CAMBRIDGESHIRE AND PETERBOROUGH COMBINED AUTHORITY BOARD	AGENDA ITEM No: 2.3
28 MARCH 2018	PUBLIC REPORT

DIGITAL CONNECTIVITY INFRASTRUCTURE: IMPROVING MOBILE COVERAGE AND INCREASING THE FULL FIBRE FOOTPRINT ACROSS CAMBRIDGESHIRE AND PETERBOROUGH

1.0   PURPOSE

1.1.   Fast, reliable internet connections are vital for economic growth. Our area already achieves a high level of success with Cambridge and Peterborough both in the top 5 fastest growing cities in the UK. We also have the highest productivity and employment rates of all the mayoral combined authorities.

1.2.   The Combined Authority's ambition is to exceed this level of achievement. This report outlines the importance of digital connectivity to our future success. It proposes an innovative, multi-faceted approach which will:

>   (a) Maintain and enhance Cambridgeshire and Peterborough's position as a leading digital county.
>
>   (b) Support current economic strengths and protect future prosperity.
>
>   (c) Maximise private sector investment and improve fixed and mobile connectivity as part of a 4 year programme.

DECISION REQUIRED	
Lead Member: **Mayor James Palmer**	
Lead Officer: Pearl Roberts, Interim Director of Strategy and Planning Noelle Godfrey, Programme Director Connecting Cambridgeshire	
Forward Plan Ref: 2018/011 Key Decision: Yes	
The Combined Authority Board is recommended to:	**Voting arrangements**
(a) Note the digital infrastructure and mobile coverage in Cambridgeshire and	Simple majority of all Members

Peterborough and endorse the vision for the Mayoral Combined Authority to be a leading area for digital connectivity (b) Approve in principle a budget of up to £5.66m to support the extension of the Connecting Cambridgeshire programme (c) Authorise the Chief Executive, in consultation with the Mayor, to approve the business case and draw-down of funds in accordance with the approved business case relating to improvements to mobile coverage and the full fibre footprint for Cambridgeshire and Peterborough. (d) Delegate to the Director of Strategy and Planning authority to approve the programme reporting and delivery arrangements in partnership with Cambridgeshire County Council and the other Combined Authority Constituent Councils.	

2.0 BACKGROUND

Introduction

2.1. Over the last decade there has been an exponential growth of digital technology, which now underpins almost all aspects of modern living in every sphere across work, travel, leisure and health. Increasingly it impacts on the economic strength, sustainability and quality of life of all parts of the UK and beyond. As a consequence Internet access is now widely viewed as "the 4th utility".

2.2. The quality and coverage of digital connectivity impacts on businesses, residents and public service delivery across the whole of Cambridgeshire and Peterborough. The ubiquitous nature of digital technology also means that digital exclusion is now virtually synonymous with social exclusion and economic deprivation.

Connecting Cambridgeshire Programme

2.3. In general, along with the rest of the UK, the provision of digital connectivity infrastructure in Cambridgeshire has not matched demand from businesses, residents and public service organisations over the last decade. Locally this has been underlined in numerous surveys and consultations in recent years.

2.4. The Connecting Cambridgeshire Programme, led by Cambridgeshire County Council and co-funded by Peterborough City Council, was set up in late 2011, with a remit to improve the digital connectivity infrastructure across the area.

2.5. The initial focus of the programme was to improve the availability of Superfast Broadband (24mbps and up) across Cambridgeshire and Peterborough, although the scope has more recently broadened to include: analysis of mobile coverage; provision of public access Wi-Fi; and "future connectivity" including full fibre Gigabit capable infrastructure and preparing for 5G mobile services.

2.6. As part of the Superfast Broadband programme a gap funded contract was let with BT to deliver connectivity infrastructure to those areas of Cambridgeshire and Peterborough that would otherwise not be commercially viable. As a result of the programme the county superfast broadband coverage has gone from less than 60% in 2010 to over 96% by January 2018. Further rollout phases are now underway and Connecting Cambridgeshire has a very ambitious target to reach over 99% Superfast Broadband coverage across Cambridgeshire and Peterborough by the end of 2020 (See Appendix 1 - Cambridgeshire & Peterborough Digital Connectivity and Appendix 2 for regional comparators).

2.7. The contract with BT includes a "clawback" clause which operates if take-up is higher than the 20% originally anticipated. At over 50%, take up of Superfast Broadband services is amongst the highest in the country, which not only demonstrates high level of demand and engagement with digital technology across the county, but has also provided funding to support further rollout. (Further details in Appendix 6 – Programme Funding).

2.8. Since the programme got underway in 2012 further government and EU funding has been secured to deliver digital technology business support and connectivity voucher schemes to small businesses and public access Wi-Fi provision to around 150 libraries, leisure centres, P&R sites, sheltered housing schemes and community centres across Cambridgeshire.

Mobile Coverage and Full Fibre Services

2.9. Although Superfast broadband provision has improved, mobile coverage for voice and data (2G and 4G services) across parts of the county is poor and remains a subject of widespread concern amongst businesses and communities across the county.

2.10. Analysis of Ofcom's December 2017 Connected Nations report has confirmed that whilst the two cities of Cambridge and Peterborough are well served, and generally have coverage above the England average, indoor and in-car coverage for both telephone calls and 4G data services for all other areas of the county is below the England average. (Details at Appendix 3 – Cambridgeshire and Peterborough Mobile Coverage Analysed by Area and Appendix 4 – Greatest areas of divergence from England average).

2.11. Whilst Superfast Broadband availability generally offers the connectivity needed for today, it is vital to start planning and deploying the telecommunications infrastructure for tomorrow. This includes preparation for "5G", the next generation of mobile services and full fibre commonly referred to as "Fibre to the Premise" or FTTP.

2.12. Technology progression means that within the early years of the next decade, the lack of a ubiquitous full fibre footprint across the county will damage the competitiveness of the local economy, impact quality of life in domestic settings and impede the deployment of smart technology across a range of public services – including health, care and transportation.

2.13. At a national level the UK government has recognised the need to expedite a full fibre rollout and to prepare for 5G as key elements which underpin the industrial strategy.

2.14. At 4%, full fibre (FTTP) coverage across Cambridgeshire and Peterborough is marginally above the national average for England but still low, particularly compared to other regions in Europe and beyond. (See Appendix 2 for regional comparators)

Vision for Cambridgeshire and Peterborough as leading Digital County

2.15. With the establishment of the Combined Authority there is an opportunity to ensure that Cambridgeshire and Peterborough has the digital connectivity it needs for growth by expanding the Connecting Cambridgeshire programme to include better coverage of existing mobile services, facilitate the expansion of the full fibre footprint and prepare for 5G services.

2.16. An ambitious, innovative, multi-faceted approach is proposed which will maintain and enhance Cambridgeshire and Peterborough's position as a leading digital county, support current economic strengths and protect future prosperity.

2.17. This will be achieved by a combination of maximising private sector investment and using public funding where required to improve fixed and mobile connectivity as part of a 4 year programme, with the following aims:

1. Matching or exceeding the performance of rest of the UK in being able to make *reliable mobile telephone calls and use 4G data services across the whole geography* of Cambridgeshire and Peterborough.

2. Matching or exceeding the performance of rest of the UK in being able to make *reliable mobile telephone calls and use 4G data services on Cambridgeshire and Peterborough A and B roads*.

3. Linking with Government on the national plan to *improve mobile voice and data services on rail services*, with a particular focus on intra-county journeys.

4. Making Cambridgeshire and Peterborough an ***exemplar area for the trialling and early deployment of future facing 5G services***, working with businesses to maximise the impact and generate a long term economic benefit for the area.

5. Target a ***threefold expansion of the full fibre footprint*** across the county, aiming to keep significantly ahead of national average coverage and government targets as they emerge.

6. Ensuring that ***Superfast Broadband (>24mbps) is accessible to more than 99%*** of homes and businesses across Cambridgeshire and Peterborough by the end of 2020. (Existing target within the programme)

7. Synchronise with emerging masterplans and increase digital inclusion in Cambridgeshire's market towns by expanding ***public access Wi-Fi services***, which are already available in open spaces in Cambridge and Peterborough.

Programme Delivery

2.18. The proposed programme will run from April 2018 through to March 2022. The high level approach is set out below, with further details in Appendix 5, Delivery Plan.

(a) **Coordination**
- Liaising between telecommunications operators and across all Cambridgeshire and Peterborough local authority teams to facilitate digital rollout in existing areas and new builds; including lowering barriers associated with wayleaves and street works and providing access to buildings and street furniture which can host telecommunications equipment.

(b) **Mobile & Public Access Wi-Fi Improvements**
- Analyse, benchmark and map mobile coverage on an annual basis to track and monitor progress in coverage.
- Liaise with operators, communities and businesses about areas of poor coverage and broker solutions.
- Provide a funding stream to facilitate commercial mast/small cell rollout where the commercial case is challenging.
- Develop and deliver a strategy to promote the area for 5G testbed/trials and early deployment.
- Contribution to capital funding to support the roll-out of public access Wi-Fi solutions in market towns.

(c) **Full Fibre Rollout**
- Deploy fibre ducting as part of infrastructure schemes which are due to commence between 2018-2022. These ducts will be available to telecommunications operators to facilitate full fibre rollout.

(d) **Leading Digital County**
- Develop a communications and marketing approach that will establish Cambridgeshire & Peterborough as a leading area for the roll out of digital infrastructure.
- Create a prospectus to promote the overall approach to telecommunications providers, maximising private investment, increasing the commercial footprint and attracting early deployment of advanced connectivity in Cambridgeshire and Peterborough

3.0 FINANCIAL IMPLICATIONS

3.1. This proposal includes up to £5.66m investment from the Combined Authority which will enable the Connecting Cambridgeshire programme to be extended to ensure the Cambridgeshire and Peterborough area has a leading digital infrastructure which supports businesses, communities and efficient public service delivery. A breakdown of the funding proposal is included at Appendix 6 – Programme Funding.

4.0 LEGAL IMPLICATIONS

4.1. The devolution deal for the Combined Authority area (June 2016) outlined the importance of digital connectivity to the objectives of the new organisation. The Cambridgeshire and Peterborough Combined Authority Order 2017 provided a general power of competence enabling it to fund projects in furtherance of its economic ambitions.

4.2. Grant funding raises issues of state aid and procurement. In order to comply with EU competition law it is confirmed that the following actions will be undertaken as part of the delivery programme:

(a) Any public funding which could be deemed as a market intervention in the telecommunications market will be assessed to determine if the funding is to be deployed on a 'state aid' or 'no aid' basis.

(b) With the exception of the Superfast Broadband Rollout Phases 3 and 4 (state aid exemption already in place), delivery is intended to be on a 'no aid' basis. However, if any funding deployment is assessed as a potential 'state aid', an approval for deployment of state aid will be sought from the appropriate authorities.

(c) In commissioning any services in delivery of the programme, any contract is to be procured in line with the Combined Authority's contract rules and statutory procurement rules.

5.0   SIGNIFICANT IMPLICATIONS

5.1.   Equality impact assessments will be carried out in the delivery of the programme. The purpose of the programme is intended to promote social inclusion.

6.0   APPENDICES

6.1.   Appendix 1 – Cambridgeshire & Peterborough Digital Connectivity

6.2.   Appendix 2 – Superfast Broadband & FTTP Regional Comparisons Feb 18

6.3.   Appendix 3 – Cambridgeshire & Peterborough Mobile Coverage by Area

6.4.   Appendix 4 - 2G & 4G greatest areas of divergence from England average

6.5.   Appendix 5 – Delivery plan

6.6.   Appendix 6 – Programme Funding

Source Documents	Location
Ofcom Connected Nations Report December 2017	https://www.ofcom.org.uk/research-and-data/multi-sector-research/infrastructure-research/connected-nations-2017

Appendix 2 – Superfast Broadband & FTTP regional comparisons Feb 2018

Superfast footprint – 24mbps and up

County	Superfast %
Cambs & P'boro	96.1%
Central Bedfordshire	95.4%
Essex	91.9%
Hertfordshire	96.2%
Lincolnshire	91.3%
Norfolk	90.7%
Northamptonshire	97%
Suffolk	92.3%
England average	*95.5%*

FTTP footprint

County	FTTP/H footprint
Norfolk	0.1%
Hertfordshire	0.5%
Lincolnshire	0.5%
Essex	1.1%
Suffolk	1.4%
Central Bedfordshire	1.7%
Cambs & P'boro	4%
Northamptonshire	5.1%
England average	*3.7%*

% Premises with less than 10mbps (the proposed Universal Service Obligation speed)

County	% < 10mbps
Cambs & P'boro	1.86%
Central Bedfordshire	1.99%
Essex	3%
Hertfordshire	1.6%
Lincolnshire	5.5%
Norfolk	5.6%
Northamptonshire	1.3%
Suffolk	4.4%
England average	*1.9%*

Appendix 3 – Cambridgeshire & Peterborough Mobile Coverage by Area

Peterborough

			England 2017 Average
Telephone Calls	Indoor premises	94%	91%
	Outdoor Geographic Area	99%	88%
	In Car A & B Roads	84%	85%
4G Data	Indoor premises	67%	60%
	Outdoor Geographic Area	90%	61%
	In Car A & B Roads	42%	52%

Fenland

			England 2017 Average
Telephone Calls	Indoor premises	78%	91%
	Outdoor Geographic Area	98%	88%
	In Car A & B Roads	59%	85%
4G Data	Indoor premises	47%	60%
	Outdoor Geographic Area	76%	61%
	In Car A & B Roads	18%	52%

Huntingdonshire

			England 2017 Average
Telephone Calls	Indoor premises	79%	91%
	Outdoor Geographic Area	97%	88%
	In Car A & B Roads	75%	85%
4G Data	Indoor premises	38%	60%
	Outdoor Geographic Area	87%	61%
	In Car A & B Roads	43%	52%

East Cambridgeshire

			England 2017 Average
Telephone Calls	Indoor premises	74%	91%
	Outdoor Geographic Area	98%	88%
	In Car A & B Roads	66%	85%
4G Data	Indoor premises	33%	60%
	Outdoor Geographic Area	78%	61%
	In Car A & B Roads	77%	52%

South Cambridgeshire

			England 2017 Average
Telephone Calls	Indoor premises	72%	91%
	Outdoor Geographic Area	99%	88%
	In Car A & B Roads	80%	85%
4G Data	Indoor premises	22%	60%
	Outdoor Geographic Area	87%	61%
	In Car A & B Roads	37%	52%

Cambridge

			England 2017 Average
Telephone Calls	Indoor premises	99%	91%
	Outdoor Geographic Area	100%	88%
	In Car A & B Roads	99%	85%
4G Data	Indoor premises	83%	60%
	Outdoor Geographic Area	100%	61%
	In Car A & B Roads	78%	52%
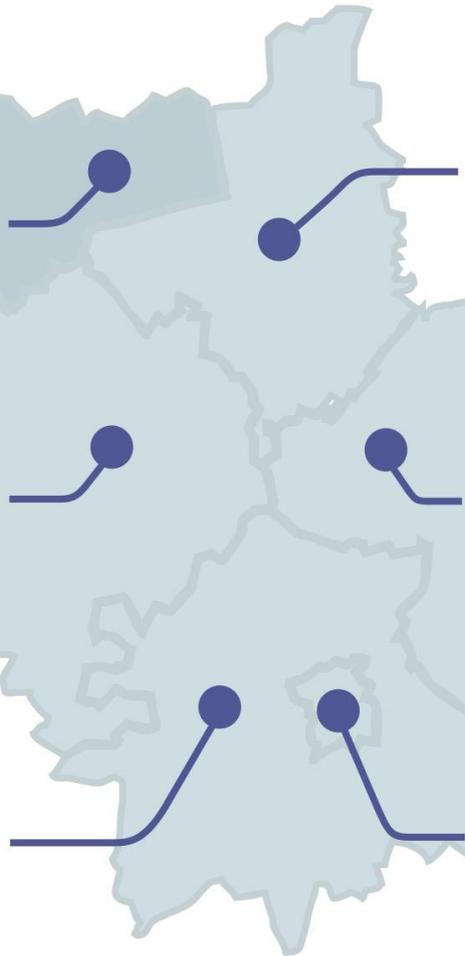
Appendix Four – 2G & 4G greatest areas of divergence from England average

District	Indoor telephone calls % coverage	England average	% difference
East Cambridgeshire	74%	91%	-17%
Huntingdonshire	79%	91%	-12%
Fenland	78%	91%	-13%
South Cambridgeshire	72%	91%	-19%

District	In car telephone calls % coverage A & B Roads	England average	% difference
East Cambridgeshire	66%	85%	-19%
Huntingdonshire	75%	85%	-10%
Fenland	59%	85%	-26%
South Cambridgeshire	80%	85%	-5%

District	Indoor 4G data coverage %	England average	% difference
East Cambridgeshire	33%	60%	-27%
Huntingdonshire	38%	60%	-22%
Fenland	47%	60%	-13%
South Cambridgeshire	22%	60%	-38%

Appendix 5 – Outline delivery plan

A number of work streams will be established to deliver the additional scope of the programme.

1) Accelerate commercial rollout and leverage private investment

A small dedicated team will be established to facilitate rapid infrastructure rollout & stimulate commercial investment in mobile and full fibre coverage in new developments and existing areas. They will liaise with telecommunications providers (fixed and mobile) as well as the seven local authorities in the area to co-ordinate: wayleaves; street works activities; planning consents and access to property, land and street furniture assets which can be used to host telecommunications equipment. The team will also market the area as an exemplar location to roll out telecommunications infrastructure.

2) Mobile Voice and Data Improvements

Based on analysis of mobile voice and data coverage, a comprehensive consultation with mobile operators will be undertaken to ascertain blockers to further investment and develop a funding package that will provide access to sites and other locations required to facilitate better 2G and 4G coverage across the county, with a particular focus on current "not spot" areas.

3) Increase the full fibre footprint

A funding bid to deliver an initial boost to the full fibre footprint across Cambridgeshire and Peterborough has been submitted to the government's LFFN programme as part of Wave 2. Central to the proposition is a proposal to utilise existing fibre ducting assets along the guided busway and to deploy ducting (and possibly dark fibre) as part of all new infrastructure schemes – including roads, cycle routes, bridges etc. The digital assets will then be made available to operators at fair rates which provide a commercial return to operators and encourage further investment. It is proposed that this approach is expanded to cover the deployment of fibre ducting alongside all infrastructure schemes. This approach not only lowers the overall cost of infrastructure deployment (9/10[th]s of the cost of civils for infrastructure deployment is attributed to retrofitting) it also minimises the productivity cost of disruption caused by streets works closures.

4) Develop a 5G local prospectus along with a 40km "Digital Innovation Corridor"

Further development of full fibre (LFFN) plans for Busway ducting to create a digital innovation corridor with ready access to fibre connectivity, power and streetlights/CCTV poles host small cells etc. In addition to passing through some very high footfall areas, such as Cambridge Station and CBC, this will also be co-terminus with plans to test and pilot autonomous shuttle vehicles on the Southern section of the busway, providing a ready "use case" for early deployment of 5G mobile services.

5) Provide capital funding (possibly as "match" for other sources to support the deployment of public access Wi-Fi in Cambridgeshire market towns.

6) > 99% coverage Superfast Broadband via gap funding infrastructure rollout contract

This is an existing, funded work stream which will continue as currently planned. It includes Phase 3 (underway) and Phase 4 rollout (procurement due to start shortly) to achieve > 99% by end 2020.

Appendix 6 – Programme Funding

The Connecting Cambridgeshire Programme was originally funded in 2011 with £23m capital from CCC and PCC – supplemented by government and EU funding together with private investment from BT (totalling c. £30m). This funding supported the delivery of Phases One and Two of the Superfast Broadband Rollout.

Subsequently CCC have made a further £10m funding available from contract clawback to fund SFBB Phases Three and Four. Phase Three is currently underway and Phase Four is subject to a further procurement exercise. Small sums are also available to promote 5G rollout and improve public access Wi-Fi in rural village halls.

Bids for further government (Local Full Fibre Network Programme – LFFN) and EU funding have been submitted over the last two months to underpin Phase 4 SFBB rollout and to support initial work on expanding the full fibre footprint. See table below.

Connecting Cambridgeshire Funding – 2018 to 2022

	Workstream	Other Funding	Combined Authority (proposed)	Total
1	SFBB> 99%, Phases 3&4	CCC/PCC clawback £10m DEFRA (bid submitted) £4m ESIF (bid) £1m	-	£15.00m
2	Full fibre footprint	LFFN (bid submitted) £4.2m	£1.50m	£5.70m
3	2G/4G Mobile	-	£2.50m	£2.50m
4	5G Preparations	CCC - £250k	£0.50m	£0.75m
5	Public Access Wi-fi	CCC - £25k	£0.25m	£0.275m
6	Supporting commercial rollout/investment	-	£0.91m	£0.91m
	Totals	**£19.475m**	**£5.66m**	**£25.135m**

Combined Authority Funding – Outline Profile 2018-22

	Work stream	2018/19 (£)	2019/20 (£)	2020/21 (£)	2021/22 (£)	Total (£)
1	Coordination	290,000	235,000	205,000	180,000	910,000
2	Mobile	-	1,000,000	1,000,000	500,000	2,500,000
3	Full Fibre	-	500,000	500,000	500,000	1,500,000
4	5G	100,000	150,000	150,000	100,000	500,000
5	Wifi	50,000	100,000	100,000	-	250,000
	Totals	**440,000**	**1,985,000**	**1,955,000**	**1,280,000**	**5,660,000**