# Avonmouth Fibre Extension

*Unlocking & reusing public assets to bring full fibre to underserved areas*

A 30km duct & fibre re-use scheme: addressing over 17,000 businesses and residents, with an IRR of 10.5%

# Executive Summary

We are pleased to submit our final proposal for the Avonmouth Extension.

The length of our **duct re-use scheme is 30km**, with over **17,000 residents and 500 Businesses** being passed or addressed. The expected capital cost is **£1.6 million** with an **Internal Rate of Return of 10.5%.**

We have been approached by private companies, who have told us that should we be successful in our bid, they would be willing to invest in expanding and connecting properties addressed by the Avonmouth Extension. To illustrate this we have attached a letters of intent from various companies, stating they **would be willing to invest tens of million**, demonstrating there is market interest and that our IRR is conservative.

# Project key features

- The Avonmouth Extension is an LFFN shovel-ready project that will be quick to deliver as it mainly reuses existing, but dormant public sector assets.
- Civils and fibre will be commissioned through existing contracts, increasing the speed of delivery.
- The project is led by a multi-award winning team that already manages and maintains a 115km fibre optic network.
- The extension is located within a semi-rural/industrial fringe that has the UK's only deep seawater port and is well connected by motorway and railway.
- The extension will deliver 30km of new network, to an underserved area where there are no current plans for full fibre rollout.
- It will deliver open access and neutral host infrastructure to increase competition, market diversity and capacity.
- It will pass and address 16,939 premises, including 628 SMEs, 16,262 homes (4,479 council homes) and provide easy connection to full fibre for 49 priority public buildings
- The Extension will pass through 10% of the most socially deprived areas in the UK (according to the indices of multiple deprivation)
- The extension aligns with local strategies, national priorities and the aims of the LFFN.
- In exchange for an investment of £1.6m from DCMS, the Council will contribute 7.3km of duct (worth £225k).
- The investment will achieve an internal rate of return of 10.5%, well above the recommended 6.9% baseline.

# Introduction



1. The Avonmouth Fibre Extension Project is Bristol City Council's ambitious and highly achievable bid to the DCMS Local Full-Fibre Networks Challenge Fund (LFFN-PSAR) with the aim of integrating the current BNET network - Bristol's Open Access Network (OAN) metronet – with an extension through the North Western arc of the city to reach the Avonmouth Port and Severnside Enterprise Area.

2. Our bid proposes to extend BNET to provide 30km of additional passive network infrastructure, incorporating 7.3km of Council-funded "BNET orphans", laid as part of Council's 'Dig Once' policy (as part of a transport project), with the refurbishment of 18.4km of older (currently unused) ducting, supplemented with a little over 4.6km of new duct for increased site access and resilience.

3. This will deliver the resilient infrastructure platform and access extensions to pass/address 49 public buildings. It will improve the commercial environment to encourage build out to homes and businesses along the new route. The project will promote choice and competition in the fixed broadband market across a currently under-served area and support inclusive growth.

# SECTION A: KEY PROJECT ELEMENTS and socio-economic case

4.  The Avonmouth Fibre Extension Project (AFE) will pass through a suburban/rural fringe area with no current commercial plans for Full Fibre. The Extension will bring a new open access metronet to the Avonmouth and Severnside Enterprise Area and through Bristol's North Western arc to stimulate commercial investment to deliver more choice and competition to businesses and homes.

5.  The Extension will pass through disadvantaged areas of Bristol - amongst the 10% most deprived in the UK (according to the indices of multiple deprivation) - creating more digital opportunities for citizens using public buildings and facilitating commercial build out opportunities to homes (including large social housing areas) and businesses.

6.  Through our partnership with North Bristol Health Trust, the project will achieve a hospital link between the two main hospitals in the city and NHS England in the centre of the city using the extended BNET network.

## A1 - Key socio-economic features of The Extension

- refurbish and bring back into use **18.4km** of existing ducts;
- bring into first-time use **7.3km** of (Council funded) 'BNET Orphan' ducting in Avonmouth and Severnside, laid as part of Council's 'Dig Once' policy;
- see the construction of **4.6km** of new duct, mainly as resilience and short tactical extensions to create a network resistant to the impacts of fibre strikes and suitable for critical service use;
- provide an infrastructure platform, attractive to private investment in further build-out for homes and businesses along the network route;
- integrate this network extension back into the existing Bristol Network;
- offer a future-proofed solution by offering only passive infrastructure
- extend a full fibre network to pass/address[1] 49 priority public service buildings (PSAR only scheme, not PSBU)
- Improve inter-hospital network connectivity (through the Council's partnership with North Bristol Health Trust and University Hospital Trust). Over time this network can expand to incorporate other NHS facilities that already lie along the BNET route.

| Premises Passed | # SMEs Passed | 321 |
|---|---|---|
| 50m | # Private Residential passed | 3,377 |
| | #Council homes passed | 1,384 |
| | TOTAL | 5,082 |
| FTTP Addressable | # SMEs addressed | 307 |
| 200m | # Private residential addressable | 8,406 |
| | # Council homes addressable | 3,095 |
| | TOTAL | 11,808 |
| Priority public buildings | #priority public buildings (schools, council and health) passed and addressed | 49 |
| | COMBINED TOTAL | 16,939 |

This table uses the methodology from LFFN W2 and has been adjusted for FTTP availability - OFCOM 2018

## Supporting economic development

7.  With Bristol named as a "super cluster" and one of Europe's "Top 10" technology cities in EMEA", supporting the city region's digital and high tech sector is a priority for the council.

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[1] PSAR only scheme - we are not directly connecting buildings

8.    This project will support and expand Bristol's nationally important digital infrastructure, in a city McKinsey described as "the most significant and fastest growing outside of London."

9.    The Bristol tech "cluster" **supports 36,000 jobs** and contributes **£1.7 billion to UK GVA** [2] and expanding into the Avonmouth and Severnside areas is expected to accelerate this growth.

10.   But, it's not just the digital tech sector that will benefit from this extension. It will help bring the benefits of full fibre to the logistics, distribution, engineering, manufacturing, energy and waste processing sectors represented in the Avonmouth and Severnside Enterprise Area. Through BNET's extension to the North West of the city, we are seeking to improve the attractiveness of the area for inward investment and help retain and grow existing businesses across all sectors.

11.   With BNET's OAN model, this extension will bring new choice and competition in digital services to the Avonmouth and Severnside Enterprise Area which includes Bristol Port [3].

12.   The Avonmouth and Severnside area has **650 hectares of developable land** and currently **supports 21,250 jobs**. The area - **Western Europe's largest brownfield site** - has been prioritised for future economic expansion and is e**armarked for jobs growth of 6,000 to 14,000 in the next 10-12 years** in the West of England Strategic Economic Plan. Avonmouth is the only deep sea port in the UK with direct motorway and rail from the port to all points of the compass. **Better digital infrastructure will accelerate economic growth** and this extension will complement other significant infrastructure investments in the area, including flood defences and transport, all designed to unlock the area's potential.

13.   BREXIT and talk of **free ports** is expected to create growing demand for the Port of Bristol and could accelerate its further expansion, stimulating the area's wider development. The use of **'electronic borders'** will increase with BREXIT and new wireless connectivity, backed up by full fibre network, will be needed for these smart customs controls, as well as **inventory management and logistics** at the port. This extension is perfectly timed to provide the supporting infrastructure needed as the digital demands on the port as a result of BREXIT are realised.

14.   Looking to the future, this Avonmouth fibre extension has been routed to **pass very close to the Filton Enterprise Area** with its **advanced engineering and aerospace** focus and home to key companies such as **Airbus, Rolls-Royce and GKN**. It has 100 hectares of developable employment land expected to see **7,000 to 12,000 new jobs** in the **next 10-12 years**. There are strong investment drivers to link this area to BNET.

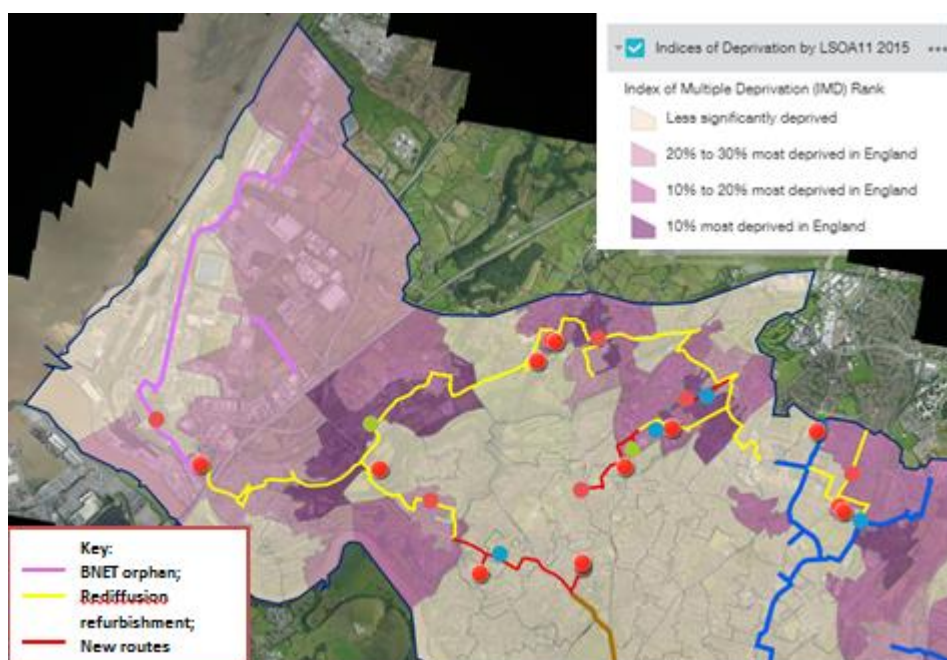## Promoting inclusive growth - digital inclusion

15.   This Extension is designed to include disadvantaged areas of Bristol - amongst the "10% most deprived" in the UK in the indices of multiple deprivation. This BNET extension is aimed at facilitating more digital opportunities for citizens using public buildings, as well as building a platform attractive to further commercial build out opportunities to homes (including large social housing areas) and businesses along the new route.

16.   The Extension specifically seeks to accelerate the availability of Gigabit connections in more marginal areas, currently lacking commercial FTTP plans and with a history of missing out on previous commercial rollouts from the private sector.

17.   The extension sees 8km (21%) of the fibre network pass through areas in the 20% most deprived areas (IMD) in the country. The presence of a full fibre core Metronet will encourage other Communications Providers / investors to build out to the Council's social housing in the area supporting inclusive growth and encouraging service competition.

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[2] Source: Tech Nation, 2016

[3] The Port of Bristol is the the only deep water port in the UK and the closest to the main centres of UK population. Some 45m people live within a radius of 300 kilometers of the port - Insouthglos

A summary of the extension and its impact on IMD worst 10% and 20%

| Length of Network in Area (m) | | | |
|---|---|---|---|
| Fibre & Duct | Bristol | IMD Wrst 10% | IMD Wrst 20% |
| BNET | 104631.95 | 26483.21 | 36081.28 |
| BNET Avonmouth Added | 7340.35 | 0.00 | 0.00 |
| Rediffussion Reused | 18410.37 | 945.72 | 7166.35 |
| CF Routes New | 4614.93 | 298.21 | 576.00 |
| Total Before | 104631.95 | 26483.21 | 36081.28 |
| Number Added | 29465.65 | 1243.94 | 7742.35 |
| Total After | 134097.60 | 27727.14 | 43823.63 |
| % Change in Length | 29.91 | 4.70 | 21.46 |



**Disadvantaged areas passed by the extension[4]**

18. The extension seeks to open up new economic opportunities - making neighbourhoods a more attractive location for start-up businesses and social enterprises; creating competitive advantage for those who are already operating there; and supporting the transformation of community buildings (including libraries) into next generation Gigabit hubs.

## Gigabit community hubs and enhanced digital learning

19. Community hubs provide a focal point and facilities to foster greater local community activity and bring residents, the local business community, and smaller organisations together to improve the quality of life in their areas. Bristol's community hubs in the area, with an easy upgrade option to full fibre enabled by the BNET extension, will be able to transform their course delivery with the

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[4] Circles denote Enabled sites: RED = Schools, GREEN = Community Hubs and BLUE = Other Council buildings (eg. Libraries).

increased bandwidth and speed. More and more courses and activities have a strong digital element to them and so there is an ever-greater reliance on fast, reliable digital connectivity.

20.  Working in partnership with the Avonmouth Community Centre, Bristol Community Learning Partnership has developed a series of training courses around digital skills and building confidence, job skills and resilience. Specifically the courses that would benefit the most from the Extension are:

- Untethered virtual reality sessions - group sessions held at a variety of venues allowing learners to explore different areas, skills and job sectors. Delivered using technologies like Google Expeditions and Rebox VR
- Getting to grips with design and 3D printing - a local community hub to encourage entrepreneurs to develop ideas and skills. Delivered using a variety of CAD tools and Ultimatum printers
- Coding workshops - using a variety of tool sets a series of courses have been developed to target all ages; from helping parents understand what their kids are learning in school to developing job skills. Delivered with Kano, MBots and many other tools

21.  Ofsted has stated the lack of strong provision of digital delivery is an area of concern for Bristol and the WECA area. As part of a Department for Education initiative, the Council has worked with local colleges to create a broad range of digital resources targeted at improving English, Maths and Digital skills in the adult population. This project has been a great success; however it is clear that in areas with poor connectivity many learners are being left behind due to an inability to access resources in a flexible manner. Today, in areas such as Avonmouth, connectivity is so poor that it is difficult to include even basic digital content in the class.