Oxford City Council

Oxford Super Connected City Broadband Plan

Contents

APPLICANT INFORMATION

Project Name: 421
Oxford Super Connected Cities

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If the bid is a joint proposal, please enter the names of all participating bodies and specify the co-ordinating authority

Co-ordinating Authority:
Oxford City Council

Participating Bodies:
Oxfordshire County Council
Oxfordshire Local Enterprise Partnership
The University of Oxford
Oxford Brookes University

Proposed start Date of Project: *1 April 2013*

Proposed end Date of Project: *31 March 2014*

Statements of Support

"This bid has been developed jointly by Oxford City Council and Oxfordshire County Council with strong support from the Oxfordshire Local Enterprise Partnership. Both councils and the LEP recognise the vital importance of delivering ultrafast broadband and wireless infrastructure to realise the economic potential of the City and County. This is an important and timely opportunity to support the growth of our local economy and in particular to ensure that we can remain at the international forefront in education, scientific and engineering innovation and creative excellence.

The City Council, County Council and the Local Enterprise Partnership are committing funds alongside the bid to BDUK so that the enormous economic benefits for the county can be realised.

This bid complements the Oxfordshire Broadband Strategy and both councils and the LEP will work together over the years ahead to ensure that the substantial benefits of improved broadband and wireless connectivity are felt across the whole county.

We fully support this bid and look forward to working with BDUK to deliver our ultrafast broadband vision for Oxford."

Cllr Bob Price, Leader of Oxford City Council
Cllr Ian Hudspeth, Leader of Oxfordshire County Council
Adrian Shooter, Chairman of the Oxfordshire Local Enterprise Partnership

"The University of Oxford supports the Oxford Super Connected Cities bid.

It is vital that ultrafast broadband and wireless infrastructure is brought into the whole city to ensure that Oxford continues to be one of the world's leading cities for education and innovation. This is key to helping the University maintain a perception among prospective staff and students that the city and University are 21st century enterprises that build on the enormous legacy and history of the University but remain visionary and forward looking.

The University has a specialist unit, Isis Innovation, with a key role to manage technology transfer and in the last 15 years has spun-out a new company every two months on average. Ultrafast broadband and wireless in the city is becoming a prerequisite to enable these fledgling companies to successfully compete and flourish in the global marketplace.

Ultrafast broadband and wireless will add to the judgement of the city by visiting dignitaries, academics, students and general visitors alike and this can only help to promote Oxford and the economy benefits that come with this.

Anne Trefethan, Chief Information Officer, University of Oxford

"Oxford Brookes University supports the Oxford Super Connected Cities bid. For Oxford to maintain its reputation as a leading city for education and innovation the city must have future proof ultrafast broadband and wireless infrastructure.

If this bid is successful we look forward to working alongside other education establishments in the city to develop and implement plans for an on-line learning hub in Oxford. Ultrafast broadband and wireless are key to being able to deliver a world class service that further enhances the city's reputation and educational offering.

Ultrafast broadband and wireless will also ensure that the student and visitor experience meets the demands of the 21st century, where effective connectivity is seen as an essential not an option. This will enable Oxford to continue to attract students and visitors from around the world.

In the local business context, Oxford Brookes University will be happy to work alongside partners to engage with SMEs and promote the benefits of ultrafast broadband, thus having a positive impact on the local economy. As the project develops following a successful bid we will continue to explore opportunities to offer further support to the project to deliver mutual benefits and the development of ultrafast broadband and wireless across the whole of the city."
Professor Janet Beer, Vice-Chancellor of Oxford Brookes University

"The importance of the visitor economy to both the Oxford and Oxfordshire is self-evident and so, to compete with other UK and European city regions, Oxford must provide a compelling offer that attracts and retains tourists and visitors alike. Visitors to Oxford increasingly expect fast internet connectability, on the move as well as part of their accommodation package and this, taken with the well documented growth of smart phone usage as part of a contemporary lifestyle, demands that an ultrafast broadband and wireless infrastructure is in place to maintain Oxford's competitive edge in the market.

"Access to fast and reliable wireless broadband will enable a more innovative approach to visitor communication/promotion - QR Codes for example - and enhance Oxford's reputation.

"Increasingly, residents are using internet access to shop and access services, as well as manage their communication needs. And of course Oxford enjoys a dynamic student population - over 30,000 - who attend the two city based universities and teaching colleges; a population for whom broadband access is an integral part of their lifestyle. Residents, visitors and students alike will benefit from improved internet access across the city, making Oxford a more attractive place to visit, shop and study."
Tony Stratton, Chairman of Experience Oxfordshire

"Oxfordshire Business First champions entrepreneurship, innovation and 21st century infrastructure. We know how vital it is for businesses in Oxford and Oxfordshire to have future proof ultrafast broadband and mobile broadband to ensure that the city and the county continues to be a centre of innovation and entrepreneurship. We believe there is a need for a national strategy to enable all our businesses to compete in a global marketplace and to fuel the UK's economic growth. As a step towards implementing a strategy for an integrated digital architecture for the UK, Oxfordshire Business First supports the Oxford Super Connected Cities bid."
Frank Nigriello, Chairman of Oxfordshire Business First

"Delivering ultrafast broadband and wireless in Oxford is vital to ensuring the future competitiveness of the city and will provide an added attraction to inward investment and business development and growth. Oxford's economy is highly dependent on visiting students and tourists, the USP of a fast

wireless network in the city centre can only help in encouraging people to come here and enhance their experience. Meaning that Oxford can complement its unrivalled heritage attractions with the modern digital age"

Robert Kirtland, Managing Director, Critchleys and Chairman of the ProOxford Group

"Businesses in Oxfordshire are competitively disadvantaged by a broadband infrastructure that is not fit for purpose. As a business leader in Oxfordshire I support any initiative that is designed to bring broadband across Oxfordshire up to the hygiene level that is required to transact business today. I support the Oxford Super Connected Cities bid, but recognise that in itself it will not be enough and should only be seen as a step in the right direction. Alongside other business leaders I urge the government to commit the funding required to address the broadband deficiency at a national, rather than regional, level."

Stuart Miller, Co-founder and CEO of ByBox

A - Strategic Outline Case – Vision and Objectives

A1 Strategic Outline Case

80Mb+ Ultrafast Broadband where it Counts

Our Vision is:

Oxford Online, Everyone Everywhere: Providing the platform for a creative knowledge hub built upon a broadband infrastructure which allows entrepreneurs, students and visitors to seamlessly work, learn, travel and communicate across all our priority institutions and locations.

This proposal sets out a crucial stepping stone towards the infrastructure Oxford needs to realise its Vision. Our first priority is to focus on white properties in the centre of Oxford taking in our businesses, visitor hot-spots and a number of university and college sites. Our goal is to:

- ensure 96% of businesses in Oxford and 89% of all premises can access fixed broadband services offering 80mbps+ and

- offer next generation wireless broadband across the city centre

The Super-Connected Cities Programme forms part of a larger programme of infrastructure investment spearheaded by OxOnline and the private and public sectors to push fibre and next generation wireless further out across the City. OxOnline projections show the County wide project delivering fibre to every cabinet in the district putting Oxford well beyond the 90% coverage target for 30mb+ superfast broadband set by the government for 2015[1].

In the time available to prepare this bid we have had strong interest from providers/investors to provide additional fibre networks, if this bid is successful. They have indicated that they would develop a business case for potential anchor users which could support significant additional investment (c£50m)

Our infrastructure plans underpin the City's existing wider economic and social objectives. Moving forward, partners are committed to positioning Oxford as **An International Hub for Online Learning**. Working with the city's universities, creative /digital and publishing businesses, our ambition is to make Oxford renowned globally as the international centre for online learning. Building on our established tradition and reputation, the City will harness the excellence of its academic institutions and the know-how of its digital media and publishing businesses to become the leading hub for students wanting to access high quality online educational opportunities.[2]

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[1] Based on Analysys Mason projections undertaken for OxOnline.
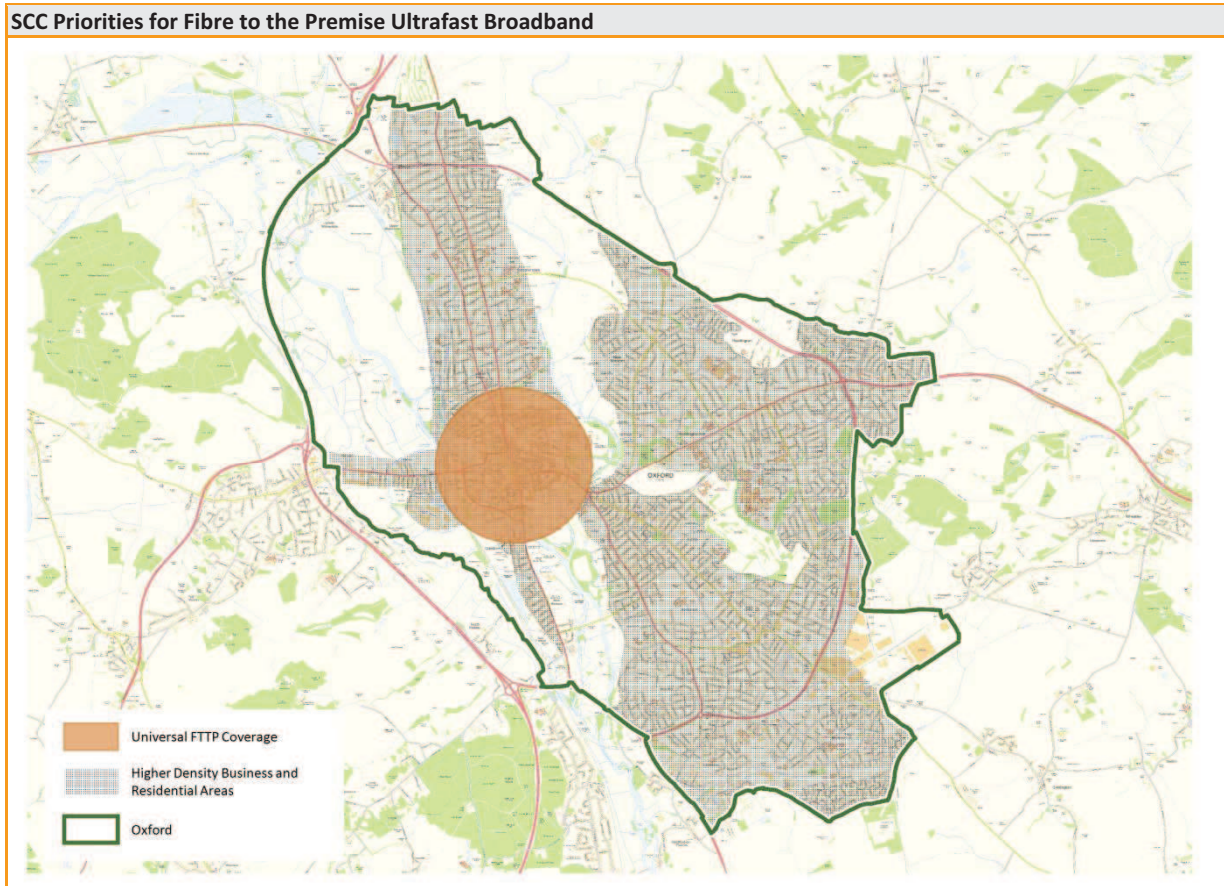
[2] See Section E3 for more detail

Oxford Super Connected Cities: Priority Areas for Fibre to the Premise

	24 -30 mb	80- 100 mb+	Wireless Overlay
Oxford Centre	2014	2014	2014
Rest of Oxford		2014	2020

	OxOnline		Oxford SCC		Future Investment

We have identified a hierarchy of white priority locations (based on latest BDUK mapping files) central to our ambitions which builds on OxOnline and existing market investments:

- **Exchange Only properties[3]:** will accelerate these properties from basic broadband to a fibre-based ultra-fast solution

- **Oxford's urban core** will offer near universal coverage of ultrafast broadband and superfast wireless broadband. The area is home to a number of university sites, colleges, the West End Regeneration area and Radcliffe Observatory Quarter.

SCC Priorities for Fibre to the Premise Ultrafast Broadband

Universal FTTP Coverage
Higher Density Business and Residential Areas
Oxford

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[3] Premises not connected to BT's core network via a cabinet and not covered by Virgin Media.

- Higher density businesses and residential locations[4] in the rest of Oxford including:

  ➢ **around the three major hospital sites** to the East (John Radcliffe, Churchill/Warneford and Nuffield) and the **Oxford Brookes University**, Headington Campus.

  ➢ the **Northern Gateway Strategic Site** to the North

  ➢ **Cowley Road** running to the East of the centre - a key shopping and residential location including many of the target student and academic population.

The Strategic Context for Broadband in Oxford

Our Super Connected Cities plan is anchored within a number of key strategic commitments:

- **The Oxfordshire Local Enterprise Partnership (LEP)** is working with businesses, academia and the public sector to drive economic development across the county. Getting the county connected to superfast broadband and improving mobile phone coverage are central elements of its programme. The LEP has identified Oxford and neighbouring Science Vale UK as priority hubs for significant commercial opportunities for world class businesses.

- Oxford's **Core Strategy** aims to support carefully managed growth and innovation in education, healthcare, scientific research and manufacturing. Super Connected Cities will put in place the infrastructure needed to ensure these sectors can compete from a base in Oxford. The Core Strategy also aims to promote social inclusion and reduce inequalities through the provision of appropriate infrastructure.

- Oxfordshire's **Ox-Online** broadband plan commits £13.9m of public investment which will ensure every cabinet has fibre connectivity in the City. Oxford's Super Connected City Plan will build on that investment offering the fastest available connections direct to premises across the City.

- **The Culture Strategy 2012-15** contains the following objectives, which are particularly reliant on enhanced broadband capability for the city:

  ➢ Commit to sustaining and growing the creative economy and encouraging more creative industries to move to the city, building on the recommendations in the Economic Impact of the Cultural and Creative Industries in Oxfordshire report, commissioned by Oxford Inspires in May 2010.

  ➢ Explore ways to increase the amount of cultural activity that is available to audiences digitally, working with partners including NPOs in the city and Oxford ASPIRE to achieve this.

- **Britain's Superfast Broadband Future**[5] sets out the government strategy to ensure the UK

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[4] All postcode areas serving at least two priority businesses will be covered. Beyond this postcode areas are only served if they have an especially high density (50+) of residential premises. This accounts for around 25 postcodes covering 1,500 premises (15% of the total not planned to receive ultrafast broadband).

[5] BIS and DCMS (2010) *Britain's Superfast Broadband Future.*

has the best broadband in Europe by 2015 and sets a clear goal for us to aim at. Our plans will ensure Oxford has some of the best broadband in Europe by 2015 and will mirror the national target of 90% coverage, but at the ultra-fast speed levels needed by our businesses.

- Our plans will also take the City a long way towards achieving the EU's Europe 2020 Strategy which identified ICT as a critical enabler of jobs and growth in Europe and set a target of 100% coverage of 30Mb broadband by 2020.

Project Need

BDUK modelling data indicates that 80% of premises across Oxford currently receive ultrafast connections (ie 80Mb+) and around 3% more will receive ultrafast under the county wide OxOnline project. In order to progress towards our longer term objectives we are seeking investment to extend ultrafast connections to a significant proportion of the remaining 10,000 (17%) premises.

Furthermore the proliferation of mobile internet devices reliant on high speed wireless (up to 20-40Mb/sec) requires that Oxford City Centre is able to offer ubiquitous and high speed wireless if it is to keep pace with the expectations of visitors, businesses, students and residents.

The evidence from businesses and residents reflects this need further. The Oxfordshire Business Survey (2011 covering 1,159 businesses) underlined the business need for better broadband:

- 50% of businesses were unhappy with their current broadband speed

- Poor quality broadband is restricting business growth. 80% felt that broadband was the key to driving their business forward with more than a third (37%) stating that their success has been held back by slow broadband.

- 40% of people working from home feel the speed/quality of their broadband connection is an issue, this rises to 59% in rural areas[6].

Our Strategic Objectives

Although the specific goals of our Super Connected Cities bid relate to technology infrastructure, alongside our centre-piece initiative, the International Hub for Digital Learning, our longer term and wider objectives are for:

1) Economic Growth

- To provide all businesses and people working in Oxford with access to the high internet speeds in the home, at work and wirelessly across the City needed to secure the on-going competiveness of our SMEs, and particularly those involved in education, publishing and digital media.

- To equip Oxford's learners, entrepreneurs, residents and its workforce with the complementary skills needed to harness our strong creative talent pool and position the City as a hub for online services and content.

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[6] Ox Voice survey 2012

- To drive up rates of business innovation through a more effective use of ICTs.

- To strengthen Oxford's reputation as a destination for business investment backed-up with widely accessible high quality ICT infrastructure.

2) Social Objectives

- To ensure our significant base of socially deprived communities (which are at risk of falling outside commercial market rollout) can engage in the new more flexible learning and employment opportunities which depend on high-speed fixed and wireless infrastructure

- To deliver new and improved public services using ultrafast broadband infrastructure. This will achieve a step change in the quality, accessibility and cost-effectiveness of a wide range of services, from education, health and social care.

Our Medium Term Infrastructure Plans

Super Connected Cities is simply a stepping stone towards our social and economic objectives and need to be located in wider programme of investment for Oxford. Below we set out the wider set of investment plans.

City of Oxford 2020 Intervention Plans

| 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |

Fixed Wireline

- FTTP Ready Infrastructure on Key Development Sites (Embed into business as usual planning via s106 & CIL)
- Remaining 80-100Mbps FTTx for EO Locations (??)
- 80-100 Mbps FTTP On Demand (BT Service Roll-Out & Virgin)
- 30 Mbps + FTTC Across Oxford (OxOnline)
- 80-100Mbps FTTP for EO in CBD & District Centres (Oxford CC Super Connected Cities)
- 80-100Mbps FTTP for Businesses in CBD & Business Parks Exc Retail & HEI (Oxford CC Super Connected Cities)

Wireless

- Wifi for Social Housing
- LA Wifi for Staff / Service Users
- Wifi on Transport
- 4G LTE Roll-Out (Market Operators)
- Free Wifi for Visitors
- Wholesale Wireless Services in rest of Oxford (Concession Model To BE Explored)
- Wholesale Wireless Services in CBD (+ Possibly Cowly Road & Headington) (Super Connected Cities)

Adoption & Exploitation

- Demand Stimulation for Residents across Oxfordshire (OxOnLine & Oxford City SCC)
- Demand Stimulation & Business Support for Businesses (OxOnLine & Oxford CCSCC)
- Tele-Health Pilot (TBC)
- Virtual Learning/Language Student Pilot (TBC)
- Virtual Visitor Guide (TBC)
- OCN Centres in Oxford Migrate to FTTC/P (OxOnline)

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Our Immediate Plans

The priority focus of our plan is a swift and decisive investment in ultrafast broadband which ensures Oxford can maintain its competitive position as a world class destination for learners, businesses and visitors. Our preferred way forward is for a gap funded solution which will deliver:

- fibre to the premises to almost 1,000 businesses and 2,500 dwellings

- next generation wireless to 750 businesses and 600 homes in the City Centre.

A2 Expected Outputs

Our market sounding has indicated that current known levels of FTTC connectivity will not increase over the foreseeable future. All resources sought under the SCC bid will be invested in FTTP and wireless solutions and not any FTTC.

Approximate no. of premises connected:	2012-2013 (existing)	2013-2014	Future (to 2015-16)
EXISTING FIBRE-ENABLED CABINETS AND CABLE NETWORK AREAS **Existing and planned roll-out by commercial providers**			
Fixed broadband – total no. of dwellings passed:	56,800	56,800	Unknown
Fixed broadband – dwellings passed as % of total in City:	93.4%	93.4%	Unknown
Fixed broadband – total no. of businesses passed:	3,846	3,846	Unknown
Fixed broadband – businesses passed as % of total in City:	73.3%	73.3%	Unknown
Additional connectivity to be achieved with UBF investment			
Fixed broadband – total no. of dwellings passed:	0	0	0
Fixed broadband – dwellings passed as % of total in City:	0%	0%	0%
Fixed broadband – total no. of businesses passed:	0	0	0
Fixed broadband – businesses passed as % of total in City:	0%	0%	0%
Cumulative additional connectivity			
Fixed broadband – total no. of dwellings passed:	56,800	56,800	Unknown
Fixed broadband – dwellings passed as % of total in City:	93.4%	93.4%	Unknown
Fixed broadband – total no. of businesses passed:	3,846	3,846	Unknown
Fixed broadband – businesses passed as % of total in City:	73.3%	73.3%	Unknown
FTTP DELIVERING 80Mbps OR GREATER* **Existing and planned roll-out by commercial providers in the City area.** [*includes existing FTTC provision from above delivering 80Mbps or greater]			
Fixed broadband – total dwellings passed/accessible:	50,438	50,438	Unknown
Fixed broadband – dwellings passed/accessible as % of total	82.9%	82.9%	Unknown
Fixed broadband – total no. of businesses passed/accessible:	3,944	3,944	Unknown
Fixed broadband – businesses passed/accessible as % of total in City:	75.2%	75.2%	Unknown
GREY/BLACK AREA FIBRE OVERBUILD TO ACHIEVE 80Mbps OR GREATER TO THE PREMISE **Additional connectivity to be achieved with UBF investment over and above the infill shown in the tables above**.			
Fixed broadband – total no. of dwellings passed/accessible:	0	2,578	2,578
Fixed broadband – dwellings passed/accessible as % of total	0.0%	4.2%	4.2%
Fixed broadband – total no. of businesses passed/accessible:	0	981	981
Fixed broadband – businesses passed/accessible as % of total	0.0%	18.7%	18.7%

Cumulative total wireless connectivity to be achieved with Urban Broadband Fund support.			
WI-FI HOTSPOTS AND COVERAGE			
	2012-2013 (existing)	2013-2014	Future (up to 2015-16)
Wi-fi – residential covered:	0	603	603
Wi-fi – businesses covered:	0	750	750
OPTIONAL : footfall in the area covered by the Wi-fi network	600k-700k*	Unknown	Unknown
Wi-fi - % of total city centre area:	0%	74%**	74%
*Based on Springboard data covering the far smaller commercial core (George Street, Cornmarket Street and Queen Street). Spring-board-data.co.uk. **Equates to approximately 100% of the public accessible outdoor space			

A3 Please indicate the expected business outputs to be achieved

Research shows that the impact of ultrafast broadband on business will be especially pronounced for knowledge based industries[7]. Oxford's distinct base of publishing, digital and creative, biotechnology and wider research commercialisation activities will benefit from the most dramatic boost. The move from print to electronic output in the publishing sector, the ability of small digital and creative start-ups to exploit innovations in global markets and the collaborative networks at the heart of modern medical research all show how ultrafast broadband creates wealth. The Super Connecting Cities Programme is vital for continuing competitiveness in these sectors and will provide a platform for Oxford to expand its knowledge economy, form world class business clusters and attract inward investment from innovative businesses trading in new markets around the globe.

There are also 16,600 people employed across Oxford within business sectors for which high speed connectivity is becoming either essential for survival or that could benefit significantly, in terms of sales, productivity and/or profitability, as a result of increased adoption[8]. Widespread ultrafast connectivity will ensure that this employment is safeguarded over the long-term.

These wider transformative and safeguarding effects at sector level will no doubt be significant but are difficult to predict in quantitative terms. The table below focuses on expected impacts among existing businesses by way of incremental improvements in productivity and start-up opportunities. They are directly attributable to the UBF investment being made.

Business growth to be achieved with UBF investment			
	2013-2014	*Future*	*Totals*
Business start-ups resulting from UBF funding	1	35	36
Jobs created as a result of UBF funding	2	178	181
Anticipated extra Gross Value Added (GVA) due to UBF in £'m	£0.5	£52.7	£53.2

An illustration of how impact estimates have been generated is provided in Appendix A.

B – Project Management Structure & Governance

[7] Micus Management (2008). The Productivity Benefits of Next Generation Broadband

[8] These sectors principally include manufacturing, building and transport technologies, screen image and sound, specialist business and professional services, ICT, environmental technologies and medical technologies.

B1 Project governance structure and terms of reference

The proposed Oxford Super Connected Cities (SCC) governance structure aligns with the OxOnline governance structure to maximise efficiency, make best use of the expertise available and ensure close alignment with the roll-out of the parallel initiative, particularly in the shared elements of demand stimulation and business support. At the same time our approach is designed to provide clear lines of accountability to our respective investors and partners and ensure the Super Connect Cities Programme succeeds as a standalone initiative.
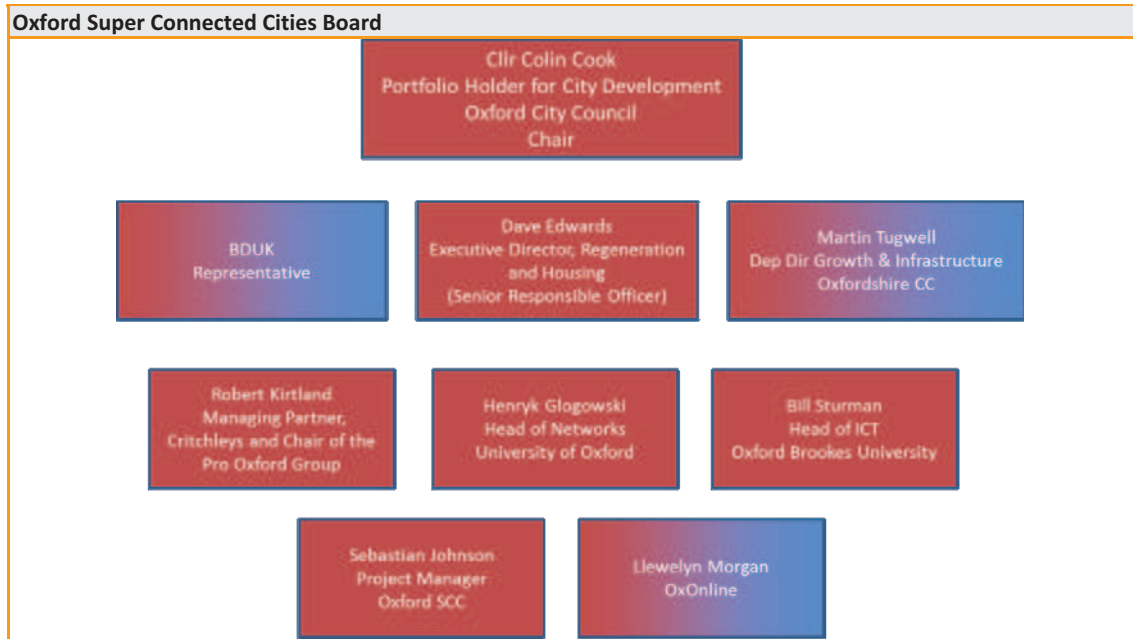
The Oxford Super Connected Cities Board will be responsible for:

• setting the overall strategic direction of the initiative

• ensuring proper alignment between the technological and infrastructure focus of the BDUK investment and parallel initiatives to drive up demand and exploitation of broadband

• monitoring the performance and impact of the initiative to stakeholders

• ensuring the proper investment of public money and accounting to investors on value for money.

**Oxford Super Connected Cities Governance Structure**
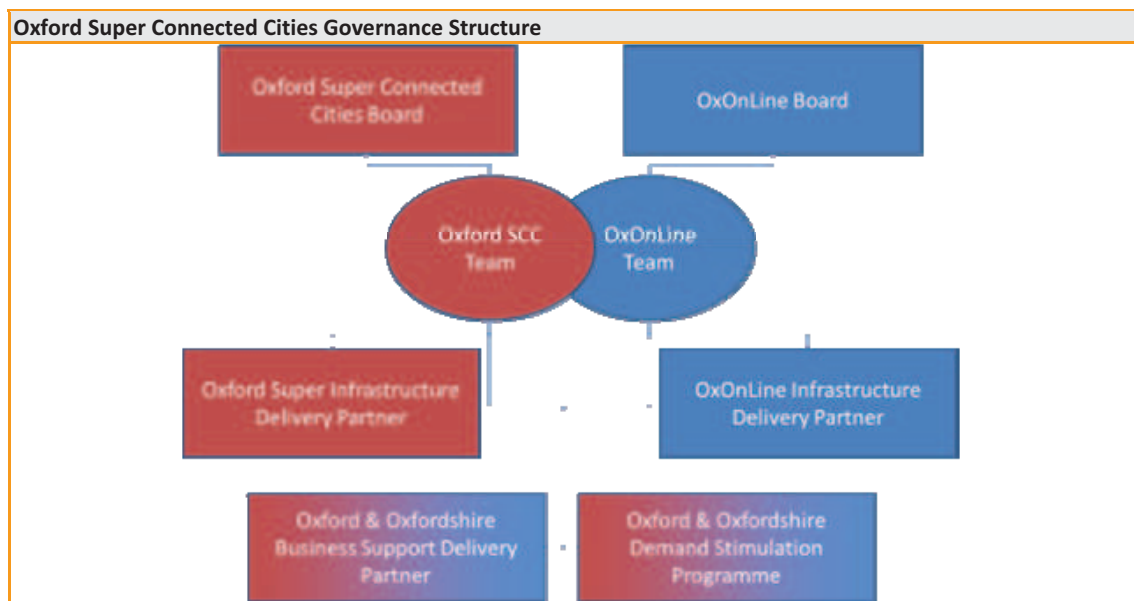
The Oxford SCC Board will be a focused group representing the main strategic and investment partners with a real stake in the performance in the initiative. The Board will contain representatives from the City and County Councils, our two University partners, a business representative and OxOnline. The Programme Team will be represented by the Project Manager and each of the delivery partners we appoint will be present at all board meetings.

Oxford Super Connected Cities Board

Cllr Colin Cook
Portfolio Holder for City Development
Oxford City Council
Chair

BDUK
Representative

Dave Edwards
Executive Director, Regeneration
and Housing
(Senior Responsible Officer)

Martin Tugwell
Dep Dir Growth & Infrastructure
Oxfordshire CC

Robert Kirtland
Managing Partner,
Critchleys and Chair of the
Pro Oxford Group

Henryk Glogowski
Head of Networks
University of Oxford

Bill Sturman
Head of ICT
Oxford Brookes University

Sebastian Johnson
Project Manager
Oxford SCC

Llewelyn Morgan
OxOnline

B2 Project Management Team By Function

We plan to co-ordinate the Super Connected Cities project with a small team working closely with the OxOnline team and sharing resources wherever possible. The SCC initiative will have its own Senior Responsible Officer and day to day Project Manager, plus a dedicated in-house procurement resource to safeguard the requirements and interests of Oxford City Council. We plan to formalise our close working relationships with the OxOnline team and look to share the resources both initiatives require for financial, technical, business support, commercial, monitoring & evaluation, legal support and administrative purposes. Our respective in-house teams will be complemented, where required by external advisors. At present we expect to require some external support on cost modelling, state aid, procurement, technical matters, legal advice and in due course for evaluation of the impact and performance of our service.

Oxford Super Connected Cities Team Structure
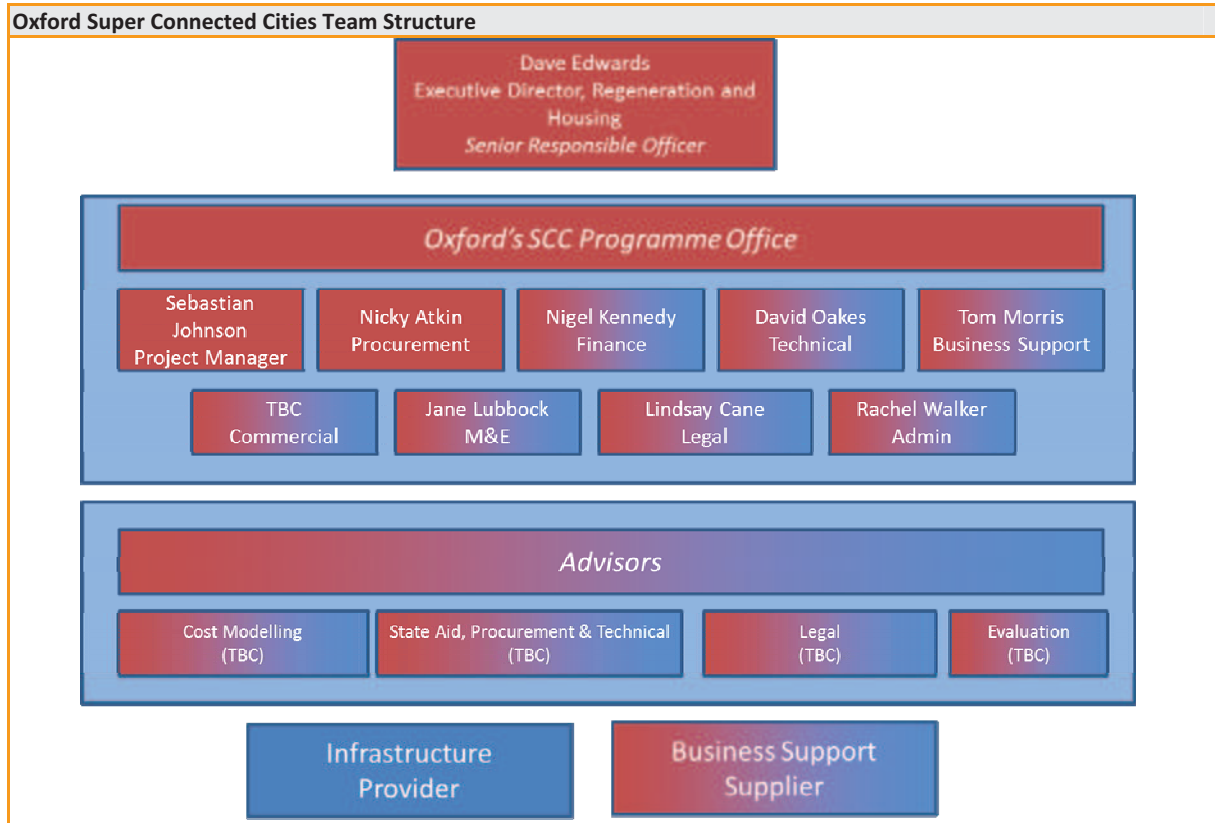
Oxford City Council has already procured support from Regeneris Consulting and Mott MacDonald to assist with Cost Modelling and to provide early advice on preparation for other stands of activity expected downstream. We will procure any additional support as required using Oxford City Council's established procedures. Our current proposed timetable is:

Timetable for Securing Support	
Support	Commencing
State Aid	Oct 2012
Procurement	Oct 2012
Legal	Apr 2013
Evaluation	Sept 2014

B3 Risk Management Strategy

The main strategic risks associated with the project and the counter measures in place to address them are set out below.

Main Risks and Counter Measures	
Main Risk	**Counter Measures**
Design Risks	
Ultrafast broadband overtaken by other advances in technology; requirements for network capacity increase due to developments in technology and applications.	Future proofing to provide capacity and extend services will be built into our procurement objectives. This risk is limited as fibre is a long term tried and tested step-change in technology.
Development Risks	
Failure/delay in obtaining state aid notification.	Plans are being made to secure State Aid approval from the EC building upon the recent Birmingham State Aid approval.
Legal challenge from unsuccessful bidders delays the programme.	A robust procurement strategy is being prepared, backed by legal advice and support from with Oxford City Council.

Implementation Risks	
Disagreements among partners leads to delays in delivery.	The governance structure is clearly set out and a core set of partners will be engaged formally and early in the process to ensure differences of focus are addressed.
Failure to attract a suitably qualified broadband supplier or business support provider.	Early market engagement is now taking place and lessons will be learnt from other partnerships proceeding in advance of us to minimise this risk.
Unable to achieve sufficient private sector investment.	We will continue to collate evidence on demand and develop the business support component of our initiative to provide comfort on likely level of uptake.
Costs of delivery of infrastructure increase.	Robust analysis to accurately forecast costs and develop realistic objectives has been undertaken. The competitive dialogue process will insulate Oxford City Council from cost over-runs.
Delivery by private sector does not meet standard or expectations.	Strong contract management, close contact with suppliers. KPIs and performance standards will be built into the contract.
Planning permission/way leaves leads to delays in delivery on the ground.	Strong commitment to roll out programme from Oxford City Council and Oxfordshire County Council to ensure coordination and compliance. There is a Telecommunications SPD that sets out relevant guidance.
Delivery costs exceed available budget due to unforeseen challenges.	Clear expectations set out in contracts, robust contract management, and phased delivery.
Delay in roll out of infrastructure.	Milestones will be integral to contracts and monitored closely through contract management.
Limited supplier capacity lead to delays.	Early market engagement will ensure supplier anticipation is progressively built.
Demand & Impact Risks	
Take up lower than anticipated, may impact upon income generation for supplier and economic benefits to businesses.	Demand stimulation measures will be built into business support services.
Ultrafast broadband benefits lower than projected for businesses, affecting anticipated business performance impacts and discouraging take up.	The business support offer will be designed to ensure broadband is central to driving up ICT use in businesses.
Termination risks	
Network operation is discontinued at the end of the project.	The gap funding model ensures that funded infrastructure becomes part of a commercial operation.

B4 Indicators To Monitor The Implementation And Effectiveness

The table below sets out the range of indicators which the partnership will assemble in order to monitor the roll out of the network infrastructure and the associated business support service. In due course we would evaluate the impact of the initiative which will involve additional reporting at a minimum on economic growth, job creation, business formation and public sector service efficiency gains.

Category	Type	Indicator
Network Infrastructure	Fibre	Newly Laid (km)
		Leased (km)
		Made Accessible (km)
	Wireless	New Wireless Coverage (m2)
	Network Operations & Structure	Points of Presence
		Wireless Base Stations
Business Support	Services Delivered	Level 1 Introductory Events
		Level 2 One-to-One Visit
		Level 3 Diagnostic Review
		Level 4 Project Support/Mentoring
		Level 5 Workshops
		On Line Resources
	Total Businesses Assisted	

Reach	Premises with 80Mb Available	Residential Premises
		Business Premises
		Mixed Use Premises
Exploit	Premises Signed Up for 80Mb Service	Residential Premises
		Business Premises
		Mixed Use Premises
	Marketing	Service Retailers Sign Up
	Public Sector Migration	Sites Connected

C – Funding And Resources

C1 Capital, Revenue and Non-Cash Resources

The project combines £4.25m UBF funding with £750k partner contributions (Oxford City Council, Oxfordshire County Council and the Oxfordshire Local Enterprise Partnership) and a minimum £230,000 investment from the private sector to fund the capital cost associated with the extension of fibre to premises and creation of a new open access wireless network across the city centre. The private operator will also be responsible for the operation of the network at a cost of £1.7m over 12 years.

However in sections C3 and C7 we have illustrated options and benefits to be gained if BDUK were to supply funding of £5m

Also crucial to the successful implementation of the SCC plan is the infrastructure investment being made by the County wide OxOnline project. At an estimated cost of £4.1m, OxOnline will bring fibre broadband to all those cabinets in Oxford which are yet to be connected. This will deliver ultrafast speeds to around 2,000 premises and 840 businesses in our target area not getting a 80Mb service. The SCC project will provide fibre direct to premises enhancing ultrafast connectivity.

This investment in infrastructure will be complemented with a parallel commitment to offer support and advice to businesses with the potential to better compete and grow using advanced digital technologies. This package of support and demand stimulation will be delivered in concert with Ox Online and further detail is provided in E1 and G1.

In addition to the capital resources set out above, the partners will also fund set up costs estimated at £100k including management and delivery costs.

Non-Cash Resources

Oxford City Council will make available to potential network providers buildings, street furniture and other relevant assets to facilitate the roll out of next generation wireless services. Oxford City has identified five high rise tower-blocks and eleven tall buildings, some 13,300 standard lamp posts, a small cluster of which are already part of an on-going wireless trial to allow central control and management.

The annual rental of a lamp post is typically around £100 so for our proposed next generation wireless network, with 73 access points, we could offer a potential annual opex saving of around £7,300. A typical annual rental for a rooftop is more like £1,000.

In addition existing and planned ducting will be utilised wherever possible. Oxford University has

indicated it has approximately 300m of duct network around the city which in principle is available to facilitate the roll out of an FTTP network by a potential carrier; subject to due diligence by both parties.

C2 Modelling to arrive at the funding estimate

Costs associated with the capital investment, operation and revenues generated by the proposed network solution have been modelled for wireless and fixed line Fibre to the Premise (FTTP) broadband. We recognise that the final solution will need to be designed and delivered by the market place and so have not developed any detailed or prescriptive plans, however our expectation is that the network operator will initially establish a fibre ring around the core target area which can be extended out to the remaining white properties in our bid area and potentially extended further out to other properties in the medium term.

Fibre to the Premise

Costs for Fibre to the Premise have been estimated by building on assumptions in the BDUK Cost Model for Oxfordshire and adapted by Regeneris Consulting and Mott Macdonald[9]. Business data sourced from Bureau Van Dijk is used to help determine the targeting of network coverage.

Cost Modelling
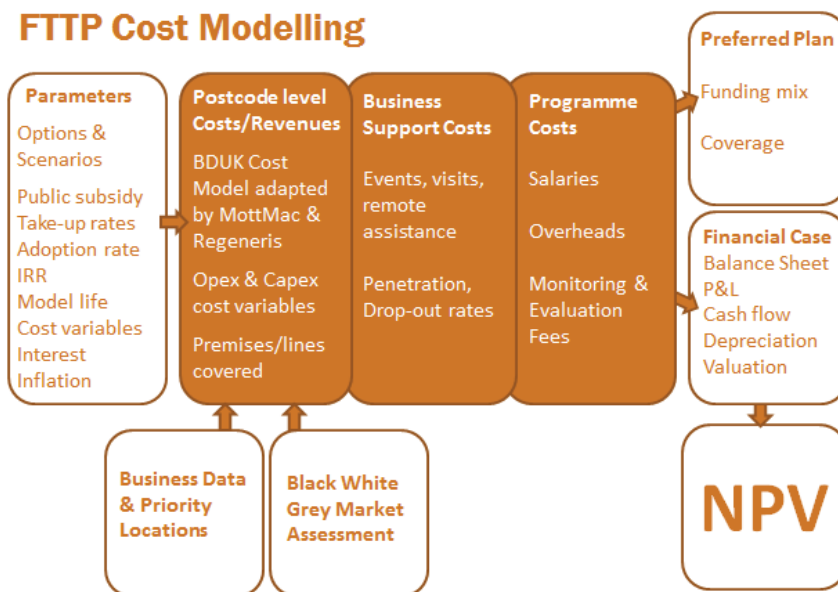
Costs are based on the following core assumptions:

- **A 12 year model lifespan** - this is a typical period over which a private sector operator would assess commercial viability

- **Ultrafast broadband take-up of 40%** - current take up of ADSL broadband is around 70%.

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[9] The assumptions and structure of the Cost Model are subject to a Non-Disclosure Agreement but we can provide a more detailed summary on request.

We believe it is plausible that take up of ultrafast broadband will reach 40% within four years as more services and applications become available

- **Wholesale Revenue Streams** – based on a charge of £7.50 pcm per customer (in line with industry expectations)

- **Optimism bias at 5%** - as suggested by BDUK in their cost modelling

- **A 10% discount rate** – this reflects the likely private sector demand for return over time and is supported for use by BDUK.

Wireless

Costs associated with the wireless network covering 1.95km^2 of the city centre have been developed separately and use the latest available information on the capital and operational costs associated with and strength of service delivered by wireless access points in similar city centre investments.

In order for the wireless plan to be commercially viable, 1,500 subscribers would need to sign up to the service on a monthly basis at a cost of £7.50. Footfall data gathered by Springboard[10] suggests that the potential customer base can reasonably be expected to reach between 600,000 and 700,000 every week around the commercial core. Therefore only a very small proportion of our weekly footfall (1,500 or 0.25%) would need to subscribe per month in order to ensure the commercial case for the wireless scheme.

C3 Capital and Revenue Funding

As mentioned in section C1, we have illustrated below a Base Bid of £4.25m funding and an option for £5m of funding giving additional coverage.

The Base Bid – UBF SCC allocation of £4.25m

The network has prioritised roll-out to businesses and stretches to the point that the plan remains commercially viable for a private sector operator but stops short of subsidising private sector to roll-out in areas it is expected that they might invest in without our support. This is reflected in a NPV of the network of as close to zero as is possible.

Key Financial Information			
£000	FTTP	Wireless	Total
Partner Contributions	750	0	£750
SCC Allocation	£3,859	£391	£4,250
CAPEX	£4,839	£391	£5,230
Private CAPEX Investment Requirement	£230	£0	£230
NPV			~£0

Additional coverage – UBF SCC allocation of £5m

With an allocation of £5m from the Urban Broadband Fund (Super Connected Cities) the roll-out will

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[10] http://www.spring-board-data.co.uk/

cover an additional 1,600 premises the vast majority of which are residential. This is a 61% increase from 2,580 to 4,160 and would raise overall ultrafast coverage from 87.7% to 90.3%.

In adding to the overall level public funding available for investment by £750,000, the commercial case for investing in new areas of Oxford emerges; the increase in investment acting as a subsidy for those areas that would not be commercially viable to the market otherwise. There is therefore potential to lever additional private sector capital investment by £210,000 and to increase the spread of the network further still.

Key Financial Information			
£000	FTTP	Wireless	Total
Partner Contributions	750	0	£750
SCC Allocation	£4,609	£391	£5,000
CAPEX	£5,900	£391	£6,290
Private CAPEX Investment Requirement	£540	£0	£543
NPV			~£0

A spread sheet showing the precise assumptions and calculations can be supplied to explain our cost and revenue assumptions.

In addition to the capital resources set out above, the partners will also fund set up costs estimated at £100k including management and delivery costs.

C4 Commercial Model

A Gap Funded Network

The most straightforward intervention approach is to enter into a simple gap funded arrangement with the private sector. Based on our cost and revenue modelling, achieving our coverage objectives would require a public sector contribution of £5m to help cover the costs with partners procuring through an OJEU compliant process a co-investor to own, build and operate a wholesale open access ultrafast broadband network for Oxford. A wide range of competing service providers would be free to offer services over the network to residential and commercial end-users.

By intelligently deploying a combination of public and private investment, we believe we can maximise returns for the public sector, make best use of available private sector investment potential and capitalise upon operational expertise and capacity in the marketplace. Ownership of and operational costs associated with the network will be covered by the operator and met through on going revenue streams. Oxford City Council can accommodate the proposed VAT arrangements set out in the guidance.

This approach will isolate operating risks, secure access to existing expertise, leverage private sector investment and minimise market distortion.

Our plan is clear and we are committed to ensuring we progress as far as we c]an towards our longer term objectives as quickly as the investment climate permits. We remain responsive to changing opportunities and conditions around us. We recognise that alternative routes towards our goals may be required and are ready to deploy other approaches if required. While progressing our preferred way forward we will continue to monitor the viability of:

- **A Two Stage Programme**: market sentiment may mean that a staged approach building on

an initial investment in priority sites, followed by a further build out to other locations once revenues and demand are more certain. Our preference is for a single phase scheme which reaches to the maximum number of businesses quickly.

- **A Voucher Scheme**: a targeted demand-led scheme to assist SMEs with the excess build costs involved in securing ultra-fast broadband services. Our preference is for a pro-active and strategically driven investment which ensures Oxford can offer all businesses ultra-fast broadband across the City.

- **Wireless Concession**: although our early market soundings have revealed limited interest in a subsidy-free wireless solution, we remain open to overtures and ready to support commercial operators wishing to work with our existing infrastructure. Our preference is to ensure a next generation wireless service is in place and available ahead of competitor destinations.

Potential for Risk Transfer

Risk transfer is central to the approach to procuring the required services. The principle is that risk will be passed to the party most appropriate to managing it. For the supply of the ultrafast broadband network infrastructure, risks are apportioned as follows:

Potential for Risk Transfer				
Risk Category	Potential allocation			Notes
	Public	Private	Shared	
1. Design risk		X		Network supplier will bear design, construction, performance and operating risks. Procurement is designed to test capabilities and capacity.
2. Construction and development risk		X		
3. Transition and implementation risk		X		
4. Availability and performance risk		X		
5. Operating risk		X		
6. Implementation risk		X		Contract to be formulated to specify infrastructure deliverable and milestones directly linked to payments
7. Variability of revenue risks			X	Contracts to include clawback and gainshare mechanisms to minimise risk to public sector
8. Termination risks			X	
9. Technology and obsolescence risks		X		Asset to be owned by contractor, addressing risk attached to technological obsolescence and residual value
10. Residual value risks		X		
11. Financing risks			X	Forward planning by Oxford City Council ensures that risks to public sector & contractor are minimised
12. Legislative risks			X	

Proposed Charging Mechanisms

The contractor will be required to deliver against specified outputs, milestones and service standards. The payment mechanisms will entail:

- Clearly defined and capped payments

- Proportionate and timely payments linked to the submission and payment of claims by Oxford City Council.

The contract for the network supply component of the project will include claw back arrangements covering the following:

- capital under-spend against forecast: either Oxford will be entitled to receive payment from the contractor, or the contractor will be obliged to submit a plan setting out how the funds will be reinvested in the network

- take up of ultrafast broadband exceeds forecast: in these circumstances, the operator will be generating higher than forecast revenue. Oxford City Council will be entitled either to funding for reinvestment in proportion to the above forecast revenues, or will agree a plan for reinvestment with the contractor.

- potentially additional service revenue exceeds forecast: where other revenues are secured similar claw back mechanisms may be explored during procurement.

Proposed Key Contractual Clauses

The contract for the construction and operation of an ultrafast broadband service will run for an initial period of seven years. The key contractual clauses for network construction and operation will be drawn from the BDUK Framework for rural projects which are expected to include the aspects mentioned above, plus:

- asset management: the Contractor will be responsible for all activities and risk in designing, constructing, operating and maintaining the assets it owns

- existing assets: the Contractor can use public assets that it feels are beneficial with due consideration and for return at the end of the contract period

- benchmarking: alongside claw-back and gain share mentioned above, the Contractor will need to benchmark its wholesale telecoms prices as per Stage Aid requirements

- general operations: the latest interoperability (NICC and associated) standards will apply, as will the relevant legal and regulatory regime

- milestones: suppliers of both the network and business support/demand stimulation services will be required to operate to milestones which include volumes and scope of activities to be delivered by given periods.

C5 Infrastructure Ownership

The chosen operator will own the network infrastructure. The commercial life-span of the network will exceed that of the project and the costs projected here. During the course of gap funding negotiations agreement will be forged on a process for identifying the terminal value of the asset and the level of expected revenues and surpluses above which claw-back will be invoked.

C6 Strategy for Realising Benefits and Value for Money

From start to finish the project will be guided towards successful delivery of its core objectives:

- A competitive tendering process will be focussed on securing the strongest approach to economic, social and educational outcomes possible and an innovative solution to infrastructure and technology deployment

- A dedicated project team and board working (as previously outlined at B1) in partnership with key local organisations will be focussed on delivery and oversight through on-going evaluation and monitoring of performance indicators focussed on the progression of successful network roll-out, business engagement and up-take.

Value for money will be secured through world class infrastructure and targeted demand and support services:

- All UBF funding will be spent maximising coverage of future proof wireless and fibre infrastructure, to the people in greatest need and those best placed to exploit it; businesses, visitors and public sector organisations providing vital services

- The impacts generated as users adopt ultrafast services will be boosted by County wide delivery of a comprehensive and targeted package of business support to ensure SMEs have the ability to exploit opportunities for productivity enhancements, market access and product and process innovation.

C7 Proposed funding make up

As mentioned in sections C1 and C3, we have illustrated below a Base Bid of £4.25m funding and an option for £5m of funding giving additional coverage.

The Base Bid – UBF SCC allocation of £4.25m

Description of initiative or technological approach	How will the capital funding be spent?			
	£000	2013-2014	Future	Total
FTTP	UBF Funding Request (£000)	£3,859	£3,859	£3,859
	Partner Contributions(£000)	£750	£750	£750
Wireless	UBF Funding Request (£000)	£391	£391	£391
	Partner Contributions (£000)	£0	£0	£0
Total	**UBF Funding Request (£000)**	**£4,250**	**£4,250**	**£4,250**
	Partner Contributions Value	**£750**	**£750**	**£750**

Additional coverage – UBF SCC allocation of £5m

Description of initiative or technological approach	How will the capital funding be spent?			
	£000	2013-2014	Future	Total
FTTP	UBF Funding Request (£000)	£4,609	£4,609	£4,609
	Partner Contributions(£000)	£750	£750	£750
Wireless	UBF Funding Request (£000)	£391	£391	£391
	Partner Contributions (£000)	£0	£0	£0
Total	**UBF Funding Request (£000)**	**£5,000**	**£5,000**	**£5,000**
	Partner Contributions Value	**£750**	**£750**	**£750**

In addition to the capital resources set out above, the partners will also fund set up costs estimated at £100k including management and delivery costs.

D – Delivery and procurement plans

D1 Scope of the Project

Oxford City Council will lead the procurement process that will see a private sector supplier of:

- an ultra-fast wholesale open access broadband network providing speeds in excess of 80mbps in our target locations across the City

- a next generation open access wireless infrastructure covering the City Centre.

The procurement will be conducted in accordance with the UK Public Contracts Regulation. The decision to procure a private sector supplier is intended to deliver best value and is underpinned by the following principles:

- **Maximise value for money**: the selection of suppliers for each service will be based on the most economically advantageous bid

- **Optimise choice**: partners are keen to select from the best range of potential suppliers in each delivery area

- **Secure innovation**: partners are keen to explore innovative solutions which are adapted to Oxford's unique assets, requirements and opportunities

- **Simplicity**: although running two separate procurements will create additional workload early in the process, the on-going management, reporting and delivery should be more transparent and manageable

- **Better risk management**: allows the separate risks to be better understood, managed.

At the same time, we will work with Oxfordshire County Council and the Oxfordshire Local Enterprise Partnership to develop an appropriate package of business support.

Required services

The key requirement of the products and services to be provided is to:

- Gap fund the roll out of ultra-fast broadband infrastructure with a wholesale telecommunications provider, which will support affordable broadband retail services available to businesses in our target priority areas

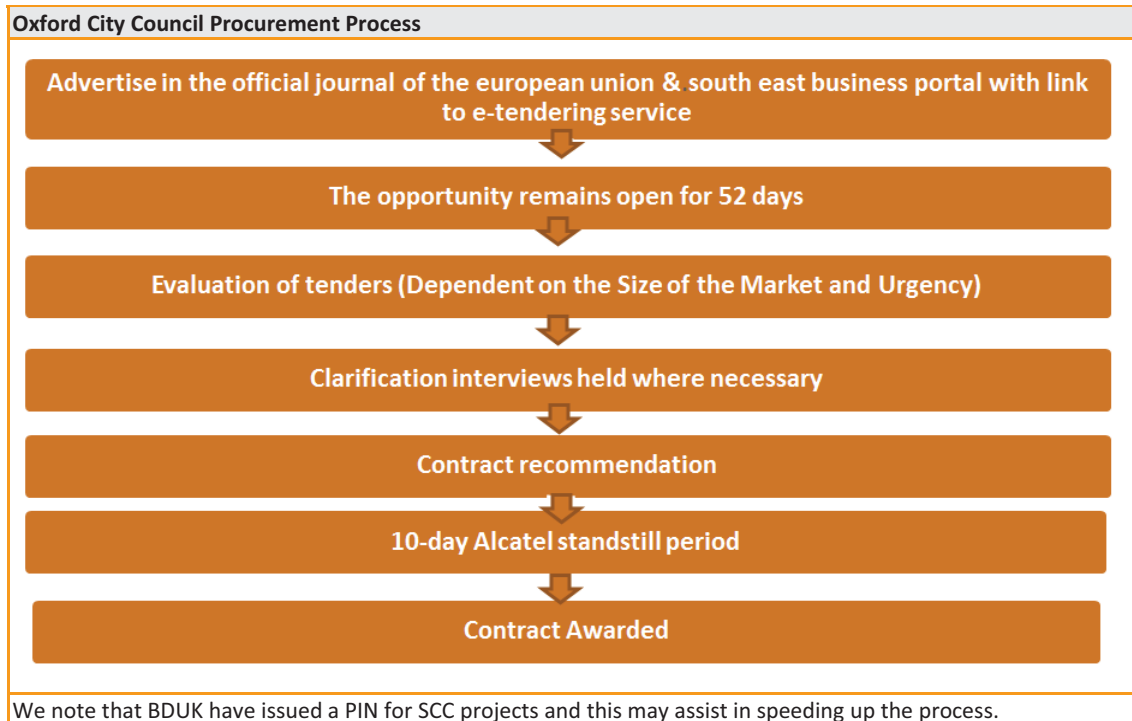### Procurement Strategy and Implementation Timescales

Oxford city Council operates under strict procurement procedures and policies to meet the following strategic objectives:

- Delivering best whole life value for money

- Compliance with all relevant legislation

- Open and transparent, providing all necessary safeguards against fraud and corruption

- Are properly documented, providing clear audit trails

- Ensures active and widespread involvement with stakeholders, and

- Support our sustainability, environmental and diversity policies.

Our established sourcing processes will be followed as shown below.

Oxford City Council Procurement Process

Advertise in the official journal of the european union & south east business portal with link to e-tendering service

↓

The opportunity remains open for 52 days

↓

Evaluation of tenders (Dependent on the Size of the Market and Urgency)

↓

Clarification interviews held where necessary

↓

Contract recommendation

↓

10-day Alcatel standstill period

↓

Contract Awarded

We note that BDUK have issued a PIN for SCC projects and this may assist in speeding up the process.

We remain open to the idea of using existing procurement channels although these each have their own challenges:

- OxOnline has already launched its procurement and unless our objectives fit with the specification issued, will not be able to accommodate our scheme

- BDUK Framework has been developed for rural final third projects and has a narrow field of potential suppliers which potentially limits scope for innovative solutions to emerge for our urban ultra-fast plans.

D2 Project Plan

We expect the most effective route will be a full OJEU procurement exercise carried out by Oxford City Council, albeit one which closely aligns the core principles of the BDUK approach. The activities and timescales remaining in the procurement of the network supplier are as detailed in the latest Project Plan. The timescales are expected to be:

- Jan 2013 – Contract Award

- April 2014 – Network Roll-Out & BDUK SCC Capital Spend Complete

- June 2019 – Contract Completion

Oxford Super Connected Cities Project Plan

ID	Project Name	Days	Start	End	3rd qtr 2012	4th qtr 2012	1st qtr 2013	2nd qtr 2013	3rd qtr 2013	4th qtr 2013	1st qtr 2014	2nd qtr 2014	3rd qtr 2014	4th qtr 2014
1.0	**SCC Application**			17/09/2012										
1.1	**Secure Complementary Investment**	51	09/07/2012	17/09/2012										
1.1.1	Conclude Internal OCC Considerations	3	09/07/2012	17/09/2012										
1.2	**State Aid**	43	01/11/2012	31/12/2012										
1.2.1	State aid non-paper	25	01/11/2012	26/11/2012										
1.2.2	Commission Reflections	30	01/12/2012	31/12/2012										
1.2.3	State AidSimplified Papers	30	01/01/2013	31/01/2013										
1.2.4	Commission Reflections	30	01/02/2013	03/03/2013										
1.2.5	State Aid Approval	1	05/03/2013	06/03/2013										
1.3	**Infrastructure Procurement**	175	01/08/2012	02/04/2013										
1.3.1	Market sounding	25	01/08/2012	26/08/2012										
1.3.2	Issue tender	1	01/04/2013	02/04/2013										
1.3.3	Confirm preferred bidder	1	01/08/2013	02/08/2013										
1.3.4	Award contract	1	01/10/2013	02/10/2013										
1.4	**Business Support Procurement**	131	01/11/2012	02/05/2013										
1.4.1	Market sounding	1	01/11/2012	02/11/2012										
1.4.2	Issue tender	25	01/01/2013	26/01/2013										
1.4.3	Confirm preferred bidder	1	01/03/2013	02/03/2013										
1.4.4	Award contract	1	01/05/2013	02/05/2013										
1.5	**Delivery**	215	01/07/2013	27/04/2014										
1.5.1	Network Rollout	300	01/07/2013	27/04/2014										
1.5.2	Businesss Support Delivery	400	01/03/2013	05/04/2014										
1.5.3	Wireless Network Activated	1	01/11/2013	02/11/2013										
1.5.4	First FTTP Connection	1	01/08/2013	02/08/2013										
1.5.5	Wireless Network Activated	1	01/09/2013	02/09/2013										
1.5.7	First Business Assist	1	01/04/2013	02/04/2013										
1.6	**Management & Governance**	371	01/07/2013	01/12/2014										
1.6.1	SCC Quarterly Board Meeting		01/07/2013	01/07/2013										
1.6.2	Quarterly Contract Performance Review		01/03/2013	01/03/2013										
1.6.3	Perfromance & Impact Evaluation	30	01/11/2014	01/12/2014										

These timescales will be firmed up and provided in more detail in the final Contract Agreement.

A separate procurement will be carried out for the provision of the business support component of the project in conjunction with OxOnline once the full investment requirement is approved. This procurement will be carried out under an OJEU process with a prequalification questionnaire exercise to be followed by a full tendering process to select a single contractor for the service. The contractor is expected to be in place by March 2013.

D3 Expediting Installation of New Infrastructure

Oxford City Council has a good track record of working with the telecommunications industry to provide advice on the installation of equipment. The City Council published a Telecommunications Supplementary Planning Document (SPD) which was adopted by the Council on the 3 September 2007. This SPD sets out guidance for developing telecommunications networks across the City. It aims to promote good practice and design for telecommunications equipment for new development. The advice seeks to balance environmental, visual, amenity and health concerns with the future development needs of the mobile technology networks.

Oxford is covered by a two-tier arrangement. The County Council as Highway Authority is responsible for issuing any relevant permissions or way leaves for works to the highway and or pavement areas. In these cases there is a clear line of communication between the City and County Council in determining such agreements. This established partnership working would be used to assist any potential network operator in expediting these permissions.

If this bid is successful, on completion of the procurement process, the network operator would be invited to an early meeting with the City and County Council to discuss its proposals in principle with relevant officers, including highways, planning and property. The network operator would then be invited to prepare a master plan to show the location and type of works and apparatus involved together with its phasing. In the case of planning for example pre-application discussions could then

be arranged between the City Development Team and the operator. The City Council will be able to provide detailed advice on any planning permissions, and 'permitted development' under Part 24, development by telecommunications code systems operators, of the General Permitted Development Order 2001. Other works, such as for example the siting of any new cabinets in Conservation Areas, would be likely to require permission but officer advice would be provided on most suitable locations.

D4 Engagement with Large Private Owners of Property and Land

Oxford City Council, Oxfordshire County Council, the University of Oxford and Oxford Brookes University are all significant landowners and central partners to this initiative. Each organisation has provided support for this bid. The City Council would be willing to facilitate an initial meeting with other relevant land owners to explain the broad aims and benefits of the project, and allow the successful network operator to make a more detailed presentation.

D5 Fit With Government's Approach To Using SMEs In Delivery[11]

Oxford City Council will run fully open procurements for all elements of its next generation broadband infrastructure. All companies will be encouraged to bid and a series of market consultations and briefing days will be organised to facilitate this.

The open access nature of the proposed network will also facilitate the development of smaller and innovative retail service providers to offer new services. Oxford is keen to encourage the emergence of more local ISPs, content developers, systems integrators and ICT specialists.

Our Digital Online Hub Initiative is configured to engage creative digital media SMEs to capitalise on the opportunity for developing and hosting digital learning content.

E – Digital-led economic growth and innovation

E1 Job Creation Initiatives and Strategies to Attract New Businesses

Oxford City Council and its partners will back the investment in ultrafast broadband infrastructure with a package of business support. Our plans will assist SMEs to connect to the ultrafast broadband network, to fully understand and exploit the commercial benefits it offers and provide the technical and practical support that may be required for businesses to really capitalise. We will provide packages of support to Oxford business. .A menu of activities will be drawn from:

- **Level 1 – Introductory Events:** stimulate demand for ultrafast broadband connections through events, online and printed material and other media. A series of initial engagement events open to all 3,900 SMEs in Oxford will highlight the potential benefits of broadband connections, drawing on local businesses to help communicate the scale and type of commercial benefits involved.

- **Level 2 – Online Support:** a website / online portal providing information on the different

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[11] See http://www.cabinetoffice.gov.uk/content/small-and-medium-enterprise-sme-action-plans

options for broadband connectivity with case studies of businesses that have successfully benefitted from ultrafast broadband in Oxford.

- **Level 3 – Face to Face:** a number of SMEs will be offered an ICT diagnostic review to assess their needs and options in more detail. The diagnostic will establish whether the SME should go on to receive further intensive one-to-one mentoring and advice to assist with implementation and management of digital commercial strategies.

- **Level 4 – Follow-up & Brokerage:** all clients that receive one-to-one assistance will be signposted to other types of support where there is an identified need.

E2 How Our Business Will Use High-Speed Connectivity

It is widely agreed that ultrafast broadband can be a driver for both increased productivity and innovation.

Although the specific mechanisms of how this happens are very varied and evolving as new technologies, services and markets emerge, a recent study by Cisco[12] has provided evidence that ultrafast broadband can increase productivity. An Australian case study[13] found that businesses with access to broadband secure cost savings up to 6.3%, compared to 4.8% under first generation broadband. In Britain, a report by the Institute of Directors[14] suggests that 84% of businesses using broadband have boosted their productivity and delivered cost savings while increasing profits, while 17% noticed revenue increases.

Given the superior speeds and functionality of ultrafast broadband, it is reasonable to assume there will be further increases in productivity and cost savings for businesses adopting ultrafast broadband in Oxford. The business support programme outlined in Section G is an integral part of the Super Connected Cities bid.

The real benefits accrue when businesses embed the technologies and applications which rely on broadband into their operations to improve their productivity and long-term competitiveness. Although these applications are already in use by businesses, their adoption, and the benefits they generate, will accelerate as faster broadband speeds become ubiquitous.

- **Cloud Computing** – Firms will be able to adopt "software as a service" (SaaS) on demand to avoid large upfront hardware and software costs. Many companies and organisations (including Oxford City Council) are already beginning to implement cloud solutions. Ultrafast broadband funding will allow more businesses to make better use of the new opportunities and shift their cost structure.

- **Rich Interactive Communications** – Ultrafast broadband will permit high definition, real-time video conferencing. This offers a faster, clearer and smoother service that is available through ADSL lines. The key business benefits it offers include a richer way of interacting

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[12] Cisco Internet Business Solutions Group (IBSG) (2012) *Get Up to Speed: How Developed Countries Can Benefit from Deploying Ultrafast Broadband Infrastructures.*

[13] The Allen Consulting (2003) *True Broadband – Exploring the Economic Impacts*

[14] Institute of Directors (2004) *Benefits of Broadband on British Businesses*

with suppliers, clients and collaborators, reducing the need for business trips – saving both time and money while supporting higher levels of labour productivity. Adaptive/interactive content will be essential in creating the programmes' plan for an International Online Learning Hub and video conferencing will be essential in delivering parts of the business support programme (including **intensive online support** as well as **one-to-one** elements).

- **Collaborative Content Development** – The ability to quickly upload large quantities of data allows businesses a number of productivity benefits. It increases security and reliability by increasing the speed at which data is backed up. Faster upload speeds also meant that it is easier to build, maintain and edit websites as well as reducing the costs associated with sharing and distributing data or new content. Real time collaboration with customers and associates will be essential for the digital sector for example.

The use of the above technologies and applications will also make it easier for firms to implement **flexible working practices**. Cloud computing means that employees do not need to be in the office to use particular hardware and software, and can instead access it from anywhere as long as they have an internet connection. This will also open up new job opportunities for people facing barriers to work and will put Oxford in a position to better tap into wider (e.g. London) labour and business markets.

Which Business Stand to Gain?

"Oxford has a long history as both a centre of educational and scientific excellence, and as a prominent manufacturing centre. Oxford contributes approximately £4.7bn to the UK economy[15] and plays a vital role in the wider Oxfordshire economy. Oxford's GVA per capita is ... the fifth highest … of any city in the UK, and significantly higher than the national average"[16]. Oxford has a number of distinctive sectors which need access to ultrafast broadband connections in order to secure productivity enhancements, attract new businesses, develop new products and access markets and collaborators globally. Three key clusters have a vital and unique role in Oxford's economy and are central to our growth plans. These sectors will be targeted in our business support package and demand registration/stimulation activities:

- **Publishing:** strong links with Oxford's academic institutions and computer games industry has helped the publishing sector to thrive. We have over 100 publishing businesses providing over 3,500 jobs[17]. Five of Oxford's 100 largest employers are publishers and Oxford University Press is a global leader in academic publishing. Other significant firms include Pearson Education, Wiley, Blackwell, Macmillan, Osprey, Hart and Lion Hudson.

A major shift is underway in Oxford's publishing houses from printed to electronic delivery; for example, 70% of Oxford University Press' revenue now stems from electronic material[18]. As a result the ability of publishers to upload content, offer online services and therefore access the optimum broadband connections will be crucial in facilitating this shift and consolidating the sectors

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[15] Based on GVA per capita data from: Centre for Cities (2009); and population data from: ONS (2011) Mid-Year Population Estimates

[16] Oxford Economic Narrative, June 2012, Shared Intelligence

[17] ONS (2011) Business Register and Employment Survey

[18] Oxford Inspires (2011), *The Economic Impact of the Cultural and Creative Industries*

dominance.

- **Creative and Digital:** Oxford is home to significant clusters of computer games and software, digital advertising, social media, video and film-related businesses[19]. User participation and interactive participation stand at the heart of advances in the types of digital content provided by these firms.

Ultrafast broadband will allow businesses to upload digital content far more quickly and efficiently. Enterprise software companies for example are increasingly providing "software as services" (SaaS) accessed over the web[20]. It will open the door to small scale creative and digital start-ups capable of offering services online at low cost, allow existing firms to enhance the efficiency with which they deliver services and access global markets and contribute to the creation of a distinct cluster capable of attracting inward investment.

- **Biotechnology:** The biotechnology sector in Oxford has strengths in drug discovery and development and medical technology and imaging. It benefits from links with a world class research base and sustains 7,200 jobs across Oxfordshire. During the economic downturn 28 biotechnology companies were established in Oxfordshire (2008 to 2010), 24 of which were start-ups or spin-outs and 1,500 jobs are expected to be created in the sector over the next three years[21].

Productive and innovative R&D activity of the type bio-tech research organisations are engaged depends on accessing and sharing knowledge, the flow of data, collaboration between researchers and the implementation of advanced modelling tools can all benefit from broadband enabled technologies.

E3 Proposals for Leveraging Innovation, Development & Public Services

"Oxford: An International Hub for Online Learning"

Vision: At the centre of our plans lies an ambition to make Oxford renowned globally as the international centre for online learning. Building on established tradition and reputation, the City will harness the excellence of its academic institutions and the know-how of its digital media and publishing businesses to become the leading hub for students wanting to access high quality online educational opportunities.

Partners: The University of Oxford, Oxford Brookes University, Oxford and Cherwell Valley College, Oxford's language schools, academic publishing companies, digital media creative and online publishing businesses, leading technologies companies (e.g. Google, Microsoft).

The Opportunity: Oxford already has an international reputation as a destination for students from around the world. New technology is now making interactive learning the obvious way for many people to acquire new skills, to better their education and to pursue research interests, all using

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[19] Location Oxfordshire was established in 2009 as an organisation to attract film makers to the county.

[20] Laird, Peter (5 June 2008). "How Oracle, IBM, SAP, Microsoft, and Intuit are Responding to the SaaS Revolution". Laird OnDemand. Blogspot

[21] Oxford Biotechnology Network (2011) OBN Biocluster Report 2011: Transition

digital technologies. Learning materials, seminars, lectures and libraries are now increasingly all being accessed via the web from across the globe. Oxford's base of publishing companies and digital media creative business, as well as its potential to link with some of the world's best known technology brands can provide the springboard for the City to become a hub for the creation, hosting and dissemination of online learning tools and opportunities. The City is committed to exploring new economic models such as individual text book chapter purchase or even 'rental' for a period of time. Locally this initiative can also widen participation in education (potentially supporting apprenticeships schemes with academic content) and linking into schools and joint educational learning environments.

Education services already account for a substantial portion of the UK's trade with overseas countries and make a positive contribution to the UK's balance of payments. Pressures to reduce migration and the environmental impacts of travel are pushing us to look at innovative ways of securing the foothold the UK already has. This will be a huge market as developing economies grow and English consolidates its position as the international language of learning and business.

The level of coverage and speed provided by the super connected cities project will provide a platform for collaborative content production between commercial and educational institutions which, allied with the City's longstanding reputation for excellence, puts it in a unique position to secure a significant share of this market.

Health

Developments in elderly care, simplified autonomous living, remote diagnosis and home care provision are frequently cited among the potential benefits of next generation broadband.

E-health can improve patients' overall experience of the NHS through **telehealth** (remote capturing and relay of physiological measurements from their home for clinical review and early intervention), **telecare** (including a range of alarms and sensors in the home to enable independent living) and **tele-consultations** (video consultations and routine surveillance appointments between clinicians and patients) while reducing the need for unnecessary hospital admissions.

NHS Oxfordshire is committed to new healthcare technologies to reach its local population in an unprecedented and cost effective way through an effective digital engagement strategy:

"Work has already started with the development of 'Talking Health' to meet people's information needs, deliver tailored information, consult and create feedback loops so as to hear what people have to say and ultimately drive service transformation" (NHS Oxfordshire Engagement Strategy).

Delivering Council Services

Ultrafast broadband will allow innovative services, higher quality and more agile services to be delivered to all residents, 24 hours 7-days-a-week. A strategic review of Directgov in 2010 noted that if 30% of all government services are provided online, savings of £1.3 billion a year could be achieved[22]. Both the City and County Council are focussed on capitalising on the wide ranging benefits ultrafast broadband:

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[22] Martha Lane Fox (2010) *Directgov 2010 and Beyond: Revolution Not Evolution*

- Streamlined council operations deliver significant cost and carbon savings

- Council services available anytime and anywhere offering users increased flexibility and choice

- The digital divide across our communities will be narrowed enabling more people to access services online, on equal terms, regardless of social group, age, or disability.

- Engagement with traditionally hard to reach groups such as young people or those newly arriving from abroad (e.g. through social media). Next generation broadband also allows more scope for community participation, in reporting problems, responding to consultations, surveys and council plans,

- Peak demand can be relieved giving council staff more time to focus on delivery to those most in need of help.

Specific applications are being actively explored by Oxford City Council and Oxfordshire County Council in order that these benefits are brought about:

- Video applications for repairs tutorials for tenants, online training, recycling advice, and help with benefit or planning applications

- Live web chat to communicate directly with our customers

- Live webcasts of Council meetings and web streaming of community events

- Internal use of video-conferencing, VOIP services and webinars to reduce travel and accommodation costs.

Oxford City Council still retains a major stock of social housing and so is well placed to accelerate implementation of these kinds of services to large numbers of households.

E4 Stimulating Additional Private Sector Investment

Project partners have already started to engage with potential private sector investors and both City and County Councils are committed to securing buy-in and where possible additional investment from private sector partners. Specifically, the project has been designed to unlock private sector by:

- Providing the bulk of investment required to make priority white areas attractive for investment and working with partners to release existing public sector assets that will facilitate further the potential for expansion by a private provider

- High-speed wireless rollout is attractive to the private sector in high footfall areas – we will use UBF to support rollout where the commercial case is not viable, leveraging private investment into those areas where it is.

We believe there is significant potential to unlock additional substantial private sector investment (estimated at c£50m), if this is bid is successful. In the limited time available we have held preliminary discussions with investors/providers who have indicated that if this bid is successful they would wish to fund complementary fibre networks in the city. But this can only be progressed once the bid is approved and a full business case presented to anchor users.

The City Council and partners are eager to continue to explore these opportunities along with BDUK over the coming months.

E5 Raising Skills Levels in the Local Population

Research by the Greater London Authority[23] suggests that barriers to the adoption and use of ICTs by socially excluded groups are usually correlated with a number of socio-economic factors. Socio-personal factors such as income, low levels of education, low skilled jobs, unemployment and lack of technology skills, act as barriers to the adoption and use of ICTs.

Data by the Office for National Statistics (ONS) shows that in 2010 around a fifth of all households without internet access in GB had no interest in connecting to the Internet. To ensure that this number is reduced in Oxford we renew our commitment to work with all relevant partners to target excluded groups[24] and help them back into the world of work.

High speed broadband will enable the socially excluded more flexible working practices and opportunities to up-skill through e-Learning programmes by making learning more flexible, allowing people to take courses in their spare time and at a distance from the learning institution. The result is that the local labour market from which employers recruit would be widened and the participation and employment rate would both increase.

F – Strategy for Achieving State Aid Compliance

F1 State Aid Compliance and Commercial Models

We have closely examined the recent Birmingham State Aid clearance for their city-based broadband scheme and plan to progress along the same lines. To quote from the Birmingham State Aid approval: "The new infrastructure will be able to provide genuine ultra-fast services (i.e. 100Mbps, 1Gbps, etc) at an affordable price which is not currently provided by the market. End users will benefit from fibre to the premise and will be served by service providers offering download speeds far in excess of those available in the market today. The infrastructure will be a genuinely 'open access' NGA network offering operators and service providers' access to a full portfolio of wholesale services including ducts, dark fibre, wavelength, ethernet and co-location services." Our plans align exactly with this position and to further underline how our plans align with the State Aid framework, we are committed to the following:

- **Detailed mapping**: our plan has been built upon BDUK mapping and industry engagement and will serve White postcodes. See appendix B for detailed map outputs and further details.

- **Open tender process**: we are preparing our in-house procurement team to oversee and OJEU compliant tender process

- **MEAT**: our procurement will select the Most Economically Advantageous Tender

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[23] Greater London Authority (2002) *The Digital Divide in a World City.*

[24] Including, but not exclusive to people claiming lone parent benefits, incapacity benefits, Severe Disablement Allowance (SDA), Disability Living Allowance (DLA) or Carers Allowance.

- **Technological neutrality**: although our costings have been based on known technologies, these simply represent pre-tender estimates. The procurement will focus on end-user levels of service and allow the market to come forward with its own technological solutions.

- **Use of existing infrastructure**: we have mapped our own infrastructure and are ready to endow these facilities into the process. Likewise we fully expect bidders to avoid wasteful duplication (and costs) by making best use of existing infrastructure.

- **Wholesale access:** third party retailers and service providers will be granted access for a minimum of 7 years to compete to ensure choice and competition.

- **Benchmarking price**: our procurement will make it explicitly clear that wholesale prices in comparable locations will be monitored and aligned with prevailing market rates to avoid distortion

- **Clawback mechanism**: will be included in the contract to avoid over-compensation. A reverse payment mechanism will be invoked once revenues/uptake exceed agreed levels.

F2 Experience of similar models that have received State Aid approval

Our team of advisors supported Birmingham City Council in its application for State Aid clearance and have worked with us to ensure our emergent plans align with the approval granted. The planning and processes deployed in the bid match the work undertaken in preparation of the Digital Birmingham initiative. The City Council's in-house legal team have been involved in the process and are preparing to embark upon securing a formal State Aid clearance once BDUK have indicated their support for our plans. Subject to procurement and resources, Oxford City Council will buy-in expert legal advice to ensure continuity and that the material required by the Commission is of the requisite standard and to ensure the efficient progress of the plans through the commission's process.

G – Education, profile-raising & demand stimulation

G1 Demand Stimulation and Registration Activities for Consumers

We understand the importance of not excluding against any section of society, especially the older generations. A report by AgeUK and Fujitsu[25] identifies this as a major challenge to the online delivery of public services, and suggests that one of the reasons stopping older people from using the internet is poor access and connectivity. As such we renew our commitment to not only provide ultrafast connectivity, but also work with partners to focus on:

- fostering a greater awareness of the benefits of next generation access

- training (i.e. technical support, advice and guidance) to promote and encourage digital inclusion for everyone.

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[25] AgeUK, Fujitsu (2011) *Offline Government Services and the Offline Older Generation*

Work on registering and stimulating demand is already underway as part of OxOnline being led by our partner and colleagues at Oxfordshire County Council and a number of approaches are being proposed:

- a project website that can communicate to and register the details of interested parties and key stakeholders, be used to gather crucial supply and demand survey evidence

- marketing materials and engagement with local business and other media and news providers to raise the profile of the campaign on the benefits of ultrafast broadband to local communities

- use social media to facilitate interactive discussion with communities

- the successful network provider will be incentivised to expand their commercial demand and engagement work to include target communities

- 23 Broadband Champions have already come forward at County level and training is taking place in co-ordination with the BDUK GoOn team.

G2 Proposals for Education, Information and Demand-Building Activities

The Oxfordshire Business survey carried out last year established the likely demand from businesses for faster connectivity (See A1 'Project Need' for the key findings). In addition, two digital summits were held at County level in 2011 and Oxfordshire Business First (a supporter of this bid) held a conference in 2012 to engage business stakeholders and assess requirements.

On top of this and complimentary to the activities proposed for residents under G1 and the business support package outlined under E1, specific activities are planned to stimulate demand among businesses:

- Promote business support offer through existing business networks (eg through business organisations, business and science parks and university-business linkages) targeting the sectors and clustered outlined in E2 in particular

- Capitalising on the commercial incentive among private operators to drive uptake of services as high as possible. Existing private sector providers are willing to invest in education, information, and demand building to ensure that take-up is high.

Sign off by Local Authority CEO

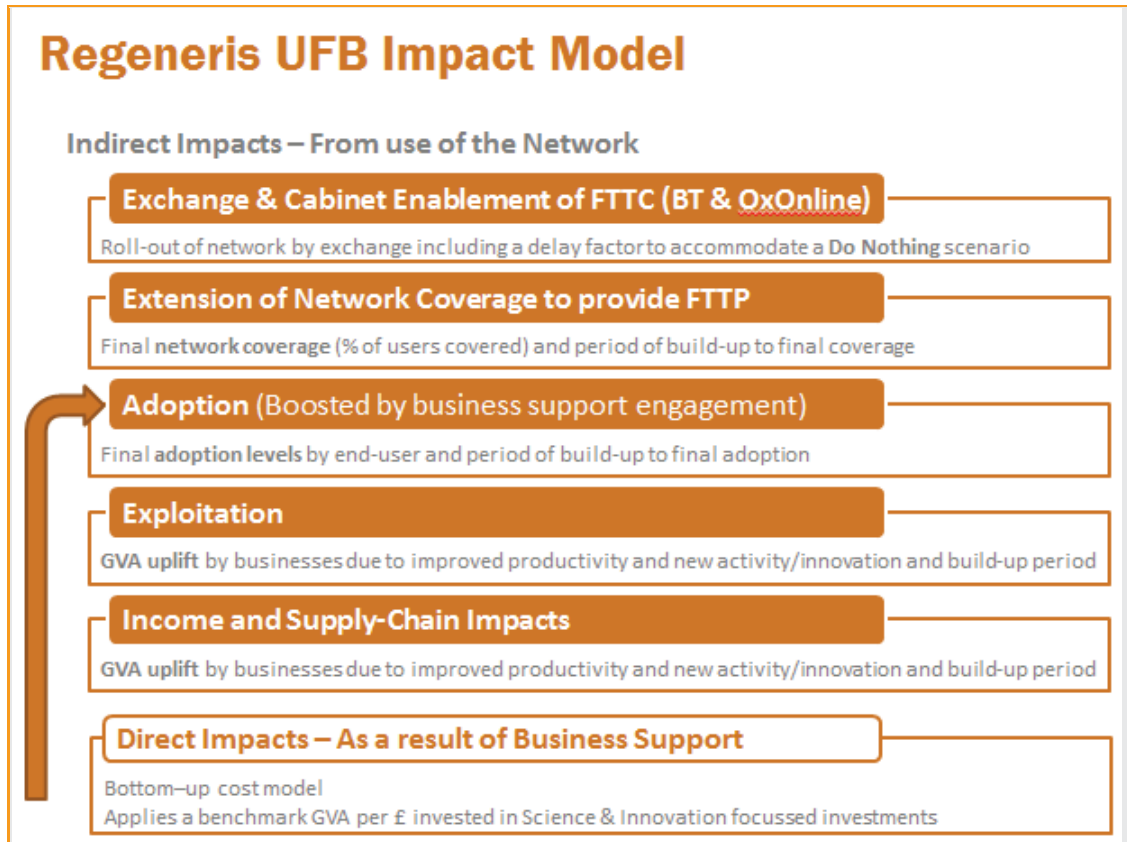|	
Name of proposal: **Oxford Super Connected City Broadband Plan** I verify that this proposal to the Ultrafast Broadband Fund fits with corporate policy	
Signed:	
Name: **Peter Sloman**	
Job Title: **Chief Executive**	Date: **14th September 2012**

The Oxford Super Connected City Broadband Plan is supported by the following organisations:

Appendix A - GVA and Job Estimates: Methodology

Regeneris UFB Impact Model

Indirect Impacts – From use of the Network

Exchange & Cabinet Enablement of FTTC (BT & OxOnline)
Roll-out of network by exchange including a delay factor to accommodate a **Do Nothing** scenario

Extension of Network Coverage to provide FTTP
Final **network coverage** (% of users covered) and period of build-up to final coverage

Adoption (Boosted by business support engagement)
Final **adoption levels** by end-user and period of build-up to final adoption

Exploitation
GVA uplift by businesses due to improved productivity and new activity/innovation and build-up period

Income and Supply-Chain Impacts
GVA uplift by businesses due to improved productivity and new activity/innovation and build-up period

Direct Impacts – As a result of Business Support
Bottom–up cost model
Applies a benchmark GVA per £ invested in Science & Innovation focussed investments

Appendix B - Project Maps & State Aid

For planning purposes and to show our appreciation of State Aid and current market provision, we have undertaken detailed mapping of broadband in Oxford using the latest BDUK data. We recognise that the situation around State Aid continues to evolve and that actual existing and planned supply by the market needs to be fully mapped and consulted upon before we can proceed to delivery. The Birmingham State Aid clearance from the EU which we plan to emulate acknowledges "the UK authorities argue that even the planned FTTC network for the […] of the target area has limitations as regards the possible use for SMEs. The capacity of FTTC networks is dependent on the distances between the end user premises and the cabinets: in principle, within 300 meters of cable length from a cabinet download speeds up to 40-50Mps could be offered, but beyond 300 meters from a cabinet the speeds fall rapidly to 10Mbps at 2km from the cabinet. In addition, FTTC networks provide only asymmetric connectivity services with strong limitations on the upload speeds, therefore such network types are in general not adequate for business users' who require high capacity, reliable, symmetric broadband connectivity."

For planning purposes business properties currently or soon expected to receive ultrafast 80Mbps broadband have been considered Black. These fall into two categories:

- businesses receiving Virgin Media: Virgin run fibre direct to the premise and therefore users will receive 80Mbps connectivity.

- businesses close enough to cabinets enabled through BT's roll-out of next generation broadband to achieve that level of service.

Local businesses are the primary target for our bid. The map below shows the spread of business premises across Oxford at postcode level. Postcode areas marked in orange denote those which will receive ultrafast Fibre to the Premises under the plan. Those that will remain below 80Mb are displayed in white.

Postcode Map of Existing and SCC Ultrafast Roll-out and Remaining Gaps: Businesses Only
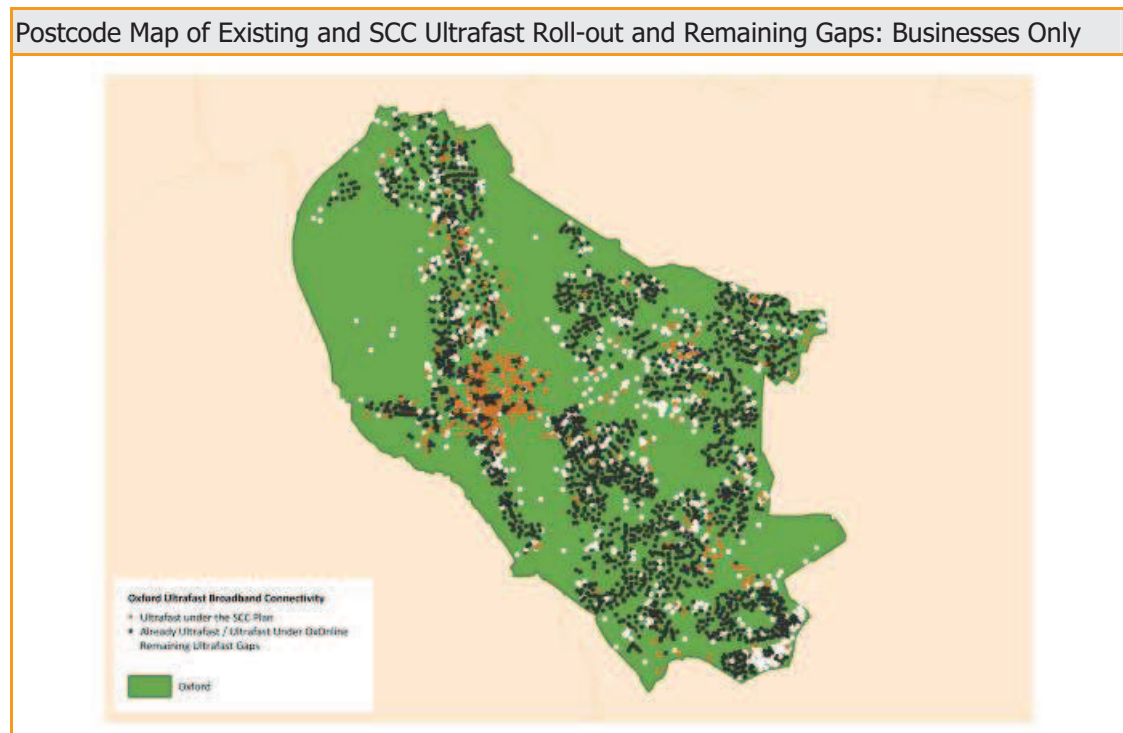
The next map shows the position across all premises once the SCC infrastructure has been enabled. Here the remaining gaps in ultrafast connectivity can be seen more clearly. The city centre is now receiving blanket 80Mbps+ connectivity while the balance across the rest of Oxford has turned toward ultrafast provision.

Postcode Map of Remaining Ultrafast Gaps: All Premises

Wireless Access across the City Centre

A wireless overlay for the whole of Oxford's city centre will allow the millions of visitors as well as those living and working in the city mobile access to new broadband services shaped to maximise their experience of the multitude of tourist and leisure destinations and business opportunities Oxford already has to offer. Proposed coverage provided via 73 wireless access points is shown below.

Map of Oxford Project Coverage: Wireless