

Your response

Question	Your response
Section 2: The quality of mobile connectivity we want to see - What are your views on the use of the Map Your Mobile good performance metric and how should the measure evolve over time? What are your views on the usefulness of: - the 90% figure as a benchmark applicable across geographies and based on crowdsourced data?, and - Whether the 90% benchmark is realistic and sufficiently ambitious?	Confidential? – N Glasgow City Region supports Ofcom's increased focus on measuring real-world mobile performance rather than relying solely on predicted coverage. Whilst crowdsourced datasets provide a valuable indication of user experience, they can be limited in urban environments where data points are often unevenly distributed and insufficiently granular to identify localised coverage and capacity issues. In a city such as Glasgow, mobile performance can vary significantly over short distances, particularly within the city centre, transport corridors, major event venues and densely populated neighbourhoods. As a result, crowdsourced data alone may not fully reflect the experience of residents, businesses and visitors. The Glasgow City Region has undertaken extensive mobile connectivity mapping over the past two years and has found that user experience-based methodologies, such as those employed by Streetwave through drive-testing and walk-testing, provide a much more accurate picture of real-world performance. These approaches capture not only signal availability but also the quality of service being experienced by end users, enabling more informed intervention and investment decisions. Ofcom should therefore consider supplementing crowdsourced datasets with structured user experience measurement programmes and encourage greater collaboration with local authorities that are already collecting connectivity data at a local level. Supporting Data Collection Through Council Fleet Vehicles Local authorities can play a significant role in improving the evidence base available to Ofcom and mobile network operators. Council fleet vehicles, including refuse collection vehicles, roads maintenance vehicles and other operational fleets, routinely travel across almost every street within the city and wider region.

Question	Your response
	Glasgow City Region would welcome opportunities to work with Ofcom to deploy mobile measurement devices on council vehicles and to share data collected through existing connectivity mapping initiatives. A coordinated national framework for local authority fleet-based monitoring could significantly improve the quality, consistency and geographical coverage of mobile performance data across the UK.
Section 3: Market-led improvements in mobile network quality • What information do customers need about network quality to choose the best network for their needs, and where are the main gaps in current provision of that information? • How well does Map Your Mobile currently meet customer and stakeholder needs, and what specific improvements would make it more useful?	Confidential? – N Map Your Mobile does not currently meet the needs of Glasgow City Region as it does not reflect the users experience of the network Ofcom should consider supplementing network operator prediction data and crowdsourced datasets with structured user experience measurement programmes and encourage greater collaboration with local authorities that are already collecting connectivity data at a local level.
Section 4: Connectivity in busy areas • What do you think are the biggest barriers to achieving better mobile performance in town and city centres and why? • What do you think should be Ofcom's main priorities for our future work in this area? • What information would stakeholders, especially local authorities / planning authorities find useful for Ofcom to provide further insights on and why?	Confidential? – N Demand for mobile data continues to increase across Glasgow City Centre, driven by economic activity, tourism, major events, public services and the growing reliance on digital technologies. Maintaining high-quality mobile connectivity will require continued investment in 5G infrastructure and future mobile technologies. Whilst traditional macro sites will remain important, future capacity requirements will increasingly depend upon network densification through the deployment of small cells and other localised infrastructure. In busy urban locations such as Glasgow City Centre, improvements in mobile performance are increasingly likely to be delivered through densification rather than solely through additional macro sites. Small-cell deployments will therefore become increasingly important in meeting

Question	Your response
	growing demand for capacity and improving user experience in areas of high footfall. Local authorities can support these ambitions through access to suitable public assets and street furniture. However, the growing number of infrastructure deployments required has the potential to create challenges around visual impact, streetscape management and infrastructure duplication. Glasgow City Region therefore supports greater consideration of shared infrastructure and neutral host models. These approaches enable multiple operators to utilise common infrastructure, helping to minimise unnecessary duplication of equipment, reduce street clutter, simplify asset management and lower deployment costs whilst continuing to support competition and improve coverage and capacity. Neutral host solutions may be particularly beneficial within dense urban environments and high-footfall locations where demand is concentrated and physical deployment opportunities are limited. Planning, Rooftop Deployment and ICNIRP Considerations in Dense Urban Areas The deployment of 5G infrastructure within Glasgow City Centre presents a number of practical challenges. Rooftop sites have an important role to play in improving capacity and coverage; however, operators frequently encounter difficulties associated with complex ownership arrangements, rooftop access agreements, power and fibre availability, building suitability, conservation policies and heritage considerations. There is an increasing need for clear national guidance on how planning authorities can support network densification whilst balancing digital connectivity requirements with placemaking, heritage protection and public realm considerations. Local authorities must also address concerns raised by communities regarding mobile infrastructure and electromagnetic field (EMF) exposure. All telecommunications equipment requiring planning consideration is required to demonstrate compliance with the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines. However, planning authorities fre-

Question	Your response
	quently receive objections based on perceived health impacts. Greater public awareness of the existing regulatory framework, together with clearer national guidance, would assist local authorities in managing applications consistently and providing reassurance to communities. Glasgow City Region would welcome further guidance from Ofcom, government and industry on: • Best practice for rooftop telecommunications deployments. • Shared and neutral host infrastructure models. • Planning approaches that support small-cell deployment and network densification. • Balancing digital connectivity requirements with conservation and heritage considerations. • Consistent application of ICNIRP requirements. As demand for mobile connectivity continues to grow, national guidance and closer collaboration between Ofcom, industry and planning authorities will be essential to ensure that the infrastructure required to support future economic growth can be delivered efficiently, sustainably and with public confidence. Supporting Local Digital Champions and Regional Telecommunications Expertise Glasgow City Region believes there is also a strong role for Ofcom and the UK Government in supporting the development of local digital champions and regional telecommunications expertise. As telecommunications infrastructure becomes increasingly complex, local authorities require specialist knowledge to effectively support network deployment, planning processes, asset management and stakeholder engagement. The Glasgow Telecoms Unit has demonstrated the value of a dedicated regional telecommunications function, providing a coordinated approach to infrastructure planning, connectivity mapping, engagement with operators and the identification of deployment opportunities across multiple local authority areas. Similar regional models could help accelerate infrastructure deployment, improve collaboration between the public and private

Question	Your response
	sectors and ensure that local authorities are better equipped to support national connectivity objectives. Ofcom and the UK Government should therefore consider supporting the establishment of regional telecommunications units, centres of excellence or digital champion programmes across the UK. Such initiatives would help build local capability, provide a consistent point of engagement for operators and planning authorities, promote the sharing of best practice and facilitate the efficient delivery of future mobile and digital infrastructure investment. As demand for mobile capacity continues to grow across urban centres, successful delivery will depend upon network densification, small-cell deployment, rooftop infrastructure and shared or neutral host models that maximise coverage and capacity whilst minimising unnecessary infrastructure duplication. Local authorities are well placed to support both the collection of connectivity data and the facilitation of telecommunications infrastructure and should be recognised as key partners in delivering connectivity that people can count on.
Section 5: Connectivity in indoor, shared public places • What do you think are the biggest barriers to achieving better mobile performance indoors and why? • What do you think should be Ofcom's main priorities for our future work in this area? • What information would you find useful for Ofcom to provide further insights on in relation to connectivity indoors and why?	Confidential? – N Mobile connectivity within new buildings is becoming increasingly important as modern construction methods and energy-efficient materials can adversely affect mobile signal penetration. Glasgow City Region believes there is an opportunity for Ofcom to work with government, developers, local authorities and industry to promote a "connectivity by design" approach for new developments. Ofcom could provide guidance on: • Designing buildings to support indoor mobile coverage from the outset. • The use of mobile-friendly construction materials where appropriate.

Question	Your response
	• Provision of telecommunications infrastructure, ducting, power and access routes during construction. • Best practice for incorporating neutral host solutions and indoor mobile infrastructure within developments. • Connectivity standards for residential, commercial and public-sector buildings. • Engagement between developers, local authorities and mobile network operators during the planning and design stages. Improving indoor connectivity at the development stage is generally more cost-effective than retrofitting solutions after construction. Clear national guidance would help ensure new buildings are designed to support reliable mobile connectivity, reduce future deployment barriers and improve the experience of residents, businesses and visitors.
Section 6: Connectivity on trains • What do you think are the biggest barriers, technical and commercial, to achieving better mobile performance on trains? Which are most significant and why? • Do you agree with our proposal to work with government to support improvements in train connectivity? • What information would you find useful for Ofcom to provide further insights on in relation to connectivity on trains and why?	Confidential? – N Reliable mobile connectivity on trains is increasingly important for passengers, supporting remote working, access to public services, journey information, entertainment and general communications. However, a number of technical and commercial barriers continue to affect the quality of mobile services experienced by rail passengers. The most significant technical barriers include limited network coverage along rail corridors, signal attenuation caused by train carriage construction, and the challenges associated with maintaining a continuous connection at high speeds. Modern rolling stock often incorporates materials and coatings that can significantly reduce signal penetration, creating an additional barrier even in areas where external coverage is available. Capacity constraints can also affect performance in busy commuter corridors and around major stations where a large number of passengers are attempting to access

Question	Your response
	mobile services simultaneously. In urban areas, congestion within the mobile network can be as significant a factor as coverage availability. From a commercial perspective, delivering infrastructure along railway routes can be costly, particularly in rural areas where there may be limited commercial return on investment. The complexity of securing access to railway assets, coordinating multiple stakeholders and deploying supporting power and backhaul infrastructure can also delay investment and increase deployment costs. Glasgow City Region strongly supports closer collaboration between Ofcom, the UK Government, devolved administrations, transport authorities, rail operators and the mobile industry to improve mobile connectivity on trains. Improving connectivity on rail services will require a co-ordinated approach that recognises the interdependencies between telecommunications infrastructure, railway infrastructure and public policy. Government support can help address barriers relating to access agreements, asset sharing, investment incentives and long-term strategic planning. Particular consideration should be given to: • Improving coverage along key railway corridors. • Facilitating access to railway assets for mobile infrastructure deployment. • Supporting shared infrastructure and neutral-host solutions where appropriate. • Encouraging the integration of mobile connectivity requirements into future rail investment programmes and rolling stock procurement. • Promoting collaboration between transport providers and mobile network operators to improve passenger experience. Glasgow City Region would welcome additional information and analysis from Ofcom on: • Mobile performance data for specific rail routes and corridors.

Question	Your response
	• Comparative performance between operators on rail services. • Coverage and capacity challenges affecting key transport corridors. • Best practice examples from the UK and internationally for improving train connectivity. • The effectiveness of on-train connectivity technologies, including repeaters, Distributed Antenna Systems (DAS) and neutral-host solutions. • The impact of carriage design and construction materials on mobile performance. • Progress made by operators and infrastructure providers in improving rail connectivity over time. More granular and transparent information would help transport authorities, local authorities, operators and infrastructure providers better understand where connectivity issues exist and identify the most effective interventions to improve passenger experience.
Section 7: Connectivity in rural areas • What do you think are the biggest barriers to achieving better mobile performance in rural locations and why? • What do you think should be Ofcom's main priorities for our future work in rural locations and what outcomes should we aim to achieve? • What solutions (technical, commercial, policy or delivery) could improve rural mobile performance? • What information would you find useful for Ofcom to pro-	While Glasgow City Region contains Scotland's largest urban centre, it also includes extensive rural and semi-rural communities across the wider city region. Ensuring these communities have access to reliable mobile connectivity is essential for economic growth, public service delivery, tourism, transport, digital inclusion and community resilience. The principal barriers to improving rural mobile performance are commercial viability, geography, power and backhaul availability, and the complexity of infrastructure deployment. Rural areas typically have lower population densities and generate lower network revenues than urban locations, reducing the commercial incentive for investment. At the same time, deployment costs are often significantly higher due to challenging terrain, longer distances to power and fibre networks, and difficulties accessing suitable sites.

Question	Your response
vide further insights on in relation to rural connectivity and why?	Planning and land ownership issues can also delay deployment, particularly where infrastructure is proposed within sensitive landscapes, protected areas or locations with complex ownership arrangements. In some locations, obtaining suitable backhaul connectivity remains a significant challenge, limiting the effectiveness of new mobile infrastructure even where coverage sites are available. The most significant barrier remains the economic case for investment. Without intervention, the commercial returns available in many rural areas may be insufficient to justify the level of infrastructure required to deliver high-quality mobile connectivity. Glasgow City Region believes Ofcom's priorities should focus on improving the real-world mobile experience in rural communities rather than solely increasing geographic coverage statistics. Key priorities should include: • Improving the reliability and consistency of mobile services across rural areas. • Identifying and addressing persistent partial and total not-spots. • Supporting investment in mobile infrastructure along rural transport corridors. • Enhancing network resilience during severe weather events and power outages. • Promoting infrastructure sharing and collaboration to improve deployment economics. • Developing more accurate measurement of actual user experience in rural areas. The desired outcome should be that rural residents, businesses and visitors can access dependable mobile services that support voice, data and emergency communications, regardless of their location within the region. A combination of technical, commercial and policy interventions will be required to improve rural connectivity. Potential measures include:

Question	Your response
	• Increased infrastructure sharing between operators. • Greater use of neutral-host and shared rural network models. • Continued investment in fibre and alternative backhaul solutions to support mobile sites. • Simplified deployment processes for rural telecommunications infrastructure. • Greater use of publicly owned land and assets to support mobile infrastructure deployment. • Financial incentives and targeted funding programmes where the commercial case is weak. • Exploration of emerging technologies, including satellite backhaul and innovative wireless solutions, where traditional deployment approaches are challenging. There is also a role for stronger collaboration between local authorities, government agencies, infrastructure providers and mobile network operators to identify deployment opportunities and remove barriers to delivery. Glasgow City Region would additionally encourage Ofcom and the UK Government to support the development of regional telecommunications expertise and local digital champions.. Expanding similar regional models across the UK could accelerate deployment, strengthen local capability and improve collaboration between industry and the public sector. Glasgow City Region would welcome greater transparency and more detailed information from Ofcom on: • Actual user experience and performance metrics in rural locations. • Persistent coverage and capacity issues affecting rural communities. • Network performance along rural transport routes. • Progress against Shared Rural Network and other rural investment programmes. • Comparative operator performance in rural areas.

Question	Your response
	• Mobile network resilience during adverse weather conditions and emergency situations. • Best practice examples of successful rural connectivity interventions from across the UK. • Opportunities for infrastructure sharing, neutral-host deployment and innovative delivery models. More granular and locally relevant data would help local authorities, communities and operators better understand connectivity challenges, prioritise interventions and support evidence-based investment decisions.

Please tell us how you came across this discussion paper.

- ☒ Email from Ofcom
☐ Saw it on social media
☐ Found it on Ofcom's website
☐ Found it on another website
☐ Heard about it on TV or radio
☐ Read about it in a newspaper or magazine
☐ Heard about it at an event
☐ Somebody told me or shared it with me
☐ Other (please specify)

Please complete this form in full and return to mobileconnectivity@ofcom.org.uk.