

A stylized, grey map of the North West Cambridge area is positioned on the left side of the page, partially overlapping a dark blue background. The map shows the irregular shape of the region with some internal lines suggesting boundaries or features.

NORTH WEST **cambridge**

Super-fast Broadband Strategy

Condition 21

November 2012

November 2012

North West Cambridge Development – Site Wide Strategy



Superfast Broadband

Site Wide Strategy for Superfast Broadband

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1. Introduction

The University of Cambridge is seeking to provide a sustainable mixed-use urban extension on this site to the North West of Cambridge. The proposals include new market and key worker homes for University workers, academic and research facilities, a local centre and open space provision.

It is the University's intent to provide the latest specification in broadband capability to the site. This is consistent with the Government's ambition to deliver Superfast Broadband to the UK, and with companies such as BT and Virgin Media deploying their high capacity fibre networks to homes in the UK, this is slowly becoming a reality for many.

Superfast Broadband is the next stage in delivering internet access for both personal and business consumption. It will deliver between 24Mbps to 100Mbps (presently) of data to the user, a jump from the current average of ADSL2+ standards of a maximum of 24Mbps, with users gaining average speeds of 5.2Mbps over this type of service (Ofcom Communications Market Report 2010).

1.1 Purpose of this Strategy

This Superfast Broadband Strategy has been written to address Planning Condition 21 associated with the planning permission for development at North West Cambridge (REF: C/11/1114/OUT and S/1886/11). The condition specifically requires that:

Prior to the commencement of any residential development, a strategy to facilitate super-fast broadband for future occupants of the site shall be submitted to and approved in writing by the Local Planning Authority. The strategy shall seek to ensure that upon occupation of a dwelling, either a landline or ducting to facilitate the provision of a broadband service to that dwelling from a site-wide network, is in place and provided as part of the initial highway works and in the construction of frontage thresholds to dwellings that abut the highway, unless evidence is put forward and agreed in writing by the Local Planning Authority that technological advances for the provision of a broadband service for the majority of potential customers will no longer necessitate below ground infrastructure. The development of the site shall be carried out in accordance with the approved strategy.



2. Superfast Broadband: Background and Strategy

2.1 Superfast Broadband Overview

In brief Superfast Broadband is:

- The next evolution of broadband access will utilise fibre optics to deliver data to the premises and begin to replace conventional copper infrastructure.
- It will increase current broadband speeds up to 100Mbps for users.
- It will deliver web, music, video and gaming services without interruption. This is what consumers are demanding in today's digital environment.

Superfast Broadband will deliver:

- Just like ADSL services, this will be an always on service to the user.
- Superfast Broadband will offer users faster access to the internet and the new technologies that requires it.
- On line gaming will be more responsive due to the increase in network speed.
- Large files, like movies, can be downloaded in minutes. With the emergence of High Definition content, this will be vital.
- Will mean better use of remote access by business by its employees. Resulting in an improved work-life balance.

2.2 Superfast Broadband Commitment on North West Cambridge

North West Cambridge will adopt standards for deploying superfast broadband to the site from the University's GRANTA Backbone Network (GBN) network and from commercial providers such as BT and Virgin Media.

Superfast broadband refers to connections of 24Mbps to 100Mbps typically run over a fibre-optic network, this enables users to surf the internet, download music & video and stream television all without slowing down the connection.

Detailed requirements from University of Cambridge and 3rd party suppliers will confirm the property requirements for each class of property within the development. This information will be integrated into the site wide design.

2.3 Strategy for Superfast Broadband at North West Cambridge

To facilitate provision of Superfast Broadband for the properties on the development site the following strategy will be adopted:

- Gather requirements from both the GBN and key 3rd party suppliers of Superfast broadband for site infrastructure design.
 - This will include such elements as capacity, security, standards.
 - Discuss with 3rd party suppliers the approach of an all fibre supplied site – no copper infrastructure.



- Incorporate these requirements into the site by sharing the information with the project to design for the correct site infrastructure.
- Incorporate features into site-wide design.
- Design of the site infrastructure will include the superfast broadband requirements. There will be a standard across the site for the designers to adopt. This will include such information as the number of ducts allocated per supplier, depth and position of ducts within the ground, number of chambers, locations of chambers, all to be included into the site design. Further discussions with suppliers will be necessary to establish design requirements for the development site.



3. Supplier Requirements

3.1 University of Cambridge

The University of Cambridge require that each property will have the following:

- Duct/s for the GBN fibre to route to the property
- Duct/s for a 3rd Party Supplier to route to the property

Dependant on the type of property being serviced will result in the number of ducts to be installed to the property.

Most properties on the development site will be serviced with two ducts from the adjacent road; one for the GBN fibre and one for 3rd party suppliers to install their fibre.

For properties that are not retained in the University's ownership, these will be serviced with one duct to the property from the adjacent road for 3rd party suppliers to install their fibre. A duct for the GBN fibre will be installed in the adjacent road to offer the scope of extending to the property if required at a later date.

Within the adjacent road and beyond there will be 3No. sets of ducts. Each set of ducts will cater for:

- The GBN fibres
- Openreach fibres
- Virgin Media fibres

Further detailed design from the above suppliers to cater for site capacity will be required.

The table below shows the Universities requirement to each property for Superfast Broadband.



| Property | GBN Supply | 3rd Party Supply |
|---|------------|------------------|
| Development by University of Cambridge | | |
| Key Worker Housing | ✓ | ✓ |
| Supermarket | ✓ | ✓ |
| GP Surgery | ✓* | ✓ |
| Police Touch Down | ✓* | ✓ |
| University run café | ✓ | ✓ |
| Retail units | ✓ | ✓ |
| Community Facility | ✓ | ✓ |
| Market Square | ✓** | ✓** |
| Sports Pitches | ✓** | ✓** |
| Open Space incl. parks and play areas | ✓** | ✓** |
| Development by others | | |
| Market Housing | ✓* | ✓ |
| Senior Living | ✓* | ✓ |
| Student Accommodation | ✓ | ✓ |
| Hotel | ✓* | ✓ |
| Primary School | ✓ | ✓ |

*Not installed into the property but provision installed along the adjacent road.

** Will be supplied from nearest building if feasible.

3.2 GRANTA Backbone Network (GBN)

The University-owned GBN network will be installed to University-owned properties built on the site. All other properties will have the means to connect to the GBN by installing additional ducts to the property.

- The GBN will be run from existing ducts in Madingley Rise area into the Development Site.
- The GBN will run in its own ducts to provide service to the site and properties. These ducts will not be shared with others.
- Key worker housing, Supermarket, University run Café, Retail Units, Community Facilities, Student accommodation and the Primary School will have a duct installed to the premises to cater for the GBN.
- Market Housing, GP Surgery, Police Touch Down, Senior Living and hotel will have capability within the street to supply the GBN to the premises if required. A duct may be extended to the premises to facilitate this.
- Market Square, Sports Pitches and Open Space will be supplied with Wi-Fi from the nearest building. This would utilise buildings internal network to connect onto to supply the GBN services over Wi-Fi.

3.3 3rd Party Supply

Presently there are a number of companies that facilitate the installation of a fibre network within Cambridge, predominantly Openreach and Virgin Media. These would facilitate the services needed for the premises – Internet, TV and Telephone.



- 3rd Party services will be provisioned via Huntingdon Road or Madingley Road, dependant on existing infrastructure.
- A duct, additional to the GBN duct, will run to each premise to allow the installation of the fibre from a 3rd Party suppliers.
- The ducts from 3rd Party suppliers will be housed in approved ducts and separate from the GBN ducts.
- 3rd Party Suppliers services will be provided to each premise – required ducts will be installed to each for ease of fibre installation.
- Market Square, Sports Pitches and Open Space will be supplied with Wi-Fi from the nearest building. This would utilise that buildings internal network to connect onto to supply the 3rd Party services over Wi-Fi.

3.4 Properties External to Internal Network Infrastructure

Both GBN and a 3rd party supplier's fibre will enter the premises via the two ducts. One duct will strictly be used for all GBN cables entering and the remaining duct will be for 3rd party suppliers. It is intended to position these ducts, entering the premises, in a location that would offer both protection, adequate room and to hide them out of sight. A cupboard under the stairs is usually a suitable location to keep the entering ducts and any potential network equipment but still offer ease of access if needed. Please see appendix 2 for typical equipment used by Openreach and space required.

A suitable location of any internal network equipment will need to be discussed further for the various properties on the development site; these would fall under additional works.

3.5 Suppliers in Consultation

Presently there are two 3rd party suppliers that have been engaged to assist with site requirements. These are:

- Openreach
- Virgin Media

The purpose of this early contact is to establish:

- One point of contact to assist with enquires.
- Gather requirements so as to adopt them within the site design.
- Identify and address any early issues.

As the project develops more specialised personnel from each supplier can be called on to offer input into the design.

Both of these suppliers offer fibre for all services offered, but these vary on how they are delivered to the property.

Openreach presently offers Fibre-To-The-Cabinet (FTTC) which means the fibre is installed from the Exchange to the Roadside Cabinet (Appendix 1). The connection from



the Roadside Cabinet to the property is completed with copper cables. There are selective areas that Openreach/BT are currently using as test sites in rolling out their Fibre-To-The-Premises (FTTP), these sites only contain fibre throughout (Appendix 1). This will be discussed with Openreach as to the approach they can adopt now for the future.

Virgin Media utilise the FTTP design and as such will pass fibre cable from the exchange to the property.

3.6 Openreach Strategy

Openreach is one of the main installers of fibre cable for connection to a Superfast Broadband service. It offers a service from BT for Superfast Broadband, television and telecommunications.

Along with delivering BT's Superfast Broadband services, Openreach also adopt a wholesale approach to its installed fibre cables for other Internet Service Providers (ISP's) to offer their services to the consumer. The likes of Talk Talk, Plus Net, Sky and more to follow, are utilising this wholesale approach from Openreach to deliver their Superfast Broadband services to their customers over the fibre optic cables installed.

Having this approach will result in a greater choice of options for the property owner on this development site.

The strategy that will be adopted to consult with Openreach, and when needed BT.

Key points:

- Obtain a one point of contact that will be responsible for the project, inclusive of and not limited to organising resources to assist in the requirements and design of the infrastructure.
- Any requirements sought from the project with regards to the data and telecommunications will go through the Technology PMO, this in turn will keep coordination and communication between the project and Openreach/BT simple and without possible confusion.
- An order will be placed with Openreach by the University of Cambridge so as to confirm intentions of the planned development.
- Necessary drawings will be shared with Openreach so as to begin planning of their services to the development site taken into consideration the capacity needed for the overall site.
- Infrastructure requirements from Openreach will be confirmed for the development site, i.e. location for incoming fibres to the site for distribution, quantity of ducts, quantity of chambers, termination points, location of DPs (Demarcation Points).
- Coordination with the project team designers as to the requirements of Openreach infrastructure in the development site.
- Confirm the infrastructure design for the development site is correct with Openreach.

3.7 Virgin Media Strategy



Virgin Media is the other main installer of fibre cable for connection to a Superfast Broadband service. It offers a service from BT for Superfast Broadband, television and telecommunications.

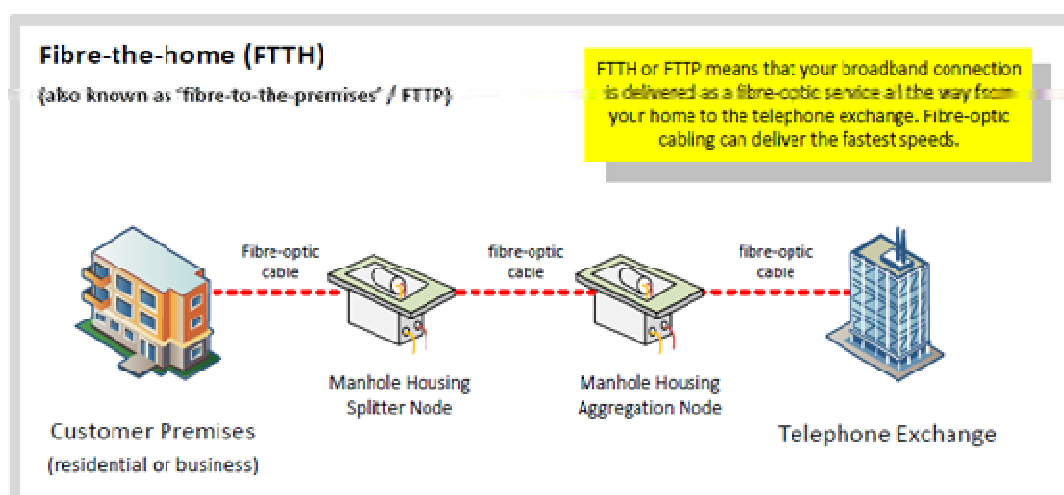
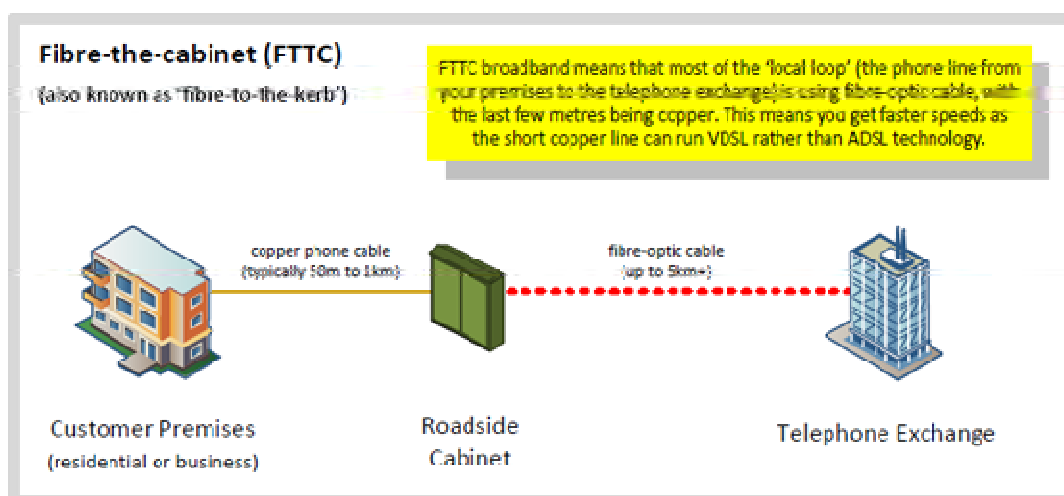
The strategy that will be adopted to consult with Virgin Media is the same as with Openreach.

Key points:

- Obtain a one point of contact that will be responsible for the project, inclusive of and not limited to organising resources to assist in the requirements and design of the infrastructure.
- Any requirements sought from the project with regards to the data and telecommunications will go through the Technology PMO, this in turn will keep coordination and communication between the project and Virgin Media simple and without possible confusion.
- A feasibility review of the required capacity to be provisioned to the new site.
- An order will be placed with Virgin Media by the University of Cambridge so as to confirm intentions of the planned development.
- Necessary drawings will be shared with Virgin Media so as to begin planning of their services to the development.
- Infrastructure requirements from Virgin Media will be confirmed for the development site, i.e. location for incoming fibres to the site for distribution, quantity of ducts, quantity of chambers, termination points, location of DPs (Demarcation Points).
- Coordination with the project team designers as to the requirements of Virgin Media infrastructure in the development site.
- Confirm the infrastructure design for the development site is correct with Virgin Media.



4. Appendix 1: Types of Fibre Installation Adopted





5. Appendix 2: Typical Fibre Internal Configuration

