

# Connected Nations

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Supplementary report on Planned Network Deployments 2023

[Welsh translation available](#)

**Report**

Published 17 October 2023



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# Overview

This is our second forward-looking report about planned network deployments supporting very high speed broadband services in the United Kingdom (UK), which, for all fixed networks we have examined, are now all based on full fibre technology. This analysis also includes the plans of operators to extend or upgrade fixed wireless access networks so as to provide very high speed broadband, with download speed of at least 100 megabits per second.

The report is based on the stated deployment plans of network operators as of May 2023 up to three years in advance. These plans include those that are privately funded as well as any plans that are supported through public funds/intervention. However, the report only focuses on Communications Providers' planned deployments and does not take account of any aspirations or plans by public authorities, whether national or local, to roll out networks in their geographical areas.

We have prepared and published this report to supplement our Connected Nations report, which deals with existing network coverage information and associated matters.

# Key findings

**Total number of properties to have full fibre availability in 2026 could be as high as 27.0m (91% of all properties).** If all network deployments are realised as planned, the number of properties covered by full fibre will increase from 15.4 million (as of May 2023) to 27.0 million by May 2026. Gigabit-capable coverage could be in excess of 94%.

**Plans for full fibre networks up to 2025 are lower compared with 2022 plans.** Comparing the planned network deployments with those received last year, as well as the actual deployment achieved in the intervening 12 months, shows that deployment has been lower (by around 3 percentage points), and providers have also revised their future plans downwards (by around 4 percentage points).

**Networks are planned in all areas across the UK, although some regions can expect to see greater growth than others.** While the amount of planned build varies between local authorities, over 90% of these should see gigabit-capable coverage exceeding 60% of residential premises.

**Both rural and urban areas are being targeted by network operators.** Although much of the planned network build is focussed in urban or suburban areas, rural areas can also expect substantial network deployment. This is usually from smaller operators and sometimes supported by public incentive schemes.

Almost all local authority areas in the UK have more than three network operators planning to deploy networks in the future; many regions having more than ten operators planning to build. Some of this build is complementary whereas others may result in direct competition at individual premises. We estimate that up to 76% of properties will be able to take VHCN (gigabit capable) services from two or more providers by 2026.

**We also anticipate Fixed Wireless Access (FWA) networks offering high speed broadband (>100Mbit/s) to expand.** Our data reports that around 5,400 (out of around 27,000) further FWA masts are being planned or upgraded across the UK that may be capable of offering high speed broadband. However, it is not straightforward to extrapolate from this information the number of premises that could receive these high-speed FWA broadband services.

# Introduction

## Purpose of this forward-looking report

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One of the electronic communications networks matters that Ofcom considers in our infrastructure reports (known as our Connected Nations reports) prepared under section 134A of the Communications Act 2003 (the 2003 Act) is any future build proposals of Communications Providers (CPs).

Specifically, this means that Ofcom needs to report on the proposals that providers of electronic communications network in the UK may at any time have within the next 3 years to bring into operation a new very high capacity network (VHCN), other than a mobile network, or to extend or upgrade any part of a fixed line network or its equivalent, such as a fixed wireless access network, so as to provide a download speed of at least 100 megabits per second (Mbit/s).<sup>1</sup> The first of such reports was published in November 2022.<sup>2</sup>

By their very nature, such proposals containing detailed build plans for identifiable network operators are confidential and extremely commercially sensitive and, as such, Ofcom will exclude such particular information from our published Connected Nations reports.

However, pursuant to section 134AC(1) of the 2003 Act, the Secretary of State must have regard to our infrastructure reports received from Ofcom under section 134A for three purposes, namely the allocation of public funds for the bringing into operation of electronic communications networks; the design of national broadband plans; and verifying the availability of services to which universal service conditions apply.

For those reasons, and consistent with our first report, the approach we have taken to the preparation and publication of this Connected Nations supplemental report is to include within its main body for publication only aggregated and anonymised overall planned build proposals for each of the local and regional authorities in the UK, together with our high-level findings. The data presented represents providers' own forecast of coverage which depend on the builds currently in progress. Operators' deployment plans, no matter how far advanced and committed, can be subject to change.<sup>3</sup> We have also prepared a confidential annex to this report containing full details of specific operator and property coverage data that has been sent to the Secretary of State. This annex will not be published.

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<sup>1</sup> Section 134B(1)(j) of the 2003 Act.

<sup>2</sup> [Connected Nations - Planned Network Deployment - Ofcom](#)

<sup>3</sup> We are also not intending to update our broadband coverage checker to include future build information. Not only would this information be confidential and extremely commercially sensitive for the same reasons, but it could also provide an unreasonable expectation for an individual householder. We anticipate that individual properties are likely to be informed by broadband providers when VHCNs are, or are expected to be, made available at a specific location as part of sales and marketing initiatives. If so, and when retail providers have informed us that the properties are covered or "Ready for Service", we intend to update our broadband coverage checker with the relevant information.

## Meaning of VHCNs and what this report covers

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Section 4(12A) of the 2003 Act defines the meaning of a VHCN as an electronic communications network which: (a) consists wholly of optical fibre elements at least up to the distribution point at the serving location; or (b) is capable of delivering, under usual peak-time conditions, network performance that, in Ofcom's opinion, is similar, in terms of available downlink and uplink bandwidth, resilience, error-related parameters and latency and its variation, to the network performance<sup>4</sup> of a network falling within paragraph (a).

For the purposes of preparing this report, we therefore issued formal information requests to all CPs from whom we collect existing network coverage information. In particular, we requested information from each CP to provide, as of May 2023, the properties for which they had plans to address with VHCN (within the full definition set out above) for the next three years. The information we received from them only dealt with their plans for the deployment of full fibre technology.

In other words, our high-level findings (together with the associated data) set out in this report mainly relate to VHCNs within the meaning of section 4(12A)(a) of the 2003 Act (as above). However, we also include in this report, where relevant, the existing gigabit-capable networks that use alternative technologies (for example, cable broadband networks). We also report on plans to extend or upgrade fixed wireless access (FWA) networks so as to provide a download speed of at least 100 megabits per second that we received from FWA providers, something which also falls within our specific reporting duty in this context.

The figures set out in this report cannot be considered comprehensive or definitive. As discussed above, plans may evolve over time. Furthermore, while we have collected, and report upon, the specific plans for network build of CPs<sup>5</sup>, we are also aware that public authorities such as devolved administrations may have their own aspirations and plans to support network build which we are not required to cover and are therefore not included in this report. We expect that where such public authorities' aspirations or plans result in planned network deployment plans by CPs going forward, these will be captured in future reports.

There are some other aspects to be noted concerning the data covered by this report on planned network deployments of VHCNs in the UK:

- In total, we received data for over 29.8 million properties in the UK.
- In some cases, particularly for areas of new housing development, individual property information was not available, so wider postcode-level information has been provided on which we have based this report.
- In other cases, individual properties may be targeted for coverage by more than one CPs, but over different timescales or with different levels of certainty (confidence). In Section 3, we highlight this where this occurs.
- Some CPs also provided us with their plans beyond our requested 3-year timeframe. To avoid inconsistencies with data from CPs who did not provide such additional information,

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<sup>4</sup> Section 4(12B) of the 2003 Act clarifies that network performance can be considered similar regardless of whether the end-user experience varies due to the inherently different characteristics of the medium by which the network ultimately connects with the network termination point.

<sup>5</sup> We collect planned network deployment information of CPs from whom we collected current network coverage information as part of our Connected Nations reporting. Other CPs may have plans to deploy networks but have not been included in our information gathering exercise.

our high-level findings in this report do not take account of any of the responses going beyond our requested 3-year timeframe.

# Summary of findings

In this section, we provide a summary of the findings of our analysis of provider data. We examine the overall extent of network build across the UK, along with breakdowns at the individual Nation level. Among other things, we report on the build plans in both urban and rural areas as well as where networks may be building to the same properties ('overbuild').

The properties that form the basis for our analysis are the same as those used for our Connected Nations Summer Update (September 2023)<sup>6</sup>, and to remain consistent with the general Connected Nations reports, our results refer to residential properties only.

Although the plans provided to us related to the deployment of full fibre technology, our report relates to the provision of VHCNs, so we include, where relevant, the existing gigabit-capable networks that use alternative technologies (for example, cable broadband networks).

The future network build intentions of operators may be at different stages of planning; some plans may already be in the course of deployment, whereas others may not yet have had financial approval to proceed. For this report, we asked CPs to confirm both the financial and planning status of their planned network deployments. Specifically, we asked whether the plans had reached a design stage of 'Low level Design complete' and whether funding had been committed for the plans.<sup>7</sup> In this report, we consider plans to be of 'High Confidence', if they have reached both the Low Level Design stage and for which funding has been committed. Last year, we divided plans into three categories:

- i) those for which detailed planning and/or deployment were in progress (Cat 1);
- ii) those for which financial approval had been obtained (Cat 2); and
- iii) those for which financial approval had not yet been obtained (Cat 3)

For the purposes of year-on-year comparisons, we expect previously reported 'Cat 1 and Cat 2' to be roughly equivalent to 'High Confidence' reported in this report. However, direct comparisons with the figures published in the previous report need to recognise the differences in reporting criteria.

## Overview of Full-fibre and Gigabit-capable coverage

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We set out below two figures that describe the planned deployment coverage over the next three years in the UK. Figure 1 below includes coverage for plans across all planning stages and funding types for the UK. The supporting tables, Table 7 and Table 7a (that provides the figures for full fibre coverage for High Confidence plans as well as Nations' breakdowns) can be found in Annex A at the end of this document.<sup>8</sup>

Similarly, Figure 2 summarises the coverage of the planned deployment of VHCN (gigabit-capable) network over the next three years for the UK. In Annex A, Table 8 provides a summary of the VHCN coverage for all the categories and Table 8a the VHCN coverage for High Confidence plans for the UK and each of the Nations.

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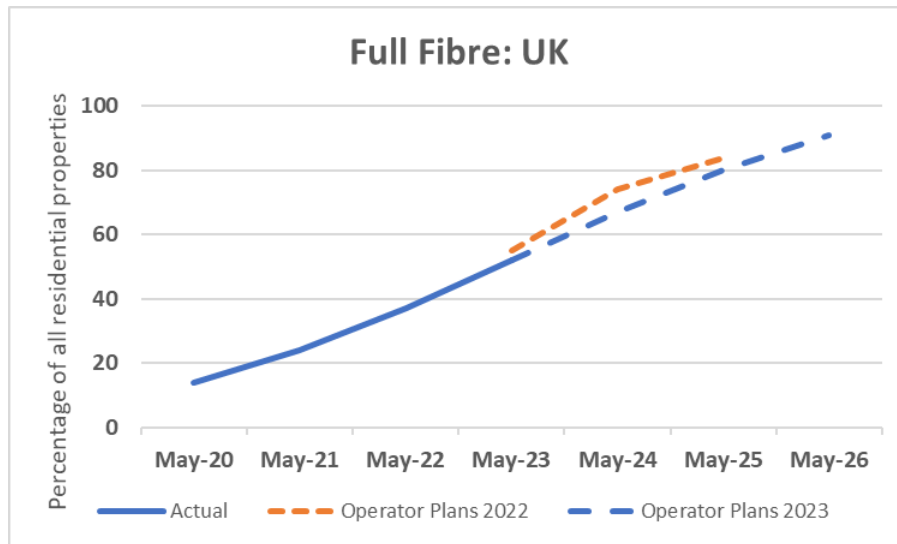
<sup>6</sup> [Connected Nations update: Summer 2023 - Ofcom](#)

<sup>7</sup> These criteria were chosen to align with the classifications and criteria set out in the BDUK's National Rolling Open Market Review (NROMR) [National Rolling Open Market Review January 2023 Request For Information - GOV.UK \(www.gov.uk\)](#).

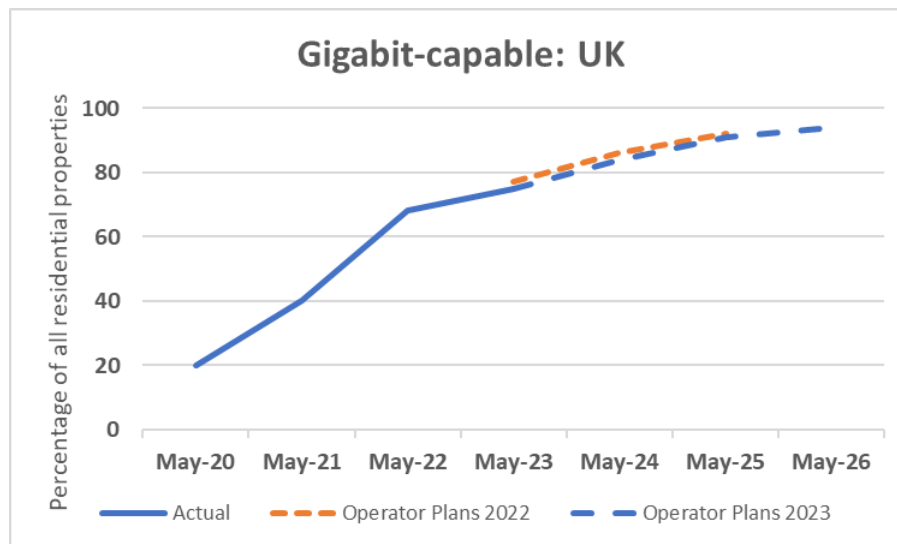
<sup>8</sup> Unless otherwise stated, all dates are for the end of the month quoted (for example, 30 April 2024).



Actual network deployment in 2023 as well as the revised plans for future growth are lower than plans as of 2022. The changing economic situation in the UK between March 2022 and May 2023, including higher costs of borrowing, coupled with market consolidation, is likely to have played a part in these revised figures. Nevertheless, network deployment plans remain significant over the next three years, with full fibre coverage potentially reaching 80% in 2025 and 90% the following year.



**Figure 1: Plans for Full Fibre deployment in the UK from 2022 compared with actual build (as of May 2023) and planned deployments received in 2023.**



**Figure 2: Plans for Gigabit-capable network deployment in the UK from 2022 compared with actual build (as of May 2023) and planned deployments received in 2023.**

## Planned deployment of Fixed Wireless Access (FWA) networks

We also anticipate that FWA networks will deploy around 5,400 additional, or upgraded masts across the UK over the next 3 years, for which we anticipate that the respective operators may be able to offer broadband services with download speeds of  $\geq 100$  Mbit/s. However, only a fraction of all the properties covered by a FWA network may be able to take a broadband service at such speeds due to practical installation challenges (such as getting line of sight to the property) and capacity constraints (e.g. spectrum), so we report on the potential extent of these networks differently to that of full fibre networks.

Despite the separate reporting approach, we do recognise the importance of FWA (and increasingly satellite) technology to serve households across the UK, particularly in more challenging areas. In particular, new gigabit radio technology will support VHCN over FWA, there are plans to deploy to in excess of 4000 premises with Gigabit radio, but at the time of writing the locations of the masts for these services are unknown.

**Table 1. Projected (cumulative) Fixed Wireless Access (FWA) mast deployments (UK and Nations)**

New FWA masts	Current (Sept 2022 <sup>9</sup> )	Additional masts as of May 2024	Additional masts as of May 2025	Additional masts as of May 2026
UK	27000	3596	4724	5413
England	23000	3048	3996	4554
Northern Ireland	300	24	44	75
Scotland	2300	287	391	459
Wales	1400	237	293	325

## Relationship between planning stages and timescales

Network plans, particularly those projected many months in advance, have different levels of confidence, either due to the certainty of funding available to cover the capital and other project costs, or due to the level of planning detail that has been completed. Table 2 below shows that for more immediate plans there are higher proportion of properties for which there is high confidence (both low level design complete and funding committed), whereas for longer-term plans there is more of a mix of plans. Note that in the table individual properties may be identified by more than one operator (with different delivery dates and at a different stage of planning), hence the count of 'lines' rather than properties in this table.

<sup>9</sup> We are using the data from September 2022 to derive current masts as the latest 2023 FWA data is still being processed for the full Connected Nations report due to be published later this year.

**Table 2. Level of planning of new full-fibre lines, with respect to anticipated delivery date (cumulative figures over time).**

Both low level design completed and funding committed?	Total number of new lines: By 1 May 2024	Total number of new lines: By 1 May 2025	Total number of new lines: By 1 May 2026
Yes	7.5m	14.0m	19.3m
No	1.0m	6.0m	12.8m

## Coexistence of network deployments

In addition to the further expansion of existing networks in the UK, a large number of new network infrastructure operators has also emerged. In Table 3 below, we show the UK countries where these networks are being deployed with respect to each other.

In many cases, build plans have been complementary in that different operators operate in the same geographic area yet each targeting different premises within that area. This helps to maximise take-up on a CP's network and hence its revenues. However, in other areas, multiple networks may build to the same properties ('overbuild'). Our analysis shows that the extent of overbuild is likely to increase in the coming years with 41% of UK properties having gigabit-capable broadband services available from 3 or more providers by May 2026.

**Table 3. Coincident network coverage anticipated by May 2026. Note that this includes existing gigabit-capable networks (which includes both full fibre and cable broadband). Figures in brackets are for May 2023.**

Coincident Gigabit-capable build by May 2026	Number of fixed operators in Nation	% properties covered by 4 or more operators	% properties covered by 3 or more operators	% properties covered by 2 or more operators
UK	60 (59)	5% (0.1%)	41% (5%)	76% (30%)
England	52 (51)	6% (0.2%)	41% (5%)	77% (30%)
Northern Ireland	6 (5)	0.8% (0%)	60% (2%)	90% (65%)
Scotland	13 (12)	4% (0%)	36% (4%)	68% (27%)
Wales	20 (16)	5% (0%)	45% (1%)	70% (16%)

We have also examined how the build plans of operators may evolve in the geographic market areas defined in our most recent Wholesale Fixed Telecoms Market Review (WFTMR)<sup>10</sup>. This highlights

<sup>10</sup> [Statement: Promoting investment and competition in fibre networks – Wholesale Fixed Telecoms Market Review 2021-26 - Ofcom](#)

that gigabit capable services are anticipated to become widely available by May 2026 in both 'Area 2' and 'Area 3'.

**Table 4. Actual and Planned network build in 'Area 2' and 'Area 3' (as defined in Ofcom's 2021 market review).**

Market Area	% properties gigabit capable (May 2023)	% properties gigabit capable (May 2026)
Area 2	86%	98%
Area 3	50%	85%

## Future build in urban and rural areas

Network investment is not just focussed on urban areas. While the economics of urban areas are often more favourable in terms of cost per property passed, many rural areas can be attractive, for example, due to the current levels of broadband service and hence the likely uptake of new services were they to be available. The definition of urban and rural is explained in the methodology Annex B below along with baseline (May 2023) figures.

**Table 6. Urban and rural split (both absolute and percentage) of coverage plans to May 2026. Figures in brackets are current Gigabit-capable (May 2023) figures.**

Urban/rural deployments (May 2026)	Number of urban properties covered	Number of rural properties covered	% Urban properties covered	% Rural properties covered
UK	25.0m (20.6m)	3.2m (1.8m)	98% (81%)	75% (42%)
England	21.3m (17.6m)	2.4m (1.3m)	98% (81%)	78% (41%)
Northern Ireland	0.6m (0.55m)	0.2m (0.19m)	100% (96%)	99% (78%)
Scotland	2.0m (1.7m)	0.3m (0.15m)	93% (78%)	51% (30%)
Wales	1.1m (0.7m)	0.2m (0.13m)	99% (67%)	73% (39%)

# Annex A: Supporting Tables

In this Annex A, we set out additional tables to support the information covered in the main body of this report.

**Table 7. Summary of planned deployment of full fibre coverage as a percentage of residential properties over the next three years for all planning categories. Data in brackets is the percentage point change from our first report.**

Access to full fibre	Current (May 2023)	May 2024	May 2025	May 2026
UK	52% (-3ppt)	67% (-7ppt)	80% (-4ppt)	91%
England	51% (-3ppt)	66% (-7ppt)	80% (-3ppt)	91%
Northern Ireland	90% (-4ppt)	94% (-2ppt)	99% (+3ppt)	99%
Scotland	49% (-3ppt)	63% (-7ppt)	75% (-8ppt)	83%
Wales	50% (-9ppt)	69% (-10ppt)	89% (-3ppt)	93%

**Table 7a. Summary of planned deployment of full fibre coverage to residential properties over the next three years for High Confidence plans.**

Access to full fibre	Current (May 2023)	May 2024	May 2025	May 2026
UK	52%	65%	75%	83%
England	51%	65%	74%	83%
Northern Ireland	90%	93%	97%	97%
Scotland	49%	62%	73%	78%
Wales	50%	68%	85%	89%

**Table 8. Summary of planned deployment of VHCN (Gigabit-capable) coverage to residential properties over the next three years for all planning Categories. Data in brackets is the percentage point change from our first report.**

Access to Gigabit capable networks	Current (May 2023)	May 2024	May 2025	May 2026
UK	75% (-2ppt)	84% (-2ppt)	91% (-1ppt)	94%
England	76% (-2ppt)	85% (-2ppt)	91% (-1ppt)	95%
Northern Ireland	91% (-4ppt)	95% (-1ppt)	99% (+3ppt)	100%
Scotland	69% (-2ppt)	76% (-5ppt)	82% (-5ppt)	85%

Access to Gigabit capable networks	Current (May 2023)	May 2024	May 2025	May 2026
Wales	60% (-6ppt)	75% (-7ppt)	89% (-4ppt)	93%

**Table 8a. Summary of planned deployment of VHCN (Gigabit-capable) coverage to residential properties over the next three years for High Confidence plans.**

Access to Gigabit capable networks	Current (May 2023)	May 2024	May 2025	May 2026
UK	75%	83%	87%	90%
England	76%	84%	88%	91%
Northern Ireland	91%	94%	98%	98%
Scotland	69%	76%	80%	83%
Wales	60%	73%	85%	89%

# Annex B: Methodology

In this Annex B, we summarise the methodology that underpins the results in this report.

## Calculating the ‘premise base’

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- 1.1 This section explains how we identify, include, and categorise properties. In summary:
- We use property information from the [Ordnance Survey’s AddressBase® database](#) including both Royal Mail postal addresses and additional property details from Local Authority sources. This ensures our ‘premise base’ is current and comprehensive.
  - We consider the sub-properties within a building regardless of the number of postal delivery points serving them. This ensures that our overall report, as well as our published maps and apps, better reflect coverage at individual premises across the UK and are consistent with information provided by operators.
  - In this report, we will mainly focus on coverage figures for residential properties. We also highlight distinctions between residential and commercial premises, where appropriate.
- 1.2 Ofcom uses the OS AddressBase® Premium and Islands products to provide the base dataset used to assess broadband coverage for residential and commercial premises.
- 1.3 In particular, this report uses:
- Ordnance Survey AddressBase® Premium [Epoch 100](#), and
  - Ordnance Survey AddressBase® Islands [Epoch 100](#),
- both of which were released in March 2023.
- 1.4 Each record in OS AddressBase® refers to a Basic Land and Property Unit (BLPU) and is defined in the British Standard for Addressing (BS7666) as an:
- area of land in uniform property rights or, in the absence of such ownership evidence or where required for administration purposes, inferred from physical features, occupation or use.
- 1.5 For Epoch 100 OS AddressBase® Premium and Islands together cover 41.6 million BLPUs.
- 1.6 Each BLPU has a Unique Property Reference Number (UPRN), a spatial reference and one or more Land and Property Identifiers (LPI).
- 1.7 The OS AddressBase® data is combined with additional geographical classifications from the ONS [National Statistics Postcode Lookup](#) table for February 2023 and Urban and Rural categories derived from the [Locale classification](#).
- 1.8 Locale is a third-party data source where each census output area is assigned to one of seven Locale Groups. We assign each premise to a census output area based on its postcode and then assign the Locale classification to either Urban or Rural based on the following:

- **Urban:** Codes A to E, where codes A to C relate to settlements with populations over 10,000 and codes D and E relate to settlements with populations over 2,000. In the May 2023 Addressbase, we classified 25.6 million residential properties as urban.
- **Rural:** Codes F and G, which relate to settlements with populations under 2,000. In the May 2023 Addressbase, we classified 4.2 million residential properties as rural.
- Breakdown of urban and rural premises numbers at individual nation level can be found in our interactive chart: [Connected Nations Summer 2023 update: Interactive report - Ofcom](#)

1.9 Our approach to identifying the ‘premise base’ includes three stages:

- **Identifying ‘Service delivery addresses’:** the address locations that are indicative of where a service would be provided.
- **Data cleansing:** for use in reporting, the premise list is linked to other attributes to identify statistical or administrative geographic units, or rurality categories. Timing of data may impact on how many records may be linked.
- **Reporting definition:** the inclusion of all records based on property classification or status may change dependent on the specific focus of a report.

1.10 For further details on our approach to identifying the ‘premise base’ and our approach to address matching, please see the [Methodology Annex](#) to our Connected Nations 2022 report.

## Fixed Networks

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1.11 Our data on coverage of fixed broadband services is collected from multiple operators. In May 2023, operators were asked to provide data for each address where a VHCN service was planned to be provided in the following 3 years. This was provided with a reference date of 1 May 2023.

1.12 For the overall coverage of fixed broadband, we have identified the number of UK properties, our ‘premise base’, as described in the previous section. For May 2023, we have used a premise base of 31.8 million of which 29.8 million were residential.

## Fixed Wireless Access

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1.13 Fixed Wireless Access services can be provided on a mobile network by Mobile Network Operators (MNOs) or on a dedicated wireless network by Wireless Internet Service Providers (WISPs).

1.14 Our analysis of Fixed Wireless Access coverage uses planned deployment data from 3 MNO providers and 2 WISPs.

1.15 Where FWA services are available on mobile networks, the capacity is shared with mobile users.



- 1.16 From both types of FWA operators, we collected the build plans over the next three years (as of May 2023) to extend or upgrade any part their network, so as to provide a download speed of at least 100 Mbit/s.
- 1.17 For wireless transmission and operation, it can be very difficult to know whether a service will achieve 100 Mbit/s to a particular property. Early discussions revealed that no operators were planning to deploy services which would guarantee such a service. Consequently, we collected information on future planned masts that would be supported by 1 Gbit/s or greater backhaul service (either fibre or radio). We deemed these masts to be VHCN-Ready in that only the final antenna supporting any 100 Mbit/s service would be needed to attain that level of service.
- 1.18 We asked for the site identity and location of each new planned mast supporting such a high level of backhaul along with the anticipated timescales for deployment.
- 1.19 For the reasons above, individual property address matching was not undertaken, and we report solely on the location of the relevant masts for the purposes of future FWA network deployment.