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ADDITIONAL CIRCULATION

ABERDEEN CITY REGION DEAL:
Powering Tomorrow's World

To: Councillor Jenny Laing, Leader of the Council (Chairperson); Councillor Richard Thomson (Vice-Chairperson); Councillor Alison Evison, Councillor Jim Gifford, Professor Stephen Logan, Mr Patrick Machray OBE, Councillor Ross Thomson MSP, Sir Ian Wood and Councillor Willie Young.

Aberdeen City Council Substitute Members:- Councillors Marie Boulton, Stephen Flynn and Ian Yuill.

Aberdeenshire Council Substitute Members:- Councillors David Aitchison, Karen Clark and John Cox.

ONE Substitute Members:- Colin Crosby, Jennifer Craw and Stephen Logan.

Please note that a substitute member may only participate in the meeting when a substantive member is absent.

Town House,
ABERDEEN 17 January 2017

ABERDEEN CITY REGION DEAL JOINT COMMITTEE

The Members of the **ABERDEEN CITY REGION DEAL JOINT COMMITTEE** are requested to meet in 4-W-01 of Marischal College on **FRIDAY, 20 JANUARY 2017 at 9.30 am.**

FRASER BELL
HEAD OF LEGAL AND DEMOCRATIC SERVICES

B U S I N E S S

5 Digital Infrastructure Business Case (Pages 3 - 28)

ITEMS WHICH THE COMMITTEE MAY WISH TO CONSIDER IN PRIVATE

7 Digital Infrastructure Business Case - Market Assessment - Gap Analysis (Pages 29 - 32)

8 Digital Infrastructure Business Case - Appendix B (Pages 33 - 38)

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Should you require any further information about this agenda, please contact Emma Parr, emparr@aberdeencity.gov.uk, tel 01224 522607

ABERDEEN CITY REGION DEAL:
Powering Tomorrow's World

Report	Digital Infrastructure Business Case
Lead Officer	Simon Haston
Report Author	John-Paul Cleary
Date of Report	20th January 2017
Governance	City Region Deal Joint Committee

1:	Purpose of the Report

i. To seek approval from the Joint Committee of the business case for the Digital Infrastructure project within the Innovation theme of the Aberdeen City Region Deal.

2:	Recommendations for Action

i. It is recommended that the Joint Committee approves the business case proposed in this report (Appendix 1), subject to -

a. Approval of the business case by the UK Government and the Scottish Government;

b. Changes required to reflect additional information obtained on the R100 national digital programme and other UK Government and Scottish Government feedback; and

c. Positive Peer review by the Enabling Group.

3:	Summary of Key Information

i. The Aberdeen City Region is one of the most digitally active and dependent areas in Scotland. This demand is not matched by the supply of world class connectivity and competition. To address this, the Aberdeen City Region Deal (CRD) will provide affordable ultrafast connectivity for business premises and lay the vital spines for residential superfast connections in the City Region Deal area (effectively the Aberdeen Housing Market Area). This will also help to

3:	Summary of Key Information

introduce and support 4G and 5G services across the region..

ii. Establishing world class digital connectivity is not the goal in itself. The importance lies in how this will enable the wider economic and social ambitions of the City Region. World class digital infrastructure is fundamental to the Aberdeen CRD in supporting the delivery of the objectives of the Oil and Gas Technology Centre and the export and internationalisation aspirations of the sector, as well as facilitating the effectiveness of the Innovation Hubs in Life Sciences and Food & Drink.

iii. One of the key objectives of the signed Aberdeen City Region Deal is to enable the Oil & Gas supply chain to compete internationally and one of the measures agreed under the Deal was to improve digital connectivity to local businesses in order to help achieve this, with priority to be given to connecting ultrafast fibre to the business and industrial parks across the City Region.

iv. Aberdeen City Region remains poorly served when it comes to broadband infrastructure compared to the rest of the UK and its global competitors. The City Region has a high take up of basic broadband at around 80% but in a 2014 study into superfast broadband coverage, Aberdeen City Region ranked 61 out of 63 UK regions; and in a separate worldwide study of Oil and Gas cities, the City Region recorded the second slowest connectivity speeds of all cities surveyed. This finding was reinforced by a 2016 uSwitch survey which found that Aberdeen's broadband speeds were ranked 41st of the 42 largest cities.

v. An extensive GAP analysis of existing and planned infrastructure in the region was carried out through a programme of desk research and interviews with infrastructure owners and service providers. This revealed that to help regain economic competitiveness, a market intervention should be made, addressing the identified gaps in the market that will not be closed in the short term under existing market conditions. Priority should be given to connecting ultrafast fibre to the business and industrial parks across the region and the neighbouring residential areas in the key travel to work settlements. The target is for Aberdeen City Region to be ranked in the top 6 of UK regions for NGA availability and speed (out of 63).

vi. This will be delivered through two programmes of work:

- White Area In-Fill - This will seek to address the above gaps in the market by procuring ultrafast connectivity to serve businesses and residential premises within the Aberdeen housing market area.

- City Duct Network - This will extend and enhance the existing Council owned duct network in the City to enable to facilitate the efficient

3:	Summary of Key Information
	delivery of services and ensure economic and social gains. This will support applications such as traffic management and a region wide sensor network. This investment will feed a regional data platform from which business, residential and public services can develop innovative applications.

4:	Finance and Risk
i.	**Financial Considerations** The project's funding model was approved as part of the Aberdeen City Region Deal by both Councils on 17th August 2016 and by the UK and Scottish Governments on 21st November 2016.
ii.	**National Programme** The Scottish Government is launching a national connectivity programme (R100) that seeks to provide a minimum of 30Mbps connectivity to every premise in Scotland. R100 procurement is likely to focus on the most rural areas of Scotland. There is a risk that if this project is absorbed by R100, Aberdeen City Region Deal's regional objectives will not be met. Officers have been meeting regularly with the Scottish Government to address this risk.
iv.	**Private Sector Investment** There is a risk around securing the private sector funding. Mitigation is to ensure projects are attractive and of a scale to encourage private sector interest and investment.
v.	**State Aid** There is a risk around ensuring procurement is State Aid compliant. It is anticipated that the Aberdeen CRD Digital Infrastructure procurement will be designed and developed with BDUK, Digital Scotland and SFT input and guidance and that the procurement will be overseen by BDUK to minimise the risk of any State Aid challenge.

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BUSINESS CASE	
Project name	Digital Infrastructure
Theme	Innovation
Lead	Simon Haston, Head of IT and Transformation, Aberdeen City Council.
Date	16 January 2017

Executive Summary

The Aberdeen City Region is one of the most digitally active and dependent areas in Scotland. This demand is not matched by the supply of world class connectivity and competition. To address this, the Aberdeen City Region Deal (CRD) will provide affordable ultrafast connectivity for business premises and lay the vital spines for residential superfast connections in the City Region Deal area (effectively the Aberdeen Housing Market Area). This will also help to introduce and support 4G and 5G services across the region.

Establishing world class digital connectivity is not the goal in itself. The importance lies in how this will enable the wider economic and social ambitions of the City Region. World class digital infrastructure is fundamental to the Aberdeen CRD in supporting the delivery of the objectives of the Oil and Gas Technology Centre and the export and internationalisation aspirations of the sector, as well as facilitating the effectiveness of the Innovation Hubs in Life Sciences and Food & Drink.

The Scottish Government is launching a new national connectivity programme called R100. Our current understanding is that R100 will prioritise rural areas. This being the case, the Aberdeen CRD procurement would provide additionally to the R100 programme as it would accelerate enhanced connectivity to areas that may not see delivery in the initial phase of the R100 programme, whilst ensuring that the regional priorities of ultrafast connectivity for businesses are met.

The Aberdeen CRD proposes a partnership with the Scottish Government in a regional procurement. This could provide a delivery model for the rest of Scotland and address wider needs as the world class fibre infrastructure being provided for business needs will also enhance the quality of services in adjacent residential areas, many of which cannot yet access superfast broadband.

The cost of the programme of work described in this business case proposal has an estimated capital expenditure of £45 million (although seeking £27m public sector investment, £18m of private sector investment is to be expected) over the period early 2017- end 2018.

The benefits are as follows:

- All businesses in commercial areas and industrial estates in the CRD area able to access cost competitive and affordable ultrafast services.
- All residential premises in major settlements within the CRD area served by superfast (>30 Mbps) services.
- Aberdeen City Region ranked in the top 6 of UK regions for NGA availability and speed.
- A UK government report into economic impact of public sector investment in broadband concluded that there is a £20 in net economic impact over a 10 year period for every £1 of public sector investment in broadband.
- Improvements in the efficiency, cost and reach of digitally delivered public services.
- Delivery of essential underlying infrastructure and a platform for digital innovation and skills.
- Increased service innovation and competition in the regional telecommunications services market.
- Additional reach for the Digital Scotland R100 programme.

This Digital Workstream Group is led by Simon Haston, Head of IT and Transformation at Aberdeen City Council. Membership of the Group includes representation from Aberdeen City Council, Aberdeenshire Council and the Aberdeen City Region Deal Programme Manager.

The Digital Workstream Group reports to the Aberdeen City Region Deal Programme Board on an operational basis with the Aberdeen City Region Deal Joint Committee providing strategic direction and ultimate approvals of key project stages.

1 THE STRATEGIC CASE

1.1 Current Landscape

Aberdeen City Region remains poorly served when it comes to broadband infrastructure compared to the rest of the UK and its global competitors. The City Region has a high take up of basic broadband at around 80% but in a 2014 study into superfast broadband coverage, Aberdeen City Region ranked 61 out of 63 UK regions; and in a separate worldwide study of Oil and Gas cities, the City Region recorded the second slowest connectivity speeds of all cities surveyed. This finding was reinforced by a 2016 uSwitch survey (http://www.ispreview.co.uk/index.php/2016/04/top-42-fastest-uk-cities-average-broadband-speeds-2016.html) which found that Aberdeen's broadband speeds were ranked 41st of the 42 largest cities. The situation has improved as the Digital Scotland roll out has brought benefits to the region. Nevertheless the proportion of premises in the City Deal Region able to receive fixed superfast broadband services (>30 Mbps) is estimated to be 79% which remains beneath the national average of 83% (Source Ofcom: UK Fixed Broadband Performance, November 2015). This is adversely impacting economic performance. In addition the absence of cable services in the region reduces choice and results in limited availability of ultrafast services. If the City Region Deal (working alongside the R100 programme) achieves the objective of ubiquitous coverage of superfast services in residential homes and ultrafast services in business premises, the

impact will be to move Aberdeen into the upper quartile of cities in the UK in terms of service availability and speed.

Many large companies subscribe to “private line” products offered by BT and others, whilst smaller businesses are restricted to largely domestic quality broadband services – this places local businesses at a disadvantage compared to competitors and as energy is a global sector, competitors are located throughout the world.

Research carried out by GO ON UK shows that the Aberdeen region has a low exclusion rating. This means that the City Region is one of those the most likely to adopt digital technologies. This is largely due to high skills levels, demand and a desire to use digital technology.

This demand in the City Region is not matched by supply. The issue is insufficient speed and availability to enable economic growth, delivery of modern public services and more sophisticated residential usage.

Attracting and retaining key people, not just in the energy sector but in growth industries like Life Sciences, Food & Drink and Tourism and also academia and public services has been a medium term major challenge for the area. Competitive digital connectivity and services will enhance the area’s “place” credentials and make it easier to fill long term vacancies which inhibit the area’s performance.

One of the key objectives of the signed Aberdeen City Region Deal is to enable the Oil & Gas supply chain to compete internationally and one of the measures agreed under the Deal was to improve digital connectivity to local businesses in order to help achieve this, with priority to be given to connecting ultrafast fibre to the business and industrial parks across the City Region.

“The City Region Deal provides the opportunity to create a sustainable infrastructure from which the region can transform into a world class digital area. At the core is the need to deliver ultrafast connectivity and use this to: grow existing businesses; attract further investment; create new businesses; deliver excellent public services; support mobility and protect the environment; and enhance the area’s attractiveness as a place to live and work.”

Aberdeen City Region Deal Agreement (signed 21st November 2016)

1.2 Developing a Smart City Region – Digital Place

In order to address this issue ‘Digital Place’ is a strategy to deliver measurable socio-economic gains to the region and its citizens through digital technology, skills and innovation. The objectives are to:

- Encourage and enable business growth and performance in the area and support the aspirations and activities of the Oil and Gas Technology Centre and other key industry initiatives
- Enhance the region’s position as a competitive place and to help attract and retain talent
- Improve business connectivity to promote innovation and internationalisation.
- Improve operational efficiency and service delivery across our public sector organisations
- Enhance the skills and employability of our working-age population

- Address inequalities in digital access and increased digital participation.

Digital Connectivity is a key element of this programme. High speed, ubiquitous connectivity is at the heart of building a smart region and supporting businesses and communities. Ensuring that businesses, and ideally communities also, can access ultrafast fibre to the premises is critical to their locating, staying and growing in the region. Greater data capacity underpins CRD objectives and will be necessary to harness the potential 'big data' and the Internet of Things.

The delivery of world class infrastructure and related services will be complemented by a programme to address the collation and use of data in the region.

We will improve the use of our data, apply standards for its collection, recording and storage, and implement the means to share data securely. We can then apply data science techniques to model complex inter-connected service provision, predict demand and impact, and rationalise how we collaborate for outcomes and develop policy at a City Region level to optimise the cost effectiveness of public services and infrastructure use.

The proposed infrastructure improvements will enable the City Region to develop as a centre of excellence in digital innovation. This will build on existing skills and capacities, and will involve all actors in the region. This programme will have an ambitious span: designing the C21st digital environment to develop and enable solutions to address the needs of all sectors of the population - from involving citizens in the design of digital services, to harnessing opportunities presented by Internet of Everything (IoE).

It is essential to the City Region's future that our citizens, workforce and decision makers have the skills and confidence to exploit digital technologies, make intelligent decisions, and interact using 21st tools and platforms. From primary schools, through secondary and on to further education we need to ensure that we invest in skilling young people to contribute to the region's economic, academic and social advancement.

1.3 The Proposal

To help regain economic competitiveness, a market intervention should be made, addressing the identified gaps in the market that will not be closed in the short term under existing market conditions. Priority should be given to connecting ultrafast fibre to the business and industrial parks across the region and the neighbouring residential areas in the key travel to work settlements.

This can be achieved through two delivery areas:

- White Area In-Fill - This will seek to address the above gaps in the market by procuring ultrafast connectivity to serve businesses and residential premises not addressed by the market and the Digital Scotland programme within the Aberdeen housing market area.
- City Duct Network - This will extend and enhance the existing Council owned duct network in the City to enable to facilitate the efficient delivery of services and ensure economic and social gains. This will support applications such as traffic management and a region wide sensor network. This investment will feed a regional data platform from which business, residential and public services can develop innovative applications.

1.4 The Objectives

Providing the Aberdeen City Region with the world class digital infrastructure required to regain its economic competitiveness on a national and international basis will involve meeting the following objectives:

- Provide the enabling digital infrastructure to support the successful delivery of the objectives of the Oil & Gas Technology Centre, Big Data, Life Sciences and Food & Drink themes of the Aberdeen City Region Deal; and help deliver the CRD Programme's economic objectives of:
    - Ensuring Aberdeen retains its place as a global centre in the energy sector by supporting innovation in the oil and gas industry; maximising the economic recovery of the remaining reserves from the UK Continental Shelf; and anchoring the supply chain for oil and gas in the UK.
    - Help facilitate economic growth, innovation and internationalisation in the business base.
    - Protect existing jobs.
    - Protect and enhance tax revenues.
- All businesses in commercial areas and industrial estates in the CRD area able to access cost competitive and affordable ultrafast services.
- Improved digital infrastructure to allow public services to be delivered more cost effectively to a larger proportion of residents, increasing the efficiency and wellbeing of the area.

- Provide the facilities to allow the Aberdeen City Region to function as a testbed where new infrastructure and service providers, technologies and services can be rapidly deployed and assessed. This may act as a model for Scotland's digital vision moving forward.

2 THE ECONOMIC CASE

2.1 Options Appraisal

Option 1 - Do nothing

If no further City Region Deal market intervention were to take place it is likely that the Aberdeen City Region will fall further behind the rest of the UK in its ability to access digital infrastructure. This is largely the result of the relative lack of competition in the local market in the access network – for example Aberdeen was the last major City in the UK to benefit from commercial superfast deployment and at the time of its Super Connected Cities bid no superfast services were available in the City.

Digital Scotland will continue to drive further investment (notably through R100) but the level of investment required in the region to deliver ubiquitous superfast services in likely to be prohibitive.

Also, it is assumed the initial focus for R100 will be on the more remote areas of the country which are difficult for the market to address. As a result there is a risk that on the basis of our current understanding, the unserved premises in the City and major Shire settlements may not be addressed in the early stages of the programme, if at all.

In addition businesses in the region are characterised by having high bandwidth, data intensive requirements. As a result there is a need for cost effective, ultrafast, symmetrical services. The cost of such services in the region is likely to continue to be prohibitive for SMEs.

Timescales are also key. The region is faced with intense competition from other global energy cities and the next few years are key to the retention of businesses, skills and jobs in the area and the economic performance of the region and the country. Access to world class digital infrastructure is a key component in this equation and a failure to invest is likely to have an adverse impact on economic activity.

Option 2 - Public Sector led approach

An approach is to invest in Aberdeen City Council's and Aberdeenshire Council's own network infrastructure. In addition, discussions were held with other public sector bodies such as NHS to assess their plans.

If the public sector demand for network infrastructure could be aggregated it may drive further commercial deployment in the region.

Aberdeen City Council is investing in its own network infrastructure and has recently upgraded connectivity to schools to ultrafast fibre via SWAN. Aberdeenshire Council has its own radio based network serving all sites in its area and which will not be replaced in the near future and is looking to coordinate activities with NHS with whom it is sharing premises.

However these actions alone will not achieve the aim of every business being able to access ultrafast and 97% of households having access to superfast (>30Mbps) services. Further investment is required to ensure a wider coverage in business and communities areas both in urban and rural areas.

Option 3 - Stimulate Commercial led deployment

Discussions with industry have revealed that proactive investment in new infrastructure will be limited in the near future and the challenges of coverage and speed remain. The key messages received were:

- Any expansion of the existing fibre footprints of the infrastructure providers (e.g. City Fibre, SSE Telecom) would require either a commitment by the public sector to use or extensive aggregation of private sector demand
- Innovative new fibre access providers (e.g. Gigaclear) will require some gap funding to ensure ubiquitous coverage in the Aberdeenshire housing market area. All have finite investment funds and all areas of the UK are seeking to attract commercial investment in their areas. The Aberdeen City Region is effectively competing to attract such inward investment.

Aberdeen City and Aberdeenshire Councils continue to actively promote the region to the telecommunications operators and have been working with local trade bodies to stimulate and aggregate demand to encourage investment. In addition the public sector has extensive purchasing power that it can harness. Both Councils continue with such initiatives. However gaps in the market will still remain because the commercial cost of deployment in much of the travel to work areas outside the City challenging and within the City there remains limited competition to drive investment into regeneration areas and sites lying away from the main arterial routes.

2.2 Recommendation

It is recommended to proceed with both Option 2 and 3.

It should be noted that the UK Government commissioned a major report to examine the economic impact of public sector investment in broadband services.(https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/257006/UK_Broadband_Impact_Study_-_Impact_Report_-_Nov_2013_-_Final.pdf). It concluded that there is a £20 in net economic impact over a 10 year period for every £1 of public investment.

2.3 Cost - Benefit Analysis

The programme of work described in this proposal has an estimated capital expenditure of £45 million over the period early 2017- end 2018.

The benefits are as follows:

- All businesses in commercial areas and industrial estates in the CRD area able to access cost competitive and affordable ultrafast services.
- All residential premises in major settlements within the CRD area served by superfast (>30 Mbps) services.
- Aberdeen City Region ranked in the top 6 of UK regions for NGA availability and speed.
- A UK government report into economic impact of public sector investment in broadband concluded that there is a £20 in net economic impact over a 10 year period for every £1 of public sector investment in broadband. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/257006/UK_Broadband_Impact_Study_-_Impact_Report_-_Nov_2013_-_Final.pdf
- Improvements in the efficiency, cost and reach of digitally delivered public services.
- Delivery of essential underlying infrastructure and a platform for digital innovation and skills.
- Increased service innovation and competition in the regional telecommunications services market.
- Additional reach for the Digital Scotland R100 programme.

3 THE COMMERCIAL CASE

3.1 Market Appetite

As part of the recent gap analysis in-depth meetings were conducted with local and national infrastructure providers to test their appetite for investment. The key messages received were as follows:

- White Area In-Fill: There is appetite for investment in a project of this nature in the region. The key commercial parameters are;
    - There would need to be a minimum of 5000 white premises to address – however our analysis has revealed an addressable market of approximately 20,000 white premises in both City and Shire within the CRD area.
    - The commercial sector will target the areas with concentrated pockets of opportunities in a contiguous area – i.e. in parts of Aberdeen City and in the key settlements of Westhill, Inverurie, Portlethen, Stonehaven, Kintore, Banchory, Blackburn and Ellon. These would be addressed with world class FTTP and/or radio access services. Remote premises would remain challenging.
    - GAP funding would be required above an agreed threshold of private sector investment per premise.

- Backhaul: It is not proposed that City Region Deal funds are directly provided to build additional backhaul in the region due to state aid issues. However the proposed approach is likely to stimulate additional investment by the private sector in the region because:
    - The provision of backhaul to in-fill providers may stimulate investment.
    - The public sector itself it likely to be a user of both the access networks and backhaul provided – thus justifying investment. For example the NHS in the region has stated that it is unable to deliver digitally enabled health services to many sites in the region and would welcome such an approach.

- Duct Build: Aberdeen City Council has already extended its duct infrastructure in recent years and has already proven knowledge of the supply chain and partners to undertake such projects.

3.2 White Area In-Fill Procurement Strategy

In order to implement this plan, a procurement would need to be undertaken for the provision of white area in-fill in the region. This would mirror the procurements that are already being undertaken elsewhere in the UK by counties in England and the Welsh Government and so would not be setting a precedent in terms of State Aid or exceptional requirement within the market place

- ***Service Definition:*** It is proposed that the specification of the service would provide the region with access to the world class infrastructure required to remain competitive on an international basis. At a minimum;

    - All business sites should have access to affordable symmetrical ultrafast services.
    - All residential sites should receive download speeds of >30Mbps.

- ***Coverage:*** The programme would seek to infill as many premises as possible. Feedback from industry has stated that a minimum of 5000 white premises is required for the project to have the scale to be commercially attractive. However there are over 40,000 white premises in the CRD area with approximately 2000 of these being business sites. Industry has also stated that it requires build programmes to be in a contiguous area. It would seek to target the main unserved areas of the City together with the larger, economically important areas of the Shire. Hence the coverage areas are likely to be parts of the City plus Inverurie, Blackburn, Kintore, Portlethen, Stonehaven, Westhill, Banchory and Ellon. Within these areas are all the major business parks and approximately 25,000 white premises. Other white areas in the region would not be addressed. In order to maximise interest from industry it is possible that the procurement may be specified in lots separating business and residential sites and possibly urban and rural areas. The outcomes of the Open Market Review being undertaken by Scottish Government may help in determining the nature of the CRD procurement.

- ***Timescales;*** It is envisaged that the procurement would take place in first half 2017 with the aim of deployment completed by end 2018/9.

3.3 City Duct Network Procurement Strategy

The City of Aberdeen also owns extensive duct infrastructure that is used to deliver connectivity within the Council and services to the businesses and citizens. As the City has grown there is a requirement to extend this infrastructure, notably out to the Aberdeen Western Peripheral Road and development areas to the west of the City. While there are obvious connectivity benefits for the authority there are also benefits for the economy as a whole though the 'Internet of Things'. Key to this will be the deployment of sensors across the region to collate data on traffic flows, environment issues such as a flooding, people flows, stability of the built environment and many other applications. Data received from these sensors and other sources need to go somewhere and be turned into useful information. This will be achieved through a data platform for the whole region and will feed into a regional innovation centre for digital solutions to improve the utilisation of infrastructure, energy efficiency and traffic flows for example.

- **Coverage:** The existing and proposed footprint of the duct network is shown in the map below. Green lines show the existing network and yellow show the proposed expansion.
- **Timescales:** It is envisaged that the procurement would take place in first half 2017 with work started late 2017 completed by the end of 2018.

- **Procurement Strategy:** There will be an initial 4-6 month survey and design phase followed by an OJEU procurement process.

3.4 Challenges & Risks

The key challenges and risks to this proposal are:

- **R100 National Programme**

  The Scottish Government is launching a new national connectivity programme (R100) that seeks to provide a minimum of 30Mbps connectivity to every premise in Scotland. Early indications are that R100 will prioritise rural areas. There is a risk that if this project is absorbed by R100, Aberdeen City Region Deal's regional objectives will not be met or delayed.

  Mitigation could be for Aberdeen City Region Deal and potentially other City Deals to partner the Scottish Government in a regional procurement but as separate Rural and City Deal Lots. This would ensure that any local development actively enhances the national programme, while ensuring the regional priority of ultrafast connectivity for businesses is met. This would provide a model for the rest of Scotland and address wider sector needs.

- **Private Sector Investment**

There is a risk around securing the private sector funding. Mitigation is to ensure projects are attractive and of a scale to encourage private sector interest and investment.

- **State Aid**

  There is a risk around ensuring procurement is State Aid compliant.

  It is anticipated that the Aberdeen CRD Digital Infrastructure procurement will be designed and developed with BDUK, Digital Scotland and SFT input and guidance and that the procurement will be overseen by BDUK to minimise the risk of any State Aid challenge which could prejudice the delivery timescale of the infrastructure.

4 THE FINANCIAL CASE

4.1 Funding Streams

Funding Source	Funding (£'m)
Scottish Government (City Region Deal)	5
UK Government (City Region Deal)	5
Scottish Government (£254m Deal)	10
Aberdeen City Council	3.5
Aberdeenshire Council	3.5
Private Sector Estimate (in fill and backhaul)	18
Total (£'m)	**45**

4.2 Total Project Costs

Nature of Expenditure	16/17 (£'m)	17/18 (£'m)	18/19 (£'m)	Future years (£'m)	Total Cost (£'m)
White Area In-Fill	0	13	27	0	40
City Duct Network	0	2	3	0	5
Total (£'m)	**0**			**0**	**45**

4.3 Planned Expenditure

Funding Stream	16/17 (£'m)	17/18 (£'m)	18/19 (£'m)	Future years (£'m)	Total (£'m)
Scottish Government (City Region Deal)	0	2.5	2.5	0	5
UK Government (City Region Deal)	0	2.5	2.5	0	5

Scottish Government (£254m Deal)	0		10		10
Aberdeen City Council	0	1.75	1.75		3.5
Aberdeenshire Council	0	1.75	1.75		3.5
Private Sector (Estimate)	0	5	13		18
Total (£'m)	**0**	**13.5**	**31.5**	**0**	**45**

4.4 Funding Assumptions

The Scottish Government has made a commitment to invest a further £254 million in the Aberdeen City Region for infrastructure over the first 10 year period of the City Region Deal. It is assumed that £10m of this funding will be released and managed under this business case.

The availability of funding from the Private Sector is an estimate and not part of any agreement or contract with the two Councils.

Given procurement timescales, funding drawdown is expected to being in financial year 17/18 with the majority of spend occurring in a two-year period. This assumption will be dependent upon the implementation plans agreed with the appointed private sector partners.

The funding requirement for the white area in-fill is a function of

- the capex per line required
- Private/public sector funding split.

The exact investment requirement to address the white premises will need detailed surveys and design. There are issues with the high numbers of long line and exchange only lines in the region. Also much depends on whether the approach is to upgrade existing legacy infrastructure or to build a new overlay FTTP or wireless infrastructure into a settlement with a more uniform cost per premise. In other parts of the UK such an approach has lowered costs and funding requirements.

In the target areas in the City Region we have approx. 25,000 lines to address. If we assume that the cost per line is £1600 and this is split approx. £750 private sector and £850 public sector we have:

- Private investment of £18.75m (45%)
- Gap funding of £21.25m (55%)

White Infill (25,000 lines)		
Private investment (45%) - £750 per line	25,000 lines	£18,750,000
Public Investment (55%) - £850 per line	25,000 Lines	£21,250,000
Total (£'m)		£40,000,000
Duct Infrastructure and supporting connectivity		

20km infrastructure build	£200 per metre	£4,000,000
Resources for staff , design and project management.		£1,000,000
Total (£'m)		**£5,000,000**

The City Region Deal is effectively being used to install world class connectivity into premises where it would be otherwise uneconomic to do so. Industry will have estimates of the potential revenue per premise it is able to derive and the potential take up of services. Based on this it will be able to calculate the investment per premise it is willing to make to deliver a commercial return. If the cost of deployment is greater than this, public sector funding is being used to subsidise the gap.

However such parameters are subject to the technology deployed and the successful winner of any procurement process. A lower cost per line would enable more premises in the region to be addressed.

4.5 State Aid Assessment

The national state aid clearance permits white area in-fill projects of this nature. Indeed local innovative projects such as that envisaged are encouraged. However the procurement will need to follow the processes specified by BDUK to ensure compliance.

Investment in any duct infrastructure is driven by public sector usage and hence is state aid compliant.

5 THE MANAGEMENT CASE

5.1 Governance

As agreed by the Aberdeen City Region Deal Joint Committee ('Programme Approach' Aberdeen City Region Deal Joint Committee, 22nd April 2016), responsibility for delivery for each Project in the City Region Deal will be under each of the themes (innovation, digital, housing, transport). Each workstream group has an identified lead officer who will work with and be supported by the Programme Manager. Supporting development and implementation, the Aberdeen City Region Deal stakeholders will commit to ensuring that the relevant resource is allocated to these specific projects.

This Digital Workstream Group is led by Simon Haston, Head of IT and Transformation at Aberdeen City Council. Membership of the Group includes representation from Aberdeen City Council, Aberdeenshire Council and the Aberdeen City Region Deal Programme Manager.

The Digital Workstream Group reports to the Aberdeen City Region Deal Programme Board on an operational basis with the Aberdeen City Region Deal Joint Committee providing strategic direction and ultimate approvals of key project stages.

Additional project management and project team resource may be identified in subsequent stages of the project. These will be identified and arranged by the Digital Workstream Group as required and will report directly to the Workstream Group, acting as the de facto Project Board.

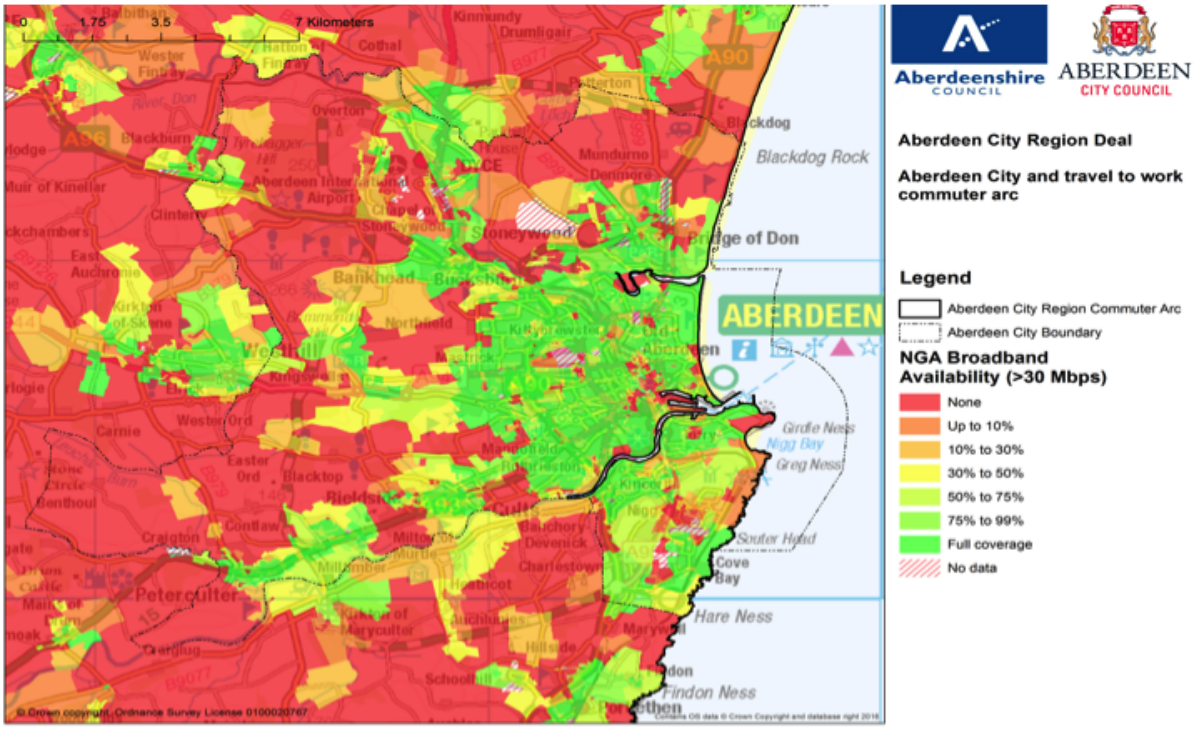
5.2 Outline Plan

Milestone	Date
Regional Digital Board Established	Complete
Begin upgrade of ACC network to fibre	Started
Approval for Regional Digital Place Strategy	Complete
Business Case issued to UKG & SG for formal Review	Complete (21 December 2016)
Business Case Review by Programme Board	Complete (5 January 2017)
Business Case Approved by Joint Committee	20 January 2017
Business Case Peer Review Complete	27 January 2017
UKG / SG Approval of Business Case	31 January 2017
White Area in-fill procurement	April – October 2017
Complete white area in-fill	December 2018
Duct build procurement	Feb - April 2017
Duct build completed	January 2018

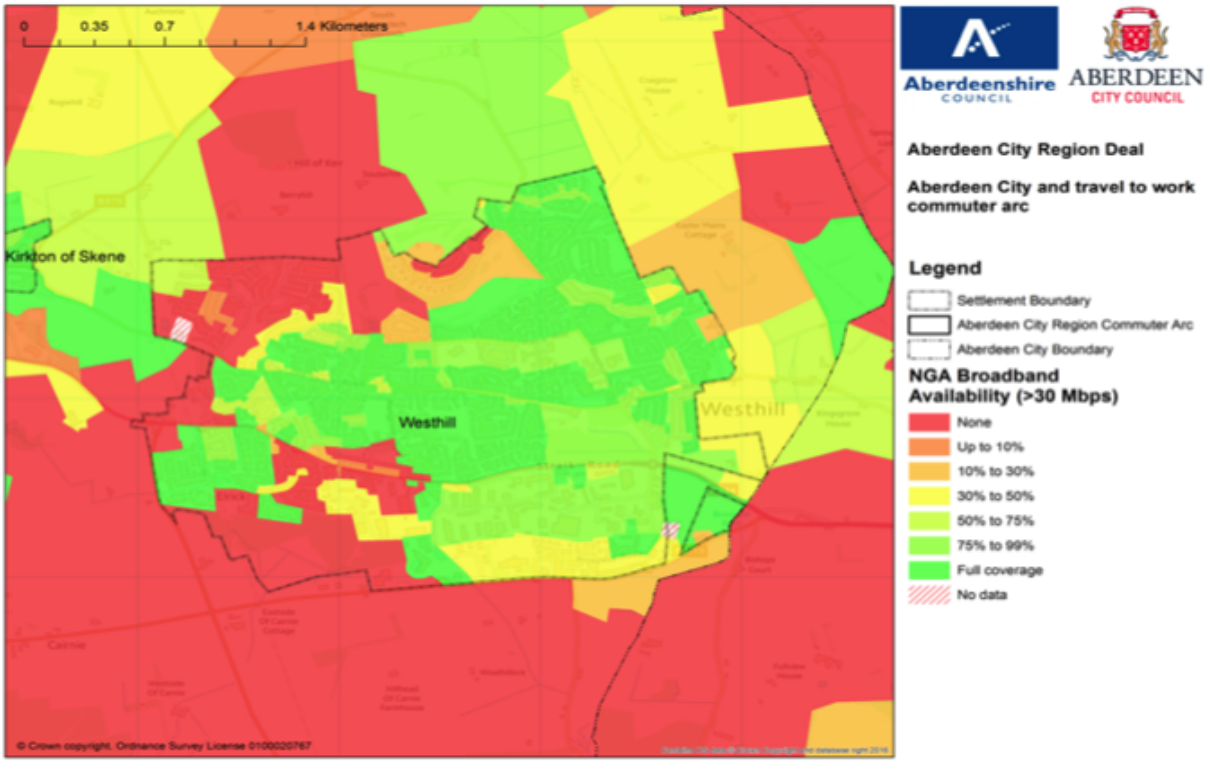
Appendix A

GAP Analysis - NGA Availability

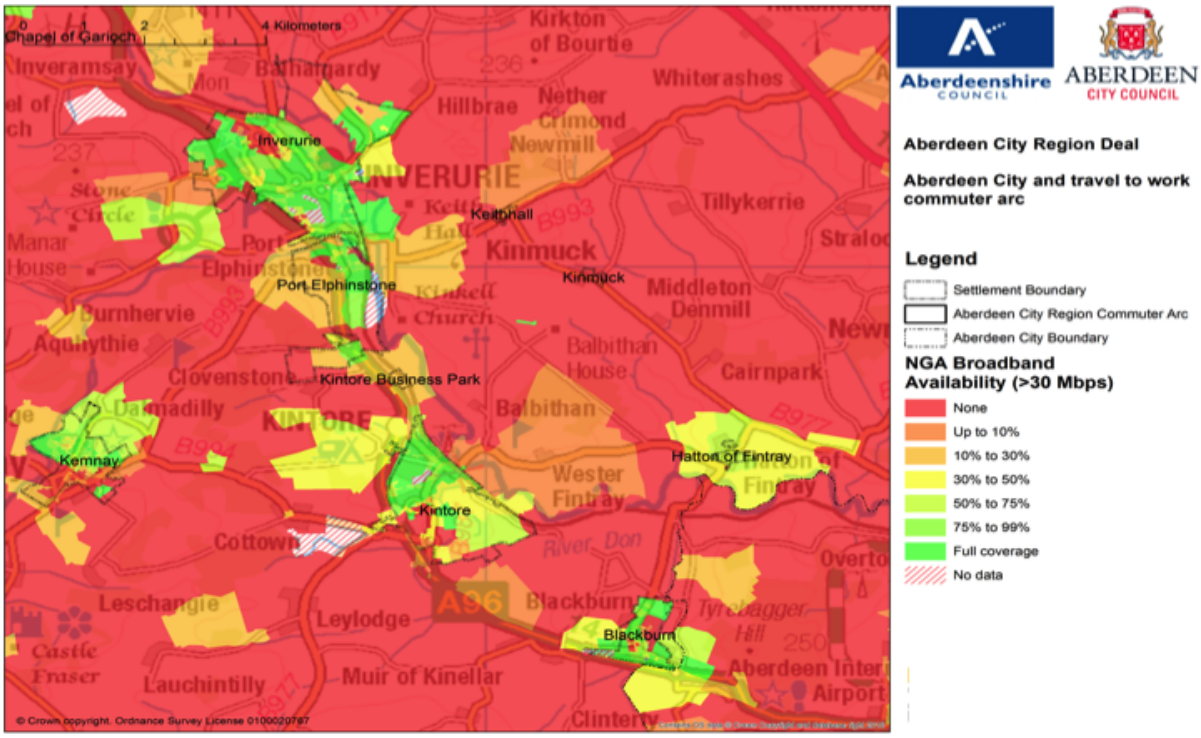
ABERDEEN CITY – 84% NGA – 18,000 White Premises



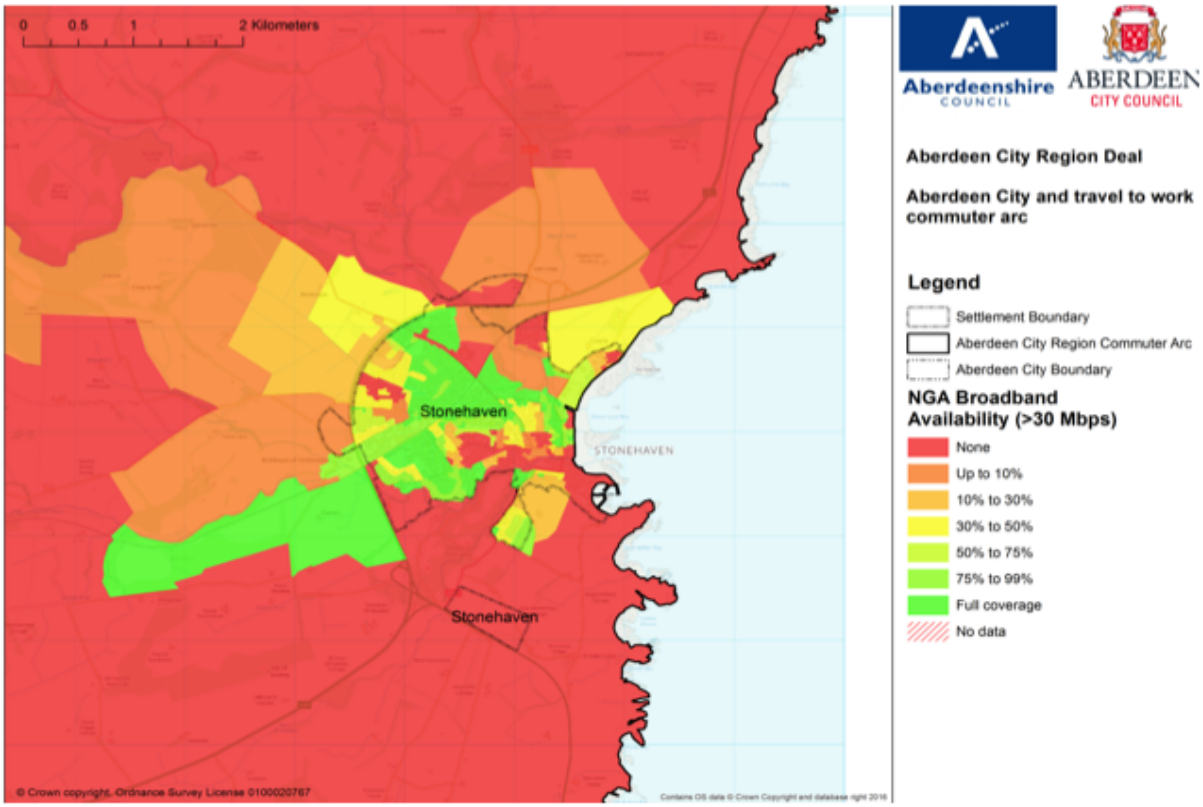
WESTHILL – 80% NGA – 1000 White Premises



INVERURIE, BLACKBURN, KINTORE – 80-85% NGA - 1500 White Premises



STONEHAVEN – 62% NGA - 2000 White Premis



Appendix C

Assumptions regarding Current Service Availability (Table 1.1)

It should be noted that there are, on average, multiple lines per premise in the region. If we take the Aberdeenshire travel to work area:

- There are 48224 premises in the area (line 1)
- There are 52863 lines on these premises (line 2) ie 1.09 lines per premise
- There are 35155 NGA enabled lines (line 4) which equates to 66.5% of all lines.....therefore 33.5% of all lines are NOT NGA enabled
- If we apply this line % to the premise data we have 48224 premises x 33.5% = 16154 white premises

However in addition there are also premises that are NGA enabled but are not receiving 30Mbps.

- In Aberdeenshire this is 66.5% (NGA enabled) - 58.73% (>30Mps) = 7.775% of all lines
- 7.775% of Aberdeenshire premises = 48224*7.775% = 3749

Thus the estimated total number of white premises in Aberdeenshire = 16154 (receiving no NGA) + 3749 (NGA enabled but not getting 30Mbps) = 19903 (Line 6)

Note - The number of white lines has not been presented as this is not a standard term but in fact it would be the total number of lines (52863) - NGA enabled lines (35155) = 17708.

Of the 35155 NGA enabled lines 31045 are delivering >30Mbps and 4110 are delivering <30Mps

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Appendix D

GLOSSARY OF TERMS

4G - The fourth generation of mobile networks. 4G offers users faster, more reliable mobile broadband internet for devices like smartphones, tablets and laptops. A 4G system must provide capabilities defined by the International Telecommunications Union. Potential and current applications include amended mobile web access, IP telephony, gaming services, high-definition mobile TV, video conferencing, and 3D television.

5G - 5th generation mobile networks or 5th generation wireless systems, abbreviated 5G, are the proposed next telecommunications standards beyond the current 4G standards. Rather than faster peak Internet connection speeds, 5G planning aims at higher capacity than current 4G, allowing higher number of mobile broadband users per area unit, and allowing consumption of higher data quantities.

Backhaul – The transfer of data to a point in the telecommunications infrastructure from which it can be distributed over a network (notably internet).

BDUK - Broadband Delivery UK is part of the Department for Culture, Media and Sport, responsible delivering superfast broadband and better mobile connectivity to the nation. This includes setting of policy, funding and procurement activities.

Big Data - A term for data sets that are so large or complex that traditional data processing applications are inadequate to deal with them. Challenges include analysis, capture, data curation, search, sharing, storage, transfer, visualization, querying, updating and information privacy. The term "big data" often refers simply to the use of predictive analytics, user behaviour analytics, or certain other advanced data analytics methods that extract value from data, and seldom to a particular size of data set

Duct Network – A physical channel or tube, typically installed alongside a road for the housing of fibre optic cable.

FTTP - Fibre to the Premise is a broadband network architecture using optical fibre to provide all of the local loop from the telecommunication network to the end user premises.

(white area) In-fill - The installation of NGA services to premises that are currently un-served by the market – ie filling in gaps of coverage.

ISP - Internet Service Provider

Mbps - Megabits per second

NGA - Next Generation Access. Defined by Ofcom as 'new or upgraded networks that will allow substantial improvements in broadband speeds and quality'.

OGTC - Oil & Gas Technology Centre

R100 - Scottish Government's national programme to improve digital infrastructure and provide all premises in Scotland with a minimum of 30Mbps download speed

SWAN - The Scottish Wide Area Network (SWAN) is a Scottish Government led programme in partnership with the wider public sector created as a response to the McClelland review of ICT infrastructure in the Scottish Public Sector enabling connectivity for public sector sites across Scotland

Superfast Broadband - Super-fast broadband in UK is generally taken to mean broadband products that provide a maximum download speed that is greater than 24 Mbits. However the EU define superfast services as having a speed of 30Mbps and this is the definition to be used by UK in all future procurements.

Ultrafast Broadband - Ultrafast broadband are broadband products that provide a maximum download speed that is greater than 100 Mbit/s.

White Premise - Premise where no commercial operator is offering NGA services

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