

APPENDIX 1

Common broadband technologies available to the residents in the Rotherhithe

1. Through engaging with the market and technical advisers, the council has identified the most common broadband technologies available to residents in the Rotherhithe peninsular. These are summarised below:
2. **Telephone lines:** This represents the most widely available option for delivering broadband services in the UK. To achieve this method of broadband delivery different technologies can be used, ranging from Asymmetric Digital Subscriber Line (“**ADSL**”) to Fibre to the Cabinet (“**FTTC**”) and Very-high-bit-rate Digital Subscriber Line (“**VDSL2**”). FTTC and VDSL2 are commonly referred to as “fibre broadband” delivered to each premises through the telephone line. This means that to receive the broadband services there is usually a need to pay an additional fee for telephone line rental (usually through the same service provider).
3. Telephone-line based broadband technologies can deliver up to 76 Mbps downstream (with a UK median of 29 Mbps). The speed residents receive can vary depending on how far the property is from the telephone exchange and/or the local street cabinet.
4. **Cable TV Networks:** This method of broadband delivery uses the cable TV Network (which was largely laid in the 1990s) together with a modem based technology called Data Over Cable Service Interface Specifications (“**DOCSIS**”) to deliver high speed internet. The benefit of cable broadband is that it does not degrade over longer connections and has the capability of delivering connectivity speeds of up to 300 Mbps (with a UK median of 40 Mbps). The disadvantage of cable broadband is that it tends to be found in more populated areas (ie. with established road and pavement infrastructures) and is not available in all parts of the UK.
5. **Mobile/wireless connectivity:** This represents one of the fastest growing methods of broadband delivery in the UK and includes services provided by mobile networks (such as Vodafone, EE, O2, etc) using 3G, 4G and Long Term Evaluation (“**LTE**”). The benefits of this option are that it is relatively easy to construct mobile networks which can deliver speeds of over 30 Mbps and it works alongside fibre-based broadband solutions to provide a spread of service availability to residents. 5G (the fifth generation of mobile telecommunications) is currently being developed and promises to deliver speeds which will dwarf current technologies. Ofcom reports that it should be able to deliver connectivity speeds of between 10-50 Gbps.
6. **White Space:** This method of broadband delivery is less common in the UK (although it is becoming widely used in the USA) and uses frequencies allocated to a TV broadcasting service which are not already being used locally. This method is currently being trialled in rural parts of the UK and as yet there is no clear evidence of its overall performance and/or its suitability for use in urban areas.
7. **Fibre to the Home (or Premise) (“FTTP”):** There is a growing market of “full fibre”/FTTP providers which provide high speed broadband connections to both new and existing properties in the UK. This method of broadband delivery is being driven by recent government funding but at present the percentage of residents in the UK receiving FTTP is less than 5%. FTTP broadband is capable of delivering from 20 Mbps to 300 Mbps (with a UK median of 51 Mbps).

APPENDIX 2

Connectivity work already being undertaken by the council

1. **Smart Benches:** The council is currently involved in a pilot scheme to roll out smart benches in certain sites across Southwark. Smart Benches are solar powered seating arrangements that provide mobile device charging ports and free Wi-Fi access, as well as a place to sit and socialise. As part of the pilot, it is intended that ten Smart Benches will be installed at various locations in the borough. There are no costs to the council associated with the pilot scheme and the council charges a nominal licence fee of £166 for each proposed site. Similar schemes have been run in Islington and Lewisham.
2. **InLinkUK:** The council is currently involved with a scheme to install several InLinks in Southwark. InLinks are new structures which are intended to replace pay phones in cities and will provide ultrafast, free public Wi-Fi, phone calls, device charging and a tablet for access to city services, maps and directions. As well as this, the council is allowed 5% content time of the InLink screens for displaying local messages and promoting events. 14 InLinks are currently in the process of being installed in Southwark to replace existing BT pay phones and it is expected that further InLinks will be installed once the relevant planning permissions and necessary permits for installation have been received. InLinks have already been installed in Camden; Southwark being the second borough in London to adopt the scheme.
3. **Pan London Wi-Fi:** The council is currently participating in an initiative to bring together London boroughs and IT leaders with the intention of joining up Wi-Fi connectivity for public sector staff working in public authority buildings across London. The London Borough of Camden, the Met Police, TFL, the NHS and various universities are already involved in the initiative, which is in its early stages.
4. **Engagement with Virgin:** As Southwark Council's incumbent broadband provider, the council has an existing relationship with Virgin, which is currently rolling out its 'Project Lightning' initiative across the UK. The project, which is the largest investment in the UK's broadband infrastructure in more than a decade, is expected to offer superfast broadband to 17 million premises by 2020. The council is liaising with Virgin to discover more about Project Lightning and about how the borough might benefit from it.

APPENDIX 3

Market position

5. The council has identified the following recurrent themes from its consultation with suppliers:
6. **All of the suppliers proposed delivering FTTP** on the basis that this is, in the suppliers' opinion, the most future proof broadband solution and will deliver connection speeds in line with the reasonable expectations of residents.
7. **Delivery models:** There is a range of FTTP delivery models (all of which could be implemented in both commercial arrangements and as part of a public sector based initiative), including:
 - a. Pure wholesale in which the provider would provide the FTTP network and then rent out usage of the network to Internet Service Providers (“ISP”);
 - b. Provision of the FTTP network by the provider who would then both rent out usage of the network to ISPs and acting as an ISP in its own right;
 - c. Provision of the FTTP network by the provider who would then act as the sole ISP for that network.
8. **Wayleaves are highlighted as being a key challenge** to progressing fibre broadband roll out. The council must be able to assist suppliers and act expeditiously to ensure that wayleaves are processed efficiently.
9. **Planning/highways consents (such as the Major Works Permit) are highlighted as being another key challenge** to progressing fibre broadband roll out. The council needs to be in a position to be able to assist suppliers with this issue.
10. **Timescales and logistics:** There is no clear message from the market regarding the timescale for delivery of FTTP in Rotherhithe, but what is clear is that the following outside factors may have a significant impact on delaying delivery:
 - a. Wayleave and civil engineering permission;
 - b. Accurate data collection including;
 - c. Analysis of current broadband speeds for each address in Rotherhithe
 - d. Inventories of Council owned assets
 - e. GIS data
 - f. Accurate street mapping.
11. **Commercial model/funding:** There is a range of commercial/funding models for FTTP delivery, which depend on the approach to delivery that is adopted. Where funding from public sector sources is required, this may elongate the timescales for delivery as it may take time to apply for and secure the required funding. A summary of the commercial/funding models highlighted during the market engagement process is outlined below:
 - a. **Private investment:** The supplier meets the cost of installing the FTTP through its own funding streams and at no cost to the council. Through this model it is expected that suppliers will concentrate on delivering FTTP to premises which they determine to be more commercially profitable.
 - b. **Public investment – gap funding:** With this model, the suppliers expect

part or the entire project to be publicly funded (i.e. to cover provision of FTTP to less commercial areas). The DCMS Challenge Fund is a recent example of a source of public funding for such broadband projects.

- c. **Wireless concessions – gap funding:** With this model, the “gaps” in the project (ie. the less commercial areas to provide FTTP) are funded by the granting of borough wide wireless concessions. In other words, revenue to fund the FTTP provision is generated through allowing wireless broadband providers to use council owned property to install wireless broadband infrastructure.
- d. **Direct council funding:** The council funds the cost of a FTTP procurement which the council can tailor to its needs and ensure affordability and FTTP delivery to the less commercially attractive areas.