Topic: Digital infrastructure

Engagement version August 2024

Requirements addressed in this section

Table 1 Information required by the Town and Country Planning (Scotland) Act 1997, as amended, regarding the issue addressed in this section.

Section	Requirement
Section 15(5)(d)	the infrastructure of the district (including communications, transport and drainage systems, systems for the supply of water and energy, and health care and education facilities).
Section 15(5)(e)	how that infrastructure is used.

Links to evidence

- Infrastructure Plan for Scotland 2021-22 to 2025-26 https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2021/02/national-mission-local-impact-infrastructure-investment-plan-scotland-2021-22-2025-26/documents/national-mission-local-impact-infrastructure-investment-plan-scotland-2021-22-2025-26/national-mission-local-impact-infrastructure-investment-plan-scotland-2021-22-2025-26/govscot%3Adocument/national-mission-local-impact-infrastructure-investment-plan-scotland-2021-22-2025-26.pdf

- A changing nation: how Scotland will thrive in a digital world https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2021/03/a-changing-nation-how-scotland-will-thrive-in-a-digital-world/documents/a-changing-nation-pdf-version/a-changing-nation-pdf-version/govscot%3Adocument/DigiStrategy.FINAL.APR21.pdf

- National Park (Scotland) Act 2000 https://www.legislation.gov.uk/asp/2000/10/contents

- National Planning Framework 4 https://www.gov.scot/publications/national-planning-framework-4/documents/

- Digital telecommunications: planning guidance

https://www.gov.scot/publications/a-changing-nation-how-scotland-will-thrive-in-a-digital-world/

- Cairngorms National Park Partnership Plan 2022-27
https://cairngorms.co.uk/wp-content/uploads/2022/09/Cairngorms-National-Park-Partnership-Plan-full-version-FINAL.pdf

- Connected Growth: Manual for Places – Digital Infrastructure
https://www.gov.uk/government/publications/connected-growth

- The Universal Service Obligation (US) for Broadband
https://commonslibrary.parliament.uk/research-briefings/cbp-8146/

- Project Gigabit progress update September 2023
https://www.gov.uk/government/publications/project-gigabit-progress-update-september-2023/project-gigabit-progress-update-september-2023

- Digital Scotland
https://www.scotlandsuperfast.com/

- Shared Rural Network
https://srn.org.uk/

- Rural mobile coverage in the UK: Not-spots and partial not-spots
https://commonslibrary.parliament.uk/research-briefings/sn07069/

- Digital progress in local government
https://www.audit-scotland.gov.uk/publications/digital-progress-in-local-government

- Digital Perth and Kinross
https://www.pkc.gov.uk/media/51218/Digital-Perth-and-Kinross-2023-2027/pdf/2022196_-_Digital_Strategy_20_Jan.pdf?m=638219019807730000

- Perth and Kinross: Economic Wellbeing Plan 2020 – 2028
https://www.pkc.gov.uk/media/48604/Economic-Wellbeing-Plan/pdf/Economic_Wellbeing_Plan_Interactive.pdf?m=637655890904130000

- Angus Council Digital Strategy

https://www.angus.gov.uk/council_and_democracy/council_information/plans_policies_and_strategies/digital_strategy

- Aberdeenshire's Digital Strategy 2020-2025
https://www.aberdeenshire.gov.uk/council-and-democracy/digital-strategy/

- The Moray Council: ICT and Digital Strategy 2018-2023
http://www.moray.gov.uk/minutes/data/PR20180807/10.a.%20Appendix%201%20-%20ICT%20and%20Digital%20Strategy%20(2018-23).pdf

- The Highland Council: Digital Strategy
https://www.highland.gov.uk/info/695/council_information_performance_and_statistics/1041/digital_strategy/6
- Advie and Cromdale Community action Plan
https://cairngorms.co.uk/wp-content/uploads/2020/12/2013CromdaleAdvieActionPlan.pdf

- Aviemore Community Action Plan Review 2017
https://cairngorms.co.uk/wp-content/uploads/2020/12/2017-Aviemore-CAP-Review.pdf

- Ballater & Crathie Community Action Plan 2023
https://www.ballaterandcrathiecommunitycouncil.com/_files/ugd/ff0841_f2f9573586ef4cf3a753d7a57adcb57c.pdf

- Blair Athol Community Action Plan: Looking to 2030
https://cairngorms.co.uk/wp-content/uploads/2023/08/Blair-Atholl-Struan-Community-Action-Plan-2023-final.pdf

- Boat of Garten Action Plan Review 2018
https://cairngorms.co.uk/wp-content/uploads/2020/12/2018-Boat-of-GartenAction-Plan.pdf

- Braemar Community Action Plan
https://cairngorms.co.uk/wp-content/uploads/2021/01/2017-BraemarAction-Plan.pdf

- Carrbridge Community Action Plan: Looking to 2030

https://cairngorms.co.uk/wp-content/uploads/2022/07/Carrbridge-Community-Action-Plan-2022.pdf

- Dulnain Bridge Community Action Plan Review 2016 https://cairngorms.co.uk/wp-content/uploads/2020/12/2016-Dulnain-Bridge-ActionPlan.pdf

- Dalwhinnie Community Action Plan: Looking to 2030 https://cairngorms.co.uk/wp-content/uploads/2024/03/DalwhinnieCAP2023Report.pdf

- Mount Blair Community Action Plan https://cairngorms.co.uk/wp-content/uploads/2021/01/1013_18-Mountblair-and-Glenshee-Action-Plan.pdf

- Grantown on Spey Community Action Plan https://cairngorms.co.uk/wp-content/uploads/2020/12/160803-GrantownIconicPlan.pdf

- Kincraig Community Action Plan https://cairngorms.co.uk/wp-content/uploads/2015/07/2011-KincraigActionPlan.pdf

- Kingussie Community Action Plan 2018 https://cairngorms.co.uk/wp-content/uploads/2021/01/2018-Kingussie-Action-Plan.pdf

- Laggan Community Action Plan: Looking to 2023 https://cairngorms.co.uk/wp-content/uploads/2023/02/Laggan-Community-Action-Plan-2022.pdf

- Nethy Bridge Community Action Plan: Looking to 2030 https://cairngorms.co.uk/wp-content/uploads/2024/03/Nethy-Bridge-Community-Action-Plan-2023-1.pdf

- Newtonmore Community Action Plan: Looking to 2023 https://cairngorms.co.uk/wp-content/uploads/2022/07/Newtonmore-Community-Action-Plan-2022.pdf

- Strathdon Community Action Plan 2016
  https://cairngorms.co.uk/wp-content/uploads/2015/04/160601StrathdonActionPlan.pdf

- Scotland's Full Fibre Charter
  https://www.gov.scot/publications/scotlands-full-fibre-charter/

- Scottish 4G Infill Programme: Location Map of Programme sites
  https://www.gov.scot/binaries/content/documents/govscot/publications/factsheet/2019/02/scottish-4g-infill-programme-progress-update/documents/map-of-programme-sites/map-of-programme-sites/govscot%3Adocument/S4GI%2B-%2Bsite%2Bmap%2B131023.pdf

- Ofcom Connected Nations Scotland Report 2023
  https://www.ofcom.org.uk/__data/assets/pdf_file/0023/273722/connected-nations-2023-scotland.pdf

- Cellmapper
  https://www.cellmapper.net

Summary of evidence

Digital connectivity is a key element in the continued economic growth within the Cairngorms National Park as well as being vital to the well-being of the local residents. With an increasing number of public and private services moving to online based platforms it is vital to the life and prosperity of rural communities in the National Park. With an increasing number of people accessing services via their mobile phones 4G availability is arguably just as important as superfast broadband connectivity. With the phasing out of 3G services. 4G connectivity is vital for a number of reasons including:

- Improved access to information
- Economic development
- Enhanced communication (with the recent increase in video communication becoming the norm)
- Agricultural development
- Education and skills
- And access to emergency services.

There remain significant gaps in both 4G and superfast broadband availability in the National Park as discussed earlier in this paper. To address this a number of new telecoms masts will have to be installed to improve 4G connectivity.

Alternative technologies such as fixed wireless network and satellite network options are available in the Cairngorms National Park and can be utilised if it is not possible to attain fixed broadband. There are constraints associated with fixed wireless network including the line-of-sight requirements, weather effects and limited range - factors which present particular challenges in the geography and climate of the National Park. Satellite network connections can also be considered as the last resort if all others fail, however present a financial barrier to accessibility due to their higher installation (set-up) and operating costs.

Policy context

Infrastructure Investment Plan 2021 – 2022 to 2025 – 2026

The Infrastructure Investment Plan outlines the strategic approach to delivering Scotland's National Infrastructure Mission to increase economic growth by increasing annual investment in Scotland's infrastructure. In delivering this vision, the Infrastructure Investment Plan focuses on three core strategic themes for guiding investment decisions in Scotland namely:

- Enabling the transition to net zero emissions and environmental sustainability
- Driving inclusive economic growth
- Building resilient and sustainable places.

The second theme addressing Digital Infrastructure; Driving inclusive growth aims to:

- Create a world-class digital system
- Strengthen creativity
- Boost competitiveness
- Support long-term inclusive and sustainable growth.

A changing nation: how will Scotland thrive in a digital world

This strategy, published in March 2021, sets out Scotland's approach to ensuring services are designed and delivered to meet the needs of the user, to deliver and aid economic recovery, to meet climate change targets and to ensure that people in Scotland have the skills, connectivity and devices required in today's digital climate.

The document aims to embrace three key opportunities: designing and implementing technology in a secure, efficient and user centred way, realising the potential of data to improve services, increase efficiency and deliver better outcomes, and transforming our culture and the way we work through digital thinking, with its emphasis on openness, networking and agility. It supports the vision (2017) that 'Scotland is recognised throughout the world as a vibrant, inclusive, greener, open and outward-looking digital nation[1]'

The strategy aims to ensure that geography, background or ability is not a barrier to getting online and benefiting from digital technology, and we capitalise on the potential of digital technology to sustain and invigorate rural and island communities. This includes ensuring that every part of Scotland and every community within it can have access to good quality connectivity now and in the future.

The £25m Scottish 4G infill programme aims to address mobile 'not spots' (areas where no mobile coverage is available) in remote communities across Scotland, from the Scottish Borders to Shetland and Orkney.

Despite telecoms being reserved to the UK Parliament, Scottish Government's £600 million investment through the Reaching 100% (R100) programme aims to deliver future-proofed and resilient broadband infrastructure in some of the most rural areas of Scotland, which include some areas within the Cairngorms National Park. The strategy highlights the need and benefits in rural investment in digital infrastructure to Scotland's rural communities.

National Park (Scotland) Act 2000

The National Park has four distinct aims as set out in The National Parks (Scotland) Act 2000). The fourth aim is 'to promote sustainable economic and social development of the area's communities'. The aims are all to be pursued collectively. However, if there is conflict between the first aim and any of the others, greater weight is given to the first aim (as set out in Section 9(6) of the 2000 Act).

National Planning Framework 4

The National Planning Framework 4 sets out the national spatial strategy for Scotland. Its focus on the three main policy themes of sustainable, liveable and productive places aligns with Scotland's aim of delivering on the United Nations Sustainable Goals.

[1] Realising Scotland's full potential in a digital world: a digital strategy for Scotland (2017).

National Planning Framework 4, in relation to infrastructure and services aims to deliver an infrastructure first approach to land use planning.

Policy 24 covers Digital infrastructure. Policy 24 sets out the criteria upon which development proposals will be supported, this includes development which:

- Incorporates appropriate future-proofed digital infrastructure.
- Delivers new digital services or provide technological improvements, particularly in areas with no or low connectivity capacity.
- Includes proposals which are clearly aligned to the delivery of local or national programmes for the roll-out of digital infrastructure.
- Delivers new connectivity where there are benefits for communities and the local economy.

Policy 24 further states that development will only be supported where:

- The visual and amenity impacts have been minimised through careful siting, design, height, materials and landscaping, taking into account cumulative impacts and relevant technical constraints.
- It has been demonstrated that before erecting a new ground-based mast the possibility of erecting antennas on an existing building, mast or other structure, replacing an existing mast and / or site sharing has been explored.
- There is no physical obstruction to aerodrome operations, technical sites or existing transmitter / receiver facilities.

National Planning Framework 4 has designated the 'Digital Fibre Network' as a national development to support the continued roll-out of world class broadband across Scotland. National Planning Framework 4's spatial strategy refers to this national development as a: 'fundamentally important utility, required to support development, community wellbeing, equal access to goods and services, and emissions reduction from reduced demand for travel'.

The Local Development Plan needs to support the delivery of digital infrastructure in the National Park. This should include supporting improvements in mobile connectivity in areas there they are gaps in connectivity. The Local Development Plan should therefore support new appropriate, universal future proofed digital infrastructure where it will benefit the local community and economy.

Scottish government planning guidance: digital telecommunications

The document is not planning policy but may be considered as a material consideration in planning applications and appeal decisions, so needs to be considered in relation to

the development of the next Local Development Plan. In relation to Local Development Plans the guidance states that plan need to take into account the overall policy approach of National Planning Framework 4, Policy 24.

The guidance states that – planning authorities (including National Park authorities) when preparing their Local Development Plans should ensure connectivity ambitions are recognised in line with the National Planning Framework 4's overall policy approach for digital communications infrastructure, set out in Local development planning guidance. Local authorities should take account of existing and future provision of digital infrastructure in developing their spatial strategy. Preparation of the Local Development Plan is a collaborative activity, and the communications industry is an important stakeholder in this. The Evidence Report stage offers an opportunity for early engagement particularly with relevant local authority departments, operators and providers in relation to programmed investment in digital within their area.

The guidance specifically addresses rural and remote areas which is applicable to the National Park.

Cairngorms National Park Partnership Plan 2022

Good connectivity is key to delivering the outcomes in the Partnership Plan, and through its strategic diagram, it identifies priority areas for digital connectivity (Figure 1).

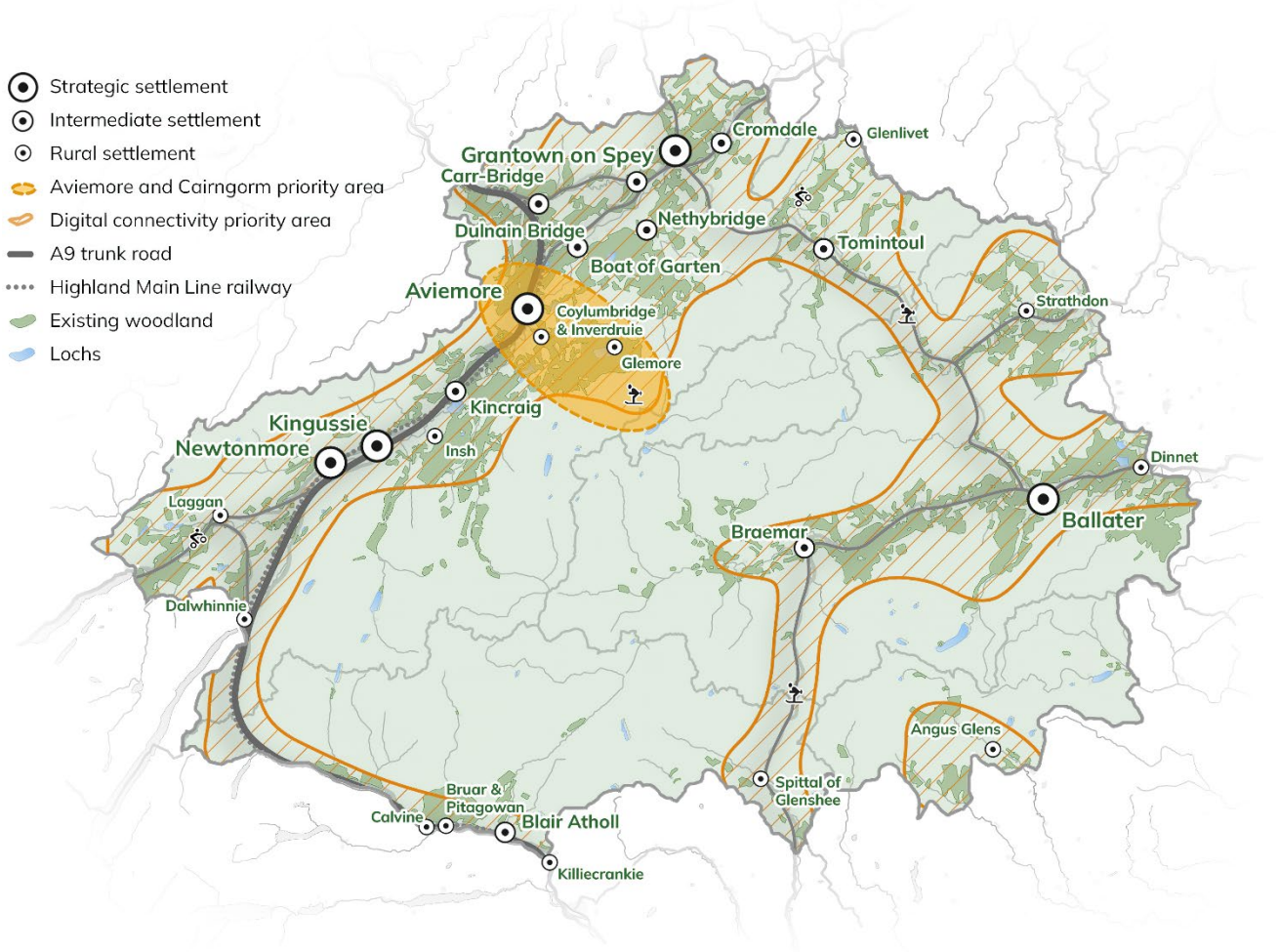

Figure 1 Strategic diagram from the National Park Partnership Plan 2022. Contains Ordnance Survey data © Crown copyright and database right 2024.

While the Partnership Plan must be considered as a whole, the following policies are of particular relevance to this topic:

Policy B5 addresses the need to support under-represented groups to visit, work and live in the National Park by addressing any barriers to participation which may include a lack of connectivity that hinders access to essential services online. Part I of Policy 5 sets out the need to improve digital accessibility and deliver inclusive communications which include video and streamed content, publications and improvements to the National Park Authority website.

Policy C1 addresses the need to enable sustainable patterns of settlement development, infrastructure and communications which includes the planning and supporting improvements to the information technology network. It also includes the planning and

supporting improvements to the mobile communications network that improve access to next generation technology and minimise the need for visually intrusive infrastructure.

Ofcom Connected Nations Scotland Report 2023

Ofcom's objective is to make communications work for everyone, including to promote reliable, widely available, and high-quality networks. In this annual Connected Nations Scotland report, Ofcom reports and measure progress in the availability of broadband and mobile services across Scotland and the UK, including the newest full fibre, fixed wireless access and 5G networks now being rolled out.

The key highlights from the report are as follows:

- Full fibre is available to approximately 1.4 million homes in Scotland (53%).
- Gigabit-capable broadband is available at approximately 1.9 million homes (72%).
- Full-fibre and gigabit-capable connectivity in rural Scotland has also advanced by eight percentage points, to 32% and 34% of residential premises, respectively.
- Superfast broadband (at least 30Mbit/s) is available to approximately 2.6m homes in Scotland (95%).
- 5G coverage outside of premises from at least one Mobile Network Operator has reached 88% at High Confidence level and 80% at Very High Confidence level. Individual Mobile Network Operator coverage in Scotland ranges from 39-70% at our High Confidence level, with a range of 25-60% at our Very High Confidence level.
- 84% of Scotland's landmass has 4G coverage from at least one Mobile Network Operator – up from 83% in 2022 – and 48% have coverage from all four operators (up from 46% in 2022).
- Approximately 18,000 (0.6%) premises in Scotland are unable to access decent broadband (defined as providing 10 Mbit/s download and 1 Mbit/s upload speeds) form a fixed or Fixed Wireless Access service. This is down from approximately 21,000 in 2022.

Connected Growth: Manual for Places – Digital Infrastructure

Published by the Department for Digital, Culture, Media and Sport in 2019, the Connected Growth manual addresses the need for the UK to boost its digital connectivity. The document sets out the ambitious aim for the UK to be a world leader in 5G with most of the UK population having access to 5G by 2027. Interventions include encouraging planning authorities to adopt de minimis provisions with regard to small-cell mobile infrastructure and working with Mobile Network Operators to proactively identify possible sites for infrastructure deployment / improvement. National Progress is monitored through the Ofcom Connected Nations Reports.

The broadband Universal Service Obligation

The Universal Service Obligation is a research briefing, published in 2022, presented to the House of Commons as a UK-wide measure intended as a 'safety net' to deliver broadband to those premises that do not have access to a decent and affordable connection.

The UK Government have defined a decent connection as one that can deliver 10 megabits per second (Mbps) download speed and 1 Mbps upload speed (along with other defined quality parameters).

Ofcom has defined an affordable connection as one that costs less than £45 per month (£48.90 cited in the House of Commons Parliament research briefing[2]). The Universal Service Obligation provides a legal right to request a decent broadband connection, up to a cost threshold of £3,400 per premises.

To be eligible for funding the applying property cannot be due to be connected by a publicly funded roll-out scheme within the succeeding 12 months.

The briefing paper highlights the issues surrounding the excess costs which have to be met by the applicant. Ofcom has stated there remains a "small but significant" number of premises for which the costs of building a connection are very high, mostly in remote rural areas.

Within the National Park there are still a significant number of postcode areas where 75-100% of the premises are below the universal service obligation (Figure 2) meaning they cannot receive decent broadband connection. It should be noted that within many of the worst affected areas (Figure 2) are sparsely populated with large areas of undeveloped natural landscape.

[2] House of Commons Library. The Universal Service Obligation (USO) for Broadband. Available at: https://commonslibrary.parliament.uk/research-briefings/cbp-8146

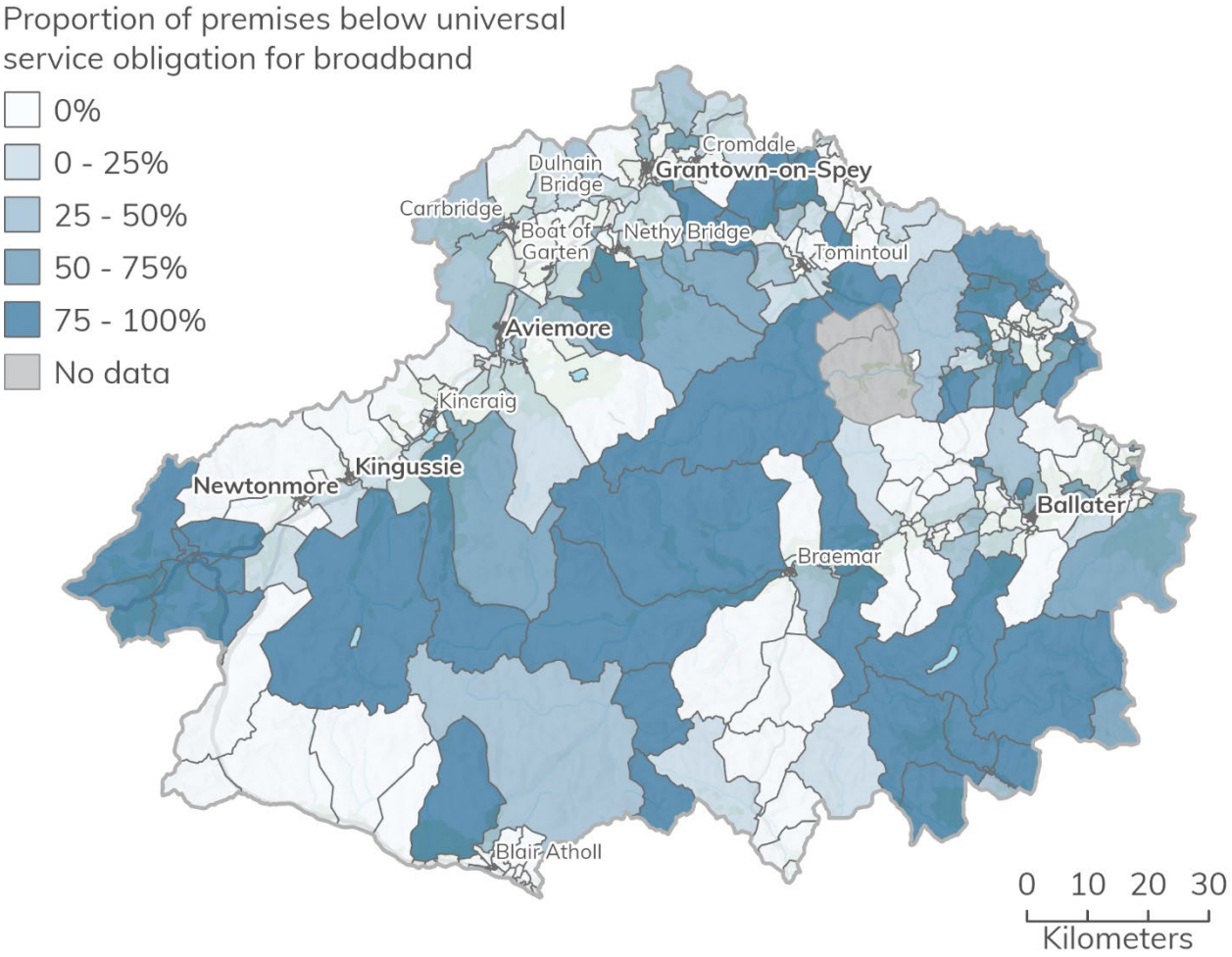

Figure 2 Proportion of premises by postcode area within the National Park which are below the universal service obligation. Reproduced by permission of Ordnance Survey on behalf of His Majesty's Stationery Office. © Crown copyright and database right 2024. All rights reserved. Ordnance Survey Licence number AC0000821810, Cairngorms National Park Authority. Contains data © Ofcom 2024.

The broadband Universal Obligation Service is intended to fill the gaps in left by other programmes, past and present, which include, the Better Broadband Scheme, Superfast Broadband Programme and the Gigabit broadband voucher schemes.

The Digital Economy Act 2017 amended section 65 of the Communications Act 2003 and gave the Secretary of State powers to introduce a broadband Universal Obligation Service through secondary legislation. The specifications for the Universal Obligation Service – the Electronic Communications (Broadband) (Universal Service) Order 2018 (SI 2018/445) (The Universal Service Order) then came into force in 2018.

Project Gigabit progress update September 2023

The report sets out the progress since the launch of Project Gigabit in 2021. In Scotland the delivery vehicle is the Reaching 100% programme (also commonly referred to as the R100 programme). The infrastructure will be provided by Openreach and funded by Scottish Government. The Reaching 100% programme was a Scottish Government commitment to provide every home and business in Scotland with superfast broadband of 30 Mbps.

Reaching 100% Programme

The Reaching 100% (R100) programme in Scotland is a key mechanism for delivery of the Digital Scotland Strategy. The Scottish Governments commitment to delivering superfast broadband coverage to every home and business by 2021 was met by three delivery mechanisms, the Reaching 100% programme, Reaching 100% Contracts and the Reaching 100% Scottish Broadband Voucher Scheme. The Reaching 100% contracts are expected to be completed by 2028, delayed due to global supply chain issues outwith the programmes control[3]

Across Scotland the Reaching 100% programme to date (October 2023) has connected over 42,000 properties to faster broadband and distributed over 3,500 vouchers through the Reaching 100% Scottish Broadband Scheme. During 2023/ 24 (Financial year) the project is expected to enable the laying of more than 7 million meters of cable.

Alternative solutions

Subsidised support for broadband in the UK is also available through The Gigabit Broadband Scheme. The Gigabit Broadband Voucher Scheme (GBVS) is a UK-wide subsidy scheme for groups of individuals or businesses based in rural areas with broadband speeds less than 100 Mbit/s. Applicants may be able to combine R100 Scottish Broadband Voucher Scheme (SBVS) vouchers with an additional contribution through the Gigabit Broadband Voucher Scheme.

The Shared Rural Network

The Shared Rural Network is an agreement between the UK Government and mobile industry announced in March 2020 to improve rural mobile coverage by 2025.

The Shared Rural Network programme working with the UK's four mobile network operators (EE, Three, O2 and Vodafone) aim to:

[3] https://www.scotlandsuperfast.com/

- Provide coverage to an additional 280,000 premises and for people in cars on an additional 16,000km of the UK's roads.
- Improve geographic coverage to 79% of Areas of Natural Beauty, up from 51%, and 74% of National Parks from 41%.

This will be delivered through upgrades to existing networks to improve mobile coverage in rural areas. Individually, each operator wis aiming to reach 90% geographic coverage, which will result in 84% of the UK having 4G coverage from all four operators, increasing choice and boosting productivity in rural areas.

Under the programme delivery, in Scotland, coverage from all four operators will rise to a minimum of 74%, up from 44%. Coverage from at least one operator will increase from 81% to 91% by the end of the programme.

UK wide deadlines set by the programme include the combined coverage expected to be delivered to 95% of the UK by 2025, with the Ofcom deadline for delivery of public funded coverage improvements in Total Not Spot Areas to end in early 2027.

Scottish 4G infill programme: progress update

The Scottish Government's Scottish 4G Infill Programme (S4GI) aims to deliver 4G infrastructure and services in 55 mobile 'not spots' in rural and island parts of Scotland. The Scottish 4G Infill Programme is being delivered in partnership with WHP Telecoms, Cellnex UK and the Scottish Futures Trust.

The progress update includes an update on works at Clova with improvements complete meaning 4G services are now available from EE in the area. The Glen Clova area is partially covered by the Cairngorms National Park boundary and extends down into the Angus Local Authority area.

Installing new masts is a lengthy process and which includes agreeing terms with landowners, gaining planning permission and a commitment from at least one mobile network operator (EE, O2, Three, Vodafone) to providing 4G mobile services from that site.

WHP Telecoms Ltd. is currently involved in intensive discussions with potential landlords, planning authorities, communities and mobile network operators to achieve these three consents.

The Scottish 4G infill programme will provide regular progress updates on their website with clear reasons should any masts be unable to progress.

Scotland's Full Fibre Charter

The Full Fibre Charter for Scotland, launched in 2020, consists of a series of pledges that both the Scottish Government and industry have signed up to with the aim to extend full-fibre broadband across Scotland.

Scotland's Full Fibre Charter is a significant commitment by the Scottish Government and commercial providers to extend full fibre broadband access across Scotland. The key points of the charter are as follows:

1. Purpose and Importance: The charter aims to create a future-proofed, national fibre network that supports economic recovery from the impacts of Covid-19 while ensuring inclusive long-term economic development and growth. Good digital connectivity is highlighted as essential to enabling access to the internet, supporting health services, and facilitating remote work and study in a changing digital landscape.
2. Inclusive Growth and Economic Development: The telecoms sector plays a critical role in creating and protecting jobs across Scotland and is especially important in rural settings. Access to high-speed digital connectivity fosters economic development, especially for people with disabilities, caregivers, and rural communities. It broadens access to education, public services, and participation in democracy.
3. Resilience and Green Economy: Future-proofed digital infrastructure is crucial for inclusive growth and a low-carbon economy. High-speed connectivity is needed to support businesses to expand into new markets, innovate, and enhance exports.
4. Delivery: The Scottish Government is investing £600 million in the Reaching 100% (R100) program, with the aim of extending superfast broadband access to every home and business in Scotland. Commercial investment is encouraged by non-domestic rates relief on newly laid and 'lit' fibre for 10 years. The Full Fibre Charter aims to act as a mechanism to encourage commercial providers to collaborate to deliver more and faster broadband.

The Full Fibre Charter aims to create a robust digital infrastructure, enhance economic resilience, and ensure Scotland remains an attractive place for digital investment.

Digital progress in local government

Prepared by Audit Scotland, 2021, the key messages and recommendations are primarily aimed at the operations of local authorities, but to be implemented rely on the local populations also having sufficient bandwidth and connections to engage. The Covid-19 pandemic has highlighted the risk of digital exclusion – not having the skills or resources to access vital public services, maintain learning, and stay connected with others. As the document sets out the priorities for using technology to support democratic functions such as hosting committee meetings and surgeries online, local community digital access is essential to support this objective.

Digital Perth and Kinross 2023 – 2027

Perth and Kinross recognise the importance of connected places as part of their digital ambitions. The strategy aims to deliver connected places through:

- Fibre and superfast broadband delivering improved connectivity to drive growth in digital business.
- Tay Cities Deal delivering a better-connected Perth and Kinross digital infrastructure.
- Reaching 100% Programme improving connectivity / broadband speeds.
- Open Data supporting digital business growth and development.
- Vibrant Perth and Kinross digital marketplace initiative delivering virtual and physical networks, incubators, and meet-ups for exchanging ideas, influencing change and making connection.

The Strategy also aims to support community projects through the Local Digital Inclusion Fund and seeks to deliver external sources of funding to tackle digital exclusion. There is a commitment to:

- Continuing participation in national schemes to deliver reliable fibre broadband and 4G / 5G coverage for everyone in Perth and Kinross.
- Identify people / communities at risk of digital exclusion and provide targeted support.

Perth and Kinross Economic Wellbeing Plan 2020 – 2028

In the Wellbeing Plan, projects under the 'Place' theme, the Digital Connections Programme aim to enhance rural digital connectivity by continuing the Rural Broadband Fund to support groups of rural businesses / residents to improve connectivity in remote rural areas through the:

- Department for Digital.
- Culture, Media and Sport Rural Gigabit Connectivity Programme.

- Openreach Community Fibre Partnerships.
- Local wireless schemes and other appropriate technology utilising Department for Digital, Culture, Media and Sport Rural Gigabit Vouchers and accessing new rounds of UK government funding for gigabit connectivity.

Angus Council Digital Strategy

In order for Angus Council to deliver their digital strategy Angus Council aims to support a better-connected region, which includes parts of the National Park, through the following actions:

- Accelerating cost effective internet access where affordable.
- Extending wireless coverage in community / school locations.
- Expand availability of online services to mobile devices and smartphone.

These actions will be measured by ensuring that:

- All council locations have fit for purpose internet with capacity for future growth.
- There are reduced “not spots” in Angus.
- All applications can enable data entry / retrieval at point of contact.

Aberdeenshire’s Digital Strategy 2020 – 2025

Aberdeenshire’s Digital Strategy is sets out their priorities and commitment to optimising digital technology to improve our business, enable economic growth, support the environment and benefit residents whilst ensuring no one is left behind. Of relevance to the Cairngorms National Park is the aim to ensure residents in Aberdeenshire have fast, reliable internet access at home and / or at a public building.

The Moray Council: ICT and Digital Strategy 2018 – 2023

The ICT (information and communications technology) and Digital Strategy 2018-2023 sets out how ICT Services will support the delivery of Moray Council’s Corporate Plan 2023 which aims to “To make life better for everyone in Moray, where there is a positive future for all, within a vibrant economy, with empowered and connected communities.”. The Strategy is largely focused on improvements to the working practices of the Council which have no implications for the development of the Local Development Plan in the National Park. It is included here as it has been considered in its evidence gathering stage.

The Highland Council: Digital Strategy

The Digital Strategy supports Highland Councils requirements to effectively operate in a challenging environment and continue to deliver high quality services in an ever-changing world. No implications for the development of the Local Development Plan in the National Park have been identified within the strategy. It is included here as it has been considered in its evidence gathering stage.

Community Action Plans

A working group representing the wider community is formed to lead the Community Action Planning process. Members may include the Community Council, Community Company, Church, primary school as well as other significant groups and individuals in that community.

Significant local consultation is undertaken with the purpose of seeking the views of as many members of the community as possible. The exact process is tailored to suit each community, but it typically involves questionnaires, meetings, focus groups and other means of giving people the chance to contribute.

Responses are collated and discussed at open forums where a consensus is reached on agreed priorities for future action. Many communities then form their own work groups drawing on the skills and knowledge within each community to follow up and take action on their agreed and identified priorities.

Advie and Cromdale Community Action Plan

The Cromdale & Advie 'Big Conversation' was attended by 18 members of the Cromdale community who, following extensive 'whole group' discussion and open voting, prioritised the issues into high, medium and low categories. The highest priority, with 13 votes, was the need for faster broadband in the area.

Aviemore Community Action Plan Review 2017

Early in 2017, Aviemore and Vicinity Community Council, together with Aviemore Community Enterprise Company decided that they wished to review the community action plan for the village, which had been previously carried out in 2010. In relation to digital infrastructure the Action Plan raised the need for better broadband generally and aimed toward improving home working.

Aviemore's Community Action Plan is due to be renewed in 2024.

Ballater & Crathie Community Action Plan 2023

Under Focus Area five of the Action Plan, an operation goal of the Plan is to work with the relevant agencies to ensure we have the optimal telephone and broadband connections to ensure:

- The community infrastructure is the best in the country for all digital activities.
- There are alternative analogue solutions to provide resilience in times of hardship or crisis.
- There are available facilities to educate all the community to keep abreast of digital developments.
- There is available cybersecurity education and regular updates.

Under the strategic goal of resilience there were also concerns about the loss of telephones and communications in emergencies, and the inability to check on remote properties.

Blair Athol Community Action Plan: Looking to 2030

A socially connected community the Action Plan includes the priority: Sustainable community spaces, delivering community needs. An action set out by the Plan under this priority includes the need to provide internet connection in the community hall. Under the theme of an economically thriving community, the Plan sets the priority of improving opportunities for local employment / business which include the action of continuing upgrades of digital connectivity for residents and businesses.

Boat of Garten Action Plan Review 2018

The review of the Action Plan did not specifically highlight any priorities related to improvements to digital connectivity, however it did include ethe priority for new small business units to attract new start-ups. For this priority to be delivered successfully it would rely on good digital connectivity.

Braemar Community Action Plan

The Plan includes a table providing a guide to what it is intended to deliver over the short and long term. Item 41, under the theme: housing and economic development; covers mobile signal, broadband and radio reception. The aim is to ensure the local communications infrastructure delivers the best possible service for business and the community. In the Plan the intended outcome is to deliver improvement to digital services in the area.

Carrbridge Community Action Plan: Looking to 2030

Early in 2022, Carrbridge Ahead, together with Car-bridge & Vicinity Community Council, Carrbridge Village Hall and Carrbridge Primary Parent Council, decided that they wished to carry out a review of the Community Action Plan for the village, which had been previously undertaken in 2016. The updated Action Plan sets out the community's vision for the longer term (up to ten years) with more detailed priority activity across the four specified themes. Although no specific priority aimed at improving digital infrastructure was identified, one of the survey responses from local residents did include the desire for superfast broadband for enterprise and employment opportunities.

Dulnain Bridge Community Action Plan Review 2016

Within the Plan review, two of the 17 listed high priorities included digital related topics. These were to improve mobile signal and upgrade the village website for improved communication for residents and visitors (which would in turn rely on decent broadband / internet connects for use).

Dalwhinnie Community Action Plan: Looking to 2030

The Dalwhinnie Community Action sets pout an action (under the economically thriving community theme) for fibre broadband to be installed throughout village, for improved homeworking / business use, this includes the need to investigate options and potential funding routes. When local residents were asked what they would like to see happen in Dalwhinnie they responded that they would like to have faster broadband.

Mount Blair Community Action Plan

The Action Plan has been informed by extensive community engagement. One of the comments listed in the Plan was that the area suffers poor broadband, mobile phone, TV and radios services. One of the main priorities (number one) under the infrastructure and renewable energy theme was the need to improve broadband. This would need to include exploring ways of upgrading the telephone exchanges and cable systems to deliver high speed broadband.

Grantown on Spey Community Action Plan

The current Plan does not include any priorities or actions related to digital infrastructure improvements. This does not mean that there are not connectivity issues within the town. The following section of this report will look at digital connectivity across the Cairngorms National Park including in Grantown on Spey to identify any potential issues / scope for improvement.

Grantown on Spey's Community Action Plan is due to be renewed in 2024.

Kincraig Community Action Plan
The Action Plan highlighted the need for improved broadband within its top priorities for the village with the aim of improving business competitiveness and improving the ability to stream video content in the area. The Plan set out the following actions to improve broadband:

- Explore situation with BT regarding exchange upgrade and effect on broad band speeds.
- Explore financial gain from Windfarm benefit.
- Make contact with Laggan broadband group (Al Fleming) regarding possible benefits of Wi-Fi system for Kincraig.

Obstacles identified in the plan in delivering the action include low demand and the need for external stakeholders' involvement, namely waiting for BT to upgrade the exchange. A further medium priority related to digital infrastructure include the desire to upgrade the community website, its successful completion and use will also be contingent on reliable broadband being available in the village.

Kincraig's Community Action Plan is being renewed in 2024.

Kingussie Community Action Plan 2018
The Action Plan for Kingussie does not list any priorities or actions specifically aimed at improving digital infrastructure in the area. However, the priority to provide support for small business start-ups will be dependent on adequate provision of decent broadband.

Laggan Community Action Plan: Looking to 2023
The Plan lists the community broadband initiative as a recent success in terms of projects delivered by the Action Plan process. As such no direct priorities were identified in the Plan aimed at improving the existing digital services. However, a key issue raised in the infrastructure section was the need for: measures and / or new equipment provisions to increase security of essential services for example mains water, electrical power supply and broadband service.

Nethy Bridge Community Action Plan: Looking to 2030
There were no specific actions put forward by the community with regard to digital connectivity. However, the action to create spaces for co-working / hot desking would require at least decent connections, preferably superfast to make it viable for people to work from.

Newtonmore Community Action Plan: Looking to 2023
The Plan doesn't set out any specific priorities or actions for Newtonmore, however in the participation section one comment on potential improvements for the village included improvements to the quality of Internet / WIFI in the village. Secondary pupils and under 25's also called for better phone coverage in the village.

Strathdon Community Action Plan 2016
Under Theme six, Telecommunication, of the Plan, sufficient broadband is mentioned a s a significant problem in the area and was by far the most commonly mentioned issue as a significant proportion of residents currently have poor or no access.

The mobile phone signal was also reported to be patchy in the area, with some locales receiving zero signal. Landlines were also considered to be of poor quality for some residents and digital radio is not available in parts of this area. The majority of respondents consider that provision of all of these services is unsatisfactory.

Priorities under Theme six include:
- Internet access – low speed broadband in villages, in addition to inadequate service from satellite providers and no access in some areas. Corgarff and Glenbuchat have ongoing problems in attaining improvements.
- Mobile phone and radio signal – no signal or poor in some areas. Need for upgrades from Mobile Network Operators to improve coverage.

Baseline of digital infrastructure matters

Good digital connectivity is increasingly seen as a basic service that is required by residents, businesses, students, visitors and the public sector. It allows; businesses to function more effectively and expand their reach, people to connect with each other as well as access services such as health care and education from remote areas. Connectivity through digital infrastructure in the Cairngorms National Park remains a challenge.

With the potential increase in systems and processes that utilise the 'Internet of Things' (IoT) concept within the Cairngorms National Park the availability of reliable fast broadband will be crucial to their delivery. The demand for bandwidth has been steadily growing as more applications are developed and rolled out with applications currently being developed for and rolled out for: healthcare, utilities, domestic consumer electronics and smart city products and services.

Fixed broadband in the National Park

There are four primary types of fixed line connections used to provide fixed broadband access, namely: asymmetric digital subscriber line (commonly referred to as ADSL), fibre to the cabinet (FTTC), hybrid fibre coaxial (HFC) cable and full fibre or fibre to the premises (FTTC) connections.

Asymmetric digital subscriber line

Asymmetric digital subscriber line is the most commonly available type of broadband, delivered through the copper wires of your phone line. Two different types of asymmetric digital subscriber line (ADSL) technology used in the UK are ADSL1 and ADSL2+. ADSL1 is capable of a maximum speed of about 8 Mbit/s, and ADSL2+ a maximum speed of about 24 Mbit/s.

However, the broadband speeds via both types of asymmetric digital subscriber line will depend on how far you live from your telephone exchange - the further away you are, the lower the speeds and the actual speeds you receive will typically be much lower than the maximum speeds shown above.

There are currently 28 telephone exchanges that cover the Cairngorms National Park, not all of which are located within the National Park boundary. Combined, they service around 15,065 telephone connections (not all within the National Park area) of which 13,682 are classed as residential and 1,176 as non-residential. All 28 exchanges are enabled to provide asymmetric digital subscriber line broadband, with all but two

capable of providing connection speeds of up to 8 Mbit/s. (asymmetric digital subscriber line connection is a broadband connection provided over home telephone lines.) The two exchanges that are not equipped for these speeds are Clova and Advie, which only provide speeds of up to 512Kbit/s. Superfast fibre and cable broadband offers significantly faster speeds than Asymmetric digital subscriber line services.

Cable
Cable networks use fibre optic and coaxial cables to deliver superfast broadband services - as well as television and phone services - direct to homes. There is fibre to a street cabinet and coaxial cable from the cabinet to the premises.

Unlike with Asymmetric digital subscriber line, speeds are not lost with distance. Cable technology can deliver very fast broadband speeds and the fastest cable broadband packages offer speeds of 'up to' 152 Mbit/s.

Fibre (fibre-to-the-cabinet' and 'fibre-to-the-premises)
Fibre broadband is delivered via clusters of fibre optic cables (each one thinner than a human hair) and speeds are faster than asymmetric digital subscriber line. There are two types of superfast fibre broadband - 'fibre-to-the-cabinet' (commonly known as FTTC) and 'fibre-to-the-premises' (commonly known as FTTP).

With fibre-to-the-cabinet, fibre optic cables run from the telephone exchange to street cabinets before using standard copper telephone wires to connect to homes. Most fibre connections in the UK are fibre-to-the-cabinet services and are typically sold as offering speeds of 'up to' 38 Mbit/s or 76 Mbit/s.

Fibre-to-the-premises broadband - which, as the name suggests, involves fibre optic cables running directly to your home - is faster than fibre-to-the-cabinet but currently only constitutes a minority of broadband connections. Fibre-to-the-premises broadband services can offer speeds of up to 1 Gbit/s.

Ofcom categorised fixed broadband connections based on the download speed they can deliver. The following definitions are provided by Ofcom: Decent, Superfast, Ultrafast and Gigabit capable connections. Ofcom regularly collect and publish data on available connections and current connection capabilities. The methodology detailing the approach to collecting and analysing coverage data undertaken by Ofcom can be accessed here:

- https://www.ofcom.org.uk/__data/assets/pdf_file/0031/249286/connected-nations-methodology.pdf

This data has been used to examine the current broadband capability of the postcode areas in the National Park (Figure 3, Figure 4, Figure 5, Figure 6, Figure 7 and Figure 8)

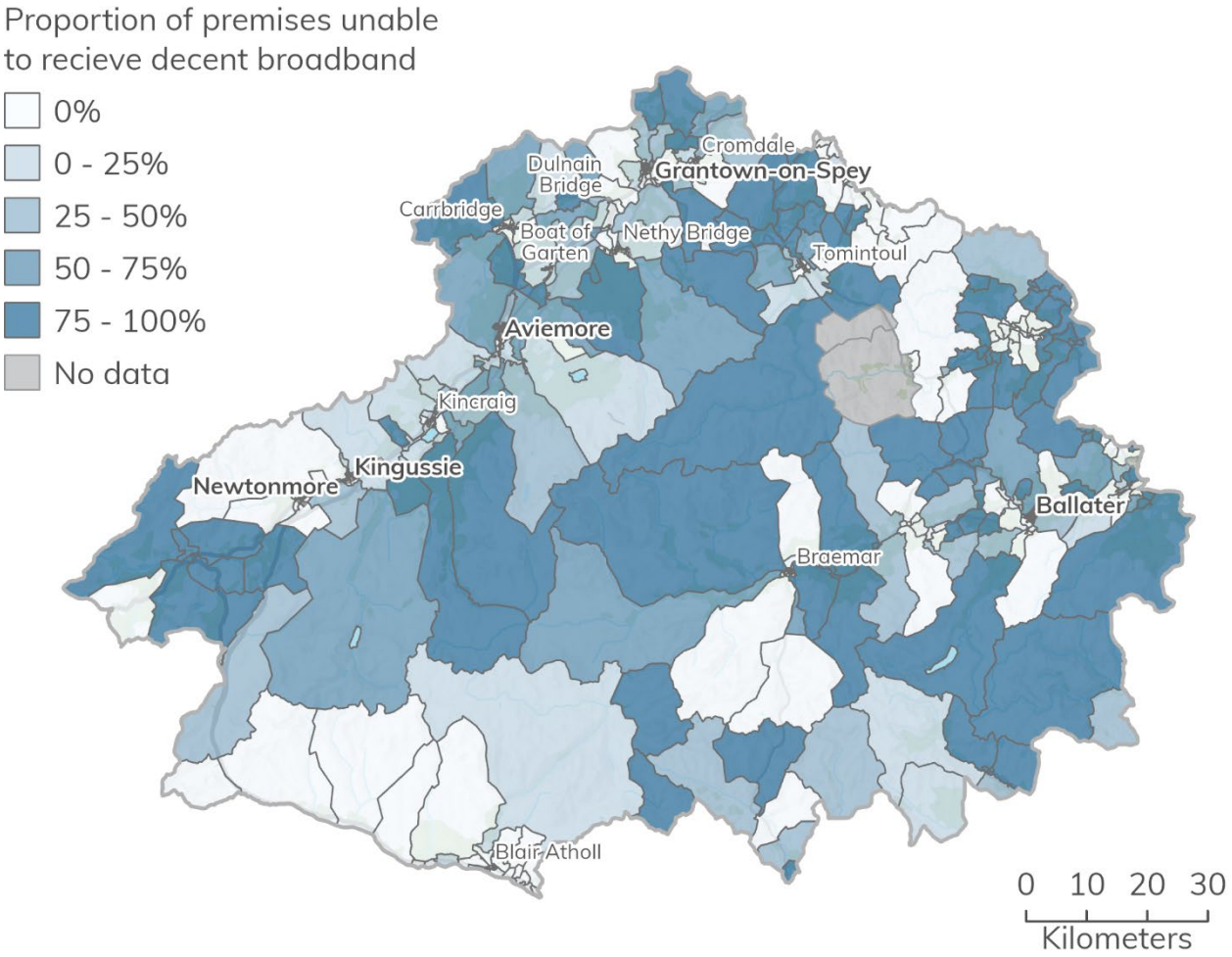

Figure 3 Proportion of premises in the National Park by postcode area unable to receive decent broadband (Ofcom, 2024). Reproduced by permission of Ordnance Survey on behalf of His Majesty's Stationery Office. © Crown copyright and database right 2024. All rights reserved. Ordnance Survey Licence number AC0000821810, Cairngorms National Park Authority. Contains data © Ofcom 2024.

'Decent' connections can provide at least 10 Mbit/s download and 1 Mbit/s upload speeds. It can be delivered by asymmetric digital subscriber line, fibre-to-the-cabinet, hybrid fibre coaxial cable or full fibre. Decent broadband provides sufficient speeds for making a high-definition video call. Over minimum decent broadband, downloading a one-hour High-Definition television episode (1 GB) would take almost 15 minutes. Figure 3 shows that as of 2024 there are still significant areas of the National Park unable to receive a decent broadband service. This includes some postcode areas in the areas of and surrounding the smaller settlements. Larger more rural postcode areas where

availability is higher may not reflect a uniform availability due to the small number of properties surveyed by Ofcom for a given area.

Figure 4 shows a map of the postcode areas showing proportionally how many premises currently (Ofcom, 2024) receive a download speed of between 10-30 Mbit/s, which allows a decent connection. This map shows the majority of the areas with a high proportion of premises able to attain decent broadband connections are mainly in or adjacent to settlements (with the exception of Braemar). It is worth noting there are several areas adjacent and just outwith settlements (in the adjoining postcodes) where connectivity is significantly worse.

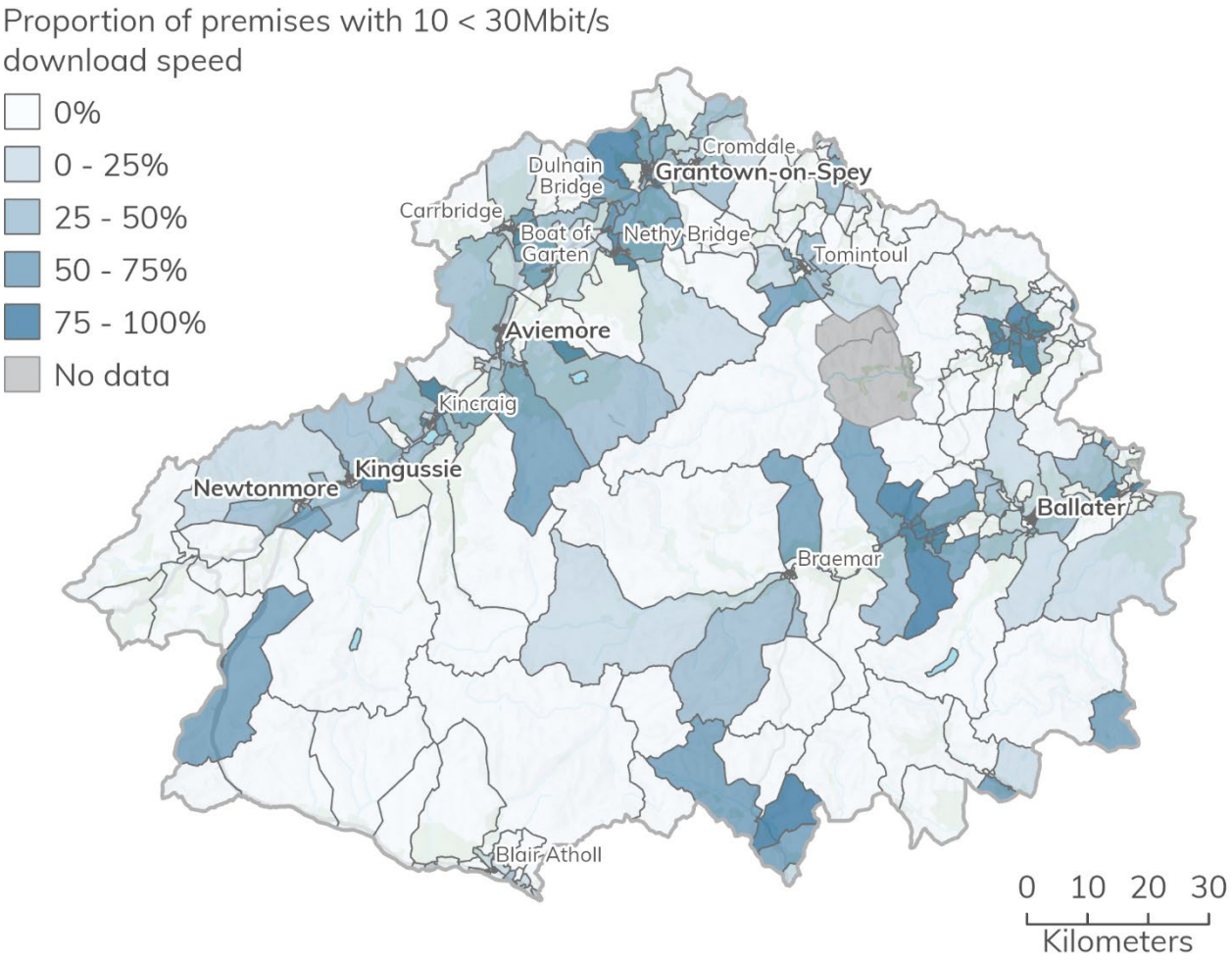

Figure 4 Proportion of properties in the National Park, by postcode area, with 10 – 30 Mbit/s of download (Ofcom, 2023). Reproduced by permission of Ordnance Survey on behalf of His Majesty's Stationery Office. © Crown copyright and database right 2024. All rights reserved. Ordnance Survey Licence number AC0000821810, Cairngorms National Park Authority. Contains data © Ofcom 2024.

'Superfast' connections provide download speeds of at least 30 Mbit/s and can be delivered by fibre-to-the-cabinet, hybrid fibre coaxial, cable or full fibre. Superfast

broadband provides sufficient speed for one-person streaming 4K ultra high-definition video. Downloading a one-hour high-definition television episode would take under four and a half minutes and several devices can work simultaneously.

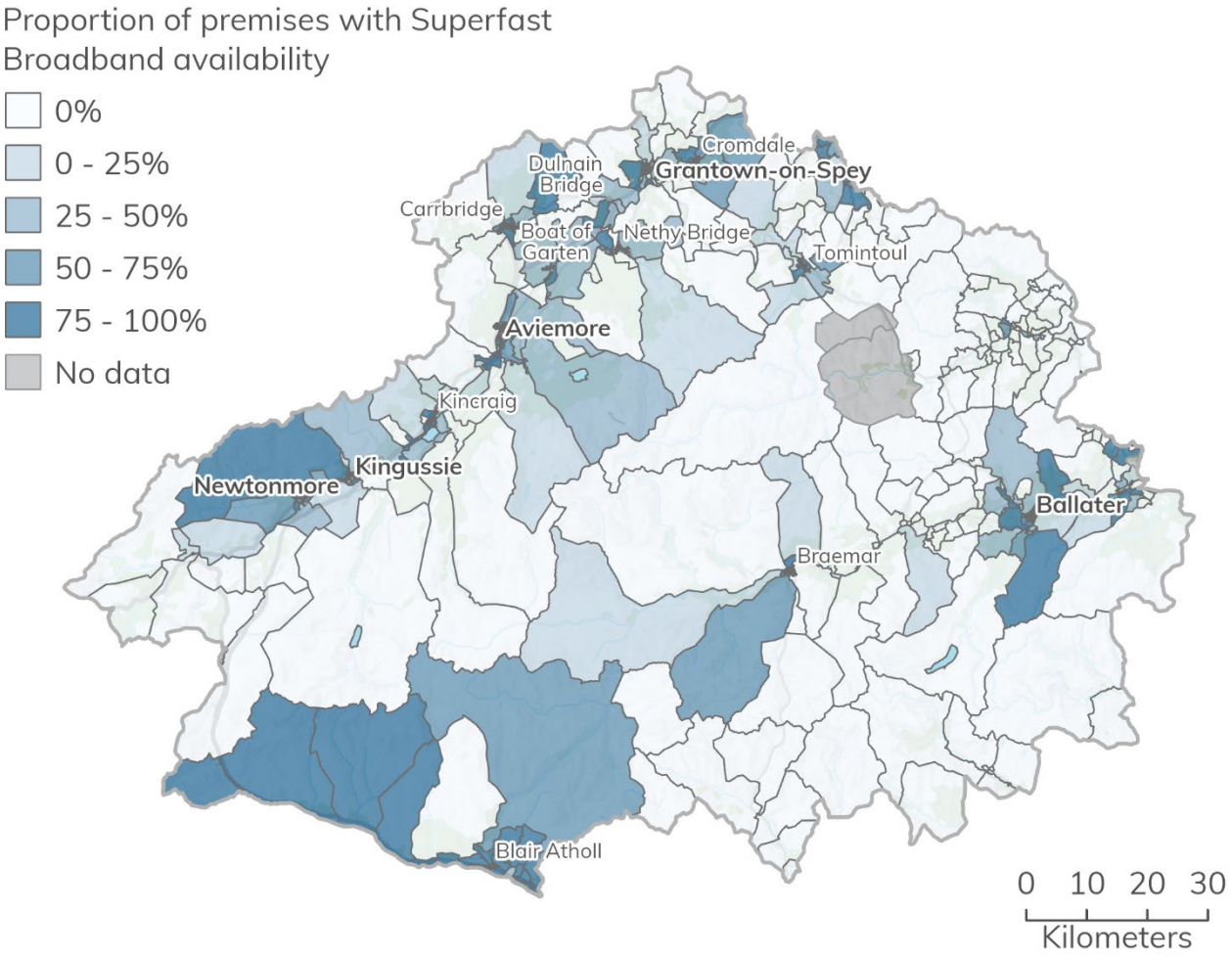

Figure 5 Proportion of premises in the National Park, by Postcode area that have Superfast broadband availability (Ofcom, 2023). Reproduced by permission of Ordnance Survey on behalf of His Majesty's Stationery Office. © Crown copyright and database right 2024. All rights reserved. Ordnance Survey Licence number AC0000821810, Cairngorms National Park Authority. Contains data © Ofcom 2024.

Figure 5 shows the proportion of the premises in the post code areas within the Cairngorms National Park that have Superfast broadband availability. The majority of postcode areas with the highest proportion of premises able to attain superfast broadband are in or adjacent to the main settlements with the addition of the areas adjacent to the southern stretch of the A9 in the National Park. It should be noted that this will include areas that may also have Ultrafast and Gigabit- capable connections.

Figure 6 shows the proportion of premises in the National Park, by postcode area that are unable to attain Superfast broadband speeds. The map shows that the areas of the

National Park currently unable to access superfast broadband connectivity are predominantly rural postcode areas.

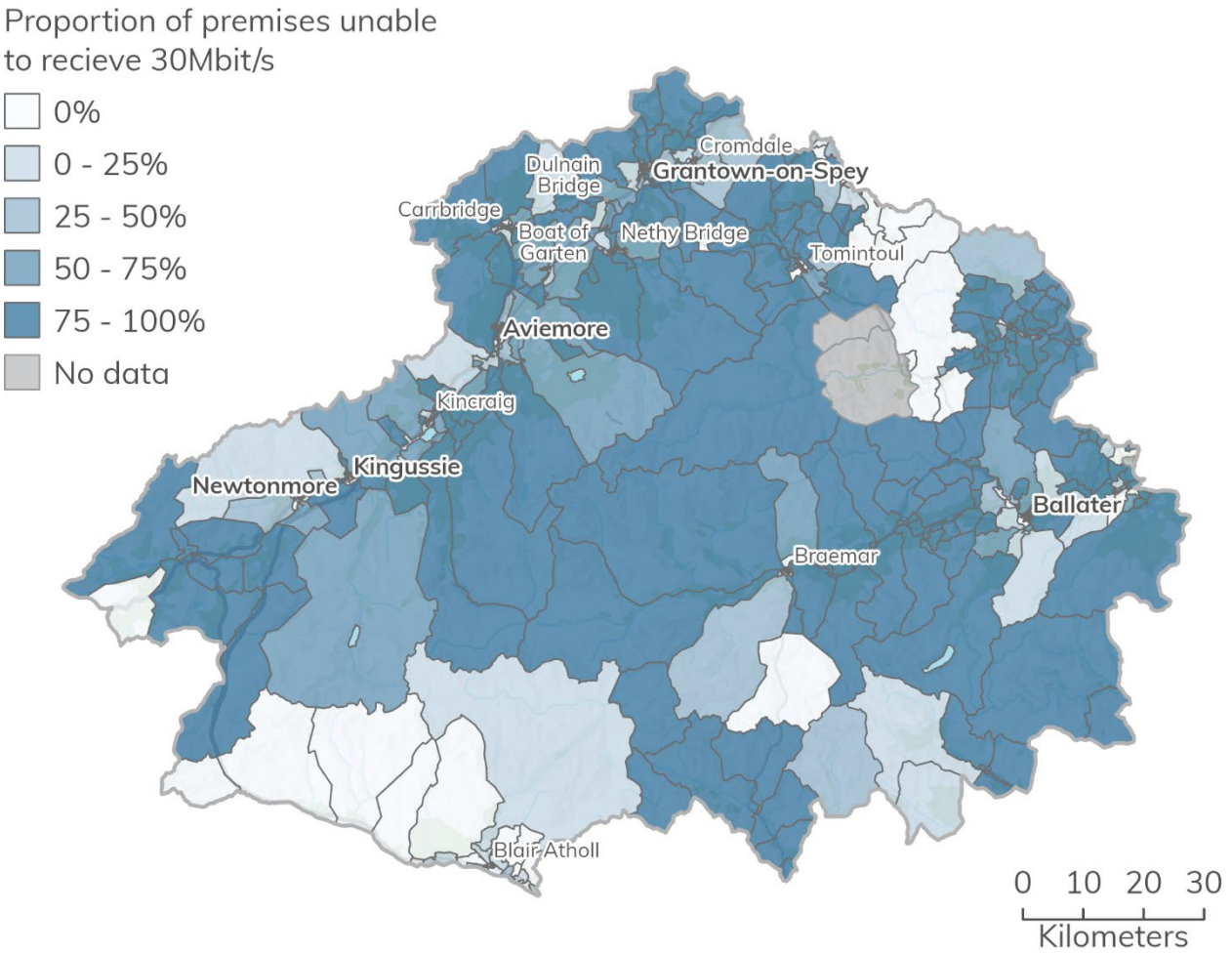

Figure 6 Proportion of premises in the National Park, by postcode area that are unable to attain Superfast broadband speeds (Ofcom, 2023). Reproduced by permission of Ordnance Survey on behalf of His Majesty's Stationery Office. © Crown copyright and database right 2024. All rights reserved. Ordnance Survey Licence number AC0000821810, Cairngorms National Park Authority. Contains data © Ofcom 2024.

'Ultrafast' connections provide speeds of at least 100 Mbit/s (up to gigabit-capable connections). Figure 7 shows that in the Cairngorms National Park the postcode areas where ultrafast broadband is available are mainly located in and around the settlements of Aviemore, Blair Atholl and Ballater. Again, it is noted that the postcode areas adjacent to the southern stretch of the A9 in the National Park are also receive better connectivity.

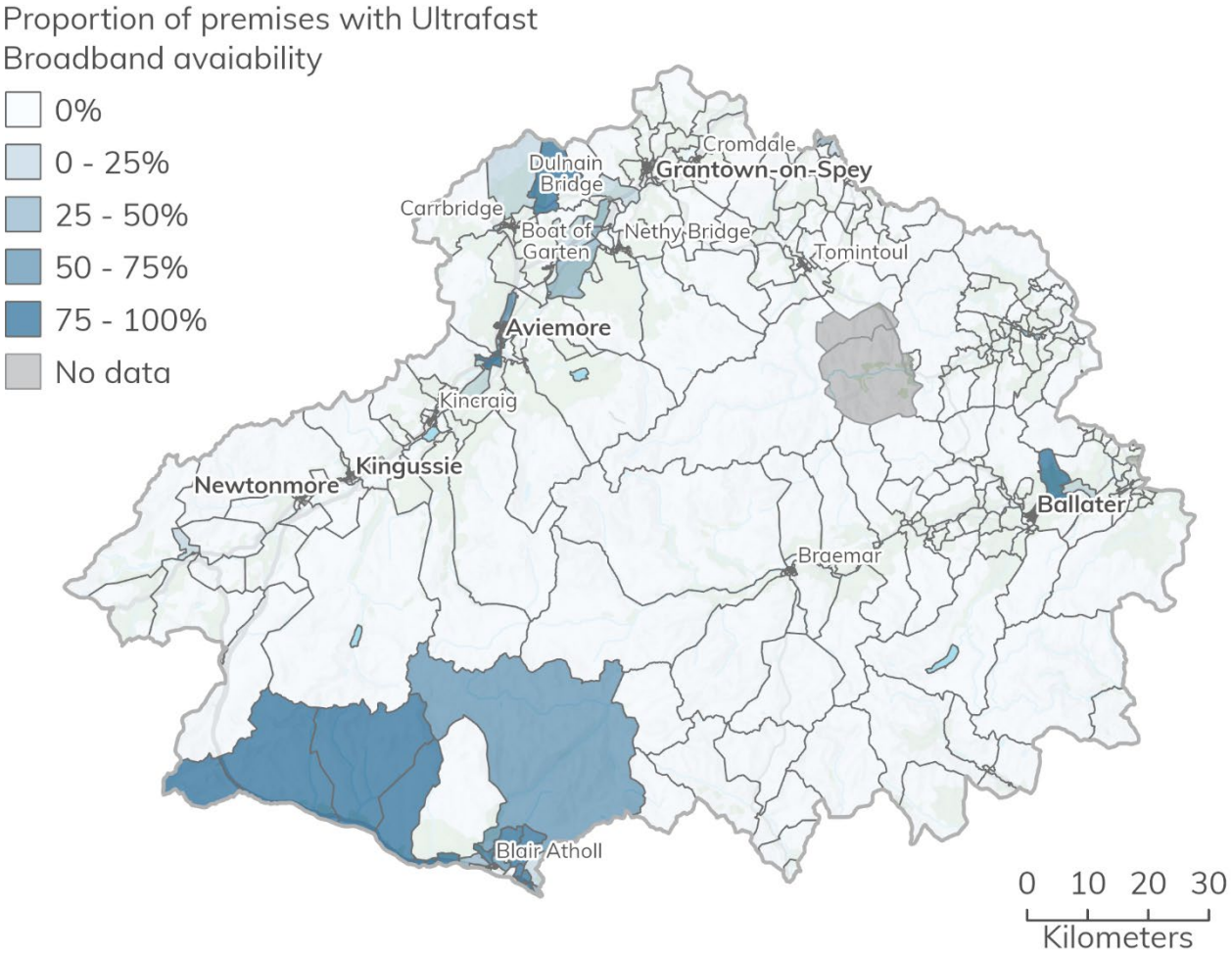

Figure 7 Proportion of premises in the National Park, by postcode area, with Ultrafast Broadband availability (Ofcom, 2023). Reproduced by permission of Ordnance Survey on behalf of His Majesty's Stationery Office. © Crown copyright and database right 2024. All rights reserved. Ordnance Survey Licence number AC0000821810, Cairngorms National Park Authority. Contains data © Ofcom 2024.

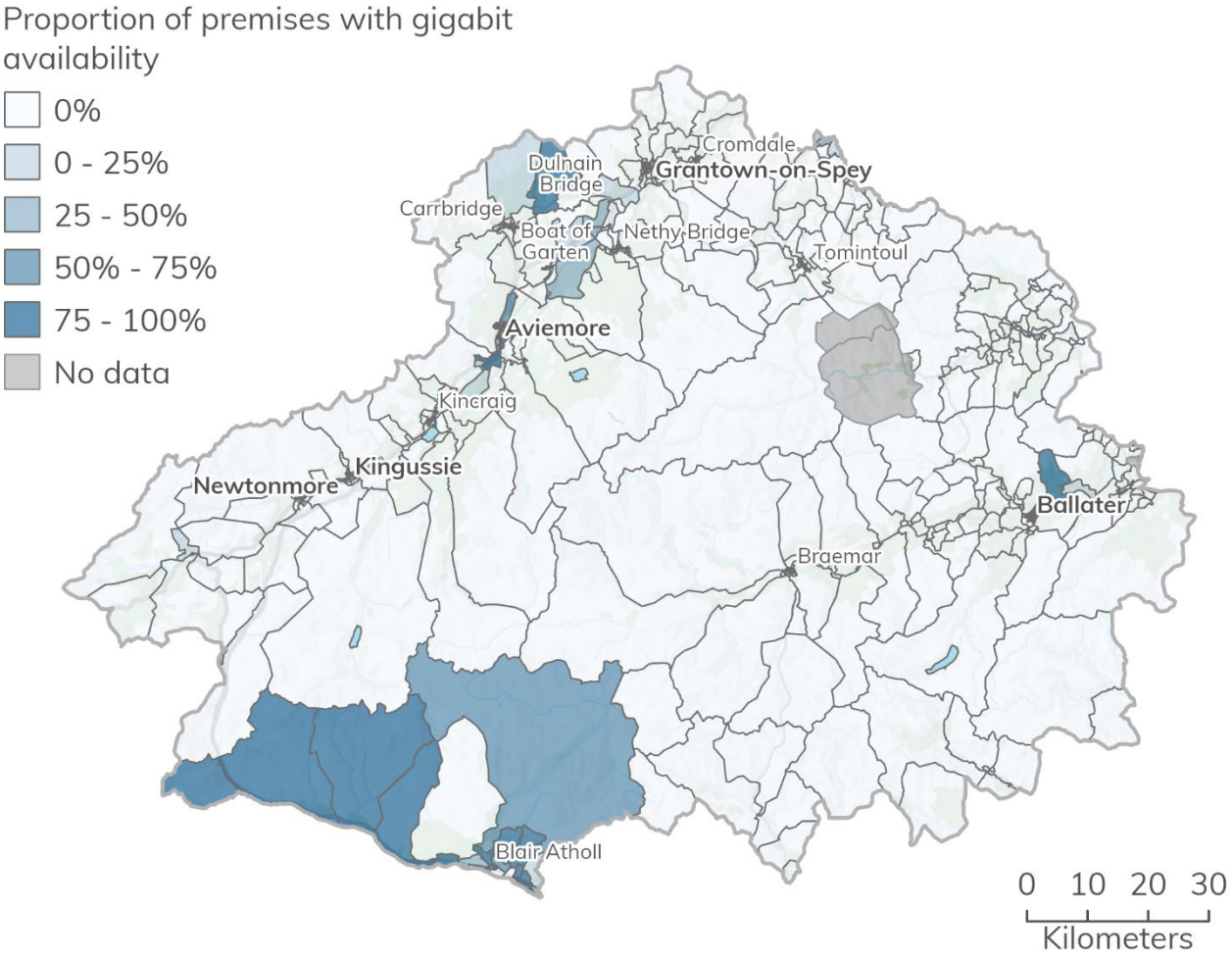

Figure 8 Proportion of premises in the National Park, by postcode area, with Gigabit Broadband availability (Ofcom, 2023). Reproduced by permission of Ordnance Survey on behalf of His Majesty's Stationery Office. © Crown copyright and database right 2024. All rights reserved. Ordnance Survey Licence number AC0000821810, Cairngorms National Park Authority. Contains data © Ofcom 2024.

'Gigabit-capable' connections are able to offer download speeds of 1 Gbit/s (1000Mbps) and above. It can be delivered by hybrid fibre-coaxial cable or full fibre. With gigabit-capable broadband, it is feasible to download a full 4K high-definition film (100 GB) in under 15 mins, or a one-hour high-definition television episode in eight seconds. Within the National Park there is no distinction between the areas able to receive ultrafast (Figure 7) and those able to receive gigabit connections (Figure 8) – leading to the assumption that upgrades in these areas have been completed to a gigabit standard of connectivity (and therefore by default also ultrafast).

The majority of the residents in the Cairngorms National Park are unable to achieve ultrafast or gigabit broadband connectivity, presenting particular challenges for those relying on higher broadband speeds for employment or access to services / entertainment online that require them.

Fixed broadband coverage in the National Park

At the time of writing this report data from the Connected Nations Update: Summer 2023 provides the most up to date information. Ofcom collected and analysed data from over 70 fixed network and fixed wireless access (FWA) providers. Figure 3 to Figure 8, provide information on fixed broadband coverage and broadband availability from fixed wireless access postcodes within the Cairngorms National Park to all premises (commercial and residential).

Gigabit-capable coverage was introduced in the Connected Nations 2020 report and includes all coverage from full fibre networks and upgraded cable networks capable of delivering download speeds of 1 Gbit/s or higher.

Alternative broadband options in the National Park include fixed wireless services and satellite internet services.

Resilience

Ofcom's guidance stipulates that service providers should offer at least one resilient solution to ensure access to emergency services for a minimum of one hour during power outages.

This can prove challenging in the National Park, when the solution, often proposed is to use mobile phone access, which presumes a reliable and robust mobile network coverage. This is not universally available across the National Park.

Any new development will have the challenge of being resilient enough to withstand and will need to quickly recover from disruptions in the face of increasingly unpredictable challenges.

Mobile network operators

Mobile networks and mobile broadband are vital services to the people living, working and visiting in the Cairngorms, due to the extensive areas of remote rural landscape. Mobile networks and mobile broadband are accessed through the use of a SIM card or eSim that is inserted into or registered with a device (such as mobile phone / smart phone, or SIM enabled router also known as a dongle). To operate mobile networks and broadband, the device must receive signal from masts and each mast can provide their network up to a certain distance/ radius (depending on the geography).

Mobile communications work on radio frequencies. In the UK, Ofcom grant licences to four operators to either purchase or lease a range of frequencies within the radio spectrum on which to run their mobile communications networks. These companies are known as mobile network operators (MNOs).

In the UK this means mobile network operators sit at the top of the pyramid of mobile service providers (with providers like Tesco mobile using O2's infrastructure and network to deliver its services). The four main mobile network operators in the UK are Vodafone UK, EE, O2 and Three. They effectively rent 'radio space' directly from the UK Government. Each of the mobile network operators build and is responsible for its own infrastructure (for example masts, transmitters, and control stations) to run its networks.

Having access to adequate mobile data access is essential for accessing public services for example parking meters in the Cairngorms National Park. In areas where there is limited or no broadband availability it is also vital for residents who need to access digital services.

4G mobile not-spots

In the Cairngorms National Park 4G coverage differs between the four mobile network operators which can be seen by observing the varying not-spot areas for each operator (Figure 9, Figure 10, Figure 11, Figure 12). The 4G mobile not-spot maps show the geographic of the National Park that receives no 4G coverage from a given mobile network operator. The spatial mapping data used in this section is derived from the published 4G coverage available on the mobile network operators' individual websites. Currently (in 2024) EE has the best 4G coverage in the National Park. It is worth noting that given the topography of the National Park interior there are large areas of the National Park that receive no signal from any of the mobile network operators. The data used to produce the 4G and 5G not-spot maps comes directly from the mobile network

operators publicly available mapping showing coverage available through the service providers websites (produced using data extracted in March 2024).

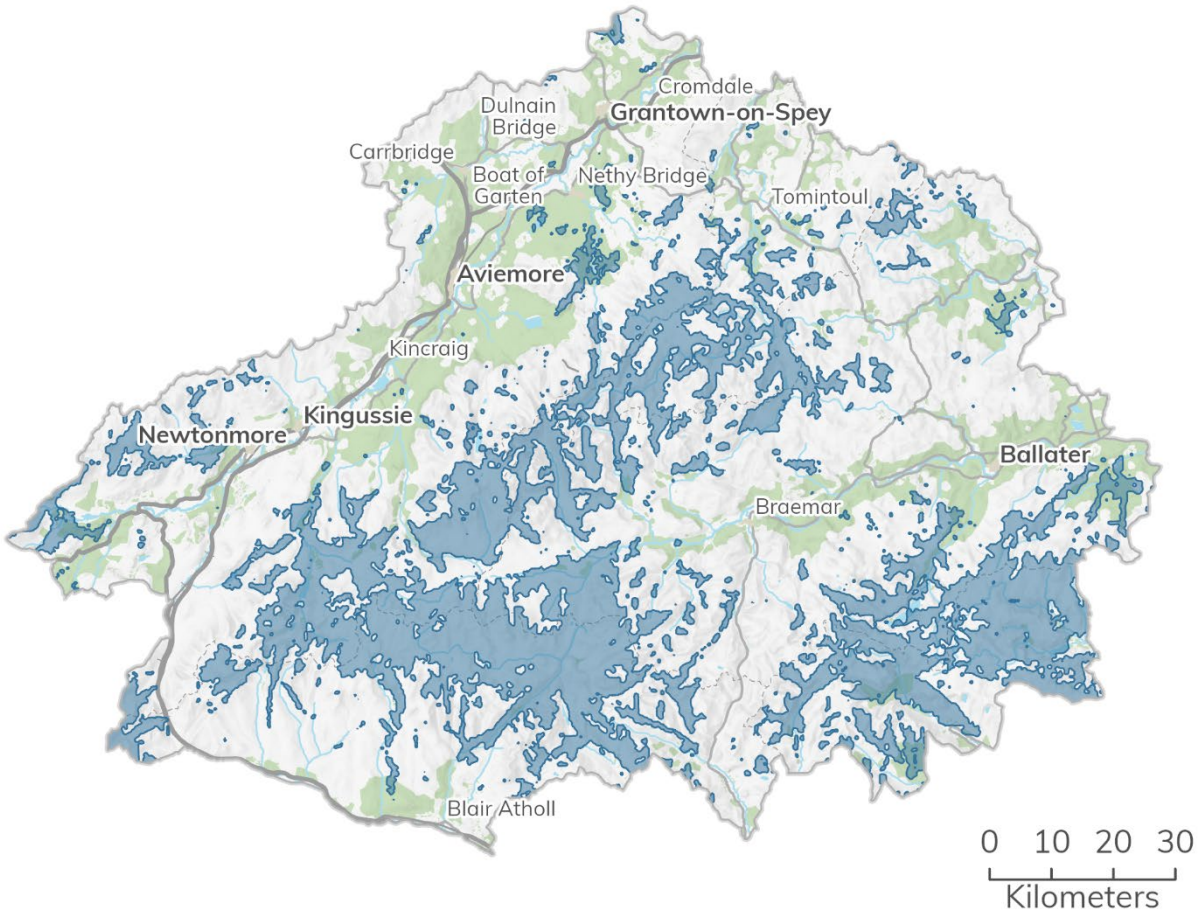

Figure 9 Map showing the EE 4G Not Spots in the National Park (March 2024). Reproduced by permission of Ordnance Survey on behalf of His Majesty's Stationery Office. © Crown copyright and database right 2024. All rights reserved. Ordnance Survey Licence number AC0000821810, Cairngorms National Park Authority. Contains data © EE 2024.

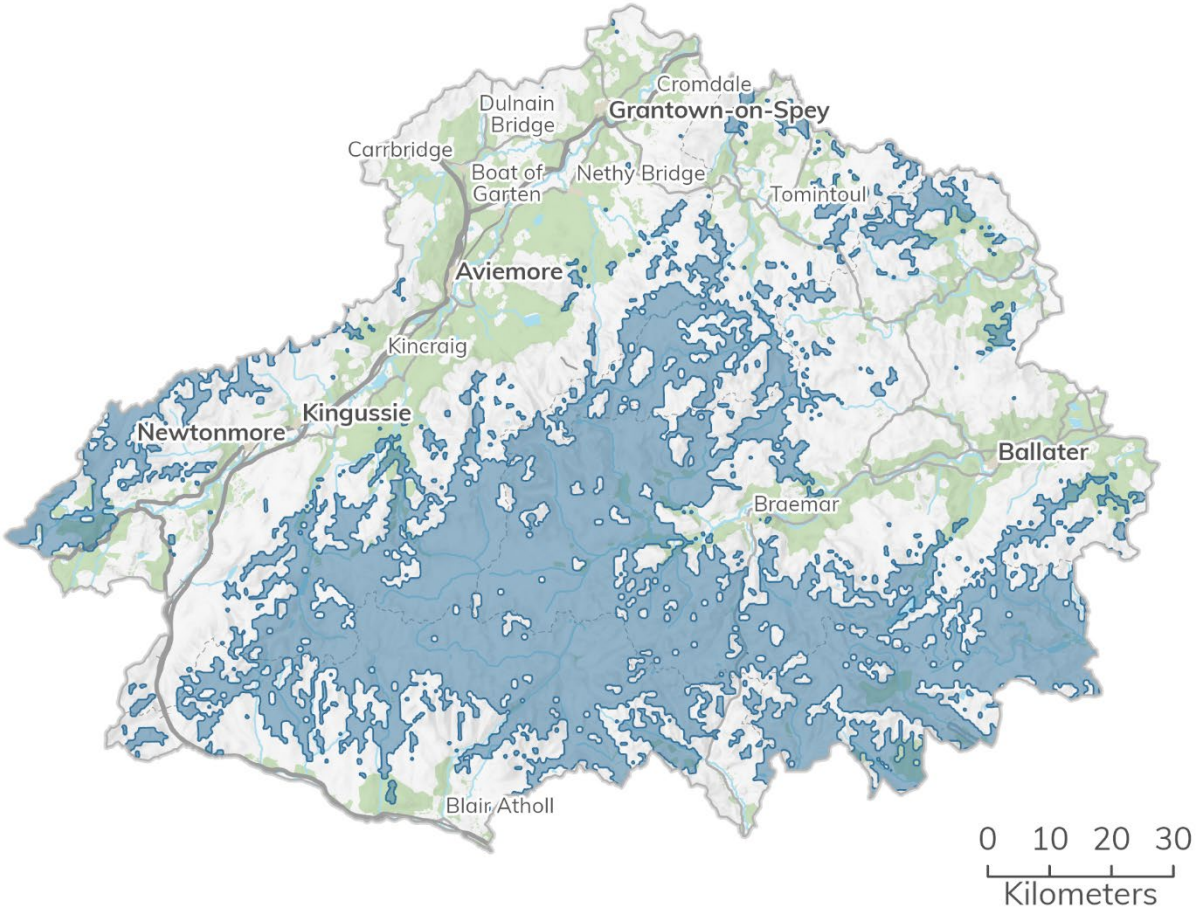

Figure 10 Map showing the O2 4G Not Spots in the National Park (March 2024). Reproduced by permission of Ordnance Survey on behalf of His Majesty's Stationery Office. © Crown copyright and database right 2024. All rights reserved. Ordnance Survey Licence number AC0000821810, Cairngorms National Park Authority. Contains data © O2 2024.

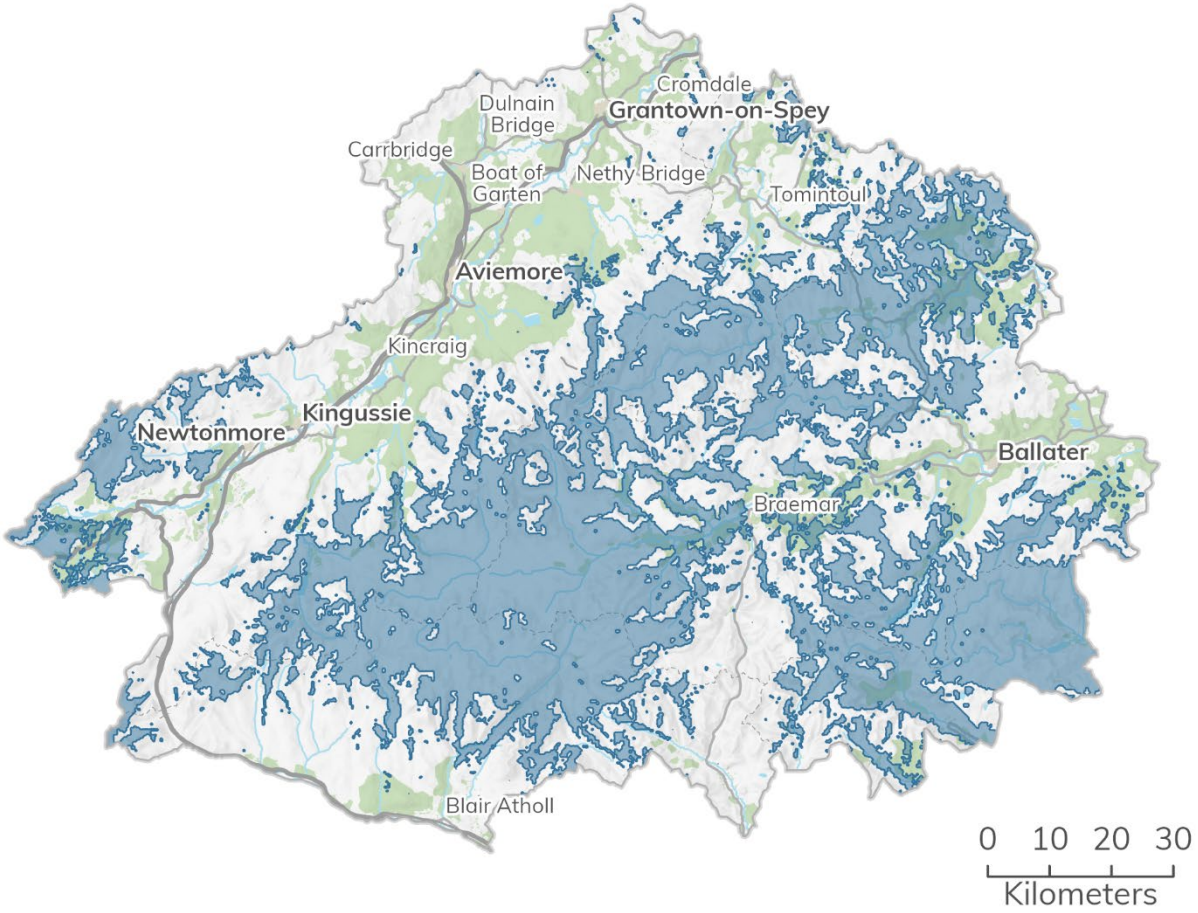

Figure 11 Map showing the Three 4G not spots in the National Park (March 2024). Reproduced by permission of Ordnance Survey on behalf of His Majesty's Stationery Office. © Crown copyright and database right 2024. All rights reserved. Ordnance Survey Licence number AC0000821810, Cairngorms National Park Authority. Contains data © Three 2024.

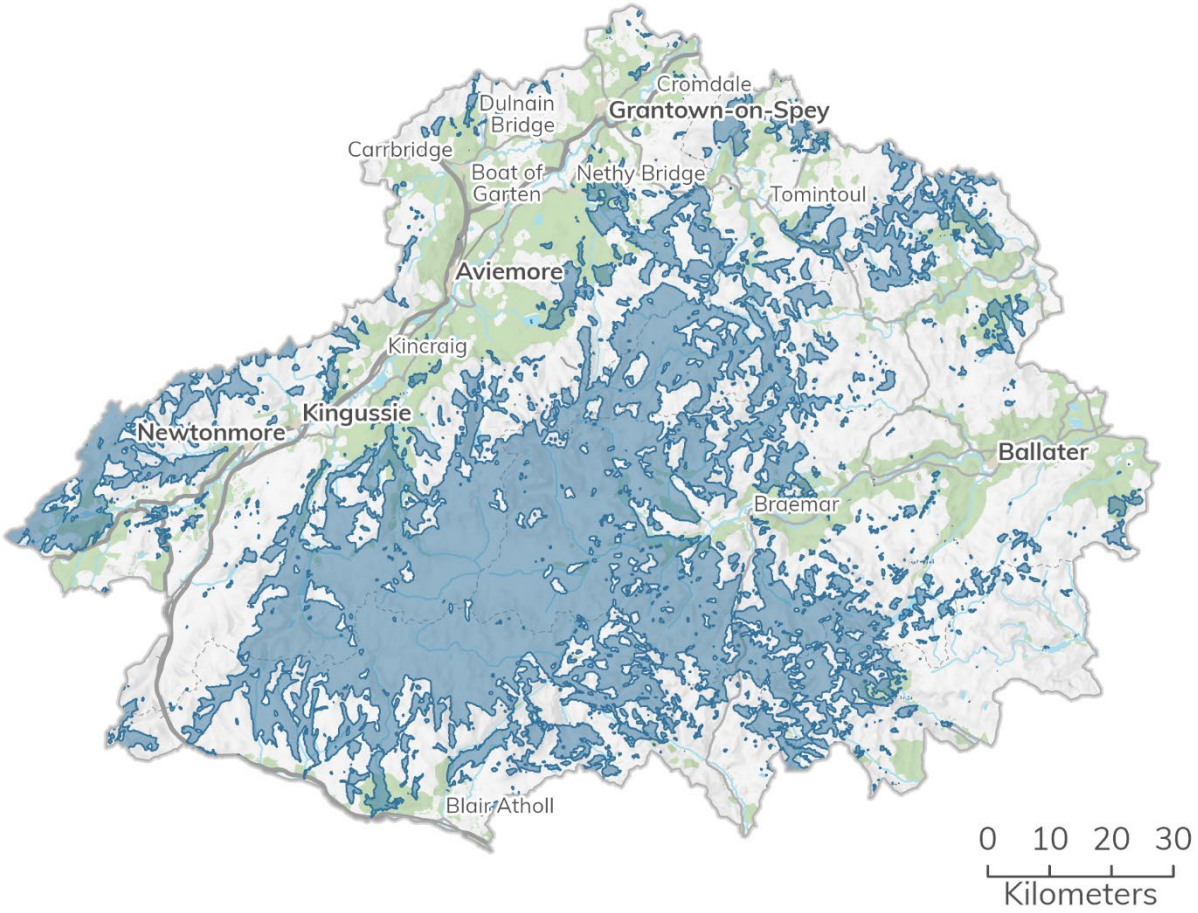

Figure 12 Map showing the Vodafone 4G Not spots in the National Park (March 2024). Reproduced by permission of Ordnance Survey on behalf of His Majesty's Stationery Office. © Crown copyright and database right 2024. All rights reserved. Ordnance Survey Licence number AC0000821810, Cairngorms National Park Authority. Contains data © Vodaphone 2024.

A total 4G not-spot area is a geographic area that receives no 4G coverage from any Mobile Network Operators (Figure 13). Currently 7% of the UK, by geography, is in a 4G total not spot (Ofcom's 2023 Connected Nations report). In contrast in the National Park approximately 8.8% (which is approximately 400km²) of the land area is classed as a total 4G mobile not-spot (not covered by any of the four mobile network operators).

A partial mobile not-spot is a geographic area served by at least one, but not all four mobile network operators. In the National Park approximately 50% (approximately 2250km²) of the area is considered as a partial mobile not-spot for 4G mobile services (Figure 13).

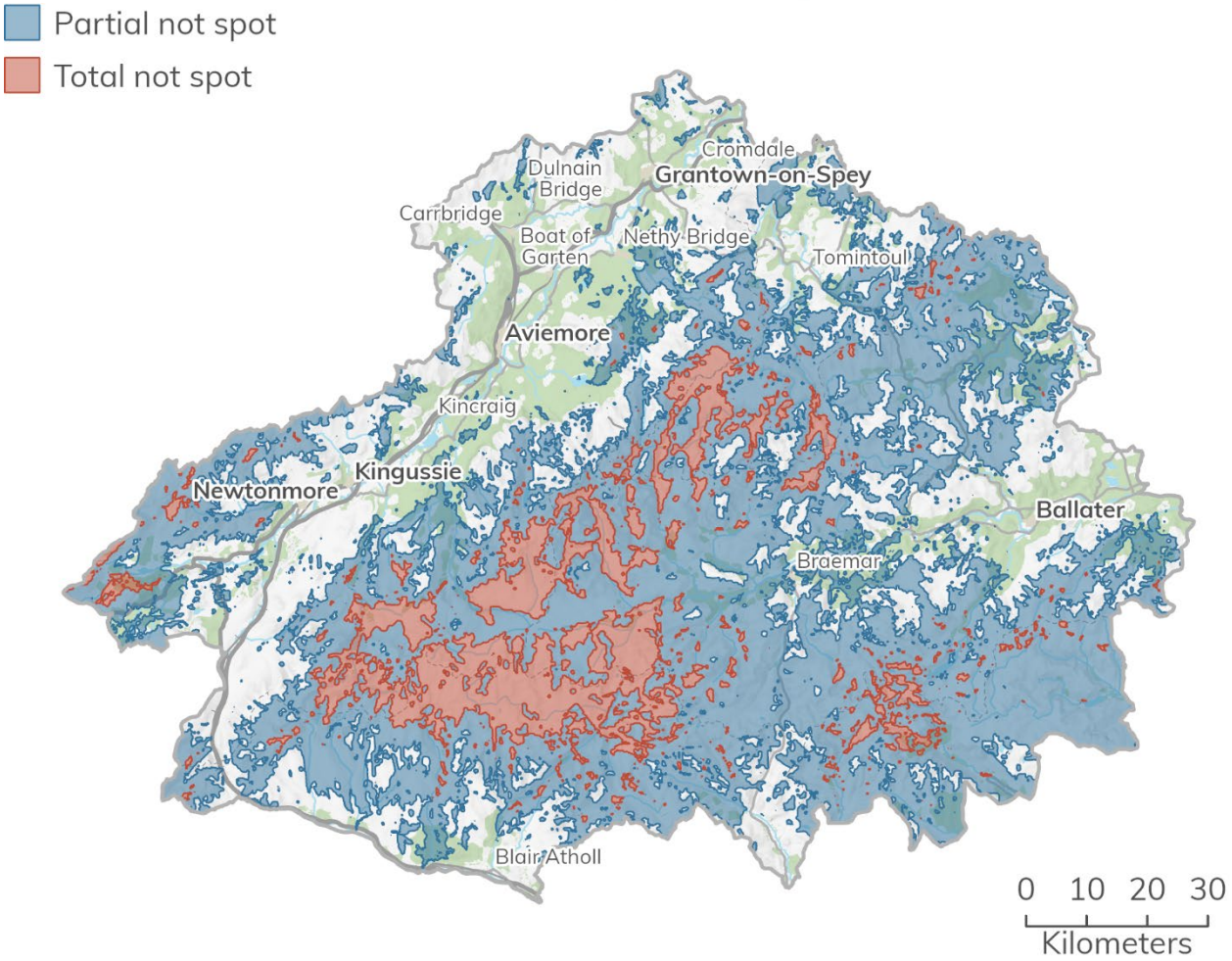

Figure 13 Partial and total 4G not-spots (March 2024). Reproduced by permission of Ordnance Survey on behalf of His Majesty's Stationery Office. © Crown copyright and database right 2024. All rights reserved. Ordnance Survey Licence number AC0000821810, Cairngorms National Park Authority. Contains data © EE, O2, Three, Vodaphone 2024.

Mobile network operators have started, or are preparing to start, switching off their 3G networks. As they do, Ofcom estimates that – as well as existing 'not spots' – a small number of properties might lose access to a reliable, indoor, 3G-only mobile service (Ofcom, 2023).

The Shared Rural Network programme (launched in 2020) was initiated to improve 4G coverage across the UK. The Shared Rural Network (SRN) will deliver reliable mobile broadband to 95% of the UK, addressing the digital divide by improving 4G coverage in the areas that need it most.

Through the programme, UK's four mobile network operators– EE, Three O2 and Vodafone expect to improve geographic coverage to 74% of the UK's National Parks. Individually, each operator will reach 90% geographic coverage, which will result in 84%

of the UK having 4G coverage from all four operators, increasing choice and boosting productivity in rural areas.

To deliver the programme, it is expected that the mobile network operators will invest £532m to eliminate the majority of 'partial not-spots' – areas which receive coverage from at least one, but not all, operators. The UK Government will also provide a further £500m to build new masts to eliminate 'total not-spots' – hard to reach areas where there is currently no coverage at all. The majority of UK Government funding is being invested in Scotland.

5G Coverage

There is very limited 5G mobile coverage currently in the Cairngorms National Park (as of March 2024).

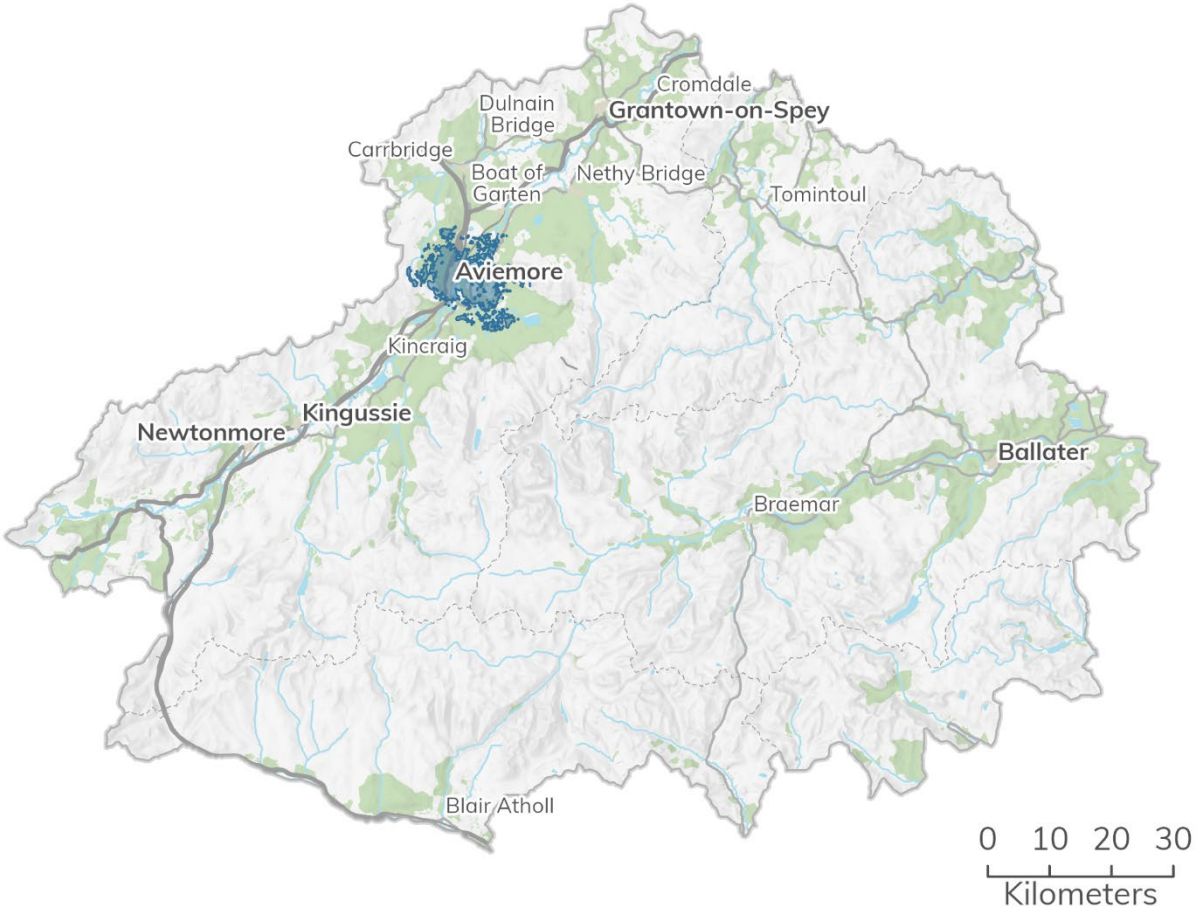

Figure 14 Map showing the current 5G availability from EE in the National Park, (March 2024). Reproduced by permission of Ordnance Survey on behalf of His Majesty's Stationery Office. © Crown copyright and database right 2024. All rights reserved. Ordnance Survey Licence number AC0000821810, Cairngorms National Park Authority. Contains data © EE 2024.

Only EE and Three publish 5G availability in the National Park in Aviemore (Figure 14, Figure 15). O2 and Vodafone currently do not offer or publish availability on 5G availability anywhere in the National Park.

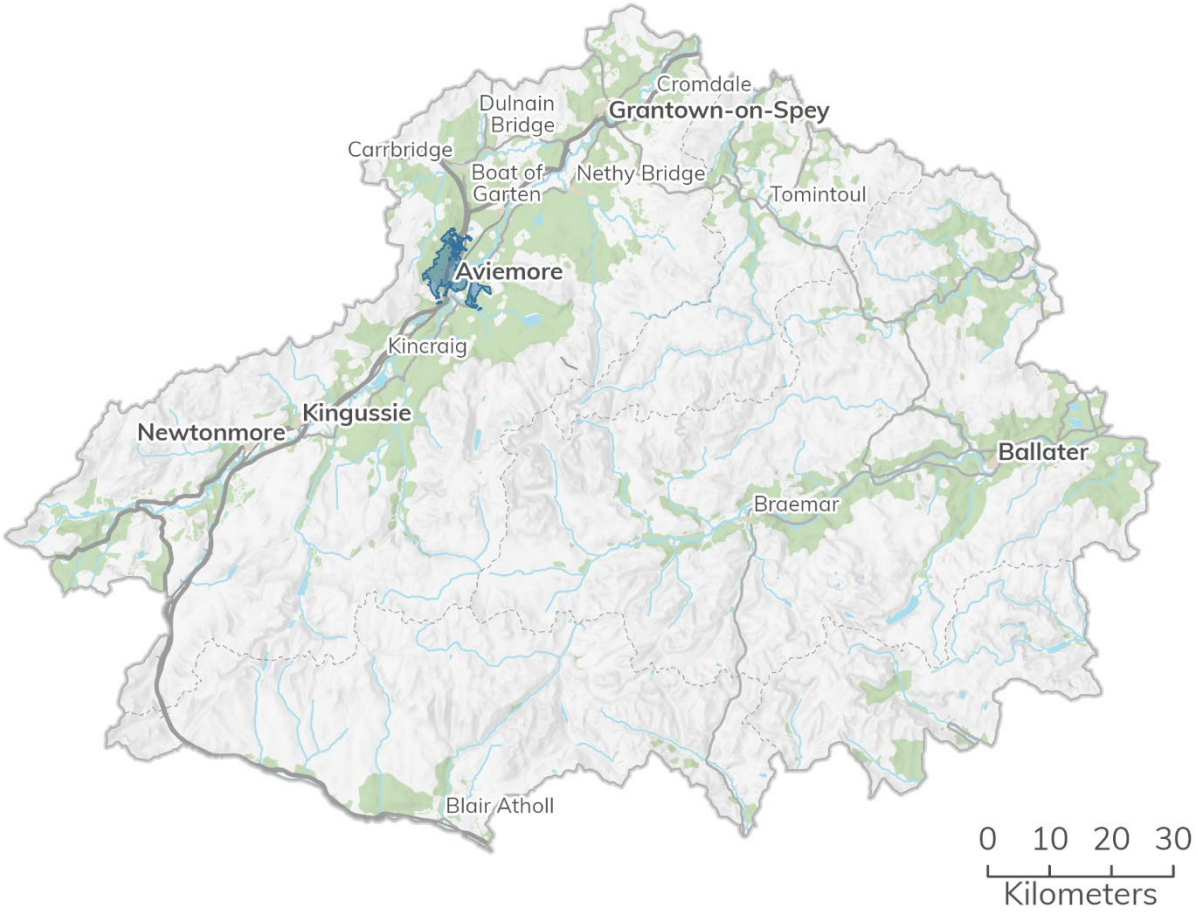

Figure 15 Map showing the current 5G availability from Three in the National Park (March 2024). Reproduced by permission of Ordnance Survey on behalf of His Majesty's Stationery Office. © Crown copyright and database right 2024. All rights reserved. Ordnance Survey Licence number AC0000821810, Cairngorms National Park Authority. Contains data © Three 2024.

Telecommunication Masts

There are 76 telecommunication masts located within the Cairngorms National Park at 70 different locations (Figure 16). The masts serve one, two, three or all four of the mobile network operators depending on their location. The information was taken from the open-source website: cellmapper.net and independently verified by a planning officer using satellite mapping. The distribution of masts across the National Park reflects the 4G mobile partial and total not-spot areas shown in Figure 13. Although the settlements are generally well-served by 4G availability by at least one mobile network operator, the interior due to its topography is where the majority worst connectivity is experienced.

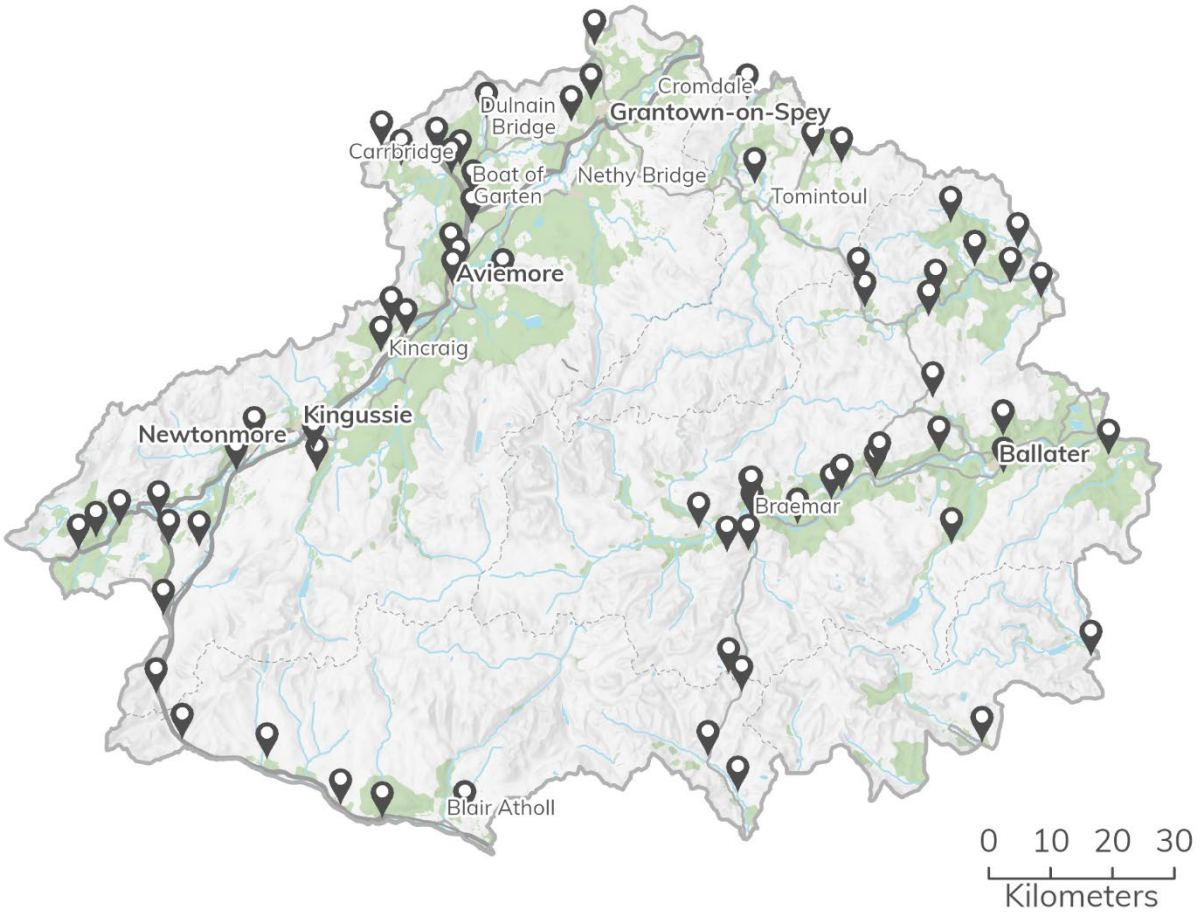

Figure 16 Telecommunication mast location in the Cairngorms National Park. Reproduced by permission of Ordnance Survey on behalf of His Majesty's Stationery Office. © Crown copyright and database right 2024. All rights reserved. Ordnance Survey Licence number AC0000821810, Cairngorms National Park Authority. Contains data © cellmapper.net, 2024.

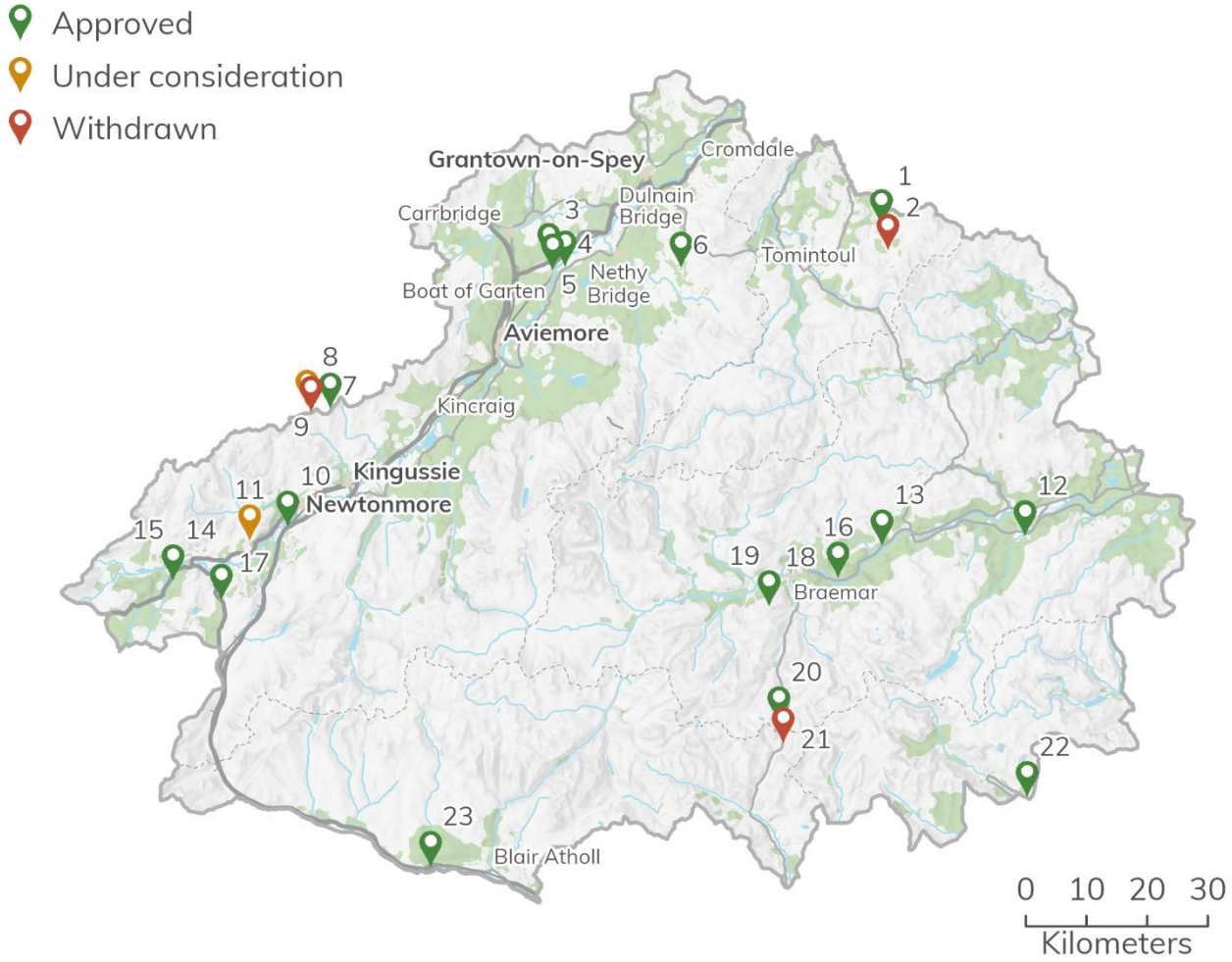

Figure 17 Telecommunication planning applications January 2019 – June 2024. Reproduced by permission of Ordnance Survey on behalf of His Majesty's Stationery Office. © Crown copyright and database right 2024. All rights reserved. Ordnance Survey Licence number AC0000821810, Cairngorms National Park Authority.

In the Cairngorms National Park during the last 5 years (2019 – 2024) 18 planning applications for telecommunication mast locations have been approved, 3 have been withdrawn and two are currently under consideration by the relevant local authority. (Figure 17, Table 1). One further application has been called in by the National Park Authority and is currently pending for the proposed development of a new telecommunications base station installation Red Craig, 900M East of Braedownie, Glen Clova (2023/0274/DET). The approved applications for telecommunication masts vary in height from 6m to 35m.

Table 1 Table showing the details of the telecommunication planning applications January 2019 – June 2024 in the Cairngorms National Park area relating to the numbered entries on Figure 17.

Map reference	Planning application reference	Status	Description	Address
1	2019/0038/DET	Approved	Erect a 30m telecoms mast with associated cabinets/equipment to extend Emergency Services Network (ESN) mobile coverage across Chapeltown area. The new blue-light communications service will replace the current system known as Airwave.	Site To Rear Of Bochel Farm, Chapeltown, Ballindalloch
2	2019/0084/DET	Withdrawn	The installation of a 15.00m mast with 6no antennae 2no 600mm dishes and ancillary equipment cabinets.	On Site Adjacent To Eskemulloch, Ballindalloch, Moray
3	2023/0334/DET	Approved	Erection of 25m high telecommunications mast, antennae, dishes, cabinets, fenced compound and construction of 20m access track.	Drumuillie Forestry, Desisher Wood, A95, Boat of Garten
4	2021/0033/DET	Approved	Installation of a 17.5m telecoms mast.	Electricity Substation, Boat of Garten
5	2019/0026/DET	Approved	Installation of a 25m slimline lattice mast with 3m headframe (28m overall height) accommodating 3No. Antennas, 2No. 600mm dish, 1No. 300mm dish; associated 3No. Cabinets (1300x700x1450mm; 700x840x1800mm; 655x264x1015mm); and, all ancillary apparatus.	Land 25M East Of Scottish Fire And Rescue, Nethy Bridge Raod, Boat of Garten
6	2022/0401/DET	Approved	Erection of 30m high telecomms mast and ancillary development.	Lainchoil Plantation, Near C1124, Nethy Bridge, Strathspe, PH25 3EE
7	2019/0197/DET	Approved	Installation of 6m high radio repeater mast and associated equipment.	Land 520M NE Of Beinn Breac, Kingussie

Map reference	Planning application reference	Status	Description	Address
8	2022/0266/DET	Under consideration	Erection of 8m high lattice radio mast.	Land 4825M NW Of Keepers Cottage, Kingussie
9	2021/0328/DET	Withdrawn	Erection of 6m high lattice radio mast and equipment cabinet.	Land 4825M NW Of Keepers Cottage, Pitmain, Kingussie
10	2019/0252/DET	Approved	Erection of 20m high telecoms mast and equipment compound.	Land At Ralia Highland Gateway Centre, Near Newtonmore, PH20 1BD
11	2023/0418/DET	Under consideration	Installation of 25m high telecommunications mast and ancillary development within fenced compound.	Land North Of A86, Newtonmore
12	2019/0399/DET	Approved	Erection of 25m Mast and Installation of Cabinets, Erection of 1.5m Gabion Retaining Wall and 1.8m Fence and Formation of Access.	Land To South Of East Lodg, Ballater
13	2020/0275/DET	Approved	Installation of 16m High Telecommunications Mast and Associated Equipment Housing.	Layby On A93 Opposite Inver Croft, Crathie, Ballater
14	2020/0040/DET	Approved	Erection of 20m high telecoms mast, associated equipment and cabinets within fenced compound and formation of access.	Land 310M NE Of 1 Forestry Houses, Laggan
15	2020/0138/DET	Approved	Erection of 20m high telecoms mast, associated equipment and cabinets, drainage, RRV, within fenced compound and formation of access (as amended from 20/00347/FUL).	Land 310M NE Of 1 Forestry Houses, Laggan
16	2020/0288/DET	Approved	Erection of 35m Telecommunications Mast.	Site To East Of Brig O Dee Cottage, Braemar

Map reference	Planning application reference	Status	Description	Address
17	2019/0060/DET	Approved	Erection of 15m high telecoms mast, equipment cabinets and formation of access from A889.	Land Off A889, General Wades Military Road, Near Dalwhinnie, PH19 1AA
18	2021/0099/DET	Approved	Erection of Temporary 27m Mast Associated Antennas and Ancillary Infrastructure.	Morrone Hill Radio Facilities, Braemar, Aberdeenshire,
19	2024/0049/DET	Approved	Installation of antennas and transmission dishes on existing mast, ground-based apparatus and ancillary development.	Morrone Hill Radio Facilities
20	2020/0278/DET	Approved	Erection of Temporary Wind Monitoring Meteorological Mast.	Glenshee Ski Centre, Braemar
21	2019/0195/DET	Withdrawn	Installation of a 15m mast, 2 transmission dishes, equipment housing, erection of a fence and associated works.	Land At Gleann Beag, Glenshee
22	2019/0087/DET	Approved	Erection of a 20m Lattice Mast and the Installation of 6no. Antennae, 2no. Micro-Wave Dishes, Equipment Cabinets, Cabling, Fencing, Access Track and Ancillary Works.	Land Adjacent To Wheen, Glen Clova
23	2023/0397/DET	Approved	Erection of a telecommunications mast and installation of ancillary cabinets.	Land 130 Metres South West Of Clan Donnachaidh Museum, Pitagowan. Blair Atholl. PH18 5TW

Other planned digital infrastructure upgrade works in the Cairngorms National Park

Openreach

Openreach are committed to delivering Ultrafast full fibre broadband to 25 million homes and business across the UK by 2026 supporting the UK Governments goal to deliver Gigabit capable broadband to more than 85% of the UK. The work is planned by exchanges, of which there are 5,600 in the UK. Openreach offers an interactive map on their website which displays information on whether an exchange is in their build plan.

In the Cairngorms National Park, they have completed the main part of their build at the Aviemore exchange meaning Ultrafast broadband is available to most homes and businesses in this the exchange area.

Openreach currently have future planned works (commencement/ competition dates to be confirmed) in the areas powered by; the Pitlochry exchange, the Ballater exchange. At the Aboyne exchange they expect the work to be completed and services available in the next 12 months (as of March 2024). Although the Aboyne exchange is outwith the National Park some of the residents in the area East of Ballater will benefit from this upgrade to services.

More details on the planned works by Openreach and maps showing the exchanges mentioned can be accessed here:

- https://www.openreach.com/fibre-broadband/where-when-building-ultrafast-full-fibre-broadband#accordion-9a5353362d-item-4faa07d351

Cairngorm Broadband

The Cairngorm Broadband network is planned to be delivered by Scotnet – Scotland's largest rural broadband provider.

With much of the Cairngorms and surrounding areas poorly serviced by BT's legacy copper broadband network, Scotnet offers a potential solution to homes and businesses which have been deemed to be technically and or/commercially unviable by BT, and therefore won't be served under either the Reaching 100% scheme or commercial deployment plans.

The organisation utilises the grants available to all unserved properties by Scottish Government. The grant can be used with a registered supplier on the Government's

Broadband Voucher Scheme framework (Scotnet is one) and could be aggregated with others to form the capital budget for the deployment of new infrastructure.

As a supplier on the scheme, Scotnet are creating a new super-fast network serving a large part of the Cairngorm National Park, together with the areas to the North and East which will fall within their proposed coverage area.

More details on the Cairngorm Broadband Project can be found here:
- https://www.cairngormbroadband.com/about/

Highland Broadband Project
The Highland Broadband Project is run by Lothian Broadband Networks Ltd (LBN). Since 2015, Lothian Broadband Networks have been focused on closing the digital divide by rolling out industry-leading gigabit-capable fibre broadband to towns and villages who were otherwise being left behind by other providers. In 2020, Lothian Broadband Networks acquired Highland Wireless, signalling the start of the companies move into the Highlands of Scotland.

The full-fibre network being installed in the Highlands is the fastest network being built anywhere in the UK, capable of symmetrical 10Gbit/s speeds; it is also resilient for future needs as technology develops and becomes more demanding on connectivity.
Lothian Broadband Networks contracts also offer their own Smart WiFi+ solution. The smart WiFi+ solution offered by Lothian Broadband Networks delivers consistent WIFI connections across the whole property.

Within the National Park full-fibre networks are being installed in the following settlements throughout 2024:
- Grantown on Spey
- Kingussie
- Kincraig
- Newtonmore.

More details on the Highland Broadband Project can be found here:
- https://highlandbroadband.com/

Summary of Implications for Proposed Plan

The proposed plan needs to be prepared in accordance with:

- The four aims of the National Park as set out in The National Parks (Scotland) Act 2000), in particular the fourth aim 'to promote sustainable economic and social development of the area's communities'.
- The spatial strategy and principles of National Planning Framework 4.

In its preparation the proposed plan should seek to:

- Focus new development within areas with the best potential for digital connectivity.
- Ensure that where possible new development is serviced by a minimum superfast broadband connectivity (30Mbit/s).
- Support new telecommunication masts that provide improved connectivity within the digital connectivity priority area identified in the National Park Partnership Plan 2022 - 2027.
- Limit the use of fossil fuelled generators for powering masts.
- Promote an 'end of use' policy so that if masts become redundant they should be removed.