

# Digital Shetland

2014-2017





# The Vision

The Shetland Islands Council's adoption of the 2011 Digital Shetland strategy paved the way for the most significant change to telecommunications in Shetland for many years.

Guided by this strategy the Council's investment in fibre optic infrastructure has furnished communications providers with the means to deliver services to customers in Shetland that are equivalent to or better than those available in many areas of the UK mainland. The focus now has to be on how consumers and businesses can fully benefit from the advantages of improved telecommunications.

There is still much to do and this document sets out the priorities and strategy to achieve a fit for purpose telecommunications infrastructure for generations to come.

## Introduction and Background

The Shetland Islands Council believes that fast and reliable broadband throughout Shetland will be both transformational and will have a significant positive impact for communities across the isles.

The ever-increasing demand for digital technologies is as big an issue for Shetland as it is for the rest of the developed world. Modern business is now dependant on telecoms. Trading online, e-mail, networking, video conferencing are all vital for new and existing business. Even the traditional industries such as fisheries and agriculture depend on new technologies to trade. Service industries such as Finance, Creative Industries, Commerce, Manufacturing, etc., all need improved services.

The public sector is facing ever more pressure to deliver services more efficiently and at less cost. The use of telecommunications will be a key element in changing the way the public sector operates to ensure efficiency and improve the services provided to the public. Telehealth, Telecare, Video Conferencing and Online Learning are a manifestation of this need to provide better services at reduced cost. To support the full range of education, health and social services in remote and rural communities will necessitate advanced use of technology and communications. As communications services improve, specialist services that currently require expensive and time consuming travel will be offered remotely. In a rural community like Shetland the benefits of extending and improving these services is of paramount importance.

Through ingenuity and innovation the Shetlands Islands Council is delivering fibre optic infrastructure in Shetland which is of the highest standard and also open and accessible. By connecting to the Point of Presence (PoP) based at Lystina in Lerwick, telecommunication providers can gain access to a fully fibre optic, open access, resilient backhaul network. This PoP now provides services for a number of telecommunication providers which has in turn allowed them the opportunity to deliver services previously unavailable in Shetland.

The Council's investment in the fibre optic network has had a transformational effect on telecommunications in Shetland, however the domestic customer has seen little change. Ethernet and other business services have been greatly improved but it is fair to say that significant work now needs to be done to transfer the benefits of this new connectivity to homes and businesses across Shetland.

### **Access to Broadband**

The principle network providing telecoms services to domestic users and the private sector in Shetland is the network owned and operated by BT.

All BT Exchanges in Shetland can deliver some form of ADSL (Broadband). Lerwick is currently the only area which delivers BT's 21-CN network (commonly referred to as BT's 'up to' 16Mbps service). The majority of the others deliver ADSL2 which can deliver speeds of up to 8Mbps. A few exchanges have 'Exchange Activate' which provides speeds of 0.5Mbps.

Working with Highlands and Islands Enterprise, BT will provide welcome upgrades to broadband services in many areas of Shetland through the UK Government's BDUK (Broadband Delivery UK) project.

The majority of upgrades will happen before the end of 2016.

Shetland Islands Council will support HIE, BT and any other communications provider to deliver improvements to broadband in Shetland.

### **The Digital Divide**

While faster broadband will be appreciated where available, there remains a sizable percentage of communities and areas where little or no improvements are currently planned as part of the BDUK project.

It is important to note that the BT/HIE upgrade will be providing Fibre to the Cabinet (FTTC) solutions in the most part. The existing copper lines will provide the connection to the premise. The use of the copper means that speeds achieved in the home will be dependent on how far the property is from the cabinet. Any premise within 1.3km of the cabinet is likely to get 'Next Generation' (>30Mbps) speeds.

Connecting the rest of Shetland will be challenging but necessary to ensure all areas can access modern broadband services. Without access to improved services, digital participation, modern living and economically viable rural business will be compromised.

## **Broadband Targets**

The Scottish Government has set the target for 85% of Scotland to get Next Generation Broadband (>30Mbps) by the end of 2015 and 95% by the end of 2017<sup>6</sup>. By 2020 Scotland is to have 'world class' broadband infrastructure<sup>7</sup>.

Highlands and Islands Enterprise have set a target of 75% of Shetland premises to get Next Generation Access<sup>8</sup> by the end of 2016 through their BDUK scheme.

Shetland Islands Councils target is that 84% of the Shetland population should have access to high speed broadband by the end of 2017<sup>9</sup>.

It is unclear at the moment how many premises will actually receive 'Next Generation' speeds (>30Mbps) through the BDUK project but it is clear that if the Shetland Islands Council intends on ensuring 84% coverage then a significant amount of work is going to have to be done to achieve this.

## **Mobile**

Mobile phone coverage in the islands is fragmented and in some areas nonexistent.

Government initiatives such as the Mobile Infrastructure Project are progressing slowly while other schemes posit the delivery of superfast broadband over 4G mobile as the best means of achieving government targets for broadband penetration.

Shetland Islands Council will continue to work with mobile operators to further develop coverage and services in Shetland.

A recent survey by the Federation of Small Businesses puts Shetland last in terms of 2G/3G mobile phone coverage in Scotland (and therefore the UK).

## **Economic Growth and Sustainability**

Many of the Shetland Performance Framework measurements<sup>10</sup> are dependent on the islands having equivalent or better telecommunication services than those available to the rest of the UK.

Maintaining the number of economically active people in the isles, necessary to maintain and grow the Shetland economy, will require a real growth in population as the average age rises. Shetland will need to attract new businesses which will to a large extent be dependent on improvements in telecommunications. There is widespread agreement that fast and reliable broadband will be transformational and have the potential for significant savings.

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<sup>6</sup> <http://www.digitalscotland.org/superfast-broadband/the-programme/>

<sup>7</sup> <http://www.scotland.gov.uk/Topics/Economy/digital/Digital-Dialogue/ExploringDigitalDialogue>

<sup>8</sup> Next Generation Access means connected to but not necessarily getting Next Generation speeds

<sup>9</sup> [http://www.shetland.gov.uk/documents/Final5Corporate\\_Plan\\_Publisher\\_14\\_Aug\\_2013.pdf](http://www.shetland.gov.uk/documents/Final5Corporate_Plan_Publisher_14_Aug_2013.pdf)

<sup>10</sup> Shetland Community Planning Partnership, "Shetland Single Outcome Agreement 2012/15," 3.

The 2011 Digital Shetland Strategy stated that Shetland Islands Council will

*“.... complete the provision of a resilient broadband link to Lerwick; equip a Point-of-Presence in Lerwick; encourage existing telecommunication companies to make full use of the new telecommunications infrastructure; produce a plan to provide high-speed broadband to benefit peripheral communities....”*

Having achieved these targets and with the ongoing development of the HIE/BT project there is a need to refresh the 2011 Digital Shetland Strategy.

## The Way Forward

Further development of the islands telecommunications networks is needed to ensure that as many homes and businesses can access better services.

Piecemeal improvements to the islands' networks without an overall strategy will result in a disjointed set of solutions that will not be cost effective, will be inefficient, and will result in networks that do not provide an optimal or all encompassing solution. Development of the networks needs to be planned to ensure the best results are achieved for Shetland, costs are kept to a minimum, the network is accessible and any investment is future-proof.

The benefits of cooperative working are already apparent as the backhaul networks are being utilised by communications providers to enhance their service offerings in the islands.

The Council's target of high-speed broadband availability to 84%<sup>11</sup> of the Shetland population by 2017 is challenging and will only be reached by:

- ✓ Working with communities, Government, regional development agencies and communications providers to extend and improve Shetlands access network
- ✓ Working with existing communications providers to deliver a broad range of domestic and business broadband services to customers
- ✓ Planning and delivering the rollout of new networks and providing world class connectivity to Community Hubs across Shetland
- ✓ Developing robust socio economic support for Shetland Islands Council capital funding to deliver improvements in telecommunications networks.

The innovative methods employed by Shetlands Islands Council is delivering fibre optic infrastructure in Shetland which is affordable, of the highest standard and also open and accessible. Communication providers access this fully fibre optic backhaul network through the Council's Point of Presence (PoP) at Lystina in Lerwick.

Large areas of Shetland will not see any improvements in service through the BDUK project. It will therefore be necessary to develop projects with communities to ensure that these areas, which will not benefit through the BDUK scheme, can access broadband services. Extending the Shetland Islands Council's network will ensure the availability of backhaul connections for Community Schemes as well as provide services to Council operations. The Council's own use of the network for communications between offices, schools and dispersed workers is an important technical and financial driver for future investment.

Open access to this network will be ensured so that existing and new communications providers can extend their services to end users.

Development of the network will be carried out in cooperation with communications providers, mobile operators, Shetland businesses, communities and the public sector.

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<sup>11</sup> SIC, "SIC Corporate Plan 2013-17," 10.

We will:

- ✓ Design the network around the need to provide SIC premises across Shetland with a network that is able to meet their educational, business and service needs for the next 20 years
- ✓ Plan to replace those parts of the Council's network that are not able to meet the growing needs of Council users
- ✓ Design the network to support business growth
- ✓ Design the network to support and enable communities to access world class broadband
- ✓ Design the network around the needs of the wider public sector in Shetland
- ✓ Provide open access wholesale services on the Council's fibre optic network

It is critical that any investment is tailored to ensure that as many communities as possible can benefit from improved broadband connectivity. The UK Government's strategy to improve telecommunications supports the provision of Community Hubs across the UK. The Community Hub is a point within the community where a fibre optic backbone network terminates which can then be used to supply connections for a number of digital based services including: -

- Community broadband schemes
- Communications provider access networks
- Mobile phone operators
- Public sector sites
- Private sector customers

Working with stakeholders from the telecommunications industry, Government, local businesses and community groups, will identify likely locations for a Community Hub. These could be a Council/public sector building, a school, health centre, library, office, or a building owned by a communications provider i.e. a telephone exchange or a street cabinet.

The technology used for connecting the last mile will depend to a large extent on the needs of the customers in that location and the cost of making a connection to the Community Hub. The provision of linked Community Hubs allows communities to come together and decide which access network option best suits their needs.

In areas where there is an identifiable financial return, the access network might be provided by a communications provider. In other cases the access network may be installed by the local community.



We will:

- ✓ Identify where Community Hubs are required
- ✓ Design and cost each identified Community Hub and include these in the appropriate capital program gateway report
- ✓ Encourage and provide technical support for communications providers to deliver access network improvements
- ✓ Stimulate demand for improved broadband services
- ✓ Encourage and support Community Broadband Schemes
- ✓ Provide a blueprint for connecting to a Community Hub
- ✓ Work with communications providers to ensure that as broad a range of services as possible are available to end users in Shetland

# Action Areas

Active participation and assistance will be required by a number of parties to achieve the level of telecommunications coverage and range of services that are required, including communications providers, Government Agencies and funding bodies.

## Mobile

The most significant area for extending access coverage is the development of 4G and 5G mobile. The mobile phone industry in the UK, Europe, US and Asia is rolling out 4G coverage. 4G services can typically deliver speeds of 10Mbps to mobile devices and theoretically can achieve 40Mbps or more. In Shetland there is no 4G, very limited 3G and in many parts there is no mobile coverage whatsoever.

The UK Government's Mobile Infrastructure Project (MIP) is trying to eliminate mobile 'not-spots'. To date the project has been hampered by the cost of affordable backhaul. The mobile operators problem is that this cost in remote and rural areas is high while the number of potential customers is low making for a very difficult investment case.

We will:

- ✓ Work with mobile operators, infrastructure providers and Government agencies to develop a solution which will improve mobile services in Shetland.

## Communications providers

The large UK communications providers have an important role to play in the development of improved services in Shetland. Any and all work done by Shetland Islands Council needs to assist them wherever possible and should not duplicate or replace commercial ventures.

We will:

- ✓ Work in partnership with communications providers wherever and whenever possible.

## Community Broadband

Domestic customers will see improvements based on where BT roll out their Fibre to the Cabinet (FTTC) service. There will still be a sizable percentage of Shetland premises, possibly as many as 45%, which will see no improvement. The BDUK project does not have sufficient funds to extend this coverage, it is anticipated that reaching the final 25% of premises will cost three times as much as the first 75%.

Good reliable broadband is considered a vital part of modern living and working. Poor, or in some places no broadband, will render these areas useless for business and disadvantaged for modern living.

Community Broadband Scotland (CBS) has been established to provide advice, guidance and funding for community owned broadband schemes.

We will:

- ✓ Continue to provide guidance for communities seeking better broadband and encourage as many as possible to work with Community Broadband Scotland.

## **Economic Growth**

It is critical for a modern economy to have access to the best telecommunications services available. It is also as important that businesses use these as effectively as possible to make their operations as efficient as possible. It is important that we understand the types of services required by business in Shetland and ensure their needs are met. We need to encourage as many businesses as possible to adopt new practices to fully benefit from the new telecommunications services available.

We will:

- ✓ Continue to work with business sectors and development areas to ensure that they can develop and grow.

## **Public Sector**

As budgets come under pressure there is a growing need for the public sector to improve services and cut costs. New developments in Health Services, Social Services and Education can help achieve this.

We will:

- ✓ Continue to develop network solutions capable of delivering improved services for the public sector.

# Scope

Digital Shetland sets out the aspirations for Shetland's telecommunications future. It is broad reaching but not all-inclusive.

Coordinating the work of agencies in Shetland and liaising with other national and international bodies will ensure that the best value and optimum results can be achieved. It will also be important to work with established communications providers to ensure that there is no unnecessary duplication of effort and that the maximum can be achieved with any investment.

The scope includes:

- ✓ Supporting the BDUK project. We will continue dialogue with BT/HIE to assist and deliver the local programme to maximise the benefits of the project.
- ✓ Identification of Communities who will not benefit from current BDUK project.
- ✓ Negotiating with Government agencies, the European Union, communications providers and mobile operators to ensure the best telecommunications solution for Shetland
- ✓ Working with other network owners and operators to ensure that a common set of standards are developed and implemented and to avoid duplication of network assets where possible
- ✓ Working with network operators to ensure that Shetland prices are comparable with those available on the UK mainland
- ✓ Liaising and cooperating with other public sector organisations in order to help meet the needs of these bodies in Shetland
- ✓ Ensuring that any investment is based on the best technology available and takes into account any and all developments in telecommunications
- ✓ Working with development agencies, Government departments, public sector bodies and communications providers. The project will need to ensure, value for money in the delivery of the network, the long term value of the asset, and its continued usability

The scope does not include:

- ✗ The provision of a Shetland access network
- ✗ Provision of mobile, fixed line or IP telephony

## The Final Word

Shetland is a vibrant community, which has never been backward in stepping forward. Our resilient islands need resilient communications in order to compete, prosper and develop. This strategy continues down the path begun in 2011 which will ensure that Shetland remains at the forefront of commerce, creativity, innovation and education for generations to come.

The BDUK project provides a welcome and significant improvement for Shetland. Further development and improvements will however still be required. The target of 74% coverage is lower than most other areas of the UK. This coupled with having the worst mobile phone coverage means that we need a concerted and coordinated approach to further development of telecommunications services for Shetland if our community and businesses are going to prosper.

The rapid successes achieved so far make it easy to forget that the 2011 Digital Shetland strategy was born out of the long term failure of the market to develop adequate services in Shetland. As the Strategy evolves, the purely financial case will reduce further as each development becomes more remote. Modern life and modern business requires good telecommunications and that applies whether you live in Birmingham or Baltasound.

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