobile technology in modern society, and how it relates to Welsh Government priorities expressed in the programme for Government. The Code also addresses the Siting and Design of mobile infrastructure, particularly considerations pertinent to the introduction of newer technologies and the technical and operational requirements of mobile phone networks in different circumstances.

The revised Code acknowledges the importance of telecommunications in the introduction stating:

> *'Affordable, secure digital infrastructure is essential to people and businesses. The availability and exchange of information afforded by telecommunications ensures people and businesses are connected to communities and the wider world and are essential for long term prosperity. Modern society demands reliable and fast communication networks to drive economic activity, to allow*

[3] https://gov.wales/sites/default/files/publications/2021-03/code-of-practice-mobile-phone-network-development.pdf

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people to keep in touch and to access public services.

Mobile connectivity plays a central role in digitally connecting people and businesses connecting them to the internet, the cloud and to each other…

…Modern mobile connectivity can facilitate home working and support inward investment for businesses, which create jobs for local people and minimise 'urban migration', underpin social benefits and provide access to emergency services…

At Annex A the importance of mobile connectivity is further acknowledged at para 22:

'The introduction of improved connectivity will benefit the whole of the community and is a public benefit socially, economically and commercially. As such planning authorities should encourage improvements in digital connectivity and seek to assist MNOs [Mobile Network Operators] *in finding suitable locations for new equipment'*

The Code sets out how mobile connectivity meets the 4 strategies of the Welsh Government Programme, Taking Wales Forward: prosperous and secure; healthy and active; ambitious and learning, and united connected stating:

'*Mobile connectivity directly supports the United and Connected theme through connecting people and communities but also supports the three others by enabling business connectivity, the delivery of public services and learning opportunities.'*

The Code also acknowledges how it helps meet the ambitions set out in the Future Generations and Well-Being Act by enabling communities to connect, supporting participation, enabling education and skills, and providing access to key services.

It is noted that over 95% of households in the UK own at least one mobile phone. As such, the Code acknowledges that the ubiquity of mobile telecommunications means that it is an essential element of modern life, and the Welsh Government is committed to supporting the roll out and upgrade of the mobile phone network.

The Code sets out its aims which are fourfold:

- To support the roll out of mobile phone infrastructure and to provide guidance with regards to the complex requirements associated with network deployment.
- Set out an engagement framework for mobile network operators and planning authorities when considering applications for prior approval and/or full planning permission for the improvement of mobile networks.
- Seek to avoid areas of conflict and to minimise any perceived adverse impacts with the provision of telecommunications equipment.

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- And support a more collaborative approach to the deployment and improvement of digital connectivity throughout Wales.

The Code sets out how technology has evolved over the years from 2G (voice and text messages) to 3G (internet and other data on the move) to 4G (superfast mobile broadband at speeds roughly equivalent to those you would expect from a fixed broadband connection) to the advent of 5G networks which bring very high speed, high bandwidth and low latency connectivity not just for use with mobile handsets but also for a range of other internet of things (IoT) uses including industrial and real time monitoring. Much of the guidance contained within the revised Code relates to the deployment of 5G infrastructure.

The Code acknowledges that the mobile phone technology uses differing parts of the radio spectrum to broadcast signals to and from infrastructure such as masts to mobile phone handsets. Different spectrum bands have different characteristics, which affect the extent of coverage and how much data can be carried.

The Code provides guidance on siting and design and the search criteria for a new installation:

- Having existing or ready access to a power supply.
- Access to fibre optic cables.
- An existing vehicular access, and
- Other buildings and development which may provide a level of existing screening.

The Code of Best Practice states that planning authorities should consider these issues and balance the need for a site within a limited search area with the greater public benefit of improved connectivity. It should not be appropriate for planning authorities to seek wider evidence of alternative sites, unless they consider the solution is unacceptable having regard to all material planning considerations.

The Code acknowledges that the initial deployment of 5G will seek a search area which will be largely defined around the existing network and localised to cover a specific coverage gap. This often limits siting options and design solutions. The initial rollout will replicate the existing networks and will therefore predominately require the upgrading of existing mast sites in the first instance.

The Code goes on to note that all telecoms' installations are principally guided by the technical need for the site and the technical constraints placed upon broadcasting a signal. The siting and design of such installations must therefore be balanced between perceptions of visual impact and the proposed installations' technical needs and constraints.

The Code acknowledges the main technical and operational criteria as:

- the need to provide an acceptable level of coverage both outdoor and indoor, over the intended geographical area.

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- The need for backhaul, a connection to the wider network, is critical. Backhaul is ideally provided via fixed fibre optic cable links or if unavailable, via dish links. If a dish link is proposed, then a clear line of sight to the corresponding connection is required.

The Code advises that in order to provide 5G into the network, more apparatus will be required including a greater number of antennas than for previous technologies, as well as new radio equipment cabinets and taller structures. They will often be larger and so greater in appearance. There will also be the need for a greater range of ancillary apparatus to combine the antennas themselves. This equipment will be mainly small units normally behind or very close to the antennas. The larger, more numerous and heavier apparatus, with additional wind loading will need extra supporting steelwork on rooftop installations or sturdier masts with larger headframes. In many cases this may lead to the redevelopment of existing structures.

The poorer propagation of the latest 4G and new 5G technologies is acknowledged in the Code due to the use of higher frequencies, which, although able to transmit much higher volumes of data, due to the physics of radio waves means that the higher the frequency the lower the propagation in terms of distance. Furthermore, it is noted that higher frequencies do not penetrate through materials as well as lower frequency signals. As 5G services need to propagate through buildings and other materials, which significantly reduce their functionality, it is vital base stations are sufficiently close in proximity to where people want to use the technology. Thus, operators may need to put a base station within a commercial or industrial area and directly within surrounding residential areas.

The Code of Best Practice acknowledges that 5G installations will be more constrained and guided by special technical and operational considerations than previous technology generations. The sequential approach to new site selection is still advocated:

- *'Explore first the possibility of sharing any existing building or other structure.*
- *If no such structure exists, explore opportunities to locate sites within or close to other utilities or commercial development.*
- *If no such scope exists, explore opportunities for sites that are well screened by other development or natural features, such as trees, vegetation and undulating topography.*
- *Residential areas will require service provision and infrastructure may be required in close proximity to housing. However, prior to proposing a new site in a residential area, alternative solutions should be explored initially to ensure the proposal of least impact is progressed, while considering technical constraints.*
- *Heritage sites and assets may require service provision, and where this is the case infrastructure will be needed within or in close proximity to them. However, prior to proposing a new site in a heritage area, alternative solutions should be explored initially to ensure the proposal of least impact is progressed, while considering technical constraints'.*

The Code like the previous 2003 version still seeks designs to be simple and unfussy, with attention to finishes and colouration that might help minimise appearance. In assessing

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proposals, the Code states:

> *'In assessing proposals, planning authorities should have due regard to the special technical and operational considerations, and not seek to place or make unrealistic design demands. Planning authorities should give consideration to the balance between improved digital connectivity and the perceived visual impact of the development'.*

Annex A sets out guidance on site selection and design. The use of existing buildings and structures is supported but acknowledges that there are limitations and that such constraints should be given consideration when assessing site selection:

- The owner of the building must sign a Code Agreement and be willing to sign a lease to accommodate the equipment.
- Certain buildings or structures may not be sited appropriately, or of sufficient height or structurally capable of hosting additional equipment.
- Difficulties getting power to some structures.

The Code also supports minimising visual impact noting at para 4 '*where viable, sites should be deployed to make use of screening or backdrop. This could be in the form of buildings or vegetation, but antennas must clear any surrounding 'clutter' that obstructs the signal and the service. Therefore, while siting should make use of screening, it is vital that the antennas are of a sufficient height'*.

The Code provides guidance on siting equipment in residential areas acknowledging at para 5 that '*siting in residential areas should attempt to put infrastructure at an angle or reasonable distance from the main elevations of dwellings to minimise direct overlooking, which may adversely affect residential amenity'*.

Guidance is also provided on the siting of streetworks columns at para 6 noting that they are acceptable and cannot be considered under the same principles as lighting columns as they carry out a different function '*street furniture poles should attempt to site in line, and in rhythm, with existing vertical infrastructure like streetlighting columns so they assimilate better, it also makes them appear more congruous and minimises impact. It must be noted that telecommunications poles will be significantly taller than streetlighting columns and other street furniture. A streetlighting column cannot provide 4G or 5G mobile broadband service over a relatively wide distance and so, while both are acceptable in the street scene, they should not be considered under the same principles.*'

Paragraphs 7 to 9 relate to backhaul and acknowledge that ideally backhaul is provided via fibre optic cables directly to the base station. However, where fibre backhaul is not possible, there must be the deployment of a microwave dish link transmission. A dish will be attached to the mobile base station to transmit the data to a secondary base station with a fibre connection. Para 8 explains how mobile base stations with fibre backhaul provided will also have dishes attached. This is because these dishes are needed to connect a remote site where

there is no fibre backhaul into the network.

Annex A provides more guidance on minimising visual impact such as masts should be coloured to match their backdrop to minimise contrast in an urban or rural setting (Para 24). However, painting 5G antennas is not possible as it impacts on propagation and operating efficiency and thus the antenna has to remain grey (para 25). Para 26 seeks cabinets and equipment housing to be coloured appropriately to match surrounding street furniture or assimilate with the setting. Para 27 goes on to advise that sites will be designed based upon structural requirement, radio functionality and to minimise visual impact.

Para 28 notes that site sharing is supported in terms of minimising the number of sites required and reducing proliferation. However, para 29 goes on to advise that sharing means that a mast must support all the equipment for all technologies (2G-5G) for up to four operators. This is a significant amount of equipment both on the mast and in terms of equipment housing at the base. Para 30 explains that structures must be significantly more robust to allow sharing, and this will often dictate that a larger and wider lattice type design is required. This is more achievable and desirable in rural areas, but in urban settings it may not be appropriate and less desirable (given the scale of infrastructure necessary) to share so extensively.

Paragraphs 36 to 38 relate to equipment housing principles. The Code advises that more equipment cabinets are needed at every base station, including street furniture to support existing 2G, 3G and 4G services as well as new 5G services. The equipment housing must also be of a sufficient size to facilitate hosting numerous operating equipment while also allowing air circulation to reduce the potential for overheating. Para 38 states that planning authorities should be understanding of this need when considering proposals.

The Development Plan

Section 70 (2) of the 1990 Town and Country Planning Act and Section 38 (6) of the Planning and Compulsory Purchase Act 2004 states that "*If regard is to be had to the development plan for the purpose of any determination to be made under the planning Acts the determination must be made in accordance with the plan unless material considerations indicate otherwise*".

The statutory development plan as defined by the Planning and Compulsory Purchase Act 2004 for Wrexham County Borough Council comprises the Wrexham County Borough Local Development Plan and Wrexham Unitary Development Plan.

Wrexham County Borough Local Development Plan 2013 – 2028 (Adopted December 2023)

Wrexham is the largest city in North East Wales. The area is characterised by attractive countryside, varied landscapes and diverse settlements ranging from the large urban areas of Wrexham City and Wrexham Industrial Estate, the rural areas of the Ceiriog Valley in the south west, the Maelor in the south east and the former mining villages to the south and west of Wrexham City. Wrexham City dominates the northern part of the County Borough, which over the past decade has been one of the fastest growing retail centres in the UK.

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The economy of Wrexham County Borough has been transformed over the past twenty years from one dominated by heavy and traditional industry into a major high tech, manufacturing, technology and services hub. Though a declining sector, manufacturing is still a major employment sector in the County Borough, providing nearly 20% of jobs.

A vision and set of strategic objectives have been formulated to ensure the Plan addresses the key issues of the County. The vision sets out how the County Borough is expected to change and the type of place Wrexham will become by the end of the Plan period. The overall vision translates into 12 more detailed strategic objectives, which set out what the Plan is trying to achieve. Each objective is supplemented with commentary in relation to spatial elements which help to articulate the overall vision of the Plan.

The Vision states:

"By 2028, Wrexham will be an attractive, distinctive and accessible place where people will want to live, work, visit and invest. Our economy will be strong, resilient and responsive to our gateway location within Wales. Wrexham County Borough will be a sustainable place where everyone feels safe and included and a place that enhances the quality and distinctiveness of our natural, built heritage and unique culture."

Below are listed the most related of the Strategic Objectives set within the Local Development Plan:

- SO1 – ensuring that the role of Wrexham City as a National Growth Area is strengthened.

- SO2 – support a vibrant, diverse and competitive local economy that provides a range of job opportunities and enable new and existing businesses to grow in Wrexham County Borough with strategic growth in Wrexham City and Wrexham Industrial Estate and take advantage of its strategically accessible location within the wider North East Wales and North West England market region.

- SO3 – regenerate Wrexham City as a multi-functional destination to include retail, education, civic, amenity, employment, leisure and residential uses.

- SO5 – meet the future needs of a growing population by providing the right type, mix, quantity and amount of development and infrastructure in sustainable locations and accessible locations.

- SO10 – maximise our resistance to, and prepare for the consequences of climate change by reducing carbon emissions and the demand for energy, promoting the use of renewable resources, avoiding developing in areas of known flood risk and using a green infrastructure based approach to the planning and design of new development.

<u>Policy SP8: Economic Growth, Employment and Enterprise</u>

To ensure the continued role of the County Borough as a key economic driver in North Wales and the wider region, the Plan will diversify the local economy and widen the economic base.

Policy SP12: Design Principles & Masterplanning Framework

All development will be required to be of a high-quality, sustainable design which makes a positive contribution to the creation of locally distinctive places by complying with the masterplanning framework SPG and KSS schematics. Proposals must demonstrate how they have taken account of the local characteristics of surrounding areas and how innovative design solutions will enhance the quality of the built and natural environment.

The Local Development Plan does not have any policies directly addressing the mobile telecommunication infrastructure provision.

Policy SP18: Climate Change

To mitigate against the effects of climate change and adapt to its impacts, development proposals will need to demonstrate that they have taken into account the following:

- Reducing carbon emissions.
- Protecting and increasing carbon sinks.
- Adapting to the implications of climate change at both a strategic and detailed design level.
- Maintaining ecological resilience.
- Avoiding areas susceptible to flood risk in the first instance in accordance with the sequential approach set out in national guidance.
- Preventing development that increases flood risk.
- Assesses the potential effects of climate change when preparing a Flood Consequence Assessment for the site.

Wrexham Unitary Development Plan 1996 – 2011 (Adopted February 2005)

The Plan comprises two parts. The Part 1 is the strategy which outlines the Council's broad intention for development in the area and provides a framework for the more specific policies and proposals. It is chiefly concerned with a vision of how the area should develop for the benefit of local people, developers and visitors alike. It indicates the provision to be made for housing, employment and other major land uses; the broad locations for development and the areas where policies for restraint may be necessary. The Part 2 covers specific policies accompanied by reasoned justifications, which expand on the strategic vision for the Conty Borough and provide detailed guidance for the development and other use of land.

Policy CLF8 – Telecommunications

The development of telecommunications facilities and related infrastructure will be permitted, having regard to technical and operational considerations, where an appraisal has been carried out:

- Firstly, of the potential for sharing other masts and sites; if there is no potential.
- Secondly, of the potential to use existing buildings and structures; if there is no potential.
- Thirdly, of the potential to use other sites.

The siting of any development should minimise the impact on the local landscape/townscape, and should comprise measures of mitigation of any adverse impact, as appropriate.

Paragraph 9.8 states:

"Modern telecommunications are an essential and beneficial element in the life of the local community and in the national economy. Much of the telephone network is, of course, long established. New communications technology is now spreading rapidly to meet the growing demand for better communications at work and at home, in business and in public services. Modern telecommunications can also enable people to work with less need to travel, in accordance with the plan's strategic aims. This policy aims to facilitate the growth of new and existing systems whilst ensuring sited to avoid or minimise any visual intrusion upon the landscape/townscape."

Wrexham County Borough Council ICT and Digital Strategy 2024 – 2027

Digital Inclusion

Digitally excluded people include those who have limited or no access to equipment and connectivity, lack the skills, motivation and confidence to go online and also the affordability to do so.

The pandemic turbo charged the vital role and need for digital technology and society had to quickly adapt to this change. Online shopping, paying bills, remote learning, working from home and socialising digitally over the internet all became a way of life. People quickly adapted to these changes but the pandemic also highlighted how the digital divide is a serious issue in the UK.

We need to build and increase on what has been achieved already so that moving forward we aim for everybody to have affordable digital access and the skills to benefit them from what digital offers.

Online Nation 2022 Report (June 2022)

Online Nation is an annual research report, published for the first time in 2019. Using research produced by Ofcom and others, it looks at what people in the UK are doing online, how they are served by online content providers and platforms, and their attitudes to and experiences of using the internet.

The latest Online Nation 2022 report (published June 2022) found that for most people in the UK, being online is a major part of daily life. Being online allows people to connect with others,

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sometimes in ways they may not be able to do offline. Data shows how we benefit from a range of online services, from messaging and calling platforms to gaming platforms, online news outlets and online shopping.

The Meta-Owned social media apps (Facebook, Instagram, Whatsapp and Facebook Messenger) made up the top four smartphone apps most visited daily by UK adults in September 2021. The top-reaching smartphone app was Whatsapp (88% of UK online smartphone using adults) closely followed by the Facebook app (87%).

94% of UK adult internet users aged 16+ said they used an online communications service for making voice/video calls or sending messages in 2021, and 80% of children aged 3-15 did the same.

The 2022 report found that the UK adult internet users spent almost 4 hours online a day in September 2021, with 3 of those hours being spent on smartphones. One in five people only use a smartphone to go online compared to one in ten last year. News and government public services are among the most-visited websites and apps in the UK.

The majority (67%) of UK internet users aged 13+ feel that the benefits of being online outweigh the risks. 43% agree that being online has an overall positive impact on their mental health.

The report found that 60% of children aged 8-15 say that using social media and messaging platforms makes them feel closer to their friends. More than three-quarters of children aged 12-15 said that being online can help with their school/homework, whilst half said it can be used to learn a new skill.

The Online Nation 2022 report acknowledged that the global pandemic since March 2020 has resulted in significant changes in online behaviour. Online shopping habits developed during the lockdown periods have remained. The largest online platforms' revenues and profits increased significantly during the lockdown periods and this growth continued in 2021. The growth is being driven by UK consumers' increased spend on e-commerce and entertainment subscription services, while advertising revenues are also increasing with the continuing brand migration to online.

Figure 1.2 of the Online Nation 2022 report indicates that the percentage of UK online adults accessing the internet, by device, in 2021 was the highest by smartphone at 88%. In September 2021 73% of the time spent online by UK adults per day was on a smartphone.

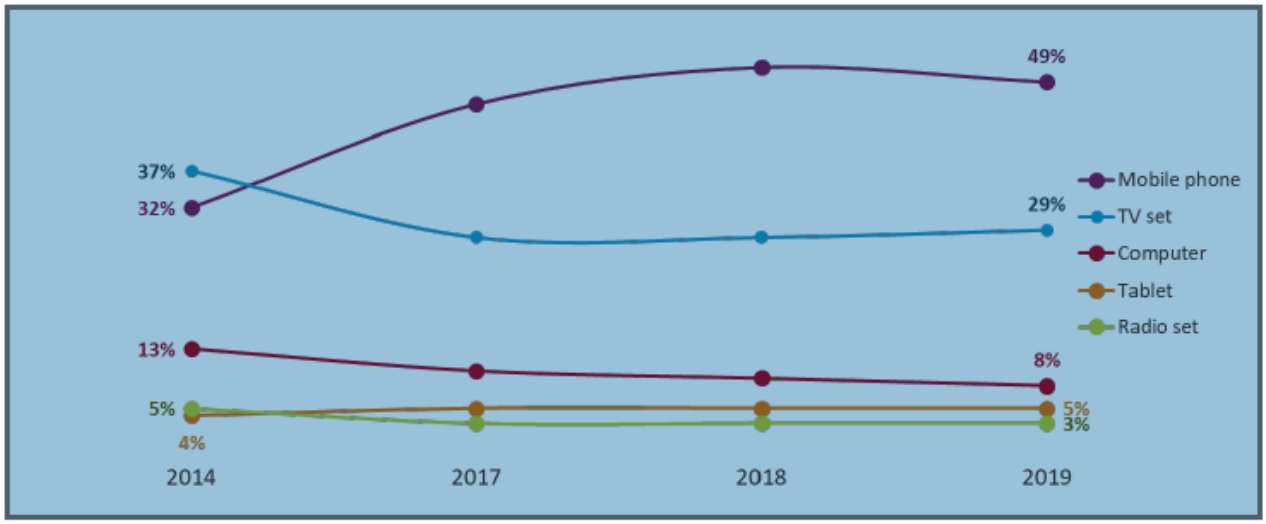
Figure 1.2: Percentage of UK online adults accessing the internet, by device: 2021

Percentage of adult internet users	Smartphone	Tablet	Laptop	Smartphone only
2021	88%	43%	53%	21%

Source: Ofcom Adults' Media Literacy Tracker 2021: Core survey and CATI omnibus survey. IN1. Which of these devices do you use to go online? (MULTI CODE) Base: All adults 16+ that go online (at home or elsewhere) (excluding those who did not give a response at the postal survey) (3577)

Reproduced from Online Nation 2022 Report

The table below indicates the most-missed device among adults were it be taken away from them, using data collected 2014-2019. As can be seen, nearly half of all adults say that their mobile device is the device they would miss the most were it taken away from them.



Source: Ofcom Adults' Media Literacy Tracker 2014-2019

Online Nation 2023 Report (December 2023)

Connected Nations is an annual report on progress in the availability of broadband and mobile services in the UK, including the roll out of mobile 5G networks. The 2023 report was published in December 2023. These reports support Ofcom's objective of making communications work for everyone, including to promote reliable, widely available, and high-quality networks. The latest report found that the availability of 5G services is growing rapidly. The level of 5G coverage provided outside of premises by at least one mobile network operator (MNO) rose from 67-78% in 2022 to 85-93% in 2023. As of September 2023, there were more than 18,500 5G deployments in place across sites in the UK up from around 12,000 5G deployments reported in 2022.

The 2023 Connection Nations Report also found there has been fast paced growth in 5G capable devices and traffic with 5G traffic showing a growth of around 140% from 2022 to 2023. This data traffic was generated from devices, of which at least 43% are 5G capable

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handsets (up from around 20% in 2022). Traffic on 5G capable handsets represents around 17% of total mobile traffic, up from around 9% in 2022.

The Report notes that the MNOs have started to switch off their 3G networks. The number of customers using devices reliant on 2G and 3G connectivity has fallen sharply, from approximately 5.5 million reported last year to 2.4 million this year, of which just over half a million are residential customers with a 3G device. Less than 3% of all data traffic is now carried on 3G networks, with 3G data traffic having decreased by an average of 44% year on year.

The latest Online Nation 2023 report (published December 2023) found that for most people in the UK, being online is a major part of daily life. Being online allows people to connect with others, sometimes in ways they may not be able to do offline. Data shows how we benefit from a range of online services, from messaging and calling platforms to gaming platforms, online news outlets and online shopping.

In total, 47.9 million UK adults accessed the internet on smartphones, tablets and computers in May 2023, spending an average of 3 hours 41 minutes a day online, eight minutes more than in May 2022. Young adults continue to spend the most time online, with 18-24-year-olds spending a daily average of 4 hours 36 minutes, and the 65+ group spending the least time (2 hours 46 minutes).

YouTube is the highest-reaching social media service among UK online adults using smartphones, tablets or computers, taking the top spot in May 2023 from Facebook (including Messenger), with more than nine in ten (91.0%) visiting it that month. In May 2022, Facebook was the highest reaching social media service, reaching 93.8% of UK online adults but in May 2023 it had 1.4 million fewer adult visitors, maintaining a high overall UK online adult reach (90.7%) but now on par with YouTube. TikTok, in fifth place, overtook LinkedIn, now ranked sixth, reaching 44.3% of UK online adults in May 2023, up by 9 percentage points since May 2022 (34.7%). UK online 18-24-year-olds are avid users of social media, and over half of them are visiting six social media platforms: 96% visited YouTube in May 2023, 87% visited either Facebook or Facebook Messenger, 86% visited Instagram, 72% visited TikTok, 71% visited Snapchat and 61% visited X (formerly Twitter).

Levelling Up the United Kingdom (February 2022)

Digital Connectivity is a focus area, and the mission is 'By 2030, the UK will have nationwide gigabit-capable broadband and 4G coverage, with 5G coverage for the majority of the population'. This mission is focused on improving digital connectivity.

Digital connectivity: The case for action

The COVID-19 pandemic demonstrated the importance of digital infrastructure right across society, from ensuring business continuity to reducing isolation. Improved digital connectivity has the potential to drive growth and productivity across the UK and widen job opportunities through remote working. However, there are significant spatial disparities in the quality of

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broadband and mobile networks, with rural areas likely to experience worse digital connectivity than urban areas. Infrastructure is only part of the picture: economic benefits will only materialise if businesses and workers have the skills to take advantage of improved infrastructure.

More broadly, high quality digital infrastructure can deepen local labour markets through remote working, making it more attractive for both workers and companies to locate regionally. It also allows for the development of high-value sectoral clusters, which can drive growth and jobs in new areas. Existing specialisms in the UK regions have the potential to generate strong tech clusters, such as fntech in Scotland and Wales, e-Commerce in the North West and Northern Ireland, and Agri-Tech in Yorkshire and the Humber. The sector also provides opportunities for raising living standards – median earnings for the sector are 50% higher than the UK average.

The policy programme.

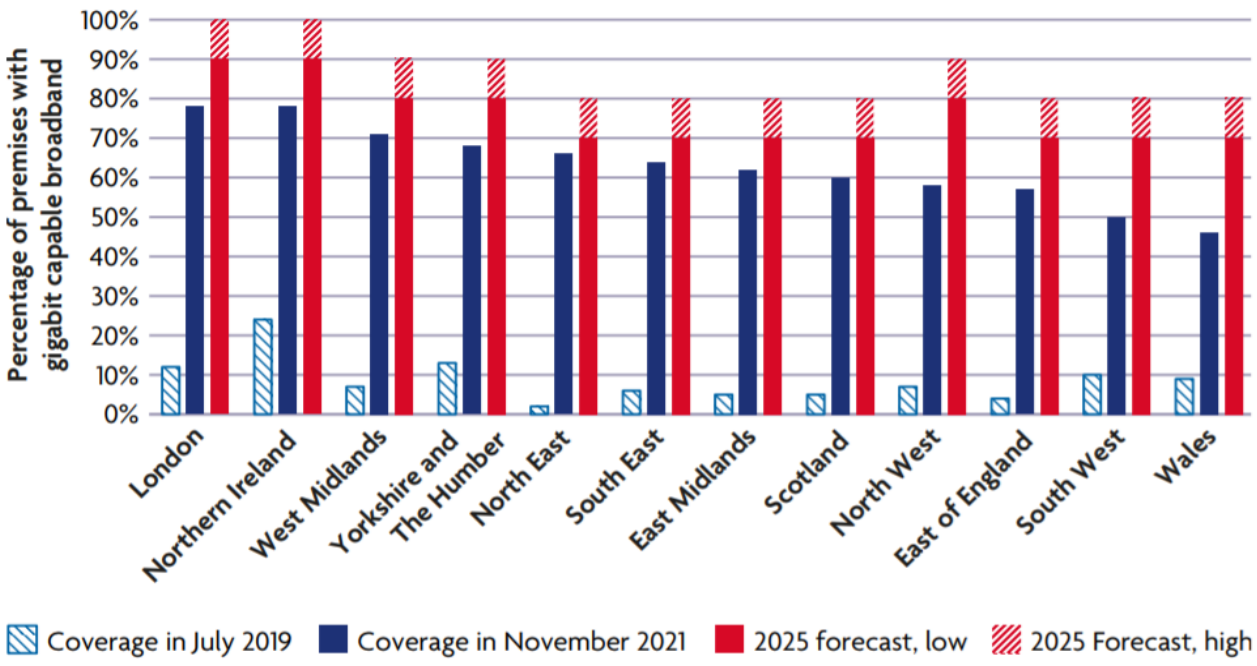
In 2020, the UK Government published the National Infrastructure Strategy, committing to providing £5bn in public funding to roll out gigabit broadband to at least 85% of the country by 2025, and subsequently to as close to 100% as possible, working with the private sector.

Public investment will target premises that are hardest to reach, and which would otherwise not be provided for by the private sector, ensuring no areas are left behind. Gigabit coverage has increased from 10% to over 60% in less than two years. Since 2019, coverage has improved across the UK, and the UK Government anticipates the following additional improvements to be delivered as a minimum by 2025, as set out below.

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Figure 3.1 Gigabit coverage improvements, UK countries and regions, 2019, 2021 and 2025 (forecast)



Source: Levelling Up the United Kingdom.

In 2022, the UK Government will publish the Wireless Infrastructure Strategy. This will review how far the private sector will go to deliver wireless infrastructure across the country and determine whether there are any market failures in places that need to be addressed, and how the UK Government could tackle these.

We must ensure that people have sufficient digital skills to reap the benefits and prosperity arising from the digital economy. In 2020, the UK Government introduced a new digital skills entitlement, giving adults with low or no digital skills in England free access to new digital skills qualifications based on employer-supported national standards. The UK Government continues to work with local leaders to develop Local Digital Skills Partnerships. These collaborative partnerships are now operating in seven regions across England, with an eighth formally launching in Hull and East Yorkshire in early March. The UK Government will work with devolved administrations to consider how best to share the insights and evaluation of the programme to help build digital skills capability across the UK.

UK Wireless Infrastructure Strategy (April 2023)

The UK Wireless Infrastructure Strategy, published in April 2023 aims to achieve the objectives that have been set out by the UK Government. The next decade will see seismic changes both in terms of what wireless connectivity can deliver and how we can use it. The economic and social benefits from these changes promise to be vast, from supercharging growth to accelerating our transition to net zero. But these benefits can only be achieved with

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concerted action from government, industry, and others. This strategy sets out the Government plan to do that.

In the last 5 years, UK government policies have driven impressive progress in the deployment of world class fixed and wireless networks across the whole of the UK, removing regulatory and practical barriers to deliver stronger growth, more jobs, and better public services in every corner of the country.

- through our £1 billion deal with the mobile network operators, we are supporting rural communities by ensuring that 95% of the UK landmass have 4G coverage by 2025. This currently stands at 92%.
- we have made substantial progress with 5G, too. Last year, we met our ambition for the majority of the population to have access to a 5G signal by 2027 5 years early through the deployment of basic, non-standalone 5G using existing 4G networks to deliver increased network capacity.

By building world-class, secure digital infrastructure networks, the Government can meet its vision they set out in their Digital Strategy for a competitive and innovative digital economy. This will play an important role in:

- **underpinning other new technologies** - the next decade will see the development and maturation of transformative technologies from AI and self-driving vehicles to digital twins, which will drive demand for advanced wireless connectivity.
- **transforming public services** - there are also significant benefits for improving our public services, supporting smart cities which are cleaner and less congested and delivering connectivity to our schools and hospitals that will provide better, more interactive lessons and personalised healthcare.

By transforming our economy, widespread adoption of 5G can bring a cumulative productivity benefit of £159 billion by 2035, driving growth and inward investment, and improving lives for communities in every corner of the country.

However, there are challenges we need to address to ensure the UK can realise these benefits, as the economics of investing in wireless networks are changing:

- There is still need to overcome uncertain demand for 5G-enabled services and continuing practical barriers to network deployment need to be overcome.
- Many of the economic benefits we have identified require significantly higher quality connectivity than is likely to be deployed in national public networks.
- 5G roll-out in the near term is likely to focus on urban areas, where the commercial returns are more certain.
- Research we commissioned shows significant variation in the quality of mobile coverage in different parts of the country over the next decade - economically important areas like Freeports and industrial parks could be underserved.

Market dynamics are also changing:

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- **Demand is uncertain** as connectivity moves beyond smartphones to enable an array of new, innovative use cases, businesses and the public sector will need to navigate an increasingly complex ecosystem to get the connectivity they require. As many businesses and local authorities do not yet clearly understand the benefits 5G offers or how they can effectively deploy 5G-enabled services to realise these benefits, there is no clear articulation of the demand for higher quality services. In turn, this makes it more challenging for providers to make the business case for investment.

Through this strategy, the UK government set out a new policy framework with 6 key steps to do just that and ensuring that the UK maximises the potential of advanced wireless networks over the next decade, securing our international competitiveness for the future and driving economic growth across the UK.

1. Ensuring good connectivity for all

As networks are upgraded with 5G technologies over the next decade, 4G will continue to play an important, albeit diminishing, role in providing mobile connectivity across the UK.

Coverage reporting also needs to improve so that it more accurately reflects consumers' actual experience, equipping them with the information they need to choose the right contract. In turn, we expect this to drive further commercial investment to address previously unidentified gaps - ensuring that people and businesses get the connectivity they need, whether to start and grow a business or to have a remote healthcare appointment.

2. Setting a bold 2030 ambition

Given the substantial potential that 5G offers for businesses and public service delivery, we are setting out a bold vision for the next generation of our national networks to galvanise investment across our economy. We want to move beyond the basic 5G that is being deployed now over 4G networks to build higher quality, standalone 5G networks that do not rely on older infrastructure. We also want to extend 5G coverage well beyond cities and towns to all populated areas of the UK, including rural villages and communities.

We are therefore setting a new headline ambition for the UK to have nationwide coverage of standalone 5G to all populated areas by 2030 *(emphasis added)*.

3. Strengthening the investment climate

While the government already has a range of policies in place to drive forward the deployment of digital infrastructure, our 2030 ambition requires significant commercial investment.

This includes:

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- Continuing to remove practical barriers to the deployment of 5G infrastructure.

4. Realising the full benefits of 5G

We want people, business and public services across the UK to realise the full benefits of 5G and advanced wireless connectivity. However, without concerted action, this will be slow to materialise and limited to larger businesses, in fewer sectors, and in certain geographies.

Supporting places to attract investment: we set out how we will drive greater opportunities for industry and public service providers to be empowered customers for future connectivity solutions – supporting places to attract investment and encouraging adoption of 5G services.

We will do this by:

- Driving local leadership and coordination and encouraging local authorities across the UK to employ digital champions to provide strategic leadership for local authorities' own digital infrastructure strategies.

There are 5 chapters which outline the aims and ambitions, along with the steps the government are going to take in order to achieve their set targets and provide improved 5G connectivity for all.

Chapter 1 - Approach and scope

This strategy sets out a policy framework to help deliver the government's priority of growing the economy and to ensure the UK benefits from advances in wireless connectivity for the next decade.

Chapter 2 – Ensuring good connectivity across rural and urban areas.

The government's priority to build a better, more secure, more prosperous future for the UK includes a clear commitment to grow the economy and create better-paid jobs and opportunity right across the country. To do this, it is vital that people who live and work in all parts of the UK, including in rural areas, have access to good quality mobile and broadband coverage.

Chapter 3: Our 2030 ambition

World-class digital infrastructure underpins the digital economy – it was worth £143 billion in 2021, accounting for 5% of the national workforce. This infrastructure provides the backbone of the UK economy and society with ever more jobs, public services and societal interactions built upon its foundations. As growth in the digital sector is nearly six times faster than across the economy as a whole, its importance will only continue to increase as we deliver the Prime Minister's priority of growing the economy.

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4G technology revolutionised the way people use their mobile phones. What today is considered normal, a decade ago was ground-breaking. We have seen the growth of streaming services, like Netflix and Spotify, and gained constant access to high quality, user-produced content for free on platforms like YouTube, transformed the way we shop online, travel around cities through access to apps like Uber and Bolt and use public services, such as booking NHS appointments through apps.

The evolution of 5G

While 4G will continue to play an important role in providing widespread geographic connectivity to consumers through public cellular networks across the UK's landmass, 5G can offer significantly better performance and support a far greater range of use cases. 5G enables data transfer speeds of more than 10 times faster than 4G, has the potential to offer lower latency and greater reliability and the ability to connect more devices. The implications of these improvements reach far beyond the potential to develop the capabilities of smartphones, enabling an array of innovative use cases and providing for transformative economic, and social benefits that were perhaps unimaginable a decade ago.

The government's ambition for the majority of the population to have access to a 5G signal by 2027 has been met early through the deployment of basic, or non-stand alone, 5G which is built on a 4G core network. While this has helped MNOs increase the capacity of their networks in more densely populated areas, it does not reflect the full functionality 5G can deliver.

Without clear action, the market for advanced 5G services will remain nascent as many business and public services do not yet fully understand the benefits or how to navigate the supplier ecosystem for 5G enabled digital products, applications and services.

We want high quality coverage to extend well beyond cities and larger towns to all populated areas of the UK, including villages and rural communities. ***We are therefore setting a stretching new ambition of nationwide coverage of standalone 5G to all populated areas of the UK by 2030*** *(emphasis added)*.

Chapter 4: Strengthening the investment environment.

Our 2030 ambition requires commercial investment, and this chapter focuses on creating the environment to support it.

The deployment of standalone 5G and ultimately advanced will require operators to deploy additional infrastructure, including:

- 5G core networks in addition to the 5G equipment in the radio access network
- upgrades to the existing grid of approximately 18,000 macro cell sites per MNO
- additional cell sites to provide 'infill' to cover gaps in coverage

Addressing barriers to deployment

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Since the publication of the Future Telecoms Infrastructure Review, the government have taken significant strides to make it quicker and easier for operators to roll out new digital infrastructure including making reforms to the planning system to support the deployment of 5G and extend mobile coverage in England.

Chapter 5 – Realising the full benefits of 5G and advanced wireless connectivity.

5G and other forms of advanced wireless connectivity pave the way for new services and applications that can have a transformative effect on our public services, businesses and our local economies, delivering this government's priority of growing the economy and creating better paid jobs. Wireless connectivity can support mobile healthcare workers and connected vehicles, improve traffic flow through our cities and enable our factories to be more productive, supporting the fourth industrial revolution. Our evidence is clear that the most significant economic benefits from 5G will come from widespread adoption of advanced 5G by industrial sectors, including manufacturing and logistics, and by public services.

The government is determined that the UK should take full advantage of these opportunities, but this will only be possible if places across the country can attract commercial investment in 5G and other forms of advanced wireless connectivity and for that to be adopted at scale by businesses and public services.

Connected places.

Improving digital connectivity is one of the government's Levelling Up Missions. We want places and communities across the UK to share in the benefits of good connectivity, enriching lives and driving local growth.

We want to support connected places with their digital connectivity ambitions. **We will do this by helping regions and local authorities to build the case for adopting new technology, attracting investment and removing practical barriers to the deployment of advanced wireless networks** (*emphasis added*). Local and regional authorities play a pivotal role in facilitating the rollout of wireless connectivity and their role will become more critical than ever as investment in 5G continues, due to its technological complexity and the vast number of new applications and services it can support.

Local leadership and coordination

Local leadership can help to identify and break down barriers to deployment at a local level by bringing together stakeholders across the public sector and building strong relationships with industry. The installation of telecoms infrastructure involves a number of different local government departments (such as ***planning***, estates, ***highways***) and their activities can be siloed and uncoordinated.

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It is essential that, at a leadership level, local and regional authorities recognise the importance of wireless connectivity and identify decision-makers within the organisation who are empowered to facilitate private sector investment.

Chapter 6: Driving adoption in key economic sectors.

Adoption of 5G-enabled use cases in sectors such as healthcare, transport & logistics, manufacturing and agriculture will drive economic growth and productivity across the UK, delivering our priority of economic growth.

Key features of 5G for industry Dedicated 5G networks can enable:

- data analytics: Utilising operational and environmental sensor data to make real time decisions about equipment and operational performance.
- video surveillance and geolocation: Providing the location of workers and assets for security and safety purposes.
- tracking moving assets: Working with self-driving vehicle technology and software guidance systems to provide situational awareness of mobile assets.
- automation: Enabling independently operating robots to perform operational tasks.

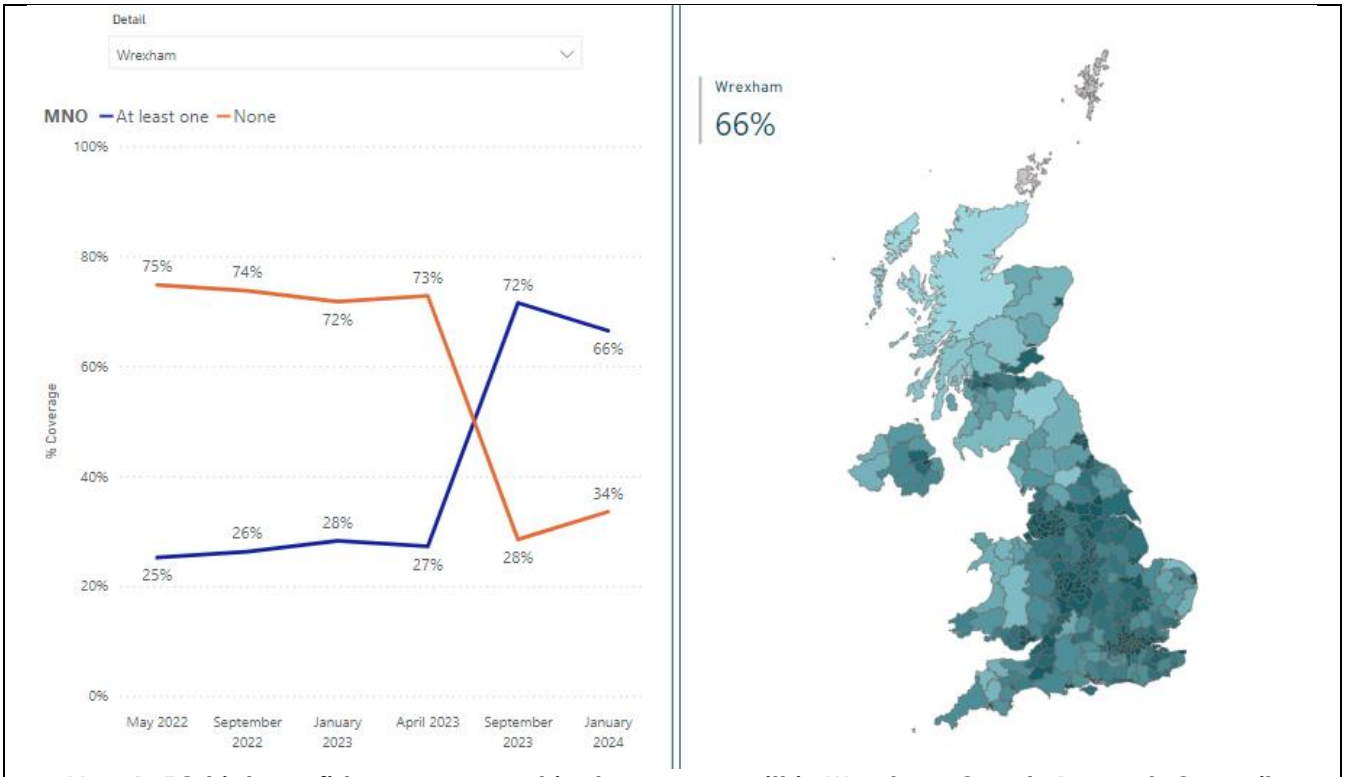
Connected Nations 2024

The Connected Nations 2024 was published in April 2024. This is an interim update to the last annual Connected Nations report, which was based on data collected in September 2023. This Connected Nations 2024 is based on fixed broadband availability and mobile coverage in the UK as of January 2024. Ofcom is a measure mobile coverage in a way that reflects the likely experience of people using their mobile phones. The report acknowledges that there has not been a significant increase in coverage since the September 2023, but the industry continues to develop its coverage footprint.

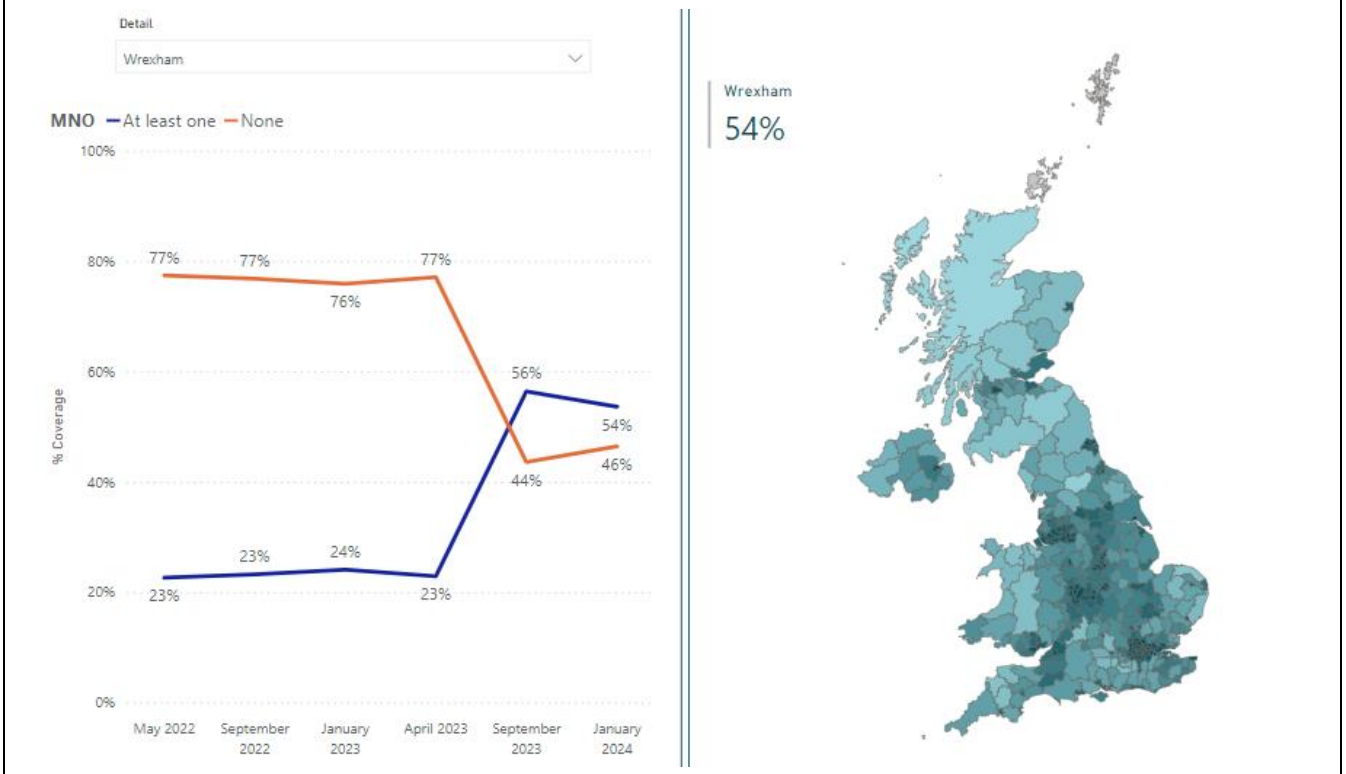
"Mobile coverage remains stable for 4G, with around 93% of the UK landmass predicted to have good outdoor 4G coverage from at least one operator. This area includes nearly all the premises in the UK."

"5G coverage has also remained steady over the previous 4 months with around 92% of premises being able to get a 5G signal outdoors, from at least one mobile network operator (figures reported with a high degree of confidence)"

The below maps present the existing 5G geographical coverage at high confidence and very high confidence.



Map 1. 5G high confidence geographical coverage within Wrexham County Borough Council.



Map 1. 5G very high confidence geographical coverage within Wrexham County Borough Council.

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Planning Matters

The main issues arising from this prior approval application is whether the proposed development would have an adverse impact upon the visual amenity and character of the surrounding residential area. Whether this perceived harm would outweigh the significant social and economic benefits associated with the provision of new 5G services and the enhanced 4G coverage attributed to the proposal and other valid material considerations as outlined within PPW, Future Wales – The National Plan 2040, the Mobile Action Plan, Building Better Places: The Planning System Delivering Resilient and Brighter Futures: - Place Making and The COVID-19 Recovery, and the Wrexham Local Development Plan, and the Wrexham Unitary Development Plan.

The principle of development has been established by Welsh Government when the new permitted development rights came into force in April 2019, which enabled sites such as this one to be built under the operators permitted development rights, (as the column height does not exceed 20m on unprotected or highways land), with prior approval for siting and appearance being the only matters that the local planning authority can take into consideration.

The Planning Portal also provides Application Type Guidance. This guidance states that:

'The prior approval procedure means that the principle of development is not an issue. The Local Planning Authority can only consider the siting and appearance of the proposal'.

Siting

The siting of the equipment is well considered, located on a footway of Ruthin Road, a busy route toward Wrexham City Centre, additionally there are a number of other similar vertical simple functional structures which have all become an established part of the street scene. It is not unusual to see vertical items of essential infrastructure in such locations. As a result, the height and design will not be discordant with this area where there are numerous vertical structures including lighting columns, telegraph poles, traffic lights, bus stop shelter, road signage, commercial signage, CCTV supporting poles, as well as semi-mature and mature trees in a wider area. This will all help the column assimilate with its surroundings. The trees and hedges in the area will also ensure that the column will not appear prominent in the wider area. This is in accordance with the Wrexham Local Development Plan, and the Wrexham Unitary Development Plan.

The equipment cabinets are designed to resemble other statutory operators' equipment cabinets and which are common place in busy urban environments such as this one. Indeed, there are existing similar designed cabinets along Ruthin Road. As such, they will not appear out of place in this location in line with the Wrexham Local Development Plan, and the Wrexham Unitary Development Plan. They are the minimum number necessary to provide new 5G service provision to the area as well as enabling provision of 4G coverage to this cell area. The Government also does not consider them to be harmful in the street scene as they

have given the operator permitted development rights to install equipment cabinets which do not exceed 2.5m^3 without needing prior approval or express consent.

4G signals by their very nature (as they carry high data rates) do not penetrate over long distances, just a few hundred metres, 5G even less so depending on the topography of the land, building clutter and vegetation including trees in the area which can reduce their effectiveness. Therefore, the new 5G radio base station needs to be close to their customer demand which in this case is in a mixed-use area around Ruthin Road.

In line with the operators 5G requirements, which is aligned to the latest Government thinking for a prosperous economy and well-connected Wales and the Wrexham Local Development Plan, and the Wrexham Unitary Development Plan, there is an urgent need to fill this lack of 5G coverage in this high demand area of Wrexham and the surrounding area. In order to achieve these ambitions and those of Building Better Places: The COVID Recovery, Welsh Government clearly states that '*planning applications for new digital infrastructure should be recognised as essential to the COVID-19 recovery period and should be given priority for determination by planning authorities.*' As such, Wrexham must have the necessary infrastructure in place to bring these requirements to fruition. This ensures that Wrexham does not fall behind other cities across the UK where 5G has already been installed and other towns and cities where 5G roll out is also currently planned in the immediate future. This application would provide essential infrastructure, acknowledged by the Welsh Government to directly help in the COVID 19 recovery, the Council should act in a positive manner as advocated in PPW, where at para 5.2.5 it states that the '*planning system should help support telecommunications infrastructure where it is required*', and given prior approval for the scheme as a matter of priority.

The Code of Best Practice provides guidance on the siting of streetworks columns, noting they are acceptable and cannot be considered under the same principles as lighting columns as they carry out different functions. The Code provides guidance on the location of streetworks structures noting:

> '*Street furniture poles should attempt to site in line, and in rhythm, with existing vertical infrastructure like streetlighting columns so they assimilate better, it also makes them appear more congruous and minimise impact*'.

The radio base station is proposed to be located on a footway of Ruthin Road where there are lots of other similar designed vertical structures for the installation to assimilate with. This is in line with the Code of Best Practice and Policy CLF8 of the Wrexham Unitary Development Plan.

The Code of Best Practice advocates the sequential approach to site selection i.e. firstly explore the possibility of sharing any existing building or other structure. It has already been highlighted above that there are no existing radio base stations nearby that would be capable of being utilised to provide 4G and 5G coverage for the operator. There are no suitable buildings which could be used to provide the required latest technologies and service provision. The applicant, in line with the Code of Best Practice then explored

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opportunities to locate the site within or close to other utilities or commercial development. As the operator needs to fill a gap in the network, the site options within the search area are limited. The search area is a mixed-use area compromising of residential and commercial properties. The non-residential buildings in the search area were explored but none were found to be suitable. The site chosen is close to a number of other items of vertical street furniture in line with the Code of Best Practice, which will provide a context for the proposed installation helping it assimilate within the surrounding area. Given the mixed-use nature of the search area a number of alternative solutions have been explored but none are suitable for technical/build/visual amenity reasons.

The Code of Best Practice acknowledges that the initial deployment of 5G will seek a search area which will be largely defined around the existing network and localised to cover a specific coverage gap. This often limits siting options and design solutions. This is the case in this instance. The operator needs to provide 5G coverage to an established network in a mixed-use area, which experiences a significant number of commuters traveling in and out of the city centre. The search area is necessarily small to ensure that the coverage footprint of the existing radio base station is maintained, and a loss of service provision is not experienced for existing users of the established network whilst providing 5G technology in this cell area.

The Code notes that all telecommunications installations are principally guided by the technical need for the site and the technical constraints placed upon broadcasting a signal. The siting and design of such installations must therefore be balanced between perceptions of visual impact and the proposed installations technical needs and constraints.

The Code of Best Practice states that planning authorities should consider the search criteria for a new installation and balance the need for a site within a limited search area with the greater public benefit of improved connectivity.

The Code supporting minimising the visual impact of radio base station and advocates that designs are simple and unfussy:

> *'Where viable, sites should be deployed to make use of screening or backdrop. This could be in the form of buildings or vegetation but antennas must clear any surrounding 'clutter' that obstructs the signal and the service. Therefore, while siting should make use of screening, it is vital that the antennas are of a sufficient height'.*

The proposed column height of 20m is essential to provide new 5G coverage and 4G service provision to the surrounding area. 5G radio signals are more sensitive to physical obstructions than older technologies. This is because the higher the frequency band the greater the reduction in signal strength, increasing the likelihood of dropped calls and reduced data rates for internet browsing, for example. Any physical object obstructing the propagation of radio signals causes a reduction in the signal strength reaching a customer's device. A common term for these objects is 'clutter' such as buildings, trees and hills. Generally, the higher the signal frequency the more it will be impacted by clutter, as explained in the revised Code of Best Practice.

Since 5G new radio technologies operate in higher frequencies where attenuation of the radio signal is naturally higher, and the effects of clutter are greater it will normally require a higher structure to achieve the same coverage footprint as older technologies. Furthermore, unlike traditional technologies 5G uses adaptive beamforming technologies to increase capacity and data speeds to the user. For effective beamforming the antenna will normally need to be mounted higher than conventional antennas. These factors all lead to the need for an increase in antenna height in 5G.

It is accepted that the height of the proposed installation is taller than other pieces of surrounding street furniture, and buildings, but this in itself is not a valid reason to conclude that it is not appropriate at a specific location. Telecommunications apparatus by its very nature must be taller than surrounding built and natural form to ensure its efficient operation (as explained in the revised Code of Best Practice). To suggest that it is inappropriate because it is taller than nearby lighting columns or buildings are no more relevant than suggesting that street lighting columns are inappropriate because they are taller than road signage or traffic lights. They are all essential pieces of infrastructure within a street scene that carry out differing functions and therefore cannot be considered on the same merits. As such, the proposal should not be considered negatively due to it being taller per se than adjacent buildings and linear structures. As already noted above the revised Code of Best Practice at Appendix A notes that telecommunications poles must be significantly taller than streetlighting columns and other street furniture, but that is not a reason to refuse a telecommunications application. This is because a street lighting column cannot provide 4G or 5G mobile broadband service and thus should not be considered under the same principles.

As with the lighting columns and traffic lights in the area, the proposed monopole is an essential item of infrastructure which has technical and operational reasons as to its design, exposed antennas and height which cannot be further amended. As already explained above the whole antenna has to be clear of any obstruction in order for these antennas to work effectively. If the mast were to be any lower, then the antennas would not be able to clear the urban clutter in the surrounding area. This would prevent them from working and an additional installation would still be required contrary to PPW, and The Code of Best Practice.

Appearance

In line with PPW, the Code of Best Practice and the Wrexham Local Development Plan, and the Wrexham Unitary Development Plan the operator has chosen the most sensitive design available to provide 5G to this area of Wrexham. As a result, the antennas are located at the top of the monopole and are positioned as tightly as possible to reduce the bulk at the top of the mast. Indeed, the main difference to this and non 5G masts is that the antennas are not shrouded.

The column will resemble other vertical structures within the street scene of a similar design (albeit taller) and as such will blend in with these other linear structures. The column is proposed to be grey a similar colour to other vertical structures nearby, although the column

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can be finished in any other colour the Council considers appropriate. If the antennas and monopole were any slimmer then the equipment would not be able to fit in the one installation and another radio base station would be required leading to the proliferation of masts contrary to PPW12, and the Code of Best Practice.

The Welsh Government places on high quality connectivity and that Wales gets the communications infrastructure it so desperately needs, it has published a Mobile Action Plan, a road map, to ensure that all parts of Wales get the mobile connectivity needed. The Action Plan states that mobile connectivity not only directly supports the United and Connected theme through connecting people and communities but also enables business connectivity, the delivery of public services and learning opportunities. It also acknowledges that access to a useable mobile phone signal also supports all of the Well-Being of Future Generations Act Goals.

There is currently no 5G service provision in the whole of the surrounding area. Therefore, this community does not have access to the latest high quality indoor 5G coverage and capacity. Thus, users of their 5G enabled handsets are unable to utilise their devices for the purposes in which they were purchased. This is contrary to the Government aspirations as noted in PPW and more recently in the specifically published Mobile Action Plan to ensure that Wales gets the coverage it needs throughout the country. In line with the operators 5G rollout programme, which is also aligned to the latest Government thinking for a prosperous economy and well-connected Wales there is an urgent need to fill this hole in coverage.

The proposed installation would infill the current non-existent 5G mobile coverage for Vodafone in and around this mixed-use area along Ruthin Road and as such is a vital link into the operator's network. Policy SP12 of the Wrexham Local Development Plan and Policy CLF8 of the Wrexham Unitary Development Plan seeks to ensure that there are no undue effects on the amenity of neighbouring occupiers and that the proposals connect positively to surrounding communities. A telecommunications installation is a piece of essential infrastructure to enable the mobile network to function. Once installed it will not cause increased activity as the site will only need to be visited approximately twice a year for servicing maintenance. Should the antennas malfunction, then the operators' engineers will fix the antennas by utilising a cherry picker parked at the base of the column. The need to visit the site, once operational, will be very limited. Therefore, there will be no detrimental activity or disturbance to the amenity of nearby occupants.

A radio base station does not cause vibration, does not emit dust, fumes or produce litter, no lights are required for the radio base station operation and therefore it cannot cause light pollution. The column itself will not emit any noise. The only noise will be from a fan within the equipment cabinets which will only be activated on very hot days. This noise will not be audible above background noise, and certainly not sufficient to warrant the proposals refusal.

Economic and Social Benefits

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The proposal is in accordance with the Policy CLF8 of the Council's Unitary Development Plan. The Welsh Government's Mobile Action Plan advises that '*access to a useable mobile phone signal also supports all of the Well-Being of Future Generations Act Goals*'.

PPW acknowledges key issues for Productive and Enterprising Places as being increasing the use of integrated digital communications and technology to create 'smart places' and the implications of this for the way we travel, communicate, work and socialise.

National guidance set out in PPW fully supports telecommunication development. PPW10 moved the telecommunications section into Chapter 5 which relates to Productive and Enterprising Places and the latest edition PPW12 retained it in this chapter. PPW states that these promote our economic, social, environmental and cultural well-being by providing well-connected employment and sustainable economic development. These places are designed and sited to promote healthy lifestyles and tackle climate change. It notes that a Prosperous Wales is realised through the availability of reliable communications networks and that Cohesive Communities is created by people having access to fulfilling work which is easily reached and who can communicate effectively and safely with their friends and neighbours. The key issues are ensuring that all parts of Wales have access to modern communication systems; and increasing the use of integrated digital communications and technology to create 'smart places' and the implications for this for the way we travel, communicate, work and socialise'. An installation in this location to provide 5G will fully meet these expectations.

The social and economic benefits are a significant material consideration which should be weighed against the perceived impact associated with an installation at this location. PPW clearly acknowledges the benefits of physical, electronic and digital infrastructure citing it as playing a pivotal role in maintaining the economic well-being of Wales, as does Future Wales which sets out two policies to fully support mobile communications: policies 13 and 14. Reliable, advanced, high-quality communications enables people to connect and interact with each other, either in person or electronically, to increase prosperity. It enables effective communication between people and businesses and provides a place for people to work and enjoy our natural and cultural assets. Poor infrastructure can be both a disincentive to investment and growth, and have a detrimental impact on quality of life, prosperity and the well-being of communities. The proposed installation will meet these criteria. It will also help meet the LDP vision and strategic objectives ensuring that the Wrexham City as a National Growth Area is strengthened, the proposal will also support a vibrant, diverse and competitive local economy that provides a range of jobs opportunities and enable new and existing businesses to grow.

PPW expands on the benefits of electronic communications further in paragraph 5.2.1 stating that affordable, secure electronic communications infrastructure is essential to people and businesses. The availability and exchange of information afforded by telecommunications ensure that people are connected to important services, their communities and the wider world and essential for long term prosperity.

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Paragraph 5.2.2 goes further by explaining the demands on the system. It states that modern society demands reliable fast and high-capacity communication networks to ensure large amounts of data can be easily accessed or exchanged. It is the Welsh Government's objective to offer fast and reliable broadband to every property in Wales and to support the deployment of mobile infrastructure across the country.

Mobile connectivity is essential to the future success of the economy. The combined value of 4G and 5G mobile connectivity is estimated to add £18.5bn to the economy by 2026 (Councils and Connectivity Sept 2018). Mobile connectivity is essential to creating a better society. Digital inclusion can help people gain employment, become more financially secure and improve health and well-being. Mobile connectivity is essential to fulfilling the potential of new technologies. Innovations such as artificial intelligence and connected cars will change how we work, spend our leisure time and run our public services.

Trials have already begun across the UK to demonstrate the potential of 5G and how it can improve and drive productivity and efficiency. In June 2019, West Midlands 5G partnered with BT and University Hospitals Birmingham to trial the UK's first 5G Connected Ambulance. Real-Time communications between the paramedics and the hospital doctors enabled the effective diagnosis of the patient at an early stage of care. The trial showed how a paramedic performed a remote-controlled ultra-sound scan on a patient in an ambulance over a public 5G network. These trials show how digital connectivity and technology can reduce patient waiting times and save lives (Source: WM5G).

5G infrastructure is fundamental to enable digital technologies to function. The proposals will ensure that any Vodafone customers in this cell area will be able to access resilient, seamless connectivity at a speed they need anywhere at any time. It will also maintain and improve coverage for the Mobile Virtual Network Operator's (MVNOs) which use the Vodafone network which includes VOXI, Asda Mobile, Lebra and Talkmobile. So, the proposal will not only provide new 5G services for one operator and improved 4G coverage but those who buy network space off them, which is at least 4 with Vodafone. Without the more basic technology solutions such as 5G, smart-region solutions and value-added outcomes will struggle to be brought to fruition.

The radio base station will support the delivery of healthcare provision and accessibility by enabling people greater access to online services, NHS appointment reminders, reminders to take medicines, make appointments etc. As well as assisting hospital outpatient appointments and emergency consultations carried out remotely via video link, connected ambulances, live streaming of CCTV footage etc.

The way 5G works, it is closely connected with the Smart City agenda and will enable centralized control of lots of different street infrastructure owned or managed by councils, such as streetlights, water meters and bus stops. Wrexham is fully committed to being connected. As such it needs the 21st century infrastructure to enable this objective to become a reality. A new installation in this location enabling 5G service provision to Ruthin Road area and the surrounding area will ensure that this aspiration is fully met.

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The proposed radio base station will connect positively to the community as a whole and provide connected digital communication infrastructure so that this residential area can be competitive, sustain existing growth and attract new high value business including the visitor economy. It will allow access to faster connection and enhanced data services, the benefits of which have been widely publicised, and which will be set out more fully later in this statement. The key benefits include connecting with family, friends and colleagues at any time around the world. This benefit has never been more important, understood and relied upon than during the COVID-19 pandemic, that we are all experiencing and having to live through, when a reliable, high quality, advanced telecommunications system is often seen as a lifeline to our loved ones, friends, family and work colleagues, helping to improve our mental health and well-being and being able to work from home where possible. The high quality 4G and new 5G network allows access to learning materials and remote learning when it is not possible to go to school, even when schools were fully reopened it enables homework to be set and carried out online and marked automatically thus freeing up teacher time. It also enables us to manage our personal information 24/7. A good quality communications system also allows us to be always entertained and informed with the latest news (which has been particularly important during the COVID-19 situation) and creating more productive and cost efficiencies for businesses. These benefits outweigh the minor harm to the character and appearance of the street scene.

The COVID-19 outbreak, over a very short period of time, has significantly changed how we live and work, with far-reaching social and economic implications for every community and all parts of the economy across the UK. The pandemic has exacerbated demand and pressure on the operators' networks.

Given the increasing extent of mobile only online access in households across the UK[4], the importance of continued mobile connectivity is highlighted to enable public participation in planning committees and other online activities, for example. It is noted that much of the proposed streamlining and modernisation will be based on greater use of digital technology. Without the relevant infrastructure in place such as the application proposal this will not be possible.

The proposed installation will help improve the area's economic prosperity, strengthen the economy's by supporting local businesses to start, grow, adapt and diversify. It will support a better environment for today and tomorrow by reducing the need to travel and in turn minimise carbon emissions.

Digital technology has catalysed the interconnection of the global economy, with the internet enabling the free exchange of goods and services, providing consumers with greater choice and businesses with access to skills, resources and customers and opening opportunities for different ways of working and living.

[4] https://www.ofcom.org.uk/research-and-data/multi-sector-research/infrastructure-research

The continued expansion and development of mobile networks is a key element of the National Infrastructure Delivery Plan 2016 – 2021[5]. This recognises that digital communications are now a crucial component of everyday life, with improvements in connectivity being key to a vibrant economy.

In March 2020, when Ofcom finalised the rules for the next mobile airwaves auction, Philip Marnick, Spectrum Group Director at Ofcom noted '*Demand for getting online on the move is soaring, with* ***mobile customers using nearly 40% more data year on year****. So, releasing these airwaves will bring a much-needed capacity boost – helping mobile customers get a better service. We're also releasing more airwaves to help cement the UK's place as a world leader in 5G.***'**

It is clear from the above that reliance on mobile connectivity was increasing before COVID 19 and has increased since the pandemic. It is fair to say the increased use of and expectation for reliable mobile digital connectivity will see this upward trend continue.

It is therefore imperative that the operator continues to invest in ensuring that the latest technologies are available on its network, so that customers are able to continue to use their handheld devices wherever they are, for whatever reason, for the purposes in which they were purchased.

Providing the latest digital infrastructure to enable improvements in digital technology empowers and enables residents to have the highest quality of life, supports the creation of high-quality jobs and achieves the maximum productivity levels. It will help Wrexham in supporting a vibrant, diverse and competitive local economy that provides a range of job opportunities and enable new and existing businesses to grow in Wrexham County Borough with strategic growth in Wrexham City, it will also support strengthening the Wrexham City as a National Growth Area in accordance with Strategic Objectives 1 and 2 of the Wrexham Local Development Plan.

The PPW strongly supports sustainable development as does the Well-being of Future Generations (Wales) Act and the Wrexham Local Development Plan. Mobile communication plays a significant role in sustainable development. Being able to access the internet via a mobile device allows people to access a wide range of central and local government services, buy groceries, manage finances, apply for jobs/university, and carry out school projects, send emails, download applications, send and receive instant messages, streaming and downloading data to name just a few of the benefits of being able to use an internet enabled handheld device. It also allows people to work from home or on the move without needing to return to the office. This reduces travel time, carbon emissions and increases the speed in which information is processed/shared. The proposals therefore fully comply with the PPW, the Well-being of Future Generations (Wales) Act and the Policy SP18 of the Wrexham Local Development Plan as it will minimise the need to travel and reduce carbon emissions. Helping communities and neighbourhoods to be cohesive and safe in their environment

[5]https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/520086/2904569_nidp_deliveryplan.pdf

enabling them to call for help should they need it, helping to provide access to learning and training provision for all, with connectivity helping to make Wrexham a great place to work and do business, supporting families and individuals to achieve and maintain their independence and ambition.

The proposed scheme fully complies with national guidance set out in PPW. Filling a significant coverage and capacity hole in the communications network is essential for sustainable economic growth. This is specifically in line with achieving two of the well-being goals of 'A Prosperous Wales' and 'A Wales of Cohesive Communities'. It is acknowledged in PPW particularly at paragraph 5.2.1 stating that affordable, secure electronic communications is essential to people and businesses. Furthermore, physical, electronic and digital infrastructure is pivotal in maintaining the economic well-being of Wales.

The environmental considerations of the proposed development should be considered in light of the strong economic and social benefits of providing high quality indoor 4G service provision and new 5G coverage to residents, businesses and visitors alike in and around Ruthin Road and this part of Wrexham. It is therefore vitally important that the whole of Wrexham has the necessary infrastructure to support the important role as a major city in the area, locally, regionally and nationally.

The new installation will provide high quality 5G mobile communications in an area where currently there is no such coverage, supporting the Government's aim of '*facilitating the development of an advanced broadband telecommunications infrastructure throughout Wales*'. This fully meets the aspirations of PPW, the Code of Best Practice, the Welsh Government's Mobile Action Plan and Building Better places: The Planning System Delivering Resilient and Brighter Futures: - Place making and the COVID-19 Recovery. The new site will ensure that the expansion of the electronic communications network is facilitated, and that high quality communications infrastructure is provided to the immediate area. This is in full accordance with the operator's 5G license obligations.

We all need high quality communications. In the modern world, a huge amount of time is spent using communications services: for work, to stay in touch with family and friends and in order to go about our daily lives. This is acknowledged in national planning guidance as well as the latest Ministerial Written statement from the Skills and Science Minister Julie James stated, '*ensuring Wales has the mobile connectivity to allow people and 'things' to connect reliably wherever they are located will become essential*'. The Government's pledge to improve connectivity in Wales has been strengthened by its publication of the Mobile Action Plan. Our ability to access and use reliable mobile and broadband connections has become fundamental to the way we live and work, and the ability of businesses of all sizes to thrive. The importance that the Welsh Government attaches to new digital infrastructure is acknowledged in Building Better Places – The COVID-19 Recovery where it acknowledges that such development is essential to the COVID-19 Recovery.

Being able to use e-mail, VoIP, video calls using handheld devices is becoming increasingly important for business and domestic use as the up take in smartphones increases. Without new 5G connection and enhanced 4G service provision in this mixed-use area where the

demand is, in and around Ruthin Road, would fall behind the rest of the UK and would not meet the growing demand for such services by businesses or domestic users alike or the Governments aspirations that Wales is connected with the mobile service it needs. Therefore, the provision of high quality new 5G services and the improvement of 4G coverage would take the opportunity of achieving the best for Ruthin Road area and the surrounding area now and in the future, supporting the economy to be both prosperous and sustainable and all communities to be successful. This is in full accordance with the aspirations of PPW and the well-being goals set out in the Well-Being of Future Generations (Wales) Act 2015 and the Council's Local Development Plan and Unitary Development Plan.

5G will provide faster and more reliable connectivity leading to greater opportunities. We will experience new technologies that will help us become more efficient and save costs as an individual or business. Advanced healthcare facilities performing surgeries remotely will be made possible along with freeing up more GP time through better online facilities improving health and social care. It will allow the greater Internet of Things (IOT) transformation, with better connected devices, the IOT will enable us to control devices more independently, it will help councils and businesses deliver services more efficiently including transport and logistics with connected parcels and fleet tracking; environmental monitoring with sensors monitoring air quality and water pollution in real time; smart retailing; industrial applications, enabling business to improve productivity e.g. through predictive maintenance and real-time analytics.

A National Needs Assessment – A Vision for UK Infrastructure was published in October 2016 (https://www.ice.org.uk/getattachment/media-and-policy/policy/national-needs-assessment-a-vision-for-uk-infrastr/National-Needs-Assessment-PDF-(1).pdf.aspx). It sets out the infrastructure needs for the UK which includes the importance of digital technology:

> '*A lack of digital connectivity has a detrimental effect on business operations, productivity and output and hence competitiveness in the global marketplace. Securing digital connectivity is thus critical to the UK's long-term prosperity. A key challenge for the digital sector is a persistent digital divide between those who have access to the latest technologies and those who do not, with resulting social and economic exclusion, particularly as dependence on e-services and digital communications increases*' (page 66 A National Needs Assessment)'.

The Assessment goes on to note that '*Universal digital connectivity would serve as an equaliser of economic opportunity in that it enables participation in a modern digital economy*'. Therefore, this Needs Assessment further explains the consequences of a lack of coverage and the effects this has on social and economic prosperity. This clearly highlights the importance of providing new 5G coverage to this urban area of Wrexham, where the economic benefits will outweigh social and environmental considerations.

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

In accordance with the licence obligations and advice in Planning Policy Wales and the Code of Best Practice in Wales the applicant's network rollout team investigated the following siting and design options using this sequential approach to site selection:

- Upgrading their own existing base stations or explore the possibility of sharing any existing building or other structure.
- If no such structure exists, explore opportunities to locate sites within or close to other utilities or commercial development.
- If no such scope exists, explore opportunities for sites that are well screened by other development or natural features, such as trees, vegetation and undulating topography.
- Residential areas will require service provision and infrastructure may be required in close proximity to housing. However, prior to proposing a new site in a residential area, alternative solutions should be explored initially to ensure the proposal of least impact is progressed while considering technical constraints.
- Heritage sites and assets may require service provision, and where this is the case infrastructure will be needed within or in close proximity to them. However, prior to proposing a new site in a heritage area, alternative solutions should be explored initially to ensure the proposal of least impact is progressed, while considering technical constraints.

The applicant's site selection strategy is to keep the overall environmental impact to a minimum. Utilising existing masts is always progressed where it is technically and legally possible and where it is the local planning authority's preferred environmental solution.

A number of sites have been considered prior to the application site being selected. Those were given careful consideration with regard to the impact of development at each location in terms of visual and residential amenity, other planning issues as well as the technical suitability of each site to Vodafone. In selecting the site and design of the proposed installation the views that have been received as a result of the consultation exercise have been taken into account. The location considered most acceptable in terms of all these factors was then selected.

The details of alternative sites considered prior to selecting the proposed site and design are contained in the list below.

Site Type[2]	Site Name and Address	National Grid Reference	Reason for not choosing
D1 – Greenfield	Victoria Road, Bryn Offa, Offa, Wrexham, Wales LL13 7SF	E: 332827 N: 349924	The site at this location would be in an off-streetcar park, requiring the radio base station to be within a fenced compound, taking up parking spaces. Additionally, the nominal site would provide more optimal coverage from a radio

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			planner's perspective. Therefore, this site has been discounted.
D2 – Rooftop	Morrisons, Ruthin Road, Bryn Offa, Offa, Wrexham, Wales LL13 7TU	E: 332629 N: 350148	Due to the construction of the building, there is no design available to support the operator's apparatus and provide the necessary coverage to the target coverage area. The rooftop is too low in order to deliver the required level of coverage to the target coverage area. This site has therefore been discounted for this reason.
D3 - Greenfield	Ruthin Road, Bryn Offa, Offa, Wrexham, Wales LL13 7UA	E: 332556 N: 349926	An installation at this location is considered too exposed as it would be in an open green area. More appropriate alternatives exist to deliver the required coverage to the target area. Therefore, this site has been discounted for this reason.
D4 - Greenfield	Ruthin Road, Bryn Offa, Offa, Wrexham, Wales LL13 7ND	E: 333014 N: 349997	An installation at this location is too far east to provide the required coverage to the target area. Additionally, it would be too close to existing cells to the east. Therefore, this site has been discounted.
D5 - Rooftop	Ruthin Road, Pentre Bach, Offa, Wrexham, Wales, LL11 3BX	E: 332353 N: 350127	This building is not tall enough to host an installation that would be capable of providing the required levels of coverage and capacity to the target coverage area. In addition, the pitched roof would not be capable of hosting the

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			type of equipment required. This site has therefore been discounted.
D6 - Greenfield	Electricity Sub Station, Thornhill Drive, Felin Puleston, Offa, Wrexham, Wales LL14 4JE	E: 332257 N: 349597	There is not sufficient space for the radio base station to co-exist without impacting the operational requirements on the electricity company. This option also sits on lower ground that the nominal site and it is located on the edge of the search area. This site has therefore been discounted.
D7 – Rooftop	Rooftop of Coleg Cambria buildings, Bersham Road Campus, Bersham Road, Bryn Offa, Offa, Wrexham, Wales LL13 7UG	E: 332651 N: 349800	The rooftop is too low in order to deliver the required level of coverage to the target coverage area. In addition, the pitched rooftops would not be capable of hosting the type of equipment required. This site has therefore been discounted.
D8 – Rooftop	Rooftop of Aldi, Ruthin Road, Pentre Bach, Offa, Wrexham, Wales LL11 3BX	E: 332431 N: 350115	Due to the construction of the building, there is no design available to support the operator's apparatus and provide the necessary coverage to the target coverage area. The rooftop is too low in order to deliver the required level of coverage to the target coverage area. This site has therefore been discounted for this reason.

D9 – Rooftop	Rooftop of Ysgol Clywedog, Homestead Lane, Pentre Bach, Offa, Wrexham, Wales LL14 4HE	E: 332296 N: 350004	Due to the construction of the building, there is no design available to support the operator's apparatus and provide the necessary coverage to the target coverage area. The rooftop is too low in order to deliver the required level of coverage to the target coverage area. This site has therefore been discounted for this reason.
D10 – Rooftop	Rooftop of Wrexham Maelor Hospital, Croesnewydd Road, Wrexham Technology Park, Offa, Stansty, Wrexham, Wales LL13 7YP	E: 332555 N: 350283	Due to the construction of the building, there is no design available to support the operator's apparatus and provide the necessary coverage to the target coverage area. The rooftop is also too low in order to deliver the required level of coverage to the target coverage area. In addition, this site is located outside of the search area and would not be able to provide the required level of coverage to the coverage target area. This site has therefore been discounted for this reason.
D11 – Streetworks	Bryn Coch, Pentre Bach, Offa, Wrexham, Wales LL11 3DN	Various	A streetworks site located along this road would be surrounded by residential properties, with their frontages facing the proposed radio base station at close range. This would have a much greater impact on visual amenity than the proposed location. It has therefore been discounted for these reasons.

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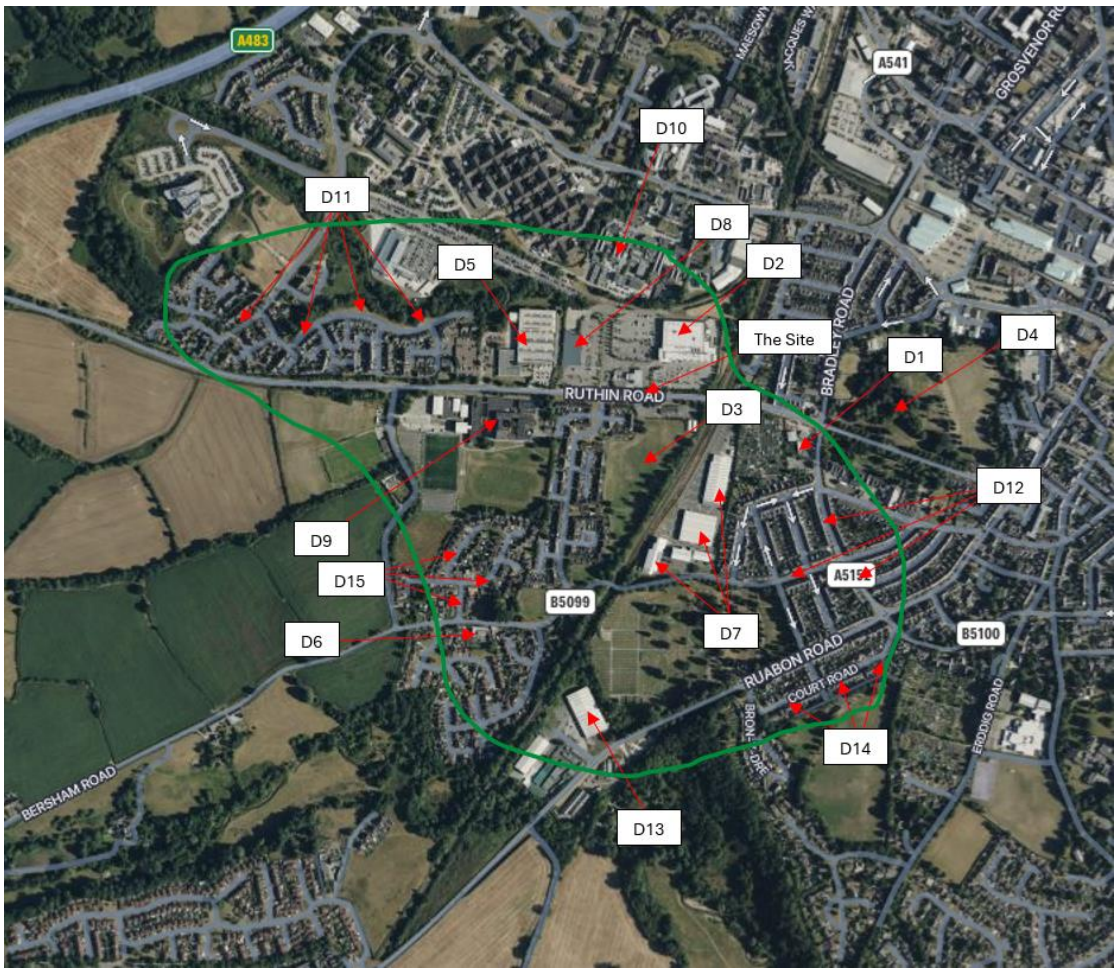
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D12 – Streetworks	Hampden Road, Bryn Offa, Offa, Wrexham, Wales LL13 7RS	Various	A streetworks site located along this road would be surrounded by residential properties, with their frontages facing the proposed radio base station at close range. This would have a much greater impact on visual amenity than the proposed location. It has therefore been discounted for these reasons.
D13 – Rooftop	Rooftop of Booker Wholesale, Ruabon Road, Puleston Industrial Estate, Offa, Wrexham, Wales LL13 7RF	E: 332446 N: 349472	Due to the construction of the building, there is no design available to support the operator's apparatus and provide the necessary coverage to the target coverage area. The rooftop is too low in order to deliver the required level of coverage to the target coverage area. This site has therefore been discounted for this reason.
D14 – Streetworks	Court Road, Felin Puleston, Offa, Wrexham, Wales LL13 7RH	Various	A streetworks site located along this road would be surrounded by residential properties, with their frontages facing the proposed radio base station at close range. This would have a much greater impact on visual amenity than the proposed location. It has therefore been discounted for these reasons.
D15 - Streetworks	The Homestead, Bryn Offa, Offa, Wrexham, Wales LL14 4HQ	Various	A streetworks site located along this road would be surrounded by residential properties, with their frontages facing the proposed radio base station at close range. This would

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			have a much greater impact on visual amenity than the proposed location. It has therefore been discounted for these reasons.



Map 1. Search area and discounted options

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

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[2] Site Type: Mast and Site Sharing, Installation on Existing Buildings and Structures, Camouflaging and disguising equipment, using small scale equipment, and Erecting a new Ground Based Mast.

Public Access Statement

The site is located on the footway of Ruthin Road. The column is not designed to be climbable, and the equipment cabinets are locked thus the general public access are not able to access the equipment.

Construction and Maintenance Access

Access to the site for construction and maintenance is indicated on the drawings. Insert any access information e.g. crane/cherry picker locations, any particular access considerations such as lay-bys, highway access points, climbing ladders, controlled/locked roof top access provisions etc.
The site is likely to be visited infrequently approximately once maybe twice a year, and generally for physical maintenance purposes only. Most optimisation work can be completed remotely. Access to the site will be on foot walking to the site to gain access to the equipment housed within the cabinets. In the event of the antennas within the mast needing to be maintained this will be achieved by siting a cherry picker with a hydraulic platform alongside the base station.

Health and Safety – including ICNIRP compliance
Radio base stations and handsets use electromagnetic fields (EMFs) to transfer information and make communication possible with mobile phones and devices. EMFs are used for television and radio transmissions, by the police, fire and ambulance services, by taxi firms and public utilities. EMFs are also used for a wide range of personal and commercial equipment from electronic car keys, Wi-Fi equipment and baby monitoring devices to shop security tag systems. They are also produced by household electrical appliances like the fridges, vacuum cleaners or electric shavers. Public Health England (PHE) have noted that "Exposure to radio waves is not new and health-related research has been conducted on this topic over several decades. In particular, a large amount of new scientific evidence has emerged since the year 2000 through dedicated national and international research programmes" https://www.gov.uk/government/publications/5g-technologies-radiowavesand-health/5g-technologies-radio-waves-and-health. After a thorough review of the available scientific findings, the World Health Organisation reported: "To date, the only health effect from RF fields identified in scientific reviews has been related to an increase in body temperature (> 1 °C) from exposure at very high field intensity found only in certain industrial facilities, such as RF heaters. The levels of RF exposure from base stations and wireless networks are so low that the temperature increases are insignificant and do not affect human health" World Health Organisation, Fact Sheet 304, Base stations and wireless technologies, 2006. In addition, the WHO notes that "Based on a recent in-depth review of the scientific literature, the WHO

concluded that current evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields". http://www.who.int/pehemf/about/WhatisEMF/en/index1.html

The Advisory Group on Non-ionising Radiation (AGNIR) summarised that "although a substantial amount of research has been conducted in this area, there is no convincing evidence that RF field exposure below guideline levels causes health effects in adults or children." "Health Effects from Radiofrequency Electromagnetic Fields – RCE 20", 2012.

Radio base stations are designed to comply with the stringent, precautionary public exposure guidelines set out by ICNIRP (International Commission on Non-Ionizing Radiation Protection). These guidelines have been developed following a thorough review of the science including both thermal and non-thermal effects. UK radio base station installations have been surveyed by independent bodies and found to be hundreds and sometimes thousands of times below these guidelines.

In 2020 ICNIRP updated their safety guidelines noting that: 'we looked at the adequacy of the ones we published in 1998. We found that the previous ones were conservative in most cases, and they'd still provide adequate protection for current technologies' https://www.icnirp.org/cms/upload/presentations/ICNIRP_Media_Release_110320.pdf

A declaration of ICNIRP compliance is included with the application documents confirming that the proposed installation will be within the precautionary public exposure guidelines set out by the International Commission on Non-ionising Radiation Protection. PPW provides clear advice regarding health matters at paragraph 5.2.15 and states that:

> *'Provided that the development meets the International Commission on Non-Ionising Radiation Protection (ICNIRP) guidelines, planning authorities should not consider the health aspects of mobile telecommunications equipment'.*

As a result, it is not necessary for health matters to be a consideration as part of this prior approval application.

Additional relevant information

Practical Applications of 5G Connectivity as Example of Material Socio-Economic Benefit:-

Education:

The relationship between 5G and education is evolving at a massive rate with educators exploring the relevance of Virtual Reality (VR) technologies for education and training. Crucially, VR can support remote learning, allowing students a presence in the classroom even when working elsewhere.

5G's ability to deliver real-time information (low latency), ultra-fast speeds (critical for high-definition images and video), increased capacity and heightened security will also allow learning on the job, thanks to technologies such as Augmented Reality (AR) goggles, which can give engineers real-time instructions on how to fix a machine on a production line, for example.

Health:

Patients across the country are now becoming accustomed to relying on remote healthcare services such as NHS 111, virtual GP appointments, and ordering online deliveries of essential medical supplies.

5G will prove critical in providing the infrastructure required to deliver remote health services over the next decade. By design, 5G's ability to deliver real-time information (low latency), ultra-fast speeds (critical for high-definition images and video), increased capacity and heightened security are going to be fundamental in scaling the patient benefits of remote healthcare and keeping medical records secure and private. For instance, trials have shown that connecting ambulance crews to expert resources using 5G allows paramedics to work with doctors and conduct specialist procedures in real time whilst on the road.

Without this new radio base station, the area will remain without the ability to have 5G from this operator and the MVNO's who buy network space of it. This would be contrary to the aspirations of Welsh Government which aspires to advanced broadband telecommunications throughout Wales and Future Wales which acknowledges that modern, reliable mobile telecommunications is essential to our everyday lives as highlighted during the pandemic. It notes that digital communications infrastructure is crucial to the future success and economic competitiveness of Wales's businesses and supports community and individual needs, including access to key services and facilities.

The Councillor's Guide to Digital Connectivity notes that a survey conducted by the Confederation of British Industry found that 81% of firms said that they see more reliable mobile connectivity as essential. Studies have also shown that mobile broadband is associated with positive impacts nationally, such as higher GDP and increased employment.

Providing digital infrastructure to enable improvements in digital technology empowers and enables residents to have the highest quality of life, supports the creation of high-quality jobs and achieves the maximum productivity levels. It will help to achieve the strategic objectives set within Wrexham Local Development Plan by supporting vibrant, diverse and competitive local economy that provides a range of jobs opportunities and enable new and existing businesses to grow.

There is a demand for mobile connectivity in areas where geography, logistics or economics – or a combination of all 3, make it difficult. Mobile network capacity needs to grow to meet the demand of mobile users, who are consuming ever increasing amounts of data.

Mobile communications network development plays a vital role in enhancing the provision of local community facilities and services. Indeed, the provision of new community facilities together with the enhancement of existing community facilities, where these positively contribute to a higher quality of life, improve the social and economic wellbeing and reduce the need to travel is fully supported by PPW, the Welsh Government Mobile Action Plan, and the Code of Best Practice.

Being able to use smartphones and other mobile devices such as tablets whenever and wherever you are is essential for the community as a whole. Indeed, there are some users who rely solely on their mobile devices as their form of communication and do not have a land line.

PPW12 strongly encourages local planning authorities to respond positively to telecommunications development. The Government recognises that widespread access to affordable, secure telecommunications infrastructure is important to citizens and businesses across Wales. It is important that the infrastructure in Wales is able to meet this challenge, helping to build a prosperous Welsh economy.

The environmental considerations of the proposed development should be considered in light of the strong economic and social benefits of providing high quality 5G service provision to residents, businesses and visitors alike in the Ruthin Road area.

The proposed new radio base station will support the Welsh Government objective to facilitate the development of an advanced broadband telecommunications infrastructure throughout Wales. The provision of adequate and efficient infrastructure including telecommunications is seen as crucial for the economic, social and environmental sustainability of all parts of Wales. High quality telecommunications underpin economic competitiveness and opportunities for households and businesses to achieve more socially and environmentally desirable ways of living and working. This is in full accordance with Future Wales, PPW and the Council's Local Development Plan and Unitary Development Plan, allowing the Ruthin Road area to be more sustainable, have greater social inclusion and provide a higher quality of life than would otherwise be the case.

The Code of Best Practice acknowledges that modern society demands reliable and fast communication networks to drive economic activity, to allow people to keep in touch and to access public services. Mobile connectivity plays a central role in digitally connecting people and businesses connecting them to the internet, the cloud and to each other. A new installation in this location will fully support these aspects.

It has been demonstrated that the proposed monopole will not appear out of place in this location. The proposed installation would also enhance and provide new community facilities, positively contributing to the quality of local community life, meet the economic and social needs of the people who live and work in the area, provide balanced communities with appropriate services and facilities and conserve the character of the area. Therefore, the proposals fully accord with PPW12, Future Wales, The Code of Best Practice,

the Welsh Government Mobile Action Plan and the Welsh Government Building Better Places – The COVID-19 Recovery.

As such there are no grounds for withholding prior approval for the installation of a telecommunications installation at this location. Furthermore, after detailed consideration of the target service area and other potential sites (see alternative sites section for the discounted options considered) this is the best viable and most sensitive siting and design from which to provide this vital service to local residents, businesses and visitors. There are strong economic and social benefits attached to the service and connectivity the proposed scheme will provide and these significant benefits will outweigh any minimal perceived harm to the amenity of the surrounding area.

Summary

A new radio base station is needed at this location to bring 5G into this part of Wrexham. There are no existing radio base stations within or near the search area that can be upgraded to host additional equipment for the operator. Additionally, there are no suitable buildings in the area to host a radio base station to provide the required coverage and capacity for this area of Wrexham. Therefore, a new installation for Vodafone is needed to provide this operator with the latest 4G and 5G technologies. This supports the Government's aim of '*facilitating the development of an advanced broadband telecommunications infrastructure throughout Wales*'.

The proposed site has been carefully site on a footway of Ruthin Road in a mixed-use area where it will be seen in a context of other vertical elements of street furniture to ensure that it will not look alien. The other elements of street furniture and semi-mature and mature trees in a wider area will help to assimilate the proposed radio base station with the surrounding area.

The proposed height at 20m is essential in order for the antennas to clear the surrounding urban clutter, trees and ensure the antennas are able to reach the target coverage area, to provide new high quality 4G and 5G service provision to Ruthin Road and the surrounding area. If the height of the column were to be reduced then the antennas would not be able to operate effectively, leading to a degraded service for the operator's customers especially for the higher frequency technologies including the latest 4G technology and new 5G service provision.

The proposed installation would also enhance and provide new community facilities, positively contributing to the quality of local community life, meet the economic and social needs of the people who live and work in the area, provide balanced communities with appropriate services and facilities and conserve the character of the area. Therefore, the application proposals fully accord with PPW, The Code of Best Practice, the Welsh Government Mobile Action Plan and the Welsh Government Building Better Places – The COVID-19 Recovery which clearly states that planning applications for new digital infrastructure should be recognised as essential to the COVID-19 recovery period and should be given priority for determination by planning authorities.

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Confirmation that submitted drawings have been checked for accuracy

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Signed:	Michal Laskowski	Date:	30/07/2024
Position:	Town Planner	(on behalf of Cornerstone)	

In the first instance, all correspondence should be directed to the agent.

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