Mobile Communications Frequently Asked Questions

Question	Answer
What is the difference between EE, Three, Virgin Media O2, Vodafone and the likes of Tesco Mobile, GiffGaff and Sky Mobile?	EE, Three, Virgin Media O2 and Vodafone are the UK's four Mobile Network Operators (MNOs). Other operators are referred to as Mobile Virtual Network Operators (MVNOs) who buy capacity from the MNOs and rebrand it as their own. NB: *The Competition and Markets Authority (CMA) has approved the merger of Vodafone and Three so eventually the four will become three.*
Who builds and operates mobile masts and equipment?	Mobile infrastructure in Northern Ireland is provided on a wholly commercial basis.
Who builds the mobile infrastructure and submits planning applications?	Tower companies and infrastructure providers, on behalf of the Mobile Network Operators, submit applications and install mobile infrastructure. These companies may also use sub-contractors as part of the process.
What is the most important concern for mobile operators?	The mobile industry values certainty so that it can plan, invest and build mobile networks. Delays in the process, primarily through the planning system add time, resource and cost, which in turn delays the commencement of mobile services to businesses and the public.
Why does my mobile phone signal drop at times?	Mobile signal can be impacted by a multiple of factors, including: • Distance and obstructions from and between a mobile mast. • Network factors such as congestion, limited coverage, network maintenance, and interference. • Device related issues. • Environmental conditions It's important to check the coverage and signal quality in your area when choosing an operator. This can be checked at View mobile availability - Ofcom Checker.
What do I do if I can't get mobile signal in my home or office?	Wi-Fi Calling, a technology that allows you to make and receive phone calls and send text messages over a Wi-Fi internet connection, can be used rather than relying solely on your mobile network. Most MNOs and MVNOs offer Wi-Fi Calling. Mobile repeaters, also known as cell phone signal boosters, can also be used. These are devices designed to improve mobile signal reception in areas where it's weak.

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Can capacity be increased temporarily for events or at certain times of the year?	When mobile operators anticipate a large event, they can employ a range of technologies and strategies to bolster network capacity and coverage. Operators can deploy additional (temporary) infrastructure to support network capacity in some instances such as live events, and network slicing, only available on Stand Alone 5G, where portions of the network are dedicated for a specific purpose, again helping with network capacity.
Why is coverage in rural areas often more limited?	Mobile coverage in rural areas faces challenges due to a combination of economic and geographical factors. The lower population density means fewer potential users per cell tower, which can make infrastructure investments less immediately viable. Additionally, the terrain and greater distances from existing towers often weaken signals. Consequently, the costs associated with building and maintaining robust coverage in these areas can be significant. NB: The Shared Rural Network Programme, a joint £1 billion initiative between the UK Government and the four MNOs, has seen 4G geographic coverage from all four operators in Northern Ireland rise from 75% at the start of the programme to nearly 85% today, with coverage from at least one MNO increasing from 97% to over 98% over the same period.
Who do we contact if we discover mobile connectivity problems?	Mobile phone users should contact their service provider, but councils can also raise concerns through their Digital Champion who will liaise with the industry.
How good is the mobile coverage in NI compared to the rest of the UK?	When compared to Scotland and Wales, Northern Ireland generally has better mobile coverage. Coverage is improving all the time and you can find this information on the Ofcom website Connected Nations and infrastructure reports - Ofcom.
Do MNOs share masts and equipment?	Yes, Mobile Network Operators (MNOs) in the UK do share masts and equipment, and this practice is being significantly encouraged and facilitated, especially through initiatives like the Shared Rural Network (SRN).
Why are there so many masts and cabinets in some areas? Some have up to four masts, are they all for mobile?	The presence of multiple masts and cabinets in certain areas arises from a combination of factors. Multiple mobile network operators often require their own equipment, even with sharing agreements, and various frequency bands necessitate distinct antennas. Increased capacity demands in urban areas further contribute to the need for multiple masts or complex antenna setups. Additionally, these structures can support radio, television,

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	emergency services, and private communications, and the cabinets house the essential electronic equipment. Therefore, the density of masts reflects the diverse and complex nature of modern wireless communication infrastructure.

Why do masts have to be tall?	Mobile masts are built tall primarily to overcome signal obstructions and maximise coverage. Height provides several key advantages:
	• **Line of Sight:**
	  ○ Tall masts elevate antennas above obstacles like trees and buildings, ensuring a clearer, more direct signal path to devices. This improves signal strength and data speeds.
	• **Wider Coverage Area:**
	  ○ A higher antenna can broadcast signals over a larger radius, reducing the number of masts needed to cover a given area, especially in rural settings.
	• **Backhaul Connectivity:**
	  ○ In areas where laying fibre-optic cables is impractical, microwave links are used for backhaul—connecting the mast to the network's core. These links require unobstructed line of sight, which taller masts facilitate, particularly over challenging terrain.

Why do masts look like they do and why can't they be disguised?	Planning laws state that masts must be in keeping with the street scene, so they usually look similar in colour to streetlights and other street furniture. Some mast designs camouflage masts as e.g. trees but these are more costly to maintain, can look strange when other trees lose their leaves and are less efficient in terms of thermodynamics and the amount of equipment that they can carry.
Can masts be put on rooftops out of the way?	Rooftop masts are a viable option, but several factors limit their widespread use. Firstly, suitable tall buildings with the necessary structural integrity and landlord permission are required. Secondly, access to power and fibre internet is essential, and this isn't always available on rooftops. Finally, signal coverage can be compromised if the mast isn't strategically positioned near the building's edge. Taller masts, while offering broader coverage, present additional challenges for rooftop installation due to wind loading and structural requirements. Therefore, ground-based masts are often necessary, especially in suburban areas where suitable rooftops are scarce.

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How can infrastructure providers gain access to private land to house masts and equipment?	Rights to install apparatus on private land are regulated by the Electronic Communications Code ("the Code"), contained in Schedule 3A to the Communications Act 2003. Under the Code, an infrastructure provider who requires such rights must seek an agreement with the owner or occupier of the relevant land / building in the first instance. In most cases, agreements are reached on a consensual basis through negotiations. If a mutually acceptable agreement cannot be reached, the Code provides that either party may apply to the courts for the determination of any disputed matter. This can include asking the courts to impose an "agreement" granting the required rights. Details can be found at Electronic Communications Code - Ofcom.
Can streetlights be used to house mobile infrastructure?	It is not currently feasible to use streetlights in NI for mobile infrastructure. DSIT has investigated potential through its Digital Connectivity Infrastructure Accelerator (DCIA) Programme and Smart Infrastructure Pilots Programme (SIPP) competition and highlighted barriers. There may be potential for small cells, but this would need to be investigated by the Department for Infrastructure.
Can masts be removed if the technology on them is obsolete?	Mobile operators will ensure that their equipment, such as antennae, is maintained and upgraded as wireless generations progress. As part of this, mast can sometimes be replaced but this is usually to increase the height or loadbearing capacity.
If equipment has been graffitied or there is litter around it how should this be reported?	All equipment should state the operator's name. Local Authority Digital Champions are your single point of contact to the operators and can pass on any concerns. If graffiti is of a paramilitary nature this can present security risks for workers removing it.
What is the difference between a micro and macro network?	Macro and micro networks represent different scales of mobile phone coverage. Macro networks, the traditional backbone, utilise high-power transmitters and tall masts for wide-area coverage spanning kilometres, serving rural and general urban needs. Conversely, micro networks employ smaller, lower-power base stations providing localised coverage, typically within a few hundred metres, to enhance capacity in high-density areas like city centres and venues. Essentially, macro networks offer broad coverage, while micro networks address localised capacity demands.
What is a mobile base station?	A base station is a critical component in a telecommunications network. A fixed transceiver that acts as the central communication hub for one or more wireless mobile client devices. In the context of mobile networks, it facilitates wireless communication between mobile devices and the core network. Base stations are integral to the functioning of mobile networks, enabling devices to connect and communicate efficiently.

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What is the difference between 5G and the other generations like 4G and 3G?	5G is the fifth generation of mobile technology that provides faster speeds, lower latency, more reliable connections, and greater network capacity. It is a true game changer technology providing the underlying wireless infrastructure to support a host of new applications such as connected cars, virtual and augmented reality and the foundations for emerging smart city and Internet of Things (IoT) technologies.
Do we have 5G in NI and is there good coverage?	Yes, but a hybrid of 4G and 5G has been deployed before pure 5G/5G Stand Alone. Ofcom publish information on 5G coverage in their Connected Nations and infrastructure reports - Ofcom.
I've heard that 5G can be harmful, is this true?	No, 5G Mobile phones and mobile masts transmit and receive radio waves, which are a type of electromagnetic radiation. Importantly, this type of radiation is classed as mainly harmless, or in scientific terms, non-ionising when used within guidelines, just like our TVs, remote controls, home WiFi and so on. It is widely recognised that the signal strength is extremely weak and therefore does not have enough energy to cause adverse health effects. Mobile equipment must comply with International Commission for Non-Ionizing Radiation Protection (ICNIRP) guidelines and Ofcom checks compliance by measuring electromagnetic fields (EMF) near mobile phone base stations. They have been taking these measurements for many years, gradually covering more and more locations across the UK. They take repeat measurements in Belfast, Cardiff, Liverpool and London. Taken under steady environmental conditions, these repeat audits allow them to observe any changes in EMF emissions over time. Their measurements have shown that EMF levels are well within the general public EMF limits. Here you can find a test report for each location they have visited Electromagnetic field measurements near mobile base stations - Ofcom.
Where can I find out more about 5G and what it can do?	What is 5G? - Ofcom and #5GCheckTheFacts > Introduction | Mobile UK.
Can mobile companies and broadband companies talk to each other and plan rollout to make sure that citizens have at least one of the services in hard-to-reach places like the Sperrins?	Both industries operate independently but fibre connection is usually required for a mobile mast therefore fibre will often reach an area first. MNOs monitor fibre deployment when planning their network deployment.

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Can mobile industry meet each council regularly in a working group like DfE's Project Stratum did to discuss issues and plans?	Yes, Digital Champions can request this and also relay any issues. The national network is deployed on a case-by-case basis unlike other national infrastructure for utilities so does not operate as a project like Stratum in terms of engagement.
What can councils do to help improve mobile connectivity?	• Progress the council actions within the Mobile Action Plan for Northern Ireland (MAP NI), including the role of the Digital Champion. • Don't operate in silos, make sure council departments all know council digital ambitions so they can play their part in realising objectives. • Develop local digital infrastructure strategies that include mobile connectivity, there is DSIT guidance for this Digital strategy and leadership - GOV.UK. • Make sure connectivity is included in local development plans. • Make sure your planning department is working efficiently and progressing planning applications in a timely fashion. • Consider the use of council owned assets to house mobile infrastructure, this can supply an income to councils. • Share information with your constituents to help allay any concerns. • Share best practice with other councils. • Engage with MLAs and make sure legislation is up to date compared to the rest of the UK, especially for planning. • Be leaders. Raise the profile.
What can industry do to help councils understand the significance of mobile planning applications especially when there are equality issues at play?	• Early engagement with councils especially in rural areas to explain the deficits being addressed and consequences of delays. • Mention council obligations under the Rural Needs Act (NI) 2016 on rural planning applications. Council policies need to take rural impact into consideration. • Host further information sessions to educate councils. • Meet with planners and use the Pre-Application Discussion (PAD) service to make sure inappropriate applications are not submitted in terms of location.
Where can I find the Mobile UK Webinar Slides and Recording from 14/11/24?	These are published at Mobile UK PowerPoint Presentation and NILGA Mobile UK webinar 14/11/2024 Meeting Recording.