

Open Market Review Superfast and Gigabit Broadband Infrastructure in Scotland

Request for Information

February 2022



Scottish Government
Riaghaltas na h-Alba
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Open Market Review

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1. Introduction and Background

The Scottish Government last issued an Open Market Review (OMR) of broadband infrastructure in December 2016¹. The purpose was to help us define an intervention area for investment of public funds into Next Generation Access (NGA) broadband infrastructure in support of our 100% superfast broadband commitment, via the Reaching 100% Programme (R100). Since confirming the intervention area via a State Aid Public Consultation in July 2017² and further checking eligibility via a State Aid Public Consultation in December 2020³, we have been operating a rolling OMR with NGA suppliers in order to take account of the latest commercial plans. This has been invaluable for the on-going delivery of the R100 Programme.

In March 2021, the UK Government announced an ambition to deliver nationwide gigabit-capable broadband as soon as possible, recognising that there is a need for government intervention in the parts of the country that are not commercially viable. They have committed a total of £5bn to ensure that all areas of the UK can benefit. This will be spent through a package of coordinated and mutually supportive interventions, collectively known as Project Gigabit, with an initial intervention of £1.2bn targeting at least 85% gigabit coverage of the UK by 2025 and nationwide gigabit-capable broadband by 2030.

As part of Project Gigabit, the Scottish Government is working with UK Government to develop a procurement approach for funding contracts to suppliers delivering gigabit-capable wholesale infrastructure in Scotland. This procurement approach will be a successor to the Digital Scotland Superfast Broadband programme and work in parallel with the current R100 programme.

This Open Market Review will be used to produce a draft intervention area that will inform the Scottish Government of eligible premises that may be targeted for public investment in any future intervention exercise and replaces the current NGA rolling OMR.

We invite suppliers to provide us with information about their broadband infrastructure within Scotland as detailed below. This will allow the Scottish Government to identify the areas which are currently not commercially viable

¹ [R100 Open Market Review](#)

² [R100 State Aid Consultation \(2017\)](#)

³ [R100 State Aid Public Consultation \(2020\)](#)

and/or where no infrastructure exists or is planned to be built within the next three years (and beyond, if available).

We intend to use this data as well as that available through Ofcom's Connected Nations publication and other sources available to the Scottish Government to allow us to carry out an assessment of existing and planned broadband connectivity.

Suppliers should also include in their Annex B data submission, any existing or planned infrastructure funded in part from public subsidy, for example UK and/or Scottish Vouchers, Superfast Broadband procured in line with either the National Broadband Scheme 2012 or 2016 and any other publicly funded initiative (including Local Full Fibre Networks and Rural Gigabit Connectivity Programmes).

In this way, working with suppliers, we hope to further enhance the comprehensive dataset we already hold across Scotland from the current rolling OMR process, noting that this OMR will repeat at regular intervals in the same way as the one it replaces.

2. Project Gigabit - Progress to Date

The latest update from the UK Government can be found at: [Project Gigabit Update February 2022](#)

3. Geographical Scope

This RFI will allow us to identify potential intervention areas for public subsidy. The geographic scope of this request is all of Scotland. A map showing the geographic scope of the OMR can be found in Annex A.

The Scottish Government can supply blank templates for the OMR (as outlined in Annex B), showing the premises by their Unique Property Reference Numbers (UPRN) across the nation that we consider relevant to the OMR process. The Scottish Government will restrict these UPRNs to the areas suppliers indicate they have, or are planning, coverage in. These UPRNs have been sourced from AddressBase Premium Epoch 89, from Ordnance Survey, published December 2021.

To access this information, suppliers are required to complete an Ordnance Survey Public Sector End User Licence. This is available as an attachment in the documents section.

Suppliers may wish to have a Non-Disclosure Agreement (NDA) in place with the Scottish Government prior to any data sharing, if this is not already in place. Contact gigabitomr@gov.scot to initiate this process or discuss further.

Suppliers who already supply this information to the Scottish Government as part of the existing rolling OMR process are encouraged to keep the current format – they should engage with the Scottish Government via gigabitomr@gov.scot should they wish to discuss further.

4. Purpose of this Open Market Review Request For Information

We are launching this OMR RFI to help us identify the intervention areas which currently are not commercially viable within the aforementioned geographical scope and/or where no infrastructure exists or is planned to be built within the next three years (and beyond, if available). Where suppliers have credible plans that extend beyond the three year horizon then these should be included in their submission. All planned build should be supported with detailed evidence as set out in this RFI.

This OMR process will be followed by formal Public Review(s) (previously referred to as a State Aid Public Consultation). The Scottish Government will apply a best practice approach that includes both an OMR and a Public Review stage. We consider that early market research at this stage is an important part of our market engagement to shape any future public investment plans. The results of the OMR will assist us with understanding the broadband infrastructure (whether NGA, ultrafast or gigabit-capable) already in place and where there are plans for investment in such infrastructure in the forthcoming three years (and beyond, if available).

We will request and then evaluate the suppliers' responses. During the evaluation exercise, we may engage with suppliers further to discuss and confirm their coverage claims. Following this, we will be able to determine the eligibility of the premises for public subsidy.

Following the conclusion of the OMR process, we will then conduct Public Review(s) to validate the results of the OMR, including seeking validation of the eligibility of the premises for subsidy. The Public Review(s) will take place over a period of at least one month and once concluded will confirm the eligibility of the premises ahead of any procurement(s).

This OMR replaces the current NGA rolling OMR and future updates will be requested in line with Ofcom's Connected Nations reports (currently three times per year) in order to maintain a rolling OMR for Scotland covering NGA, ultrafast and gigabit-capable broadband coverage.

5. Key Eligibility Requirements for Subsidy

The outcome of this OMR and subsequent Public Review will be shown in terms of 'White', 'Grey', 'Black' and 'Under Review' premises. We will only subsidise build to premises which have been designated as White in any future procurement(s).

- White - indicates premises with no gigabit network infrastructure and none is likely to be developed within 3 years. Annex D provides information on the technology 'qualifying' as gigabit capable
- Black - premises with two or more qualifying gigabit infrastructures from different suppliers being available
- Grey premises - a single qualifying gigabit infrastructure from any supplier is available
- Under Review - premises where suppliers have reported planned or existing commercial broadband coverage, but where those plans have been judged through the OMR process as potentially being at risk of not being completed/maintained.

Premises categorised as Under Review will be subject to continued monitoring by means of this rolling OMR and verification of supplier plans within the three-year period by the Scottish Government, similar to the current approach with NGA suppliers. We may request commitment from the supplier that significant progress is made within three years. In the event that these commercial plans fall away, these premises will be mapped as eligible and form part of the proposed intervention area and so eligible for intervention via this aid measure. We request that suppliers inform us regarding all plans, including plans beyond the initial three-year period where available.

The Scottish Government classifies premises on the basis of their existing or planned broadband infrastructure, as set out in Annexes B and C. The OMR and any subsequent Public Review data analysis of supplier's broadband coverage claims will be undertaken at premise level using the relevant UPRNs.

Once the OMR has closed, if additional information or clarifications are required, we will raise clarification questions with suppliers before deciding on a classification.

What are "step change" requirements?

The Scottish Government requires that any public intervention should be able to ensure a 'step change' in broadband availability from that currently available as well as credible planned networks. This is demonstrated by:

- Generally, download speeds must be at least doubled and upload speeds substantially higher as a result of the intervention when compared with existing download and upload speeds
- Significant new investments in the broadband network are undertaken (i.e. investments that must include civil works and installation of new passive elements)
- The new infrastructure brings significant new capabilities to the market in terms of broadband service availability, capacity and speeds and or competition.

The 'step change' in broadband availability shall be compared to that of existing as well as credible planned networks.

6. Making a Data Response

To submit a data response, suppliers should follow the steps below, as well as referring to the guidance provided in Annex B;

- Suppliers must complete and sign the Public Sector Geospatial Agreement (PSGA) End User Licence Agreement, which will be required before downloading the data. This can be submitted to: gigabitomr@gov.scot
- Suppliers should provide an indication of current and planned coverage areas, preferably by postcode, to allow for the generation of an appropriate response template. Submit your coverage to: gigabitomr@gov.scot
- Following this step, we will provide suppliers with the response template.
- Suppliers may seek clarification on making a data response at any time up to the closure date of 21st March 2022. Questions should be submitted to: gigabitomr@gov.scot
- Suppliers should submit data to us via our secure file transfer portal. The data response template and any further supporting evidence suppliers feel is relevant should be uploaded. Suppliers who do not currently have access to our portal can request it via: gigabitomr@gov.scot We will require the named contacts and email addresses of those who will need access to the portal.
- If suppliers wish for a previous submission to be treated as their return for this RFI, they must confirm this. Do not assume that we will use a previous submission for this RFI in the event of no response.
- Suppliers should include all current and planned premises coverage, including premises that fall outside of the geographical scope defined in Annex A but are connected by associated broadband infrastructure inside the geographical scope (e.g. by the same exchange/Point of Presence). Suppliers can add additional UPRN rows to the response tables as necessary and complete the relevant columns.
- It is important that suppliers include any existing or planned infrastructure gained with assistance from government subsidy, for example, Vouchers, Superfast (NBS 2012 or NBS 2016) and Hubs (Local Full Fibre Networks and Rural Gigabit Connectivity Programmes).

Note that the data suppliers provide in their response will be treated as commercially confidential, albeit that it may be necessary to share some/all of the response data with our professional advisors and/or UK Government and

Ofcom. We will use this information to define the intervention areas (only) following the Public Review(s).

Suppliers should engage with us as soon as possible to confirm whether they require a non-disclosure agreement (NDA) enabling us to share data between each other as part of this OMR process. If they already have a signed NDA in place with us through the R100 programme, this may not be required again.

It should also be noted that it is a requirement to use this information to produce maps to define 'White', 'Grey', 'Black' and 'Under Review' areas for gigabit-capable broadband. However, the published maps will show the aggregated 'White', 'Grey', 'Black' and 'Under Review' broadband areas, not the data provided on a per-operator basis. The final maps and UPRNs that may be used for procurement purposes will be published shortly after the conclusion of the relevant Public Review.

If you have any questions about any of the above, please contact:
gigabitomr@gov.scot

7. Submission Requirements

Responses to this OMR RFI must include the following:

1. A data submission that should cover suppliers current and planned premise coverage (i.e. premises served their network, or planned to be served by their network) as per the format outlined in Annex B;
 - The required data templates will be provided through the secure file transfer portal.
 - Suppliers must include all current and planned coverage in the template files.
 - Additional guidance can be provided to suppliers if required, please contact gigabitomr@gov.scot for support.
2. A completed Supporting Evidence template, which must include a response to the questions outlined in Annex C.
3. We would also like to hear from suppliers their views as to the types of wholesale access products they would like to see offered on any newly created subsidised network infrastructure. This information may inform the intervention design. Please note that we are not obliged to include these products in the invitation to tender.

Note that where suppliers coverage claims are for gigabit-capable networks, then the response detailing their proposed network design and architecture must consider the technical definition as outlined in Annex D.

8. Evidence to demonstrate how planned investments are viable

There are three essential areas against which we will evaluate suppliers planned coverage claims to ensure the overall viability of their planned investment. Our assessment will be based on the suite of evidence suppliers provide in the Annex C: Supporting Evidence Template and will include; whether the **technology** suppliers intend to deploy is gigabit capable and meets the technical criteria as outlined in Annex D: Technical Definition; **deliverability**, and whether deployment plans are in line with the phases / premises passed outlined in the submitted business plan, with the key build stages and processes outlined; and **commercial viability** - whether suppliers have viable commercial plans such as sufficient access to capital and whether the drawdown of funds aligns with deployment plans and the build programme. The information suppliers provide should be consistent across these elements to support a joined-up evaluation of responses.

Further information is included in Annex C and the Supporting Evidence Template.

9. Date for Return

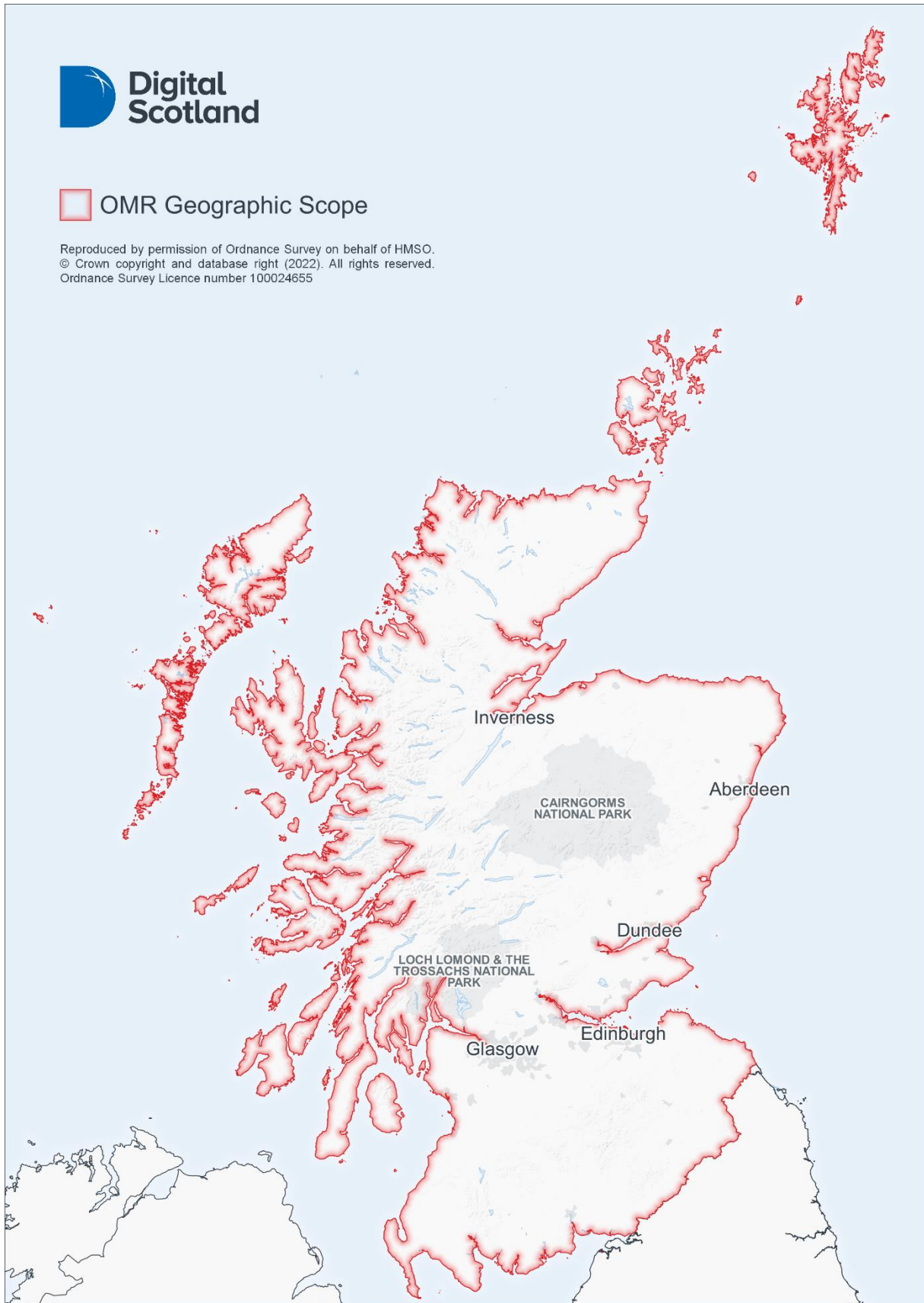
Please submit responses to this Open Market Review by 5pm on Monday 21st March 2022.

Annex A: Geographic Scope of OMR



 OMR Geographic Scope

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Annex B: Data Submission Format

1. Introduction

The Scottish Government requires certain fields of data for each pertinent address as identified by the Unique Property Reference Number (UPRN) in order to monitor the current and future delivery of Gigabit broadband capable services. This is done by requesting data on current and future connections from relevant suppliers. The below describes the format of the request file and how to format the data to return to us. If you require any additional support, guidance or clarification with this, please get in touch with us at gigabitomr@gov.scot

2. File formats

We will supply blank templates for the OMR, showing the UPRNs across Scotland that we consider relevant to the OMR process as well as the standard columns that we require, constrained to the areas you indicate you have active or planned coverage.

These UPRNs have been sourced from Address Base Premium Epoch 89, from Ordnance Survey published December 2021.

Do not pre-filter your data based on the template files, instead provide us with your entire UPRN dataset.

If you are using the template files as the starting point for your return, please remove any UPRN rows which are not part of your current or planned network.

The information that we provide against each property/UPRN is as follows:

Field Name	Description	Format
strUPRN	The UPRN (see below) prepended with "STR", this is a mitigation against certain spreadsheet tools treating the UPRN as a large number and removing significant digits	Text
UPRN	The unique property reference number	Number

Address	Comma delimited single line address eg 1, Acacia Avenue, Anytown	Text
Postcode	Standard postcode	Text
Easting	(x coordinate) in British National Grid	Number
Northing	(y coordinate) in British National Grid	Number
Longitude	Longitude in the decimal degree format	Number
Latitude	Latitude in the decimal degree format	Number

The information that we ask for against each property/UPRN is as follows:

Field Name	Description	Format
Current Technology	The technology you use for supplying that particular premises, examples of this could be ADSL, FTTP, FTTC etc	Text
Current Maximum Download Speed (Mbps)	Available download speed at premise level that you are able to supply to the property.	Number

Current Maximum Upload Speed (Mbps)	Available upload speed at premise level that you are able to supply to the property.	Number
Future Technology	The technology you intend to use for supplying that particular premises, examples of this could be FTTP, FTTC etc	Text
Future Maximum Download Speed (Mbps)	The maximum proposed download speed that you intend to be able to supply to this property under a future build plan.	Number
Future Maximum Upload Speed (Mbps)	The maximum proposed upload speed that you intend to be able to supply to this property under a future build plan.	Number
Date of Future Rollout	This should be the Ready for Service (RFS) date for the premises. The date at which RSPs can offer products or services to the individual premises. This should not be the date that build commences.	Date - DD/MM/YYYY
Notes	This column can be used to record any additional information deemed useful by the supplier.	Free form text

3. Additional columns

Aside from the standard columns above, you may wish to add additional columns to provide additional information about your network, for example to provide clarity on the level of detail you have reached in planning your future build for example highlighting those UPRNs where you have reached a specific design stage such as Low Level Designs, those UPRNs with committed funding or UPRNs where you have already started the network build.

If you have any existing or planned infrastructure you have gained with assistance from public subsidy, for example, Vouchers, Digital Scotland Superfast Broadband (NBS 2012), R100 programme (NBS 2016) and Hubs (Local Full Fibre Networks and Rural Gigabit Connectivity Programmes), please add an additional column at the end of your data return to indicate this so that we can identify these premises.

If adding additional columns, please keep the comments simple, and consistent, to facilitate easier data interrogation. An example of the format set out against each property/UPRN is:

Field Name	Description	Format
Delivery Phase	The planned phase for any future rollout which each UPRN shall form part of, e.g. Phase 1/Phase 2 etc, in line with your deployment plan and supporting evidence submitted under Annex C.	Text
Design Stage	The current phase of your future coverage. Typical examples are outlined in Annex C.	Text
Funding Stage	The current status of funding allocated to the UPRN. Typical examples are outlined in Annex C.	Text
Public Intervention	Is this UPRN subject to current or dependent on future intervention such as vouchers, Superfast, LFFN or RGC programmes or any other public interventions (such as Local Authority schemes). Further explanation should be provided in your Annex C: Supporting Evidence Template. An entry of 'No' would indicate that the premises is planned to be built entirely	Yes/No

	<p>through commercial funding with no dependency on public intervention. Evidence of this funding should be provided in your supporting evidence</p>	
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Annex C: Supporting Evidence

Please provide details and additional supporting evidence of any current or planned investment in broadband infrastructure (Next Generation Access broadband, ultrafast and gigabit-capable) in the identified geography using the Supporting Evidence Template provided.

In the case of planned investment, we are particularly interested in plans for the forthcoming three years (and beyond, if available).

Any information provided in response to this request should include but not be limited to:

- An appropriate demonstration/explanation as to how your broadband infrastructure or suppliers' service(s) meets with minimum standards where these claim to be Next Generation Access, ultrafast or gigabit.
- For information only, capability definition is consistent with the definitions set out in Ofcom Connected Nations Reports, e.g.;
 - decent (10 Mbps and above),
 - superfast (30 Mbps and above),
 - ultrafast (300 Mbps and above) and
 - gigabit-capable broadband, which can offer speeds of 1 Gbps and above.
- Note: where a supplier's service offer is limited to passive services only (e.g. dark fibre, duct access, mast access), this would not generally be considered to be an Next Generation Access, ultrafast or gigabit-capable broadband network, unless the supplier provides a description of how an active services provider is technically and commercially able to support Next Generation Access, ultrafast or gigabit-capable services over the infrastructure.
- Nevertheless, if a passive infrastructure supplier is offering access to infrastructure in the identified geography, it is encouraged to provide further details of its location in order that bidders for any future procurement process might consider its use in designing their solutions.
- Within each broadband category (Next Generation Access, ultrafast or gigabit-capable) please indicate: (i) what level of take-up is expected in total; and (ii) what level of take-up can be sustained by the network design and dimensioning.
- For example, a fixed wireless supplier may only be expecting 10% take-up of premises covered by its superfast network, and only be able to support a total of 20% of all premises passed converting to customers without significant capacity upgrades to the network.

- Please indicate the “normally available” and “minimum” speeds for the customers of each service e.g.

Service	Download “normally available”	Download “minimum”	Upload “normally available”
100Mbps	100Mbps	40Mbps	20Mbps
330Mbps	300Mbps	120Mbps	60Mbps
1Gbps	980Mbps	330Mbps	200Mbps

Refer to the full text of the Ofcom’s Voluntary Code of Practice⁴ for Better Broadband Speeds (March 2019), however, these definitions can be summarised as follows (summary extract from Ofcom Voluntary Code of Practice):

“Normally available” speed is defined as the speed a customer could expect to receive during peak times - measured as 8-10pm for residential services and 12-2pm for business services and reflecting when customers are most likely to use the service.

“Minimum speed” is defined as the minimum guaranteed speed a customer should expect from the service, which would trigger the customers right to exit the contract if speeds fall below this minimum level and are unable to be resolved within a 30-day period.

- Appropriate indicators of quality of the service e.g., contention ratio and/or bandwidth allocation per end user, together with a technical explanation of how these will support the achievement of the normally available and minimum speeds for all users.
- A description of the technical architectures that demonstrate how the claimed data speeds and performance will be maintained end-to-end across the deployed infrastructure. This could include, for example, network connectivity diagrams, deployment/coverage maps, design/dimensioning rules for network elements, backhaul capacity information, types and quantities of equipment, technical specifications, network performance measurements etc.
- Description of all services/products offered over the infrastructure including any wholesale provision to any retail service providers currently offered and any planned extension to these services within the next 3 years. Please indicate which retail service providers are using these services and what services are being taken.

⁴ [Ofcom’s Voluntary Code of Practice](#)

- Installation and rental tariffs for those services/products clearly identifying whether they are inclusive or exclusive of VAT.
- Confirmation from an authorised signatory that all information provided is of suitable accuracy.

In order for the Scottish Government to evaluate any planned investment and coverage claims provided as part of the OMR process, please provide evidence within 'Part D: Planned Investments' of the Supporting Evidence Template.

You should as a minimum include an outline Business Plan, a detailed calendar deployment plan and evidence of adequate financing for each stage of the proposed build.

We would also like information about company structure (for example parent company), evidence of adequate capital (or your plans to raise capital), dependencies and assumptions associated with financing (for example revenue from an existing network or assumptions on voucher revenue) and other financial and commercial information to enable us to understand the viability of your planned investment.

In assessing whether planned investments are viable, the Scottish Government may:

- review the business plans and calendar deployment plans to ensure these are consistent and in sufficient detail for each phase of the planned build.
- require evidence to demonstrate credible and plausible character of the planned investment which as a minimum should include a business plan, a detailed calendar deployment plan, proof of adequate financing and proposed technical architecture.
- ensure calendar deployment plans include the key build stages and when suppliers expect to undertake significant activities within their build programme such as design, surveying, acquisition, network build, network installation etc or the key processes involved in your build plan approach for design phase, survey phase, road notices/ wayleaves etc.
- require context regarding each delivery phase in your supporting evidence such as the risks and dependencies for the successful delivery of each phase and the mitigations/arrangements that you have in place to address these risks; a description regarding your resourcing plan for each phase; key milestones within each phase and the subsequent activities/timeframes to achieve RFS.
- review detailed design stages of any future coverage. Examples of how this could be presented are;

- Awaiting HLD - High Level Design (HLD) has not yet been completed.
 - HLD complete - HLD/area level plan has been completed. However, Low Level Design (LLD) work has not yet been completed or is in progress.
 - LLD complete - Low Level Design (LLD) and survey work has been completed, however, subcontractors/build partners, or in-house resources to complete the network build, are still to be appointed.
 - Build team appointed - Subcontractors / build partners or if applicable in-house civil resource has been appointed and commissioned to start the network build in accordance with the LLDs. All the necessary planning, acquisitions and wayleave agreements are finalised to allow the network to be constructed.
 - In build - Network build is in progress, however premises are not yet able to take up a service.
 - RFS - Network build and end-to-end testing is complete and premises are Ready for Service (RFS) i.e. RSPs are able to offer products or services to the individual premises.
 - Note: If you are intending to use different descriptions to those above, please include full explanations of each field entry in your supporting evidence submission to accompany this data submission.
- review the current status of funding allocated to future build. If your funding allocation is linked to your delivery phase, you should reflect that in your data and supporting evidence. Examples of funding status are:
 - No funding planned or committed - While you may be planning to deliver to this UPRN, the funding is not yet in place to do so and/or you are seeking funding.
 - Funding planned, but not committed - You have in principle funding agreed to deliver to this UPRN, but the funding is not immediately available, requires further decisions such as Board approval, or is dependent on (for example) performance metrics.
 - Funding committed - Funding has been identified and has been allocated to delivery of this UPRN. There are no further conditions around drawing down or using funding and the funding is ring-fenced solely for the delivery of associated premises. This should be explained clearly in your financial plan, which should be provided as part of your Annex C: Supporting Evidence Template.
- test that funding availability is sufficient for each phase of the planned build and that the capital allocated for the specific OMR area is sufficient and is consistent with the deployment plan.
- review the terms of any financing arrangements and any dependencies and assumptions associated with the financing including assumptions

and dependencies around public subsidy such as vouchers or other subsidy schemes.

- ensure that the network design and dimensioning information provided is in line with the projections made in the Business Plan regarding customer connections and growth expectations

Please supplement the attached Supporting Evidence Template with other documentation as you consider appropriate (e.g. public websites, published reports, etc). If you require any additional support, guidance or clarification with any of this, please get in touch with us at gigabitomr@gov.scot

Annex D: Technical Definition

The UK Government is currently reviewing the criteria for gigabit-capable networks based upon consultation with industry and the UK regulator, around the criteria below. In the meantime the Scottish Government will work with the following technical definition:

Infrastructure that can support gigabit-capable services directly or via third-party providers without restriction, as set out below:

- a) Connections that are gigabit-capable (capable of delivering 1,000Mbps or more download speeds) at the time of delivery of the connection without the need for future hardware upgrades or modification⁵ i.e. gigabit capability to be available from day one and if the consumer takes a slower speed it must be soft upgradeable without undue delay.
- b) At least one product with a download speed capability of at least 1Gbps and an upload speed in line with industry norms (typically around 200 Mbps) with busy hour performance as laid out below.
- c) Products with a clear and comprehensible explanation of the minimum, normally available⁶ and maximum advertised download and upload speeds⁷.
- d) Low data latency in accordance with Ofcom regime or codes of practice, recent industry norms and Industry Standards for the requirements of real-time services (or otherwise, in the absence of prevailing standards 10ms and below for 95% of the time).
- e) Support for real-time services (e.g. voice/video calling, telematics, telemedicine etc.) with performance indicators (e.g. jitter, packet loss etc.) in line with recent industry standards, or in the absence of industry standards: 2ms for jitter, and 0.1% for packet loss, 95% of the time.
- f) Actual data speeds and performance during the busiest hours of the day (not more than 4 out of every 24), that do not degrade below 33% of the headline download speed, and an upload speed equivalent to 20% of the minimum download speed (note: for performance where lower values are better, such as latency, jitter and packet loss, then a factor of 100% above would apply instead).

⁵ This principally applies to CPE but also backhaul/other network upgrades

⁶ Normally available and minimum download speeds may include the usual framing and packet overheads of the technologies used, provided that they amount to no more than a few percent of the total traffic i.e. data speed is defined as (user data traffic + overheads) / time

⁷ As defined by Ofcom

- g) Actual data speeds and performance that do not degrade outside of the busiest hours below 95% of the higher of the download and upload speeds set out above.
- h) Actual data speeds and performance that do not degrade as take-up of services approaches 100% of the addressable market (including any part arising from switch-off of legacy networks), to be demonstrated by firm commercial and technical (including capacity upgrade) plans based upon forecasts of up to 7 years.
- i) Where service offerings and performance vary by locality e.g. as a result of subscribers' distances from infrastructure, gigabit capability to be maintained for all potential customers.
- j) Order fulfilment and rectification within typical industry timescales, supported by demonstrably efficient service management processes.
- k) Maintenance of customer service levels and network availability in line with industry norms, ideally supported by Service Level Agreements.
- l) Service provision that does not unfairly discriminate against particular types of services, providers, subscribers or third parties (e.g. via traffic shaping or Quality of Service measures).
- m) For subsidised networks only; offering of wholesale access products on open and non-discriminatory terms in line with the principle of technological neutrality, to enable the interconnection to the subsidised network of any technology which other communications providers and/or retail providers may reasonably consider appropriate in accordance with the wholesale access requirements.



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