



BRIEFING PAPER

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Superfast Broadband Coverage in the UK

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Summary

Government Targets

Superfast broadband has been rolled out to much of the country on commercial terms by providers such as BT and Virgin Media. The Government's policy is to provide funding to support the roll-out of superfast broadband to those areas of the UK where commercial roll-out is not economically viable. This is mostly, but not entirely, in rural areas. The Government defines superfast as speeds greater than 24Mbps, whereas Ofcom (the UK regulator) defines it as speeds greater than 30Mbps.

Broadband Delivery UK (BDUK), part of the Department for Culture, Media and Sport (DCMS), is responsible for implementing the Government's policy on superfast broadband roll-out which consists of three stages:

- to provide superfast broadband coverage to 90% of UK premises by early 2016 and access to basic broadband (2Mbps) for all from December 2015 – "Phase 1"
- to provide superfast broadband coverage to 95% of UK premises by the end of 2017 – "Phase 2"
- to explore options to provide superfast coverage to the hardest to reach parts of the UK - "the final 5%"

The BDUK coverage targets include the commercial roll-out, however, the BDUK programme and funding is focused on those areas that are not reached by the commercial roll-out.

Phase 1

In a [Westminster Hall debate](#) on 9 March 2016 the then Minister of State for the Digital Economy, Ed Vaizey MP, stated that the target for coverage of 90% of UK premises had been met.

In its [Connected Nations 2016 Report](#), Ofcom confirmed that, as of June 2016, 90% of UK premises (almost 26 million) were covered by superfast broadband (at least 24 Mbps). Ofcom data as at June 2016 showed that about 1% of UK premises (about 190,000) were unable to receive speeds of 2Mbps.

Phase 2

Phase 2 is currently underway in many areas of England with only a small number of local bodies yet to sign contracts for the roll-out. Procurement has not yet started for Phase 2 in Scotland. Contracts have been signed for Phase 2 in Wales and Northern Ireland.

A [BDUK Programme summary](#) (based on contracts signed at 1 February 2017) provides detailed information on the contracts and the total amounts of funding (BDUK and local body funding) for Phase 1 and Phase 2 in each local project area. The [Government has confirmed](#) it is "on track to reach 95% of premises by December 2017".

The Final 5%

With Phase 2 of the broadband roll-out underway in many areas the focus has moved to superfast broadband coverage for the “final 5%” of UK premises. The remaining unserved premises (5% is around 1.4 million premises) are geographically dispersed across the landmass of the UK.

Delivery of the roll-out

In England each county council or local enterprise partnership (collectively 'local bodies') is leading the broadband roll-out in their area. In Scotland, Wales and Northern Ireland the roll-out is led by the devolved Administrations.

Coverage

By the end of December 2016, the [BDUK](#) government funded superfast broadband programme had extended superfast broadband to 4.3 million homes and businesses across the UK.

Ofcom's [Connected Nations](#) 2016 report and [postcode level data downloads](#) showed:

- the **average download speed** for all fixed broadband services for the **entire UK is 37Mbps**, although speeds available to individual customers vary considerably;
- **superfast broadband** – speeds greater than 30 Mbps – is now available in **89% of UK premises (over 25 million)**, with **take-up of 31%**;
- **about 1% of UK premises** (about 190,000) are unable to receive speeds of **2Mbps**;
- **5% of UK premises** (about 1.4 million) are unable to receive speeds of **at least 10Mbps** through a fixed line.

Data tables with information on broadband connectivity and speeds for each constituency are available on the [Briefing Paper landing page](#). On request, the Library can provide MPs and their staff with further data and maps for their constituency and the wards it contains. See section 6.3 for an example.

1. Quick facts about broadband

1.1 Definition of superfast broadband

A number of different levels of fixed line broadband service are offered in the UK, usually defined in terms of the download speed offered. Speeds are measured in megabits per second (Mbps) which is a measure of data transfer speed.

Ofcom defines the following services:

- Standard broadband services have download speeds of between 10 to 30 Mbps;
- Superfast broadband services have download speeds of 30 Mbps or more; and
- Ultrafast broadband services have download speeds of 300 Mbps or more.¹

Ofcom's definition of superfast broadband is in line with the European Commission definition. [It has also been reported in *ISPReview*](#) that some local bodies have specified 30 Mbps as superfast broadband in their local roll outs.²

However, the Government defines basic broadband services as having download speeds of 2Mbps; superfast broadband services as having download speeds of 24 Mbps or more;³ and ultrafast broadband services as having download speeds of 100Mbps or more.⁴ These are the speeds that Government targets and progress is measured against.

The Government's definition of superfast broadband (speeds of at least 24 Mbps) was scrutinised by the EFRA Committee, with the Committee noting that the EU expects all Member States to have access to 30 Mbps by 2020:

Millions of pounds are being invested in the rollout of superfast broadband at 24 Megabits per second. Within three years of the expected delivery date, however, that speed will no longer be considered 'superfast' by European standards.⁵

This paper clarifies which definition is being referred to, as relevant, throughout.

¹ Ofcom, [Connected Nations 2016](#) December 2016

² ['UK Councils Quietly Recognise 30Mbps as NGA Broadband'](#), *ISPReview*, 18 April 2016

³ DCMS, [BDUK Guidance](#), last updated 21 December 2015 [accessed 7 March 2017]

⁴ HM Treasury, [Broadband Investment Fund](#), 22 July 2016 [accessed 7 March 2017]

⁵ EFRA Committee, [Rural broadband and digital-only services](#), HC 834 2014-15, 3 February 2015, para 22

1.2 Broadband technologies

Standard and superfast broadband services are delivered using copper-based technologies. Ultrafast makes use of fibre technology. The type of technology used will impact the speed of broadband that can be received by the consumer.

See more detailed information on technologies and speeds possible in the Glossary in Part 7 of this Paper.

1.3 What is an acceptable broadband speed?

Broadband is a way of connecting devices (computers, laptops, tablets, smartphones, smart TVs) to the internet. Some online activities need faster connection speeds than others to work well; and the more connected devices there are, the higher the required speed tends to be.

Generally speaking, for browsing the web, checking emails or occasionally streaming video, a superfast connection may not be needed. However, superfast broadband is likely to be beneficial for consumers who use broadband at the same time as other people in the premises; download films or large files on a regular basis; use multiple devices to access online services; play video games; or use video calling services.⁶

Ofcom currently states that a connected speed of at least 10Mbps is necessary to deliver an “acceptable user experience” of broadband – this is based on a typical household’s uses, including basic web browsing, video calling, catch up TV and film streaming in HD.⁷ See Box 4 below for information on checking local broadband speeds.

Some examples of some common internet activities and how much data they use are provided below:⁸

Examples of data consumption

| Activity | Data consumption |
|------------------------------|------------------|
| Download a HD film | 4 GB |
| One hour of web browsing | 10-25 MB |
| Download a music track | 4 MB |
| Stream 30 minutes of YouTube | 175 MB |

Source: Ofcom, UK Home broadband performance: a consumer summary, 24 March 2016

⁶ See Which? [What broadband speed do I need?](#) [accessed 7 March 2017]

⁷ Ofcom, [UK Home broadband performance: a consumer summary](#), 24 March 2016 [accessed 7 March 2017]

⁸ Ofcom, [UK Home broadband performance: a consumer summary](#), 24 March 2016 [accessed 7 March 2017]

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For more information on broadband speeds and examples of the data usage of typical activities, see [Ofcom's UK Home broadband performance: a consumer summary](#).

2. Broadband policy

Superfast broadband has been rolled out to much of the country on commercial terms by providers such as BT and Virgin Media. The Government's policy is to provide funding to support the roll-out of superfast broadband to those areas of the UK where commercial roll-out is not economically viable. This is mostly, but not entirely, in rural areas. The Government defines superfast as speeds greater than 24Mbps.⁹

Broadband Delivery UK (BDUK), part of the Department for Culture, Media and Sport (DCMS), is responsible for implementing the Government's policy on superfast broadband roll-out which consists of three stages:

- provide superfast broadband coverage to 90% of UK premises by early 2016 and access to basic broadband (2Mbps) for all from December 2015 – "Phase 1"
- provide superfast broadband coverage to 95% of UK premises by the end of 2017 – "Phase 2"
- explore options to provide superfast coverage to the hardest to reach parts of the UK - "the final 5%"¹⁰

The BDUK coverage targets include the commercial roll-out, however, the BDUK programme and funding is focussed on those areas that are not reached by the commercial roll-out.

2.1 Phase 1

Phase 1 was to provide superfast broadband coverage to 90% of UK premises by early 2016 and access to basic broadband (2Mbps) for all from December 2015.

Universal access to broadband speeds of 2 Mbps

In a PQ response in February 2015 the then Minister of State for Culture and the Digital Economy, Ed Vaizey MP, said that the Department estimated that less than 1% of premises would have access to speeds less than 2Mbps by the end of 2015 and were developing plans to ensure remaining premises would have access to speeds of more than 2 Mbps by December 2015:

The Department estimates that by the end of 2015 fewer than 1 per cent of UK premises will have access to speeds of less than 2Mbps, down from 11 per cent in 2010. The Department is developing plans to enable these remaining premises to have access to speeds of more than 2Mbps by December 2015. The Department estimates that 90 per cent of UK premises will have

⁹ DCMS, [BDUK Guidance](#), last updated 21 December 2015 [accessed 7 March 2017]

¹⁰ Gov.uk, [Broadband Delivery UK](#) [accessed on 7 June 2016]

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access to speeds of more than 24Mbps by early 2016, and that 95 per cent will have access to these speeds by December 2017.¹¹

In a debate on the Broadband Universal Service Obligation on 16 December 2016, former Minister Ed Vaizey stated that there was now coverage of 99.22% at 2Mbps.¹²

Ofcom data as at June 2016 showed that about 1% of UK premises (about 190,000) were unable to receive speeds of 2Mbps.¹³

Better Broadband Scheme

In order to ensure that the final few properties still without a basic broadband service could access speeds of at least 2 Mbps BDUK announced in December 2015 that it would offer a subsidised satellite broadband connection (see Glossary).¹⁴ The scheme is known as the [Better Broadband Scheme](#) and is available across the UK. It is administered by local authorities or the devolved Administrations who provide a code to eligible homes and businesses upon request. The code can then be used to obtain a satellite broadband service with a total cost reduction of around £350.

Further information and guidance, including a list of Better Broadband Scheme suppliers, is provided on Gov.uk: [Better Broadband Scheme Suppliers](#). A [postcode checker](#) is also available to find information about what is available in a particular area.

The Government originally estimated that around 300,000 properties across the UK would be able to make use of the new offer.¹⁵ However, the scheme was reported to get off to a slow start,¹⁶ following a PQ response in January 2016 which revealed that the total value of installations ordered up to that date was £8,400 (out of the £60 million funding available to support the scheme).¹⁷

[Satellite broadband has been criticised for various reasons](#), including:

- not offering comparable service and speeds to fibre broadband;
- issues with latency: as the satellite signal has to travel to and from the satellite it makes certain functions difficult, such as real-time online gaming; and
- unexpected downtime during periods of bad weather.¹⁸

The Better Broadband Scheme offers subsidised broadband connections for premises across the UK who cannot access speeds of at least 2Mbps

¹¹ [PQ 223689](#) [on Broadband], 12 February 2015

¹² [HC Deb 15 Dec 2016 | | 618 c1040](#)

¹³ Ofcom, [Connected Nations 2016, Data Downloads](#)

¹⁴ DCMS, [Satellite dishes to boost broadband speeds in most remote areas of UK](#), 7 December 2015 [accessed on 21 February 2017]

¹⁵ DCMS, [Satellite dishes to boost broadband speeds in most remote areas of UK](#), 7 December 2015 [accessed 21 February 2017]

¹⁶ ISP Review, [UK Rural Broadband Satellite Subsidy Scheme Gets Off to a Slow Start](#), 19 January 2016 [accessed 24 February 2017]

¹⁷ [PQ 22495](#) [on Broadband: Rural Areas] 18 January 2016

¹⁸ [‘Consumers to get connection vouchers for satellite broadband’](#), *ComputerWeekly.com*, 16 September 2015

Speaking to ComputerWeekly.com, [Andrew Ferguson, editor of comparison site thinkbroadband.com](#), described satellite broadband as a stop-gap with limitations:

Satellite broadband, while able to provide the speeds it suggests, comes with various usage limits, meaning if you want to enjoy gorging on streamed TV boxsets you will need the most expensive packages at over £60 per month.¹⁹

Following the introduction of the subsidised satellite scheme, a further supplementary scheme was set up to include fixed wireless providers (see Glossary) as well as satellite providers. This scheme is administered by BDUK.

A PQ answered by the then Minister on 12 May 2016 stated that there had been a total of 3,945 successful applications to the Basic Broadband Scheme (although only 560 orders):

The Basic Broadband Scheme comprises two schemes running in parallel: the main scheme is administered by the Local Authorities and BT using only satellite suppliers; and the second supplementary scheme is administered by BDUK and uses fixed wireless suppliers as well as satellite suppliers. These schemes form part of the Government's commitment to ensure that every home and business in the UK has access to a broadband service of at least 2 Mbps.

On the main scheme, there have been 2774 successful applications for codes, with 278 going on to place orders. On the supplementary scheme, there has been 1171 successful applications for codes, with 282 going on to place orders.²⁰

Superfast broadband for 90% of the UK

Historically, there had been some uncertainty surrounding the Government's target of delivering superfast broadband to 90% of the UK. The Coalition Government had originally targeted 2015 as the date for reaching this target but a 2013 report by the National Audit Office highlighted that in June 2013 the target was changed to December 2016 because of delays receiving state aid clearance from the European Commission.²¹

In a Westminster Hall debate on 9 March 2016 the then Minister, Ed Vaizey MP, stated that the 90% target had been met:

There has been only one failure in the superfast broadband roll-out programme that I have supervised and that was in south Yorkshire, where we inherited a useless Labour contract and had to write off £50 million of taxpayers' money. Everything else has been an unadulterated success. We now have 93% of the country able to receive fibre, 90% of the country able to get superfast

¹⁹ *Ibid.*

²⁰ [PQ 36864](#), 12 May 2016

²¹ National Audit Office, [The rural broadband programme](#), 5 July 2013

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speeds of 24 megabits and above, and 50% of the country able to get ultrafast broadband speeds of 100 megabits and above.²²

In its Connected Nations 2016 Report, Ofcom confirmed that, as of June 2016, 90% of UK premises (almost 26 million) were covered by superfast broadband (at least 24Mbps).²³

2.2 Phase 2

Phase 2 aims to provide superfast broadband coverage to 95% of UK premises by the end of 2017.

In the 2013 Spending Review, the Coalition Government announced a further allocation of £250 million as part of the superfast extension project—or Phase 2—to help extend superfast broadband to 95% of all premises in the UK by the end of 2017.²⁴

In their 2015 report into rural broadband the Environment, Food and Rural Affairs Committee pointed out that it was by no means certain that the Government would meet this phase 2 target. BT told the Committee that “it is there or thereabouts. It may end up being in 2018”.²⁵

Phase 2 is currently underway in many areas of England with only a small number of local bodies yet to sign contracts for the roll-out. Procurement has not yet started for Phase 2 in Scotland. However, contracts have been signed for Phase 2 in Wales and Northern Ireland.²⁶ The [Government has confirmed](#) it is “on track to reach 95% of premises by December 2017”.²⁷

The map overleaf shows the percentage of connections in the UK capable of receiving superfast speeds (i.e. faster than 30Mbps) as at June 2016. Ofcom classifies speeds greater than 30Mbps as superfast whereas the Government uses the slightly lower figure of 24Mbps. This means that the coverage figures reported by Ofcom are slightly lower than those reported by the Government. However, the differences are in general small because most premises that can receive 24Mbps will also be able to receive 30Mbps.

Detailed maps of individual constituencies and regions are available on request.

By June 2016, 90% of UK premises were covered by superfast broadband (at least 24 Mbps)

²² [HC Deb 9 March 2016, c138WH](#)

²³ Ofcom, [Connected Nations 2016](#), December 2016

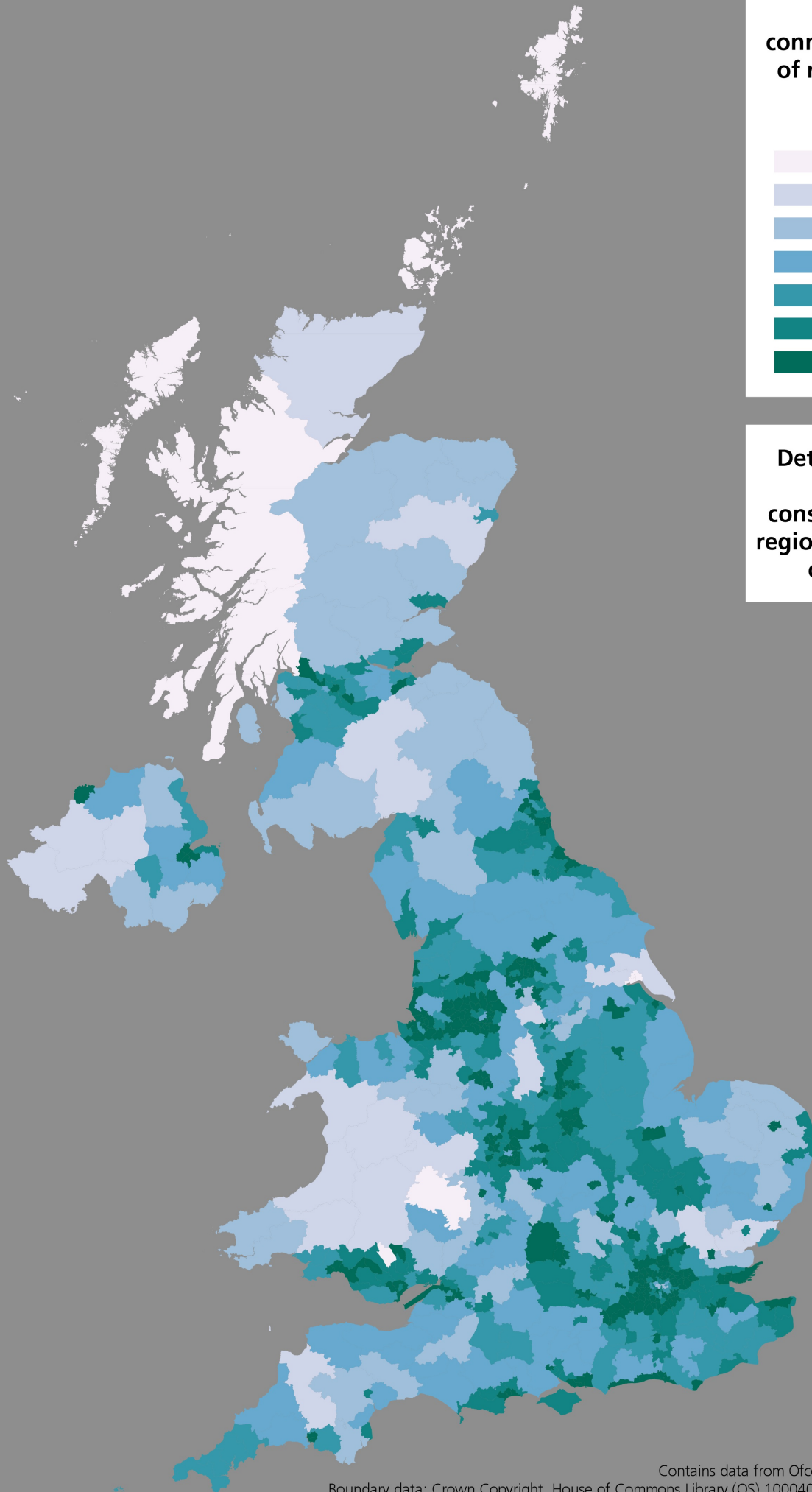
²⁴ DCMS, [Spending Round 2015/16 - full details of funding for DCMS bodies published](#), 4 July 2013

²⁵ Efra Committee, [Rural broadband and digital-only services](#), 3 February 2015, HC 834 2014-15, para 11

²⁶ BDUK, [Broadband Delivery UK \(BDUK\): Table of local broadband projects](#) [accessed on 3 March 2017]; [‘Wales UK Signs Deal to Expand BT Fibre Broadband Services to More Areas’](#), *ISPReview*, 7 July 2015 [accessed on 10 June 2016]

²⁷ DCMS, [UK Digital Strategy. Connectivity – building world-class digital infrastructure for the UK](#), 1 March 2017

Superfast broadband availability, 2016



Percentage of connections capable of receiving speeds of 30 Mb/s

- 27% to 51%
- 51% to 65%
- 65% to 75%
- 75% to 83%
- 83% to 89%
- 89% to 94%
- More than 94%

Detailed maps of individual constituencies and regions are available on request.

2.3 The final 5%

With Phase 2 of the broadband roll-out underway in many areas, the focus has moved to exploring options to provide superfast broadband coverage for the hardest to reach parts of the UK—the “final 5%” of UK premises.

The remaining unserved premises (5% is about 1.4 million premises) are geographically dispersed across the landmass of the UK.²⁸ They are found in a mix of locations, “with differing topographies, population densities and with different proximity to existing basic and superfast broadband networks”.²⁹ Providing superfast broadband to these premises poses distinct challenges. Some of these unserved premises are likely to be in densely populated urban areas, such as the City of Westminster, as well as rural areas.³⁰ Box 1 provides further detail.

Box 1: Types of sites in the final 5%

BDUK sets out the different types of unserved areas as follows:

- **Individual sites**, within the middle of a supplier’s broadband footprint, that cannot obtain access to superfast speeds because of the particularities of the available network infrastructure;
- **Island areas with multiple premises**, surrounded by infrastructures that have been upgraded to support superfast broadband but which have not been upgraded due to economic factors applying to the specific areas (e.g. No intermediate access points, high power installation costs, low number of customers, wayleave issues); and
- **Contiguous areas at the margin of existing broadband infrastructure(s)**, which are often not upgraded to support superfast services because of the relatively high cost of extending infrastructure capability to support these locations. These areas often have poor basic broadband availability as well.³¹

Contract Clawback

The contracts between local authorities and BT for broadband roll-out contain clauses that allow for the return of public subsidy by BT (“clawback”). This happens when the take up of superfast broadband in the area covered by a contract reaches a threshold of 20%, as confirmed by a PQ response in February 2016:

All of the BDUK superfast broadband contracts with BT contain a claw-back mechanism so that as take-up rises above a set level of 20%, further funding is reinvested in extending coverage.³²

In evidence to the Culture, Media and Sport Committee, the then Minister of State for Culture and the Digital Economy, Ed Vaizey MP,

²⁸ Ofcom, [Connected Nations 2016](#), December 2016

²⁹ DCMS, [BDUK Market Test Pilots: Exploring superfast coverage beyond 95%](#), February 2015

³⁰ Cllr Jonathan Glanz, [Oral evidence: Establishing world-class connectivity in the UK, HC 407](#), 3 February 2016

³¹ DCMS, [Emerging Findings from the BDUK Market Test Pilots](#), February 2016

³² PQ 27855, 26 Feb 2016

stated that the money that is returned will go to fund additional broadband roll-out, either by BT or other providers:

Q1080 **Damian Collins:** Thank you. Two brief questions, Mr Chairman. You touched earlier on clawback money from phase 1. Does that go back into the Department's pot or will that be available to support additional rollout of broadband?

Mr Vaizey: That is going into additional rollout. It can either be used by [BT] Openreach to extend, if that is what the contracting authority wants to do, or it can be used potentially by a competitor who contracts with the local authority to undertake some rollout.

Q1081 **Chair:** Just to be clear on that, a local authority can take the clawback money and go to an alternative provider and say, "Here is the dosh, get building" by agreement, essentially?

Mr Vaizey: Yes.³³

It has been suggested that the extra funding from clawback could extend superfast broadband coverage to 97% of UK premises. However, BDUK has stated that it is unable to confirm how much extra coverage there will be until the planning and procurement process for the extra funding is complete.³⁴

On 22 December 2016, the Department for Culture, Media and Sport announced £440 million additional broadband funding to benefit up to 600,000 homes.³⁵ The Government confirmed that the funding comprised savings of £150 million and £292 million released by BT under the contract clawback mechanism. At the time of the announcement, £133 million of the total £440 million had already been allocated.³⁶ No further details on which projects or locations would receive additional funding was provided. However, *The Scotsman* reported that Scotland would receive nearly £18 million of this funding to roll out superfast broadband in remote areas.³⁷

DCMS announced £440 million additional broadband funding in December 2016, of which £292 million was released by BT through contract clawback.

A PQ response in February 2017 confirmed that the funding would allocated using the same criteria as phase 1 and 2 of the superfast rollout:

The money returned to projects by efficiency savings and gain-share will be invested using the same criteria set out for the earlier phases of superfast rollout. This means it will focus on areas where there is not commercial competition, and prioritised by value-for-money installations to connect the largest number of

³³ Ed Vaizey MP, [Oral evidence: Establishing World-class Connectivity throughout the UK, HC 407](#), 13 April 2016

³⁴ ['Government Push Superfast Broadband to 3.84 Million Extra UK Premises'](#), *ISPreview*, 19 May 2016 [accessed on 9 June 2016]

³⁵ DCMS, [£440 million broadband boost to benefit more than half a million premises, 22 December 2016](#)

³⁶ DCMS, [£440 million broadband boost to benefit more than half a million premises, 22 December 2016](#)

³⁷ Scotsman, [Boost for rural Scottish homes with £18m broadband roll-out](#), 22 December 2016

premises who do not receive superfast speeds. Urban areas have generally been excluded from Superfast Programmes as commercial competition already exists in these locations.³⁸

Innovation fund and market test pilots

Because of their challenging locations, providing coverage to the final 5% is likely to require a range of other technologies, such as fixed wireless or satellite (see Glossary), as well as fixed line broadband. On 21 March 2014, the [Government announced](#) that it was accepting bids for a share of a £10m superfast broadband fund “to test innovative ways to help take broadband to Britain’s most remote communities”.³⁹

Three months later in June 2014, the [Government announced that it had shortlisted](#) eight successful bids to progress to the feasibility stage.⁴⁰ One provider later pulled out leaving seven pilots to go ahead (Box 2).

Box 2: Innovation fund market test pilots

The [seven schemes that went ahead are](#):

- **AB Internet:** a hybrid fixed line and wireless network in Wales (funding: £847,650)
- **Airwave:** a wireless system making use of TV white space in North Yorkshire (funding: £1,564,600)
- **Quickline:** a range of line of sight, near line of sight and non-line of site technologies in North Lincolnshire (funding: £2,054,000)
- **Avanti:** a satellite broadband platform in Northern Ireland and Scotland (funding: £884,640)
- **Call Flow:** a range of innovative ‘hybrid’ engineering techniques/solutions to achieve Next Generation Access delivery in Hampshire (funding: £1,194,145)
- **Cybermoor:** a fibre to the home network using a financial model that gets investment from the local community in Northumberland (funding: £449,997)
- **Satellite Internet:** a local wireless network with satellite backhaul in Somerset (funding: £175,125)

The market test pilots ran from June 2014 until March 2016 with a budget of £8 million.⁴¹ The Government [published the emerging findings](#) from the market test pilots in February 2016.⁴²

³⁸ PQ [62907](#), 10 February 2017

³⁹ DCMS, [£10 million superfast broadband fund opens for bids](#), 21 March 2014 [accessed on 21 June 2016]

⁴⁰ DCMS, [£10m broadband fund - winning bids announced](#), 19 June 2014 [accessed on 1 July 2016]

⁴¹ DCMS, [Emerging Findings from the BDUK Market Test Pilots](#), February 2016

⁴² DCMS, [Emerging Findings from the BDUK Market Test Pilots](#), February 2016

Community-led schemes

In October 2016, DCMS published Guidance on Community-led broadband schemes for those not scheduled to be covered by commercial or public rollout:

Your local area may be covered, or be soon to be covered, by an existing commercial broadband programme or by projects led by Local Bodies (local authorities or the devolved administrations in Scotland, Wales and Northern Ireland).

However, not all homes and businesses are currently scheduled to be covered by commercial or public rollout plans, and communities which are not included in plans may want to consider developing their own solutions.⁴³

These solutions include a range of technologies and financing options, including buying into existing rollouts (either commercial or publicly funded) or developing bespoke solutions; or building community owned and operated infrastructure. More information, including guidance and case studies, is available on the Government's [Go Superfast Checker](#).

BT has a programme of [Community fibre partnerships](#) to establish fibre connections to groups of residents or businesses which aren't currently covered by BDUK or commercial fibre plans. These partnerships will usually be jointly funded by BT and the community itself:

A community fibre partnership is when we work together with a local community (that is not in our commercial or BDUK fibre roll-out plans) to develop a solution to bring fibre to their community. There usually needs to be a joint funding arrangement, where we cover the costs in line with our commercial model used throughout the country and the community has the option to self-fund the remaining gap. We always look for solutions to be as affordable as possible.⁴⁴

More information on Community fibre partnerships, including FAQs and how to register is available on the [Community fibre partnerships webpages](#).

2.4 Universal Service Obligation

In [the Queen's Speech on 18 May 2016](#) the Government announced its intention to legislate for a broadband Universal Service Obligation (USO) in the Digital Economy Bill. A USO would introduce a legal right to request an affordable broadband connection from a provider at a minimum speed, up to a reasonable cost threshold. The speed of the USO is currently expected to be 10Mbps, which Government "will look

Premises not covered by the commercial rollout or the BDUK projects can develop their own community-led solutions.

⁴³ DCMS, [Guidance Community-led broadband schemes](#), 21 October 2016

⁴⁴ Openreach, [Community fibre partnerships](#), FAQs, [accessed 13 Feb 2017]

to raise over time”.⁴⁵ Ofcom currently states that a connected speed of at least 10Mbps is necessary to deliver an “acceptable user experience” of broadband – this is based on a typical household’s uses, including basic web browsing, video calling, catch up TV and film streaming in HD.⁴⁶

Plans to introduce a USO were first announced by the [Government in November 2015](#).⁴⁷ The Government intends for the USO to be in place by 2020 at the latest. The USO will have to be designed to conform to the requirements of the [EU Universal Service Directive](#) (2002/22/EC).

In its report [Establishing world-class connectivity throughout the UK](#), published on 19 July 2016, the House of Commons Culture, Media and Sport Select Committee stated that there was a “compelling case” for a broadband USO:

We believe that there is a compelling case for expanding the current USO for telephony and dial-up internet to cover broadband, given the vital role it plays in people’s lives through facilitating interactions with friends and family, and commercial and public services. A USO should allow all to have access to decent and reliable broadband services wherever they live. The design of a new USO should be in line with the Government’s and Ofcom’s aspiration for competition in broadband delivery, both at the service and infrastructure level. Ideally, the USO must be designed so as not to impose too great a burden on industry: to incentivise investment, without creating consumer detriment or overly inhibiting take-up.⁴⁸

In its [response to a consultation on the USO](#) (May 2016) the Government stated that it intended to set out powers in primary legislation to enable the Secretary of State to bring in a USO through secondary legislation and to require Ofcom to review the USO, as appropriate. The Government also stated that it did not intend to specify any details of the USO in primary legislation:

We do not propose specifying a minimum speed, quality or other detailed criteria in primary legislation. Technologies and service capabilities continue to improve rapidly, and it is important that any specifications can be updated over time to take account of these developments. Secondary legislation can be revised more easily, and is therefore a more appropriate means to specify the minimum level of service.⁴⁹

⁴⁵ Ofcom, [Achieving decent broadband connectivity for everyone](#) *Technical advice to UK Government on broadband universal service*, 16 December 2016 [accessed 20 February 2017]

⁴⁶ Ofcom, [UK Home broadband performance: a consumer summary](#), 24 March 2016 [accessed 7 March 2017]

⁴⁷ DCMS, [Government plans to make sure no-one is left behind on broadband access](#), 7 November 2015 [accessed on 1 July 2016]

⁴⁸ CMS Committee, [Establishing world-class connectivity throughout the UK](#), 19 July 2016, HC147 2016-17, para 116

⁴⁹ DCMS, [New Broadband Universal Service Obligation consultation Summary of responses and Government response](#), 17 May 2016

In line with this approach, the [Digital Economy Bill](#) makes provision for including broadband service in the universal service order—an order by the Secretary of State setting out what communications services must be made available or supplied throughout the UK, in compliance with EU obligations.

The Government intends to develop and consult on secondary legislation in early 2017 setting out the scope and specific requirements for the design of the USO, as well as how it will be implemented.⁵⁰ This will be accompanied by a regulatory impact assessment. To feed into this process, Ofcom published its [technical advice to the Government](#), including technical analysis and recommendations about the design of the USO including costs, technologies and funding in December 2016.⁵¹

In contrast to the Government approach, during Report Stage of the Digital Economy Bill in the House of Lords, an amendment was made to include the details of the USO (including speeds and technologies) on the face of the Bill.⁵² This amendment will be considered by the House of Commons when the Bill returns.

Further discussion and explanation of the USO is set out in the [Commons Library Analysis of the Digital Economy Bill](#). MPs also debated broadband USO on 15 December 2016.⁵³

Ofcom's Connected Nations 2016 Report stated that 5% (around 1.4 million premises) are currently unable to receive speeds of 10Mbps. Ofcom highlighted that a far greater proportion of rural premises are unable to receive a speed of 10Mbps than urban premises, and Wales, Scotland and Northern Ireland have a greater proportion of premises unable to do so.⁵⁴ The map overleaf shows the percentage of connections in the UK unable to receive speeds of 10Mbps as of June 2016.

Detailed maps of individual constituencies and regions are available on request.

The Digital Economy Bill provides the framework for the introduction of a Universal Service Obligation, currently expected to be set at 10

⁵⁰ DCMS, [New Broadband Universal Service Obligation consultation Summary of responses and Government response](#), 17 May 2016; and DCMS, [UK Digital Strategy. Connectivity – building world-class digital infrastructure for the UK](#), 1 March 2017

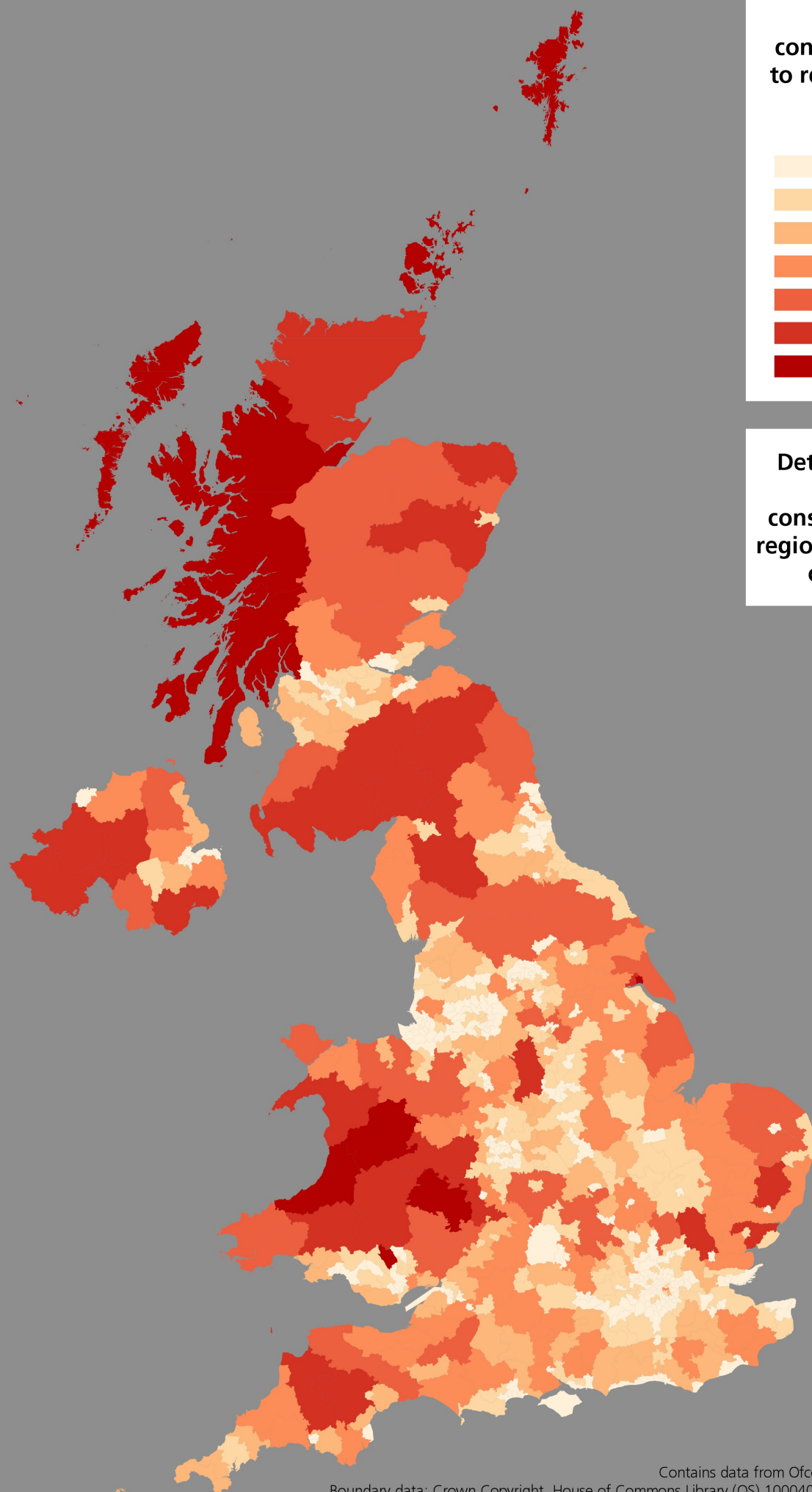
⁵¹ DCMS, [Letter to the Chief Executive of Ofcom](#), 22 March 2016; Ofcom, [Achieving decent broadband connectivity for everyone](#) *Technical advice to UK Government on broadband universal service*, 16 December 2016

⁵² HL Deb, 22 February 2017, [Vol 779](#)

⁵³ [HC Deb 15 December 2016, 618 cc1030-1062](#)

⁵⁴ Ofcom [Connected Nations 2016](#), para 4.48

Connections unable to receive 10 Mb/s, 2016



Percentage of connections unable to receive speeds of 10 Mb/s

- Less than 2%
- 2% to 5%
- 5% to 8%
- 8% to 12%
- 12% to 18%
- 18% to 27%
- 27% to 42%

Detailed maps of individual constituencies and regions are available on request.

2.5 Ultrafast Broadband

Ofcom defines ultrafast broadband as download speeds of at least 300Mbps.⁵⁵ The Government defines it as at least 100Mbps.⁵⁶

Ofcom stated in its [Strategic Review of Digital Communications](#) that the UK is noted for its limited availability of ultrafast broadband services, including those provided by Fibre to the Premises (FTTP), with FTTP which were only available to 2% of UK premises, compared to global leaders in fibre deployment such as Japan (70%), Spain (over 60%) and South Korea (over 60%).⁵⁷

In its report [Establishing world-class connectivity throughout the UK](#), published on 19 July 2016, the Culture, Media and Sport Committee stated that the lack of ambition for fibre to the premises across the country could result in a “hard to solve digital divide beyond 2020”.⁵⁸

There has been some criticism of the use of Fibre to the Cabinet (FTTC) rather than Fibre to the Premises (FTTP) to roll-out superfast broadband. FTTC provides lower speeds (<100 Mbps) than FTTP (up to 1Gbps) and has been described as “not future proof”.⁵⁹ However, FTTC is significantly cheaper and quicker to roll-out than FTTP. The Chief Executive of BT, Gavin Patterson, stated in evidence to the Culture, Media and Sport Select Committee that the price of rolling out FTTP to the whole of the UK was estimated at £28.8 billion in 2009:

Gavin Patterson: If we had gone with fibre to the premise from day one we would be having a different discussion now. The cost of that, and the Broadband Stakeholder Group have estimated this, would be £28.8 billion, which is not an investment that the company could have justified back in 2009.

Chair: That £28.8 billion is the cost of what?

Gavin Patterson: It would be the cost of covering the UK with fibre to the premise. It is not an investment the UK, and certainly not the BT board, would support.⁶⁰

The then Minister of State for Culture and the Digital Economy, Ed Vaizey MP, stated that he expected to see a tipping point towards ultrafast speeds by the end of decade and near universal coverage by 2025:

I have now started [talking] about a “gigabit Britain”. I would not necessarily see that as ending in 2020, but the next phase we want to see is the kind of speeds that people are going to expect

⁵⁵ Ofcom, [Connected Nations 2016](#), 16 December 2016

⁵⁶ DCMS, The digital communications infrastructure strategy, 18 March 2015

⁵⁷ Ofcom, [Initial Conclusions from the Strategic Review of Communications](#), 25 February 2016.

⁵⁸ CMS Committee, Establishing world-class connectivity throughout the UK, 19 July 2016, HC147 2016-17, para 30

⁵⁹ Arthur D Little, [European Telecom Operators Capex: the long march](#), 26 March 2014

⁶⁰ CMS Committee, [Oral evidence: Establishing World-class Connectivity throughout the UK, HC 407](#), 15 March 2016

over the next decade. 100 megabits to 300 megabits is what people talk about, but “gigabit Britain” trips off the tongue more easily than “100 megabit to 300 megabit Britain”. I fully expect that we will start to get to a significant tipping point towards the end of this decade, in terms of those kinds of speeds being seen by the majority of people. As a Government, we need to think very hard about what we do to achieve the same kind of near-universal that we have achieved for superfast broadband. I would give it a timescale up to 2025.⁶¹

In order to encourage deployment of new ultrafast networks, including FTTP, Ofcom’s [Strategic Review of Digital Communications](#) stated it would make a “strategic shift”. This will include opening up access to BT Openreach’s network of poles and ducts to allow competitors to install fibre optic cables to homes and businesses at a lower up front cost.⁶²

Ofcom’s Connected Nation Report 2016 reported that around 46% (about 13 million) of UK premises have access to broadband services with download speeds of 100Mbps or more; and around 2% (480,000 premises) have access to download speeds of 300 Mbps or more.⁶³ Ofcom also expects to see a significant increase in the number of premises that can receive ultrafast broadband (300Mbps or more) in its subsequent reports as Virgin Media started offering services with download speeds of 300Mbps in the latter half of 2016.⁶⁴

Funding

The Government announced a Broadband Investment Fund (BIF) (since renamed as the Digital Infrastructure Investment Fund (the DIIF))⁶⁵ in the [March 2016 Budget](#) to support the roll out of (its definition of) ultrafast broadband by increasing the amount of capital available for investment:

Supporting the market to deliver ultrafast broadband (roughly defined as providing speeds greater than 100 mbps) to as many premises as possible is a government manifesto commitment and the Fund is a key element in delivering this. The main policy objective, therefore, is to increase the amount of capital invested in the sector, particularly (but not exclusively) more “debt-like” capital that would enable faster expansion of ultrafast broadband networks.⁶⁶

HM Treasury issued a [request for proposals for this fund](#) on 22 July 2016. It confirmed that the Treasury was considering investing on arm’s

⁶¹ Ed Vaizey MP, [Oral evidence: Establishing World-class Connectivity throughout the UK, HC 407](#), 13 April 2016

⁶² *Ibid.* para 143

⁶³ Ofcom, [Connected Nations 2016](#), 16 December 2016, para 4.10

⁶⁴ *Ibid.*, para 4.11

⁶⁵ Referred to in the Budget as a Broadband Investment Fund – this has been confirmed in House of Commons Library correspondence with DCMS as the same fund.

⁶⁶ HM Treasury, [Broadband Investment Fund: request for proposals](#), 16 June 2016 [accessed on 17 June 2016]

length commercial terms alongside the private sector in businesses or projects operating in the UK broadband sector. The Treasury was considering providing up to 50% of the total funds invested.⁶⁷ The [Autumn Statement 2016](#) confirmed £400 million of Government investment in the Fund (at least matched by private finance) to invest in new fibre networks over the next four years.⁶⁸ The Government has selected a shortlist of fund managers and expects to launch the fund during the first half of 2017.⁶⁹

[BT announced an investment of £6 billion](#) in ultrafast and mobile broadband over the next few years on 5 May 2016.⁷⁰ This has been criticised by BT's competitors as an attempt to influence changes to the regulation of Openreach by Ofcom.⁷¹

In the [Autumn Statement 2016](#), the Government allocated £740 million to telecoms investment up to 2020-21 through a new National Productivity Investment Fund, in particular to support the roll out of full fibre networks (otherwise known as Fibre to the Premises or FTTP technology) and future 5G communications.⁷² The Government announced that this will include:

providing funding to local areas to support investment in a much bigger fibre 'spine' across the UK, prioritising full-fibre connections for businesses and bringing together public sector demand. The government will work in partnership with local areas to deliver this, and a call for evidence on delivery approaches will be published shortly after the Autumn Statement

providing funding for a coordinated programme of integrated fibre and 5G trials, to keep the UK at the forefront of the global 5G revolution; further detail will be set out at Budget 2017 as part of the government's 5G Strategy⁷³

The [Call for Evidence](#) referred to in the Autumn Statement was published on 29 December 2016 and sought views on how the Government could best use the funding to encourage further and faster deployment of full fibre broadband networks.⁷⁴ A number of possible approaches were set out, including full fibre business vouchers and

⁶⁷ *Ibid.*

⁶⁸ HM Treasury, [Autumn Statement 2016](#), 23 November 2017, paragraph 4.7 *Digital communications*. The £400 million is not listed as a new policy cost in the M Government, [Autumn Statement 2016 policy decisions](#), Table B.2 (Treasury scorecard of policy decisions).

⁶⁹ House of Commons Library correspondence with DCMS.

⁷⁰ '[BT to invest £6bn in 'ultrafast' broadband](#)', *Financial Times*, 5 May 2016

⁷¹ *Ibid.*

⁷² The [National Productivity Investment Fund](#) (totalling £23 billion) covers a number of other areas, including transport, housing, and research and development.

⁷³ HM Treasury, [Autumn Statement 2016](#), 23 November 2017, paragraph 4.7 *Digital communications*. The HM Government, [Autumn Statement 2016 policy decisions](#), Table B.2 (Treasury scorecard of policy decisions) lists these as new policy costs at line 10.

⁷⁴ DCMS, [Call for Evidence: Extending Local Full Fibre Broadband Networks](#), 29 December 2016 [accessed 27 February 2017]

24 Superfast Broadband Coverage in the UK

using existing public sector assets (such as lampposts on the street or existing CCTV systems) to improve coverage. The call for evidence closed on 31 January 2017.

Spring [Budget 2017](#) provided the following details of how the Government will invest £200m of the money announced in the Autumn Statement to fund a programme of local projects, including:

- bringing together local public sector customers, to create enough broadband demand to reduce the financial risk of building new full-fibre networks;
- offering full-fibre broadband connection vouchers for businesses, to increase take-up of services where new networks are built through the programme;
- directly connecting public sector buildings, such as schools and hospitals. This will bring fibre closer to more homes and businesses, allowing them to be connected; and
- opening up public sector assets, such as existing ducts, to allow fibre to be laid more cheaply.⁷⁵

The Autumn Statement 2016 also announced a new 100% business rates relief for new full-fibre infrastructure for a 5 year period from 1 April 2017, which is designed to support roll out to more homes and businesses.⁷⁶

Detailed information on 5G is provided in the [Commons Library Briefing Paper on 5G](#).

⁷⁵ HM Treasury, [Budget 2017](#), para 4.20

⁷⁶ HM Treasury, [Autumn Statement 2016](#), 23 November 2017, paragraph 4.7 *Digital communications*. The HM Government, [Autumn Statement 2016 policy decisions](#), Table B.2 (Treasury scorecard of policy decisions) lists this as a cost of £85 million at line 39.

3. Delivery of the Government strategy

In total, Government, Local Authority and European Union funding combined has spent over £1.7billion to extend superfast coverage (download speeds of 24 Mbps and above) to 95% premises in the UK by the end of 2017.⁷⁷

3.1 Broadband Delivery UK

Broadband Delivery UK (BDUK) is responsible for managing the Government's broadband funding. Individual projects are the responsibility of local authorities in England and the devolved Administrations in Scotland, Wales and Northern Ireland, as set out in BDUK's delivery model.⁷⁸

In England each county council or local enterprise partnership (collectively 'local bodies') is leading the broadband roll-out in their area. The local bodies had to draw up an effective delivery plan, and match the Government's investment with European, their own or private funds. [A map shows the local bodies](#) responsible for the roll-out across England. In Scotland, Wales and Northern Ireland the roll-out is led by the devolved Administrations.

BDUK developed a broadband delivery framework for use by the local bodies to assist in the procurement process, although the local bodies were able to procure outside this framework if they wanted to. The framework contract was signed by DCMS and the suppliers BT and Fujitsu on 29 June 2012. However Fujitsu later withdrew leaving BT as the only participant in the framework agreement.⁷⁹ BT was eventually awarded all 44 Phase 1 contracts.⁸⁰

Phase 2 is currently underway in many areas of England with only a small number of local bodies yet to sign contracts for the roll-out. The contracts for Phase 2 in England use a mixture of the BDUK Framework contract and others. In December 2016, Matt Hancock, the Minister for Digital and Culture, told Parliament that BDUK delivery is no longer solely via BT as there were now six providers carrying out BDUK delivery.⁸¹

⁷⁷ [PO HL4671](#) [on internet] 30 January 2017

⁷⁸ BDUK, [Broadband Delivery Model](#), September 2011

⁷⁹ National Audit Office, [The Superfast \(Rural\) Broadband Programme: update](#), January 2015

⁸⁰ *Ibid.*

⁸¹ HC Deb 15 December 2016 [c1060](#). These providers are reported to include Gigaclear and Call Flow (see: ISPReview, [Q3 2016 Take-up Figures for the BDUK Roll-out of Superfast Broadband](#), 22 December 2016).

Procurement has not yet started for Phase 2 in Scotland. However, contracts have been signed for Phase 2 in Wales and Northern Ireland.⁸²

A [BDUK Programme summary](#) (based on contracts signed at 1 February 2017) provides detailed information on the contracts and the total amounts of funding (BDUK and local body funding) for Phase 1 and Phase 2 in each local project area.⁸³

In its report [Establishing world-class connectivity throughout the UK](#), published on 19 July 2016, the Culture, Media and Sport Committee stated that the progress made in the broadband roll-out since 2010 had shown that the BDUK scheme and the use of fibre-to-the-cabinet technology was, on balance, the right decision. However, the Committee went on to state that one consequence of this is that the programme appears to have tackled easier to reach premises first:

One consequence of BDUK's and BT's rapid rollout is that the programme appears to have tackled the easier-to-reach premises first and has not delivered coverage to whole areas as such. This has left a patchwork of premises that have not been reached, and much uncertainty among local residents as to whether or not they will be connected or receive improved speeds and in turn has been compounded by repeated failure by BT to give accurate information on timing of deployment to consumers. Many counted as covered still appear unlikely to receive superfast speeds owing to the poor quality or length of the copper lines.⁸⁴

3.2 EU State Aid

State aid is any advantage granted by public authorities through state resources on a selective basis to any organisations that could potentially distort competition and trade in the European Union (EU).

The local broadband projects are all subsidised to varying extents by funding from BDUK, as well as other UK and potentially EU public sources, which could be considered as state aid. Before these projects could be implemented and broadband rolled out, state aid clearance had to be obtained from the European Commission.

On 20 November 2012 BDUK obtained an '[umbrella' clearance](#) to prevent each individual local project having to obtain state aid clearance. BDUK could give state aid clearance to individual projects under the terms of this approval, provided they met necessary conditions.⁸⁵ This state aid clearance expired at the end of June 2015.

⁸² BDUK, [Broadband Delivery UK \(BDUK\): Table of local broadband projects](#) [accessed on 17 June 2016]; '[Wales UK Signs Deal to Expand BT Fibre Broadband Services to More Areas](#)', *ISPReview*, 7 July 2015 [accessed on 10 June 2016]

⁸³ BDUK: [Table of local broadband projects](#) [accessed 27 February 2017]

⁸⁴ CMS Committee, *Establishing world-class connectivity throughout the UK*, 19 July 2016, HC147 2016-17, para 33

⁸⁵ BDUK, [State aid advice](#) [accessed on 17 June 2016]

BDUK reached a [new state aid agreement](#) covering 2016 to 2020 with the European Commission in May 2016.⁸⁶

3.3 Competition Issues

The procurement process for Phase 1 contracts was criticised by the Public Accounts Committee. The Committee stated that the procurement process failed to ensure meaningful competition for contracts:

We reiterate our previous conclusion that the Department's procurement approach failed to deliver meaningful competition. Since our hearing in July last year, when 26 of the 44 contracts to be awarded by local bodies had gone to BT, all remaining contracts have now also gone to BT. In our view, the lack of competitive tension from other bidders put BT in a strong position and restricted the Department's ability to insist on value for money safeguards such as unfettered cost transparency. We will be seeking assurance that the Department has taken full account of our concerns in delivering its next programme, in seeking to maximise competition, in promoting value for money and in ensuring that the supplier contributes fairly to the capital cost.

Recommendation: Before the next round of funding is released, the Department should work with local authorities to identify opportunities to promote competition and value for money; including considering alternative solutions, joint working and fair capital contributions from suppliers.⁸⁷

UK Broadband told the Committee in evidence that the small geographic areas covered by each contract and the fact that they were not put out to tender at the same time meant that it was not viable for small companies to compete for the contracts:

UK Broadband told us that the geographical area covered by each contract was too small to enable small companies to build a viable business, and that, because the contracts were not put out to tender at the same time, companies could not plan to bid for multiple contracts that could give them the scale required to make the operation viable. In addition, witnesses from the industry told us that the complicated procurement process, State aid restrictions over the technical requirements and regulatory access conditions all disadvantaged smaller providers. BT disputes some of these claims.⁸⁸

As part of the state aid clearance the European Commission required an independent report, by consultants Oxera, on the

⁸⁶ European Commission, [State aid: Commission endorses UK National Broadband Scheme for 2016-2020](#), 26 May 2016

⁸⁷ Public Accounts Committee, [The rural broadband programme](#), HC 834 2013-14, 1 April 2014

⁸⁸ Public Accounts Committee, [The rural broadband programme](#), HC 474 2013-14, 26 September 2013

superfast broadband roll-out. This report stated that the lack of competition for local tenders, while not necessarily a problem in the short term, raises the question that BT may have locked in an advantage that is detrimental to competition in the future.⁸⁹

In relation to information on planned coverage, the former Minister, Ed Vaizey MP, stated that BT have a responsible position in wanting to keep network roll-out information from its competitors:

BT has a perfectly responsible position. It wants to keep its network rollout confidential from its competitors and it does not want inadvertently to put into the public domain what is commercially confidential information. It should have a straightforward and open relationship with its contracting authorities, with the local authorities and the devolved administrations.⁹⁰

3.4 Planning Changes in England

Changes to planning rules in 2013 in England made it easier to use permitted development rights to erect broadband infrastructure on certain types of land.⁹¹ A process of having to apply for “prior approval” to the local planning authority in relation to the infrastructure’s siting and appearance was removed in relation to national parks, areas of outstanding natural beauty, and conservation areas. In part to help mitigate environmental concerns a [Cabinet Siting and Pole siting Code of Practice](#) was published in June 2013 as a joint initiative by Government, planning professional, environmental bodies and broadband industry representatives.

These changes were originally for a temporary period which was due to expire in May 2018. The Digital Economy Bill contains provisions which will make this temporary change permanent.⁹²

⁸⁹ Oxera, [The UK’s National Broadband Scheme—an independent ex post evaluation of the UK’s broadband state aid measure](#), 27 March 2015

⁹⁰ Ed Vaizey MP, [Oral evidence: Establishing World-class Connectivity throughout the UK, HC 407](#), 13 April 2016

⁹¹ *The Town and Country Planning (General Permitted Development) (Amendment) (England) Order 2013* (No.1101)

⁹² See Section 1.4 of the [Commons Library Analysis of the Digital Economy Bill](#).

4. Progress in the devolved Administrations

Ofcom's [Connected Nations 2016](#) report states that although superfast coverage has "improved in Scotland, Wales and Northern Ireland, they still lag behind the UK as a whole".⁹³

The table below shows the coverage availability of Superfast Broadband Services (measured as 30Mbps) for the UK and each nation. It shows that coverage has increased in all the nations between 2015 and 2016 with a significant increase in Scotland, albeit from a lower base.⁹⁴

| Superfast Broadband Coverage (greater than 30Mbps), by nation | | | |
|--|------|------|---------------|
| | 2015 | 2016 | Increase (pp) |
| UK | 83% | 89% | 6 |
| England | 84% | 90% | 6 |
| Northern Ireland | 77% | 83% | 6 |
| Scotland | 73% | 83% | 10 |
| Wales | 79% | 85% | 6 |

Source: Ofcom Connected Nations 2016

Broadband Delivery UK is responsible for managing the Government's broadband funding, while the individual projects are the responsibility of local authorities and devolved Administrations.

Below is a brief overview of the progress achieved in extending superfast broadband in each of the devolved Administrations and information on the disbursement of funding provided to each country.

4.1 Digital Scotland

The [Digital Scotland Superfast Broadband](#) programme is "a key step in the Scottish Government's aim for Scotland to become a world class digital nation by 2020". The programme aims to provide fibre broadband infrastructure to around 85% of premises in Scotland by the end of 2015 and 95% by March 2018.⁹⁵

The programme is being delivered through two projects: One covers the Highlands and Islands—the [Highlands and Islands Enterprise project](#) valued at £146 million; and the second covers the rest of Scotland—the

⁹³ Ofcom, [Connected Nations 2016](#), 16 December 2016, para 2.9

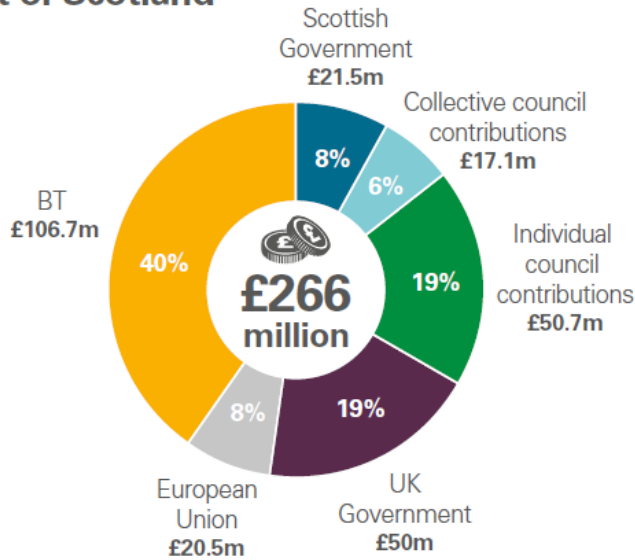
⁹⁴ In previous years, Ofcom used different methodologies to collect data which means some analysis is not directly comparable with previous years. For further explanation, see paragraph A1.10 of the Ofcom [Connected Nations 2016](#) report.

⁹⁵ [Digital Scotland Superfast Broadband programme](#) [accessed on 22 June 2016]

[Rest of Scotland project](#) valued at £266 million.⁹⁶ The chart below sets out where the funding for the two projects has come from, and is taken from the February 2015 Audit Scotland report on Scotland’s superfast broadband rollout.⁹⁷

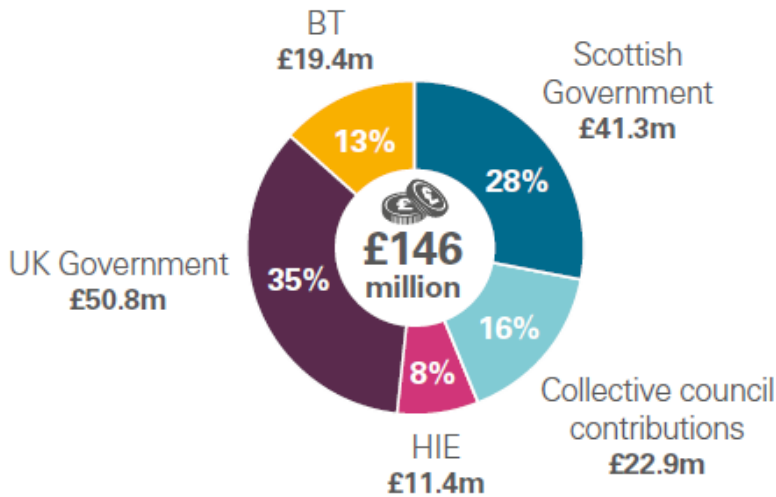
Funding of superfast broadband in Scotland (2015)

Rest of Scotland



Source: [Audit Scotland](#)⁹⁸

Highlands and islands



Source: [Audit Scotland](#)⁹⁹

⁹⁶ Note that the [Digital Scotland Superfast Broadband website](#) also notes the overall investment as £264 million.
⁹⁷ Audit Scotland, [Superfast broadband for Scotland: A progress report](#), February 2015
⁹⁸ Audit Scotland, [Superfast broadband for Scotland: A progress report](#), February 2015
⁹⁹ Audit Scotland, [Superfast broadband for Scotland: A progress report](#), February 2015

The Scottish Government and Councils are contributing £165 million over a five-year build period towards total contract costs of about £412 million.

For Phase 1 of the broadband programme BDUK allocated £100.8 million to the two Scottish programmes: £50.8 m to the Highlands and Islands and £50m for the Rest of Scotland.

In the 2013 Spending Review, Scotland was allocated a further £21 million by the UK Government as part of the superfast extension programme (Phase 2). The Scottish Government indicated that it would match fund the UK Government contribution, taking the total investment available to £42 million.

In [response to an oral question](#) in the Scottish Parliament on 23 March 2016 the then Cabinet Secretary for Finance, Constitution and Economy, John Swinney MSP, stated that the 85% target was met six months early and the 95% target was on track to be met by the end of 2017.¹⁰⁰ The Digital Scotland Superfast Broadband FAQs explain that “not every premise connecting to the new high speed broadband will get Ofcom’s definition of “superfast” speeds. This is because the technology has limitations such as distance.”¹⁰¹

According to BDUK data, as at the end of March 2016, 83.6% of premises in Scotland had access to superfast broadband; 67% had access as a result of commercial rollout and 17% had access as a result of BDUK projects.¹⁰²

Audit Scotland’s updated report on the broadband roll-out in Scotland, published in August 2016, states that the target for 85% coverage across Scotland was met in March 2016.¹⁰³ However, 6 out of 32 council areas in Scotland were yet to meet the 85% target. These council areas are in the most rural areas of Scotland, including the Highlands and Islands.

The final 5%

The Digital Scotland Superfast Broadband programme explains that around 5% of Scotland is not part of the programme due to “budget constraints and technical challenges”.

The Scottish First Minister, Nicola Sturgeon MSP, stated on 25 May 2016 that the Scottish Government intends to increase coverage to 100% of premises in Scotland by 2021:

In 2012, just 42 per cent of premises across Scotland had access to fibre broadband; now, the figure is above 85 per cent, but that

¹⁰⁰ [SP OR S4O-05708 23 March 2016](#)

¹⁰¹ See [Digital Scotland Superfast Broadband FAQs – what is superfast broadband?](#) [accessed 7 March 2017]

¹⁰² DCMS, Table showing coverage data for all constituencies, [DEP2016-0613](#). Note that BDUK data and analyses uses a different methodology to Ofcom, so is not directly comparable.

¹⁰³ Audit Scotland, [Superfast broadband for Scotland: A progress update](#), August 2016

is not good enough. By 2021, we intend to reach 100 per cent of premises across the country. That investment will improve productivity across Scotland and transform the connectivity of businesses in remote and rural areas. We will set out our detailed timetable for achieving that over the next few months.¹⁰⁴

The 100% superfast coverage target for Scotland [was in the SNP manifesto](#) for the May 2016 Scottish Parliament Elections.¹⁰⁵

Digital Scotland Superfast Broadband points to a number of other initiatives that will deliver broadband to the remaining 5%, including:

- [Community Broadband Scotland Initiative](#) (Scotland is one of the pilot areas for the Innovation fund pilots (see Box 2 above)); and
- using the additional £21 million allocation from BDUK which is being matched by Scottish Government funding, totalling £42 million funding to increase coverage (work is ongoing to determine how this money will be invested).¹⁰⁶

The Scottish Government ran an [Open Market Review](#) for its 100% programme between 16 December 2016–16 January 2017, with a purpose of establishing existing and planned (over the next 3 years) commercial coverage of broadband services across Scotland. In response to a question in Scottish Parliament, the Scottish Cabinet Secretary for the Rural Economy and Connectivity, Fergus Ewing, explained that further details on the delivery of the 100% superfast broadband commitment would be provided once the results of the Open Market Review had been analysed:

We expect delivery of our 100% superfast broadband commitment to involve a number of different interventions, utilising a range of technologies and commercial solutions. Further details will be provided during 2017 once we have analysed the results of the recently launched Open Market Review – a consultation with broadband suppliers to determine their commercial investment plans over the next 3 years, and undertaken further market engagement.¹⁰⁷

For further information on the broadband rollout see the Scottish Parliament Information Centre (SPICE) briefing: [Digital Connectivity](#) (16/57, 20 June 2016).

4.2 Superfast Cymru

[Superfast Cymru](#) is the Welsh Government's delivery body for its superfast broadband programme.

¹⁰⁴ [SP OR 25 May 2016 \(14:00\)](#)

¹⁰⁵ SNP, [Manifesto 2016](#) [accessed on 10 June 2016]

¹⁰⁶ [Digital Scotland Superfast Broadband, the Programme: Final 5%](#) [accessed 27 February 2017]

¹⁰⁷ SP [S5W-05408](#), 19 December 2016

The Welsh Government determined that around 41% of premises in Wales were forecast to have access to next generation broadband (NGA) through commercial rollout by 2015.¹⁰⁸ NGA is used to mean superfast broadband (greater than 24Mbps) in this context.¹⁰⁹

The Superfast Cymru project aims to bring superfast broadband access to premises in Wales where it is not commercially viable to do so, estimated at around 727,000 premises.¹¹⁰

In July 2012, the Welsh Government signed an agreement with BT Openreach for the provision of access to superfast broadband infrastructure for 95% of the premises (691,000 premises) in the intervention area. The agreement stated that:

- a minimum of 95% of all premises in the intervention area should be capable of having access to speeds of at least 24 Mbps;
- a minimum of 90% of all premises in the intervention area should be capable of having access to speeds of at least 30 Mbps;
- a minimum of 40% of all premises in the intervention area should be capable of having access to speeds of at least 100 Mbps.¹¹¹

On 28 May 2015, the [Welsh Audit Office reported](#) that the Welsh Government aimed to achieve this coverage by the end of 2016, rather than 2015 because of delays in obtaining state aid clearance from the EU.¹¹²

The report also found that “the procurement and management of the Superfast Cymru contract has been generally effective, with appropriate controls in place to manage costs and delivery.” The report highlighted that 47% of targeted intervention areas could now access next generation broadband, but Wales still had the lowest levels of next generation broadband access of all the UK countries:

As at 31 December 2014, 47 per cent of the intervention area covered by the Superfast Cymru contract – just under 346,000 premises – are now able to access next generation broadband. The take-up of next generation broadband at these premises was 13 per cent. However, many of the more difficult-to-connect premises remain. For both the commercial and intervention areas, Ofcom data showed that, at 55 per cent in June 2014, Wales still had the lowest levels of next generation broadband access of all the UK countries. Welsh Government data indicates that by 31 December 2014, this had increased to 70 per cent of premises,

¹⁰⁸ Welsh Audit Office, [“Welsh Government investment in next generation broadband infrastructure”](#), 28 May 2015

¹⁰⁹ *Ibid.*, Glossary

¹¹⁰ *Ibid.*

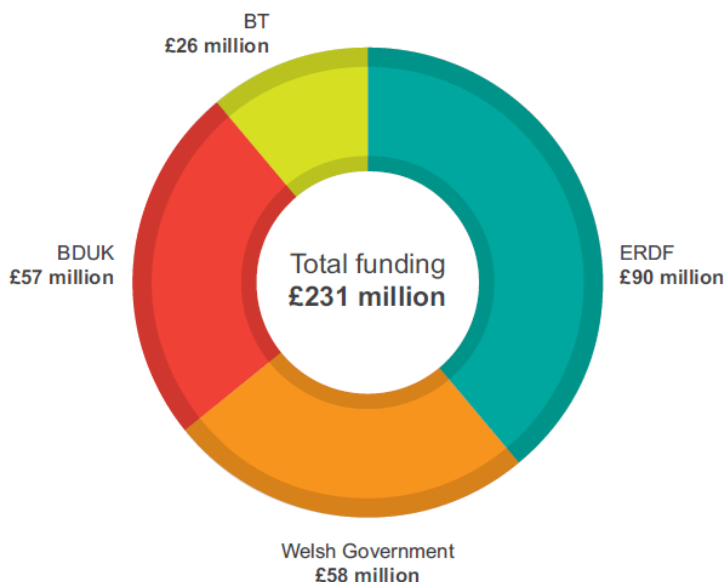
¹¹¹ *Ibid.*

¹¹² *Ibid.*

although this is still lower than the UK average of 75 per cent as reported by Ofcom in June 2014.¹¹³

Below is a chart from the Welsh Audit Office report which details that Superfast Cymru contract is worth £231 million with BT contributing £26 million of capital funding.¹¹⁴

Figure 2 – Funding capital contributions for the Superfast Cymru contract



Source: [Welsh Audit Office](#)¹¹⁵

In [July 2015 the Welsh Government signed an agreement with BT](#) to provide coverage to a further 42,000 premises by June 2017. An agreement was also signed with the fixed wireless provider Airband to provide coverage to 2,000 premises in business parks and industrial estates across Wales by summer 2016.¹¹⁶

According to BDUK data, as of the end of March 2016, 86.8% of premises in Wales had access to superfast broadband; 47% of premises had access as a result of commercial rollout and 40% had access as a result of BDUK projects.¹¹⁷

For those premises not covered by the roll-out there is a voucher scheme [Access Broadband Cymru](#), run by the Welsh Government, that

¹¹³ Welsh Audit Office, [Welsh Government investment in next generation broadband infrastructure](#), 28 May 2015

¹¹⁴ The European Regional Development Fund (ERDF) is part of EU regional development funding.

¹¹⁵ Welsh Audit Office, [Welsh Government investment in next generation broadband infrastructure](#), 28 May 2015

¹¹⁶ [‘Wales UK Signs Deal to Expand BT Fibre Broadband Services to More Areas’](#), *ISPReview*, 7 July 2015 [accessed on 10 June 2016]

¹¹⁷ DCMS, Table showing coverage data for all constituencies, [DEP2016-0613](#). Note that BDUK data and analyses uses a different methodology to Ofcom, so is not directly comparable.

provides up to £800 for the installation of new connections that provide “a step change in speed”.¹¹⁸

On 7 November 2016, in a [Written Statement](#) the Minister for Skills and Science, Julie James, announced that £62 million would be invested in Superfast Cymru in 2017 and the Welsh Government were considering responses to a consultation about an additional £12.9 million which was forecast to be returned through BT’s contract clawback clause. The Minister also confirmed that:

- Since 2012, the Welsh Government had invested over £162 million of EU and public funding in broadband infrastructure in Wales;
- Superfast Cymru had delivered high speed broadband to nearly 614,000 premises in Wales and is forecast to deliver to over 100,000 further premises before it closes at the end of 2017;
- Access Broadband Cymru had provided broadband to over 5000 premises, using a range of different technologies and providers.¹¹⁹

The [Written Statement](#) also contained details of the Welsh Government’s preparations for a successor project to Superfast Cymru, which is expected to be underpinned by up to £80 million of public funds.¹²⁰ An [Open Market Review](#) ran from 5 January 2017 to 3 February 2017 to establish where superfast broadband had been delivered to date and where it is planned in the next 3 years, in order to define an intervention area for procurement for areas not covered.

4.3 Superfast Northern Ireland

[Superfast Northern Ireland](#) is the Northern Ireland delivery body for the Superfast Rollout Programme.

The [Northern Ireland Broadband Improvement Project](#) (NIBIP) was a Phase 1 project to provide increased or improved broadband services in certain areas. It ran from February 2014 to December 2015.

As part of phase 1 of the UK Government’s superfast broadband programme, Northern Ireland was allocated £4.4 million through BDUK, and as part of phase 2, BDUK allocated a further £7.2 million.¹²¹

The [Superfast Rollout Programme](#) (Phase 2) is a project to provide improved superfast broadband services in areas across Northern Ireland. The project aims to provide superfast broadband to over 38,000 premises in areas where the choice is poor or broadband speeds are low. Some of these are in rural and remote parts of Northern Ireland. This Phase 2 project started in February 2015 and will run until the end of December 2017. It is allocated £17 million from the Department for

¹¹⁸ Welsh Government, [Access Broadband Cymru](#) [accessed on 22 June 2016]

¹¹⁹ Welsh Government, [Written Statement – Further investment in broadband](#), 7 November 2016 [accessed 28 February 2017]

¹²⁰ Ibid.

¹²¹ BDUK, [BDUK: Table of local broadband projects](#), Accessed online: 7 October 2015

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the Economy, BDUK and BT.¹²² More details and information is available in the Department for Economy [FAQs](#) about the project.¹²³

According to BDUK data, as at the end of March 2016, 83% of premises in Northern Ireland has access to superfast broadband; 80% of premises had access as a result of commercial coverage, 3% had access as a result of BDUK projects.¹²⁴

The Department for the Economy has published a [History of broadband development in Northern Ireland](#) which provides further background.¹²⁵

¹²² Northern Ireland Department for the Economy, [Superfast Rollout Programme](#) [accessed 28 February 2017] ; see also: '[N.Ireland Secures Another GBP17m to Extend Superfast Broadband](#)', *ISPreview*, 2 March 2015

¹²³ Northern Ireland Department for the Economy, [Superfast rollout programme – Phase 2 FAQs](#), 14 June 2016 [accessed 28 February 2017]

¹²⁴ DCMS, Table showing coverage data for all constituencies, [DEP2016-0613](#). Note that BDUK data and analyses uses a different methodology to Ofcom, so is not directly comparable.

¹²⁵ Northern Ireland Department for the Economy, [History of broadband development in Northern Ireland](#) [accessed 28 February 2017]

5. Coverage and performance

Box 3: Headline figures on coverage and performance

By the end of December 2016 the BDUK superfast broadband programme had:

- extended superfast broadband to **4.3 million homes and businesses** across the UK; and
- **allocated a total of £514 million in BDUK grants** to local authorities and budget transfers to devolved Administrations.¹²⁶

Ofcom's [Connected Nations](#) report, published in December 2016, noted:

- the **average download speed** for all fixed broadband services for the **entire UK is 37Mbps**, although speeds available to customers vary considerably;
- **5% of UK premises** (about 1.4 million) are unable to receive speeds of at least 10Mbps through a fixed line
- **superfast broadband** – speeds greater than 30 Mbps – is now **available in 89% of UK premises** (over 25 million), with **take-up of 31%**.¹²⁷

Box 4: Local broadband speed checker

Ofcom has a [website](#) and [application](#) to check broadband speeds and coverage by postcode. The results set out whether standard, superfast and/or ultrafast broadband are available and what the highest available download and upload speeds are. Results can also be viewed on a map.

The predicted speeds used in the checker are provided by the leading UK internet service providers (ISP). Ofcom did not receive data for every premises in the UK and is working with industry to fill in the gaps. If no predictions are shown for a particular address, availability should also be checked directly with the ISPs.

For local information about expected rollout plans, [BDUK's superfast broadband rollout map](#) shows all relevant local bodies in England, with details of any relevant local postcode checkers or local project maps.

5.1 European Comparison

Ofcom publishes data on four headline indicators for broadband delivery: coverage and take-up; speed; price; and choice. These four indicators are used to compare the UK's broadband network relative to France, Germany, Italy and Spain (the EU5).¹²⁸

¹²⁶ DCMS, [Broadband Performance Indicator – December 2016](#), 16 February 2017

¹²⁷ Ofcom, [Connected Nations 2015](#), 1 December 2015

¹²⁸ Ofcom, [International Communications Market Report 2016: EU5 Broadband Scorecard](#), 16 December 2016

The latest figures reported that in 2015, the UK had the highest level of advertised superfast coverage (headline speeds of up to 30 Mbps or more) amongst the EU5. However, the UK ranked third in availability of ultrafast broadband (headline speeds of 100 Mbps or more) (48%), behind Spain (74%) and Germany (64%).¹²⁹

When the UK's proportion of connections is compared against the all 28 EU member states the UK ranked fourteenth for superfast (at least 30 Mbps) speeds.¹³⁰

The European Commission publishes information on superfast connections in each of the EU member states: [Broadband in Member States](#) which provides more detailed information.

5.2 Rural coverage

Ofcom's [Connected Nations 2016](#) report states that there is "an improving picture in rural areas, where more consumers are now better connected: superfast coverage (30 Mbps or more) is reaching 59% of homes and businesses (2.3 million premises), up from 44% in 2015." Ofcom also states:

Government programmes, such as those administered by Broadband Delivery UK (BDUK), are helping to address the problem of poor broadband coverage, in particular in rural areas. We expect to see improvements in the coverage of faster services over the coming 12 months.¹³¹

Improvements in the availability of superfast broadband (30 Mbps or more) in rural areas since 2015 are shown in the table below.¹³²

Superfast Broadband Availability in Rural Areas

Changes from 2015 to 2016

| | 2015 | 2016 |
|------------------|------|------|
| UK | 44% | 59% |
| England | 45% | 62% |
| Northern Ireland | 40% | 52% |
| Scotland | 31% | 46% |
| Wales | 54% | 57% |

Comparing rural and urban connectivity and speeds

Broadly speaking, broadband connectivity and speeds tend to be better in urban areas. The tables below show broadband connectivity and speeds by different categories of rural and urban areas. The data is taken from the House of Commons Library's analysis of Ofcom's open

¹²⁹ Ibid.

¹³⁰ Ofcom, [International Communications Market Report 2016: Broadband Scorecard EU28 data](#), 16 December 2016

¹³¹ Ofcom, [Connected Nations 2016](#), 16 December 2016

¹³² For further information and context on the sources for this data, please see Section 6 of this Paper.

data published alongside its Connected Nations 2016 report, using relevant government Rural-Urban Classifications. England and Wales uses the UK Government [Rural-Urban classification](#); whereas Scotland uses its own [Urban Rural Classification](#) so figures are presented separately. For further information and context on this data, please see Section 6.

Broadband Connectivity and Speeds by Rural/urban classification, England and Wales, June 2016

| Rural Urban Classification | % of connections in this category | Superfast availability % | Connections receiving superfast speeds % (> 30 Mbps) | Connections receiving less than 2 Mbps | Connections receiving less than 10 Mbps | Connections unable to receive 10 Mbps | Average Download Speed Mbps |
|---|-----------------------------------|--------------------------|--|--|---|---------------------------------------|-----------------------------|
| Urban major conurbation | 32.9% | 93.9% | 45.4% | 1.6% | 25.8% | 1.4% | 41.7 |
| Urban city and town | 44.8% | 93.1% | 44.8% | 2.2% | 27.4% | 1.9% | 40.7 |
| Urban minor conurbation | 3.2% | 91.3% | 43.6% | 2.4% | 29.8% | 2.4% | 39.8 |
| Rural town and fringe | 8.8% | 88.7% | 32.6% | 3.0% | 26.6% | 2.3% | 29.6 |
| Rural town and fringe in a sparse setting | 0.6% | 90.0% | 26.6% | 1.2% | 21.1% | 1.4% | 25.4 |
| Urban city and town in a sparse setting | 0.3% | 93.6% | 25.8% | 1.5% | 25.6% | 1.2% | 23.7 |
| Rural village | 5.4% | 64.5% | 25.7% | 8.4% | 53.8% | 19.2% | 26.7 |
| Rural village in a sparse setting | 0.6% | 63.8% | 22.9% | 8.5% | 60.3% | 23.6% | 19.4 |
| Rural hamlet and isolated dwellings | 3.0% | 36.1% | 12.7% | 13.4% | 67.8% | 39.4% | 20.0 |
| Rural hamlet and isolated dwellings, sparse setting | 0.4% | 26.3% | 8.0% | 18.3% | 79.7% | 57.2% | 13.6 |
| UK Total | | 89% | 40.9% | 2.9% | 30.2% | 4.9% | 37 |

Broadband Connectivity and Speeds by Rural/urban classification, Scotland, June 2016

| Rural Urban Classification | % of connections in this category | Superfast availability % | Connections receiving superfast speeds % (> 30 Mbps) | Connections receiving less than 2 Mbps | Connections receiving less than 10 Mbps | Connections unable to receive 10 Mbps | Average Download Speed Mbps |
|----------------------------|-----------------------------------|--------------------------|--|--|---|---------------------------------------|-----------------------------|
| Large urban area | 39.6% | 91.4% | 43.9% | 1.5% | 23.3% | 1.6% | 44.0 |
| Other urban area | 29.8% | 90.6% | 40.5% | 2.3% | 29.7% | 2.1% | 39.4 |
| Very remote small town | 1.3% | 84.2% | 22.9% | 2.0% | 28.3% | 0.7% | 22.4 |
| Accessible small town | 8.2% | 81.1% | 22.2% | 2.3% | 26.5% | 2.6% | 23.2 |
| Remote small town | 2.4% | 80.1% | 19.8% | 1.0% | 19.1% | 0.6% | 22.3 |
| Accessible rural area | 12.0% | 52.0% | 17.8% | 8.4% | 58.2% | 29.0% | 17.1 |
| Remote rural area | 3.3% | 40.5% | 11.8% | 7.6% | 61.6% | 41.3% | 14.2 |
| Very remote rural area | 3.4% | 31.4% | 7.9% | 10.0% | 80.3% | 54.3% | 10.8 |
| UK Total | | 89% | 40.9% | 2.9% | 30.2% | 4.9% | 37 |

In **England and Wales**, 45.4% of those living in areas categorised as 'urban major conurbations' (e.g. London, Manchester and other large cities) were receiving superfast speeds. By contrast, 12.7% of those living in areas categorised as 'rural hamlet and isolated dwellings' (e.g. rural Northumberland and rural Devon) were receiving superfast speeds. In urban major conurbations, just 1.4% of connections were unable to receive speeds of 10 Mbps. This rises to 39.4% in rural hamlets and isolated dwellings.

In **Scotland**, 43.9% of those living in areas categorised as 'large urban areas' (Edinburgh, Glasgow, Aberdeen and Dundee) were receiving superfast speeds. By contrast, 7.9% of those living in areas categories as 'very remote rural areas' (mostly in Argyll & Bute, and the Highlands & Islands) were receiving superfast speeds. In large urban areas, just 1.6% of connections are unable to receive speeds of 10 Mbps. This rises to 54.3% for very remote rural areas.

Concerns about rural broadband have been raised by the Environmental, Food and Rural Affairs (EFRA) Select Committee. Their report [Rural Broadband and digital only services](#) raised concerns that the Government's present target of ensuring 95% of premises received superfast broadband by 2017 "may slip". The Committee also stated that there is a risk that the "final 5%" will be left further behind by the broadband roll-out and that the hardest to reach areas should be given priority.¹³³

The EFRA Committee currently has an ongoing inquiry into the role of tourism in supporting rural growth in England. Its terms of reference notes restrictions to broadband access as a particular challenge faced by rural communities. More information is available on the [EFRA Committee inquiry webpage](#).

5.3 Coverage of small businesses

Ofcom's Connected Nations 2016 report stated that superfast broadband coverage of Small and Medium Enterprises (SMEs) across the UK was 81% (about 1.9 million premises), up from 68% in 2015. It also estimated that the number of UK SMEs that are unable to receive superfast services will decrease from around 20% to 10% (around 240,000 businesses) by the end of 2017.¹³⁴

However, the report also stated that SMEs still experience lower coverage of superfast services compared to consumers as a whole. Ofcom attributes this partly to the fact that many SMEs being based in rural areas or business parks, which are areas that to date have not been targeted for network upgrades.¹³⁵

Overall, around 8% (about 190,000) SMEs in the UK are unable to access broadband services with download speeds of 10Mbps or higher, compared to around 5% of all premises. Most of these SMEs are in rural areas, where over 130,000 SMEs receive less than 10Mbps.¹³⁶

Coverage of small businesses has been criticised in the past. On 14 July 2014, the [Federation of Small Businesses \(FSB\)](#) published a [report looking into broadband provision and access for businesses in the UK](#).

This report found that:

- 14% of small businesses consider lack of reliable and fast broadband connectivity to be their main barrier to growth.

About 81% of SMEs across the UK had access to superfast broadband in 2016, up from 68% in 2015.

¹³³ EFRA Committee., [Rural broadband and digital-only services](#), HC 834 2014-15, 3 February 2015, para 7

¹³⁴ Ofcom, [Connected Nations 2016](#), 16 December 2016 , para 4.35 and 4.38

¹³⁵ Ibid., para 4.36

¹³⁶ Ibid., para 4.37

- Only 15 per cent of small firms say they are very satisfied with their broadband provision, while a quarter say they are fairly or very dissatisfied.¹³⁷

In July 2015, [John Allan, FSB's National Chairman, said](#):

The fact that we have around 45,000 businesses still on dial up is unacceptable and many more throughout the country, even in London, are receiving poor service. Evidence from our members shows this clearly is a problem affecting all corners of the UK, rural areas and cities alike.

In a Westminster Hall debate on *BT Broadband Provision: Local Businesses* on 10 March 2016 many Members raised issues of broadband service and speeds to local businesses in their constituencies.¹³⁸

Super-connected cities

In 2011, the Coalition Government set aside £100 million for an Urban Broadband Fund (UBF) to create up to ten '[super-connected](#)' cities across the UK. This was followed in 2012 by a further fund of £50 million for a '[second wave](#)' of cities to benefit from this programme.

The super-connected cities were eligible for a [voucher scheme](#) to contribute towards the cost of broadband connections for business. It offered businesses the opportunity to obtain a connection voucher worth up to £3,000 for faster, better broadband.¹³⁹ A list of the suppliers involved in the scheme in order of how many vouchers were spent with them is on the connection vouchers website.¹⁴⁰

The Coalition Government said in the [March 2015 Budget](#) that the connection voucher scheme had "directly supported broadband upgrades for more than 12,600 small and medium-sized businesses in 22 cities so far".¹⁴¹

This scheme closed in October 2015 when all of the funding was exhausted. Approximately 55,000 vouchers were issued in total. The chart below shows the regional breakdown of the vouchers issued as at 25 August 2015.

A voucher scheme for SMEs in cities ran between 2011 and 2015 and approximately 55,000 vouchers were issued in total.

¹³⁷ FSB, [The fourth utility: Delivering universal broadband connectivity for small businesses across the UK](#), July 2014

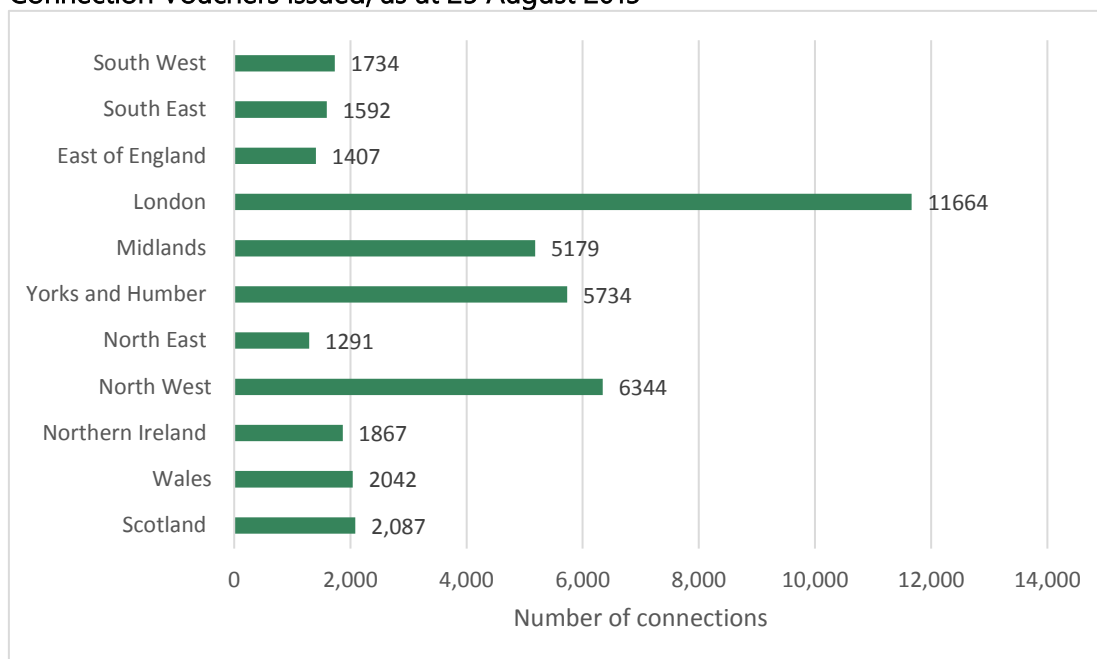
¹³⁸ [HC Deb 10 March 2016 c199WH](#)

¹³⁹ [Autumn Statement 2014](#), para 1.118; DCMS, [Policy Paper: 2010 to 2015 government policy: broadband investment](#), 8 May 2015 [accessed on 12 July 2015]

¹⁴⁰ Connection Vouchers, [Supplier league](#) [accessed on 1 July 2016]

¹⁴¹ HM Treasury, [Budget 2015](#), March 2015, para 1.121

Connection Vouchers issued, as at 25 August 2015



Source: [DCMS](#)¹⁴², House of Commons Library analysis

Government review of business broadband

The Government started a review of business broadband [announced by the Secretary of State for Business, Innovation and Skills, Sajid Javid MP](#), on 24 February 2016. A call for evidence ran from 13 May to 3 June 2016. The call for evidence document sets out the areas the review covered:

- The broadband speeds that businesses need now and in the future;
- The barriers that exist for businesses to get the affordable, high speed broadband they need; and
- The issue of leased lines and the role they play in the market.¹⁴³

A PQ response in October 2016, confirmed that the review was ongoing.¹⁴⁴ The Government's [UK Digital Strategy](#) (March 2017) stated that the Government will establish a new Business Connectivity Forum that will bring together business, local authorities, communications providers and Government to develop specific solutions to the issues faced by businesses. This Forum is a recommendation of the Business Broadband Review and further detail on its remit and membership is expected to be set out in the review's summary of findings.¹⁴⁵

¹⁴² DCMS, [40,000 UK businesses have their broadband boosted](#), 3 September 2015 [accessed on 22 June 2016]

¹⁴³ BIS, [Review of Business Broadband – Call for Evidence](#), May 2016

¹⁴⁴ [PQ 48217](#) [on Broadband: rural areas] 12 October 2016

¹⁴⁵ DCMS, [UK Digital Strategy. Connectivity – building world-class digital infrastructure for the UK](#), 1 March 2017

Full fibre business connection vouchers

The Call for Evidence on [Extending Local Full Fibre Networks](#) following the Autumn Statement included full fibre business connection vouchers as a possible approach to extending ultrafast broadband (see more in Section 2.5 above). The call for evidence closed on 31 January 2017.

Spring [Budget 2017](#) confirmed that full-fibre broadband connection vouchers for businesses will be offered as part of a programme of local projects to test ways to speed up the delivery of full-fibre broadband networks (see Section 2.5 above for more detail).¹⁴⁶

¹⁴⁶ HM Treasury, [Budget 2017](#), para 4.20

6. Local data on broadband availability, connectivity and speeds

Ofcom publishes postcode-level data on broadband connectivity and speeds. The Library has analysed this data to produce estimated figures for constituencies and wards. A summary of this analysis is given below. MPs and their staff can request bespoke analysis and maps for their areas from Library staff.

Ofcom gives context about its data as follows:

Ofcom collected and analysed data from major fixed telecoms operators (BT, Virgin Media, Sky, Talk Talk, Vodafone and KCOM). The availability data also includes coverage information provided by alternative network providers (Gigaclear, Hyperoptic, IFNL, B4RN and Relish).

Due to variations in broadband performance over time, the file should not be regarded as a definitive and fixed view of the UK's fixed broadband infrastructure. However, the information provided in this file may be useful in identifying variations in broadband performance by postcode and the impact of superfast broadband on overall broadband performance. Due to privacy concerns we have not presented the information in postcodes with less than four broadband connections.¹⁴⁷

6.1 Constituency summary

The table below shows four measures of broadband connectivity and speeds which highlight constituencies with particularly high speeds or connectivity. The first measure is the availability of superfast lines (30 Mbps or higher). 21 of the UK's 650 constituencies have availability over 98%. The national average is 89%. 178 constituencies have over 95% availability of superfast broadband, and 365 have over 90% availability.

The second measure looks at which constituencies have the highest percentage of lines receiving superfast speeds (over 30 Mbps). This measures the speeds actually being received by a line rather than its capability so will be partly affected by the decisions of consumers – e.g. whether they have decided to sign up for available superfast services. In 174 constituencies, over half of lines are receiving superfast speeds, rising to a maximum of 65% in Lincoln. 451 constituencies have more than a third of connections receiving superfast speeds.

Looking at the average download speed of all connections in a constituency, 444 constituencies have an average speed of 30 Mbps or

¹⁴⁷ [Connected Nations 2016, Data Downloads](#)

higher and in 94 constituencies the average is above 50 Mbps. The highest speeds are in Morecambe and Lunesdale - most likely because this constituency has over 1,000 ultrafast connections (over 300 Mbps) which result in a very high overall average. Several of the other constituencies listed here (e.g. Aylesbury, Filton, Lancaster, Henley, Oxford West and Wantage) also have a higher level of ultrafast connections than the average. The national average is 37 Mbps.

The final measure shows the constituencies which have the lowest proportion of slower connections (those under 10 Mbps). In 181 constituencies, less than a quarter of lines are receiving slower connections. The national average is 30.2%.

Summary of constituencies with the highest connectivity

| Superfast broadband availability | | Highest percentage receiving superfast speeds (%) | |
|----------------------------------|-------|---|-----|
| Bournemouth East | 99.3% | Lincoln | 65% |
| Luton North | 99.2% | Belfast West | 63% |
| Gedling | 99.1% | Hartlepool | 61% |
| Worthing West | 98.9% | Crawley | 61% |
| East Worthing and Shoreham | 98.7% | Great Grimsby | 61% |
| Nottingham North | 98.7% | Luton North | 61% |
| Oldham West and Royton | 98.7% | Cambridge | 61% |
| Liverpool, Wavertree | 98.7% | Belfast South | 60% |
| Bournemouth West | 98.6% | Gedling | 60% |
| Birmingham, Hodge Hill | 98.5% | Brighton, Pavilion | 60% |

| Average download speed (Mbps) | | Lowest percentage of connections under 10 Mbps | |
|-------------------------------|------|--|-------|
| Morecambe and Lunesdale | 84.2 | Bristol West | 11.3% |
| Oxford West and Abingdon | 77.5 | Liverpool, Wavertree | 13.1% |
| Lancaster and Fleetwood | 66.4 | Holborn and St Pancras | 13.6% |
| Filton and Bradley Stoke | 64.8 | Edinburgh South | 14.1% |
| Great Grimsby | 62.1 | Edinburgh South West | 14.1% |
| Henley | 61.9 | Hampstead and Kilburn | 14.5% |
| Aylesbury | 61.3 | Westminster North | 14.7% |
| Wantage | 60.3 | Reading East | 15.0% |
| West Dunbartonshire | 60.2 | Sutton and Cheam | 15.1% |
| Kingswood | 59.3 | Leicester South | 15.3% |

Conversely, the table below shows four measures indicating poorer connectivity and slower connections. The first shows the constituencies with the highest percentage of connections unable to receive speeds of 10 Mbps. (As noted previously in this paper, the Government has committed to introduce a universal service obligation for 10 Mbps broadband by 2020.) There are twelve constituencies where more than a quarter of connections cannot receive speeds of 10 Mbps, up to a maximum of 42% in Ross, Skye and Lochaber. There are 100 constituencies where more than 10% of connections cannot receive 10 Mbps.

The second measure looks at those constituencies with the highest percentage of connections receiving the slowest speeds – under 2 Mbps. 99 constituencies have more than 5% of connections receiving the slowest speeds, up to a maximum of 10.5% in Carmarthen East and

Dinefwr. The national average is 2.9%. There are 56 constituencies where less than 1% are receiving the slowest speeds.

Similarly, the third measure shows those constituencies with the most connections under 10 Mbps. There are eleven constituencies where more than half of connections are receiving these slower speeds, up to a maximum of 65.6% in Ross, Skye and Lochaber. The national average is 30.2%. There are 233 constituencies where more than a third of connections are receiving these slower speeds. On the other hand, there are 56 constituencies where less than 20% are receiving speeds of under 10 Mbps.

Finally, the fourth measure shows those constituencies with the slowest average download speeds. 206 constituencies have an average download speed of under 30 Mbps, and 40 have an average speed of under 20 Mbps. The national average is 37 Mbps.

Summary of constituencies receiving slower connections

| Connections unable to receive speeds of 10 Mbps | | Connections receiving speeds under 2 Mbps | |
|---|-----|---|-----|
| Ross, Skye and Lochaber | 42% | Carmarthen East and Dinefwr | 11% |
| Na h-Eileanan an Iar | 39% | Ceredigion | 10% |
| Orkney and Shetland | 38% | West Tyrone | 10% |
| Kingston upon Hull East | 38% | Penrith and The Border | 10% |
| Montgomeryshire | 32% | North Herefordshire | 9% |
| Merthyr Tydfil and Rhymney | 32% | Fermanagh and South Tyrone | 9% |
| North Herefordshire | 31% | Montgomeryshire | 9% |
| Ceredigion | 31% | Na h-Eileanan an Iar | 9% |
| Argyll and Bute | 31% | South Down | 9% |
| Brecon and Radnorshire | 27% | Newry and Armagh | 9% |

| Connections receiving speeds under 10 Mbps | | Slowest average download speed (Mbps) | |
|--|-----|---------------------------------------|------|
| Ross, Skye and Lochaber | 66% | Carmarthen East and Dinefwr | 14.3 |
| Na h-Eileanan an Iar | 64% | Ross, Skye and Lochaber | 14.4 |
| Argyll and Bute | 62% | Na h-Eileanan an Iar | 14.5 |
| Orkney and Shetland | 62% | Orkney and Shetland | 14.6 |
| Carmarthen East and Dinefwr | 58% | Argyll and Bute | 14.6 |
| Montgomeryshire | 58% | North Herefordshire | 15.8 |
| Kingston upon Hull East | 57% | Montgomeryshire | 15.8 |
| Ceredigion | 55% | Brecon and Radnorshire | 16.2 |
| North Herefordshire | 55% | Caitness, Sutherland & Easter Ross | 17.0 |
| Caitness, Sutherland & Easter Ross | 52% | Ceredigion | 17.2 |

6.2 Ward-level data

Looking at data for a whole constituency mask wide variation in different areas of the constituency. Because of this it is useful to look at ward-level data. The table below shows the 20 wards in Great Britain with the highest percentage of connections receiving superfast speeds (>30 Mbps). Note that this doesn't just reflect the availability of superfast speeds, but the percentage of connections that are actually receiving these speeds so will be partly affected by the decisions of consumers – e.g. whether they have decided to sign up for available superfast services.

Wards with the highest % of superfast connections in Great Britain

| Ward | Constituency | % |
|--------------------------|-----------------------|-------|
| Billingham North | Stockton North | 77.6% |
| Bewbush | Crawley | 77.6% |
| Heatherside | Surrey Heath | 77.5% |
| Parkside | Surrey Heath | 77.1% |
| St John's | Aldershot | 77.1% |
| Moulsecomb and Bevendean | Brighton, Kemptown | 77.0% |
| Merrow | Guildford | 76.3% |
| Woodhall Farm | Hemel Hempstead | 76.2% |
| Springbank | Cheltenham | 76.0% |
| Abbeydale | Gloucester | 74.2% |
| Witham | Lincoln | 74.2% |
| Plasnewydd | Cardiff Central | 73.4% |
| Lowton East | Leigh | 73.3% |
| Rowner and Holbrook | Gosport | 73.2% |
| Elmbridge | Gloucester | 73.1% |
| Hornby | Mansfield | 72.9% |
| Westbrook | Warrington North | 72.9% |
| Underwood | Ashfield | 72.8% |
| Sandridge | Hitchin and Harpenden | 72.8% |
| Longlevens | Tewkesbury | 72.8% |

Six of the top ten wards are in the South East of England. Two are in the South West, one is in the North East, and one is in the East. Only one of the top twenty – Plasnewydd in Cardiff – is outside England.

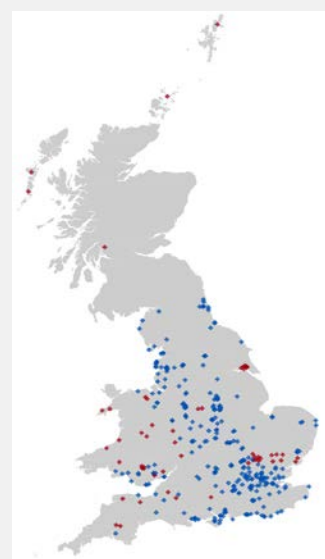
There are around 130 wards where every connection is capable of receiving superfast broadband. Almost a quarter of these wards are in South East England.

Conversely, the table below shows the twenty wards in Great Britain with the lowest average download speed. Seven of the ten slowest wards are in Wales – the remaining three are in England, in North Devon, Saffron Walden, and West Worcestershire. Only one of the twenty slowest wards is in Scotland.

Extremes in superfast availability

Blue dots below show the location of wards with more than 99.9% superfast availability.

Red dots show the location of wards with less than 5% superfast availability.



Wards with the slowest average download speed in Great Britain

| Ward | Constituency | Mbps |
|-------------------------------------|------------------------------|------|
| Abererch | Dwyfor Meirionnydd | 2.7 |
| Llandinam | Montgomeryshire | 3.1 |
| Devauden | Monmouth | 3.1 |
| Trelech | Carmarthen West & S Pembr. | 3.8 |
| Bratton Fleming | North Devon | 4.1 |
| Yscir | Brecon and Radnorshire | 4.2 |
| Llanfihangel Aberbythych | Carmarthen East and Dinefwr | 4.2 |
| Beguildy | Brecon and Radnorshire | 4.3 |
| Stort Valley | Saffron Walden | 4.3 |
| Teme Valley | West Worcestershire | 4.3 |
| Llanrhystyd | Ceredigion | 4.4 |
| Llanbedr Dyffryn Clwyd/Llangynhafal | Clwyd West | 4.5 |
| Longdon | West Worcestershire | 4.7 |
| Tudweiliog | Dwyfor Meirionnydd | 4.7 |
| North Isles | Orkney and Shetland | 4.8 |
| Chewton Mendip and Ston Easton | Wells | 4.9 |
| Penbryn | Ceredigion | 5.2 |
| Llandysilio-gogo | Ceredigion | 5.3 |
| Eglwysbach | Aberconwy | 5.3 |
| Brendon Hills | Bridgwater and West Somerset | 5.4 |

6.3 Data for individual constituencies

On request, the Library can provide MPs and their staff with data and maps for their constituency and the wards it contains. This data is given below for one constituency, Chelmsford - chosen at random as an example of what can be provided.

Chelmsford has slightly above average connectivity among UK constituencies. Its average download speed is around 14% above average and ranks in the top 249th of 650 constituencies. It ranks 25th of 57 constituencies in the East of England for average download speed. For superfast availability, it ranks 171st nationally and 11th regionally.

Chelmsford Broadband Statistics, June 2016

| | Chelmsford | UK |
|---|------------|------|
| Average download speed Mbps | 43.2 | 37.8 |
| Superfast availability (>30 Mbps) | 95% | 88% |
| Connections receiving superfast speeds (>30 Mbps) | 50% | 41% |
| Connections receiving under 2 Mbps | 2.2% | 2.9% |
| Connections receiving under 10 Mbps | 31% | 30% |
| Connections unable to receive 10 Mbps | 0.7% | 4.9% |

Source: Ofcom Connected Nations; House of Commons Library Analysis

There is some variation in connectivity between wards in Chelmsford. Moulsham Lodge ward has the highest percentage of connections actually receiving superfast speeds, at 65% - this is higher than around 98% of wards in Great Britain. All of the constituency's wards are in the top 50% of GB's wards on this measure.

Broadband Coverage in Chelmsford wards, June 2016

| Ward | Connections receiving superfast speeds (> 30 Mbps) % | Availability of Superfast broadband % | Average Download Speed Mbps | Connections receiving speeds under 2 Mbps | Connections receiving speeds under 10 Mbps | Connections unable to receive 10 Mbps |
|----------------------------------|--|---------------------------------------|-----------------------------|---|--|---------------------------------------|
| Moulsham Lodge | 65% | 100% | 56.6 | 3.3% | 31% | 0% |
| Goat Hall | 62% | 96% | 55.8 | 5.5% | 30% | 1.5% |
| Trinity | 56% | 100% | 52.6 | 0.7% | 23% | 0% |
| The Lawns | 58% | 100% | 52.4 | 2.2% | 34% | 0% |
| St Andrews | 55% | 98% | 46.0 | 3.7% | 38% | 0% |
| Great Baddow West | 53% | 99% | 44.3 | 1.7% | 28% | 0% |
| Chelmer Village and Beaulieu Par | 50% | 92% | 43.5 | 0.9% | 32% | 1.0% |
| Moulsham and Central | 45% | 88% | 43.4 | 0.6% | 20% | 0.8% |
| Galleywood | 52% | 91% | 43.0 | 9.4% | 39% | 4.6% |
| Waterhouse Farm | 50% | 97% | 42.4 | 1.9% | 39% | 0.5% |
| Marconi | 41% | 94% | 38.9 | 0.7% | 21% | 0% |
| Springfield North | 42% | 95% | 35.1 | 1.4% | 38% | 1.9% |
| Patching Hall | 45% | 98% | 32.8 | 2.7% | 43% | 0% |
| Great Baddow East | 39% | 98% | 31.7 | 1.6% | 25% | 0.2% |

Source: Ofcom Connected Nations Data; House of Commons Library Analysis

Galleywood ward has the highest percentage of connections under 2 Mb/s, at just under 10%. Patching Hall has the highest percentage of connections under 10 Mb/s (43%), which ranks slower than around 70% of GB wards.

A map of the area surrounding the constituency is shown overleaf.

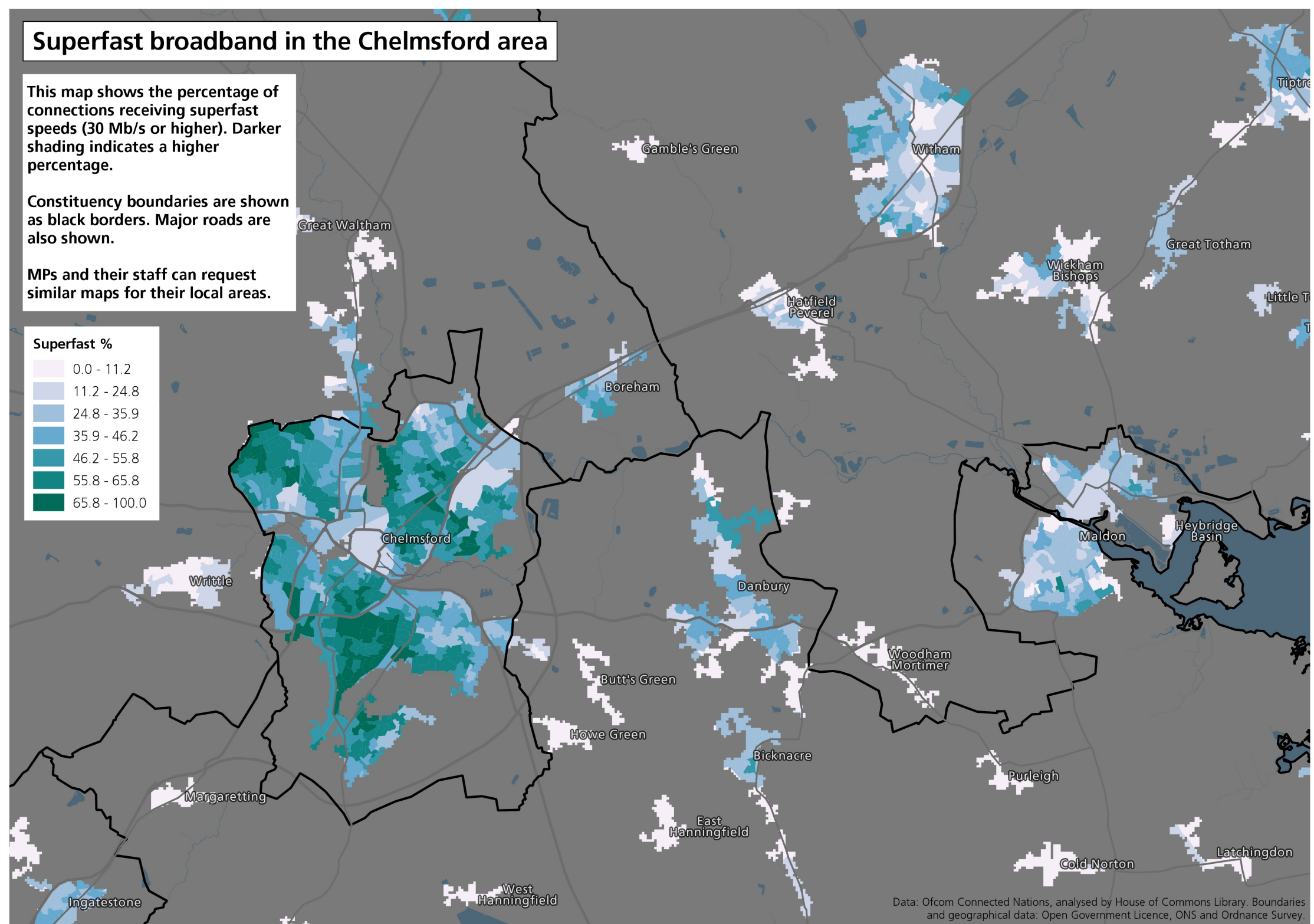
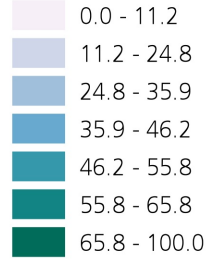
Superfast broadband in the Chelmsford area

This map shows the percentage of connections receiving superfast speeds (30 Mb/s or higher). Darker shading indicates a higher percentage.

Constituency boundaries are shown as black borders. Major roads are also shown.

MPs and their staff can request similar maps for their local areas.

Superfast %



7. Glossary

Superfast broadband

Superfast broadband does not have a single definition. The Government defines it as speeds greater than 24Mbps, whereas Ofcom and the European Commission define it as speeds greater than 30Mbps.

Ultrafast broadband

Ultrafast broadband does not have a single definition. The Government defines it as speeds of 100Mbps and higher, whereas Ofcom defines it as speeds greater than 300Mbps.

ADSL

ADSL technology delivers broadband using the standard copper telephone line—the connection speed will depend on which type of ADSL is being used; and the quality and length of the line from the telephone exchange to the premises.

Fibre to the Cabinet (FTTC)

Fibre to the Cabinet (FTTC) is the main technology used for the superfast broadband roll-out. Fibre optic cables (which are made of glass or plastic) are used from the telephone exchange to street cabinets and then existing copper lines are used from the cabinet to premises. This technology can provide speeds of up to 80 Mbps. However, the maximum speed a premises can receive reduces the further away it is from a cabinet, with superfast speeds (above 24 Mbps) available up to approximately 1000m from the cabinet.

Fibre to the Premises/Home (FTTP/FTTH)/Full fibre

Fibre to the Premises (FTTP) or Fibre to the Home (FTTH) is a technology where the fibre optic cable runs all the way to the premises or home. This means that there is no change in speed based on distance from the cabinet. FTTP/FTTH can provide download speeds of 1 Gbps (1000 Mbps). This is also referred to by the Government as full fibre.

Fixed Wireless

Fixed Wireless uses specific frequencies of the radio spectrum to transmit signals through the air in a similar way to mobile phone networks, doing away with wires. Most wireless ISPs only offer limited coverage in specific areas, for example rural villages.

Satellite broadband

Satellite broadband is an option for those who live in rural areas where traditional fixed-line based broadband services aren't available. It uses a satellite dish to provide access to broadband services. The main advantage of satellite broadband is that it can be provided virtually anywhere in the world, as long as there is a clear line of sight to the south.

Cable Broadband

Most cable broadband in the UK is provided by Virgin Media. Cable networks use a combination of fibre optic cables to street cabinets and high-grade co-axial cables from cabinets to premises. The latest standard *DOCSIS3.1* allows for speeds of around 1 Gbps (1000 Mbps) by cable.

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