

# Broadband in Herefordshire

Strategy for Delivery - Fibre at the Core

February 2011



# Overview

The broadband vision for Herefordshire is to enable a fast and affordable broadband service that contributes to better outcomes for all people in the county, with greater range of service delivery, competitive advantage for businesses and escalated learning opportunities. This will be achieved through the ambition of 90% of homes and all business premises having the opportunity to connect to a superfast broadband service offering at least 40Mbps download speed and better than 10Mbps upload speed, by 2015.

In the short term, by the end of 2012 progress should have been made by private initiatives for all homes and premises to have access to broadband at speeds of 4Mbps. By 2020 50% of homes and businesses should have the opportunity to access 100Mbps download speed with a choice of upload speeds. Broadband services in Herefordshire must be affordable to the user and in most cases offer a choice of Internet Service Provider.

How the vision should be delivered is subject to a range of technical options, but the majority of homes and premises should be served by a county wide fibre optic infrastructure. New homes and new premises on business parks should be built by their developers with fibre optic connections.

In the light of the new emphasis on superfast broadband and the government intention to have a broadband service that is "best in Europe" it is intended to focus on the delivery of optical fibre into rural areas and ideally to the home. The county will concentrate on establishing the optimal approaches of eventually delivering fibre to the home (FTTH) and the benefits that superfast broadband brings.

It is recognised that FTTH will be expensive and time consuming to deliver, and therefore this needs to be addressed in stages. In some cases fibre to a cabinet in a community may be the first stage, with wireless or copper for the final connection to homes and business premises until the time is right to complete a fibre connection in a cost effective way. This to be balanced with delivery of wireless broadband, or improvements in BT services, where short term opportunities arise to help residents not able to access effective broadband service.



# Strategy for Delivery - Fibre at the Core

## Vision

For Herefordshire to have fast and affordable broadband service that contributes to better outcomes for all people in the county, with greater range of service delivery, competitive advantage for businesses and escalated learning opportunities.

## Ambition

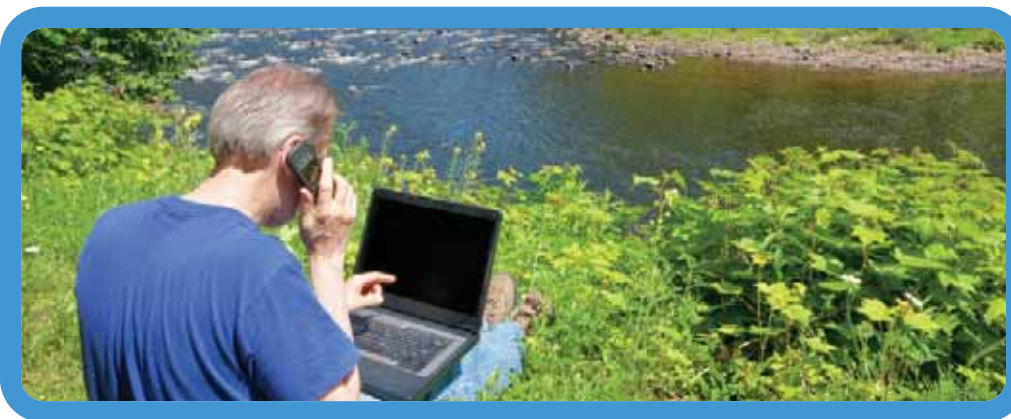
90% of homes and all business premises having the opportunity to connect to a superfast broadband service offering at least 40Mbps download speed and better than 10Mbps upload speed, by 2015.

To work with private sector providers for all homes and premises to have affordable access to broadband at speeds of 4Mbps by the end of 2012.

By 2020 50% of homes and businesses should have the opportunity to access 100Mbps download speed with a choice of upload speeds.

## Aims

- **Connectivity** - To improve and extend the communications infrastructure to enable superfast broadband to be delivered in the county
- **Services** - To maximise use of broadband technologies to enhance services to the public and create more cost effective delivery
- **Usage** - To raise awareness and use of broadband opportunities within businesses and communities
- **Community** - Work with communities to find local solutions to broadband coverage



# Benefits to Services, Business and Community

By investing in a county wide fibre network Herefordshire Public Services would provide the maximum flexibility for its own operations in the future, with the prospect of reduced costs in the longer term. Home working for employees could be extended even further, with video conferencing over a >4Mbs synchronous service allowing individuals to meet without leaving home.

Traffic congestion in Hereford, and overall CO2 levels, would be reduced if fewer people needed to travel to work on a regular basis. This could have an effect on the road maintenance budget and new interactive services could make it possible to compensate for reducing subsidies for rural bus services.

Accessing services in a rural area has its own challenges, but the provision of broadband in specific areas of need and across the board would allow people that require these services to be helped more effectively and at reduced cost, with people not having to travel to market towns and the city to access services and shorter stays in hospital for example. More of Herefordshire's residents would be able to benefit from the savings that can be obtained from the wide range of services on line, and from the wide range of information that can be found.

Superfast broadband would open up the possibility of becoming involved in higher education programmes anywhere in the country, or globally, through effective video-conferencing. Also, Herefordshire already attracts many people from urban areas who are looking for a more rural lifestyle, but this will stop if a fast broadband service is not available. However, if Herefordshire is quick to implement a superfast broadband service in its rural areas it could become the location of choice for many entrepreneurs who want the best of all worlds.

Fast broadband allows virtual companies to be formed with employees all over the globe, sharing information on the internet and communicating with video conferencing. New opportunities for better paid jobs would be opened up for Herefordshire residents in rural locations, and help to improve the county economy.



# Fibre-up the County

Optical fibre has no practical maximum bandwidth, and therefore is fully scaleable to meet whatever requirement emerges in the future (subject to changing some of the electronics). It has a long life and if laid in ducting can be replaced at relatively low cost.

There would be no known internet based services that could not be delivered over fibre, and it provides the ideal solution for sophisticated tele-healthcare and video applications, where huge amounts of information need to be uploaded and downloaded in real time. Other parts of the country are investing in fibre networks providing open access to any Internet Service Provider (ISP) and standards to provide interoperability are being developed through the Independent Networks Cooperative Association (INCA).

However, the most robust and scaleable option, FTTH, is costly and will take time to deliver to the whole county. Key to its affordability and the business case for its implementation is to achieve a 40% take up of the superfast broadband service it offers. Rural areas have already been shown by research to be heavier users of the internet than urban areas despite having less coverage, but to achieve the 40% take up of a new superfast broadband greater awareness and training needs to take place to highlight the greater benefits that it can bring. This includes adapting services to make the most of technologies so people can access better services by investing in superfast broadband.



# Broadband Delivery for Herefordshire

The implementation of the BDUK pilot in south of the county provides an opportunity for enabling the whole of Herefordshire. The pilot project will provide at least £5M (partly split with Gloucestershire and Wales) so an initial area can be enabled and the problems, benefits, take-up and usage can be more accurately assessed. Provided that the pilot is recognised by its users to provide real benefits and this is shown in the demand for the service, this in turn should improve the business case for the provider to extend the superfast service more widely.

To maximise the use of the BDUK funds the focus will be on extending a fibre network infrastructure as far as possible into rural areas, and where the final "mile" service is not easily achievable by the provider (e.g. where the distances involved prevent use of existing copper circuits) to allow local communities or other providers to deliver the fast services to more remote homes and businesses.

This may require a separate funding stream to match fund a community's own investment in this local loop unbundling, and a community may partner with an alternative provider to deliver the service. The success of this approach would depend on the involvement of communities, possibly through Parish Councils and the parish plan process. In some rural areas the communities have worked together with local landowners and farmers to lay ducting through fields, rather than roads, and have been able to lay fibre at less than 20% of normal costs. A rule of thumb for cost of delivering a fibre optic connection in this situation is between £1,000 and £2,500 per premises/home, but other technologies can provide a fast service at a lower initial cost. There is also scope through the planning system for ensuring that any major development in a rural area, including wind turbines or anaerobic digesters, include the provision of a fibre connection for the local community.

To address some of the wider challenges of providing broadband and to provide some short term solutions there is opportunity to maximise other technologies such as wireless, satellite or Broadband Enabling Technology (BET). Communities that want to pursue these solutions would benefit from advice and support, small loans or helped to find funding from other sources.

Herefordshire is fortunate to have several wireless broadband providers in the county, with Airband Community Internet and Allpay Broadband particularly active. Airband is now providing up to 20Mbps synchronous wireless services to some organisations north of Leominster and is able to provide a 1Gbps backhaul to maintain the service when demand requires. It is focusing on business demand but can support residential users. Airband also has a similar service south of Hereford at Rotherwas, with up to 400Mbps backhaul.

Allpay is a highly successful electronic payment company that started in the county and has decided to invest in Herefordshire by installing the infrastructure for a county-wide wireless broadband service to meet potential demand in rural areas. Allpay currently offer 4Mbps services to businesses and residential users in Kingstone and Allensmore with complete county coverage expected during 2011.

Both these companies, and other wireless broadband providers in the county, will be well placed to build on a high capacity wholesale broadband service based on a fibre optic infrastructure, and enabled by the pilot project, to deliver 20Mb services to more sparsely populated rural areas.

# Financing through a partnership approach

Different approaches with different levels of service to homes make it difficult to estimate costs of providing a superfast broadband service to the whole county with any certainty. Previous estimates have suggested that the total cost for Herefordshire might be £130M, but recent contracts awarded in Northern Ireland and Cornwall suggest that the cost could be significantly less, and perhaps nearer half that estimated.

The different technologies that can be used to deliver broadband services each have their own implementation and operational costs, and one that is cheap to implement may be much more expensive to operate over a long period of 25 years. The pilot scheme will be used to see what the different telecoms providers can deliver to enable the maximum number of homes with a fast broadband service at minimum cost.

Whatever the cost may be, the investment required for a county wide fast broadband service would deter the private sector from investing on its own. However, a 40% take up of the faster service from all homes would generate additional income, and a connection charge could be used to contribute to initial costs. In addition to this, higher levels of rental income would be obtained from larger businesses and Herefordshire Public Services, and some of the savings made from maximising technology to deliver services (e.g. tele-healthcare) could also be used to fund the programme. When considered over the long term, such as 25 years, the costs do become more manageable. By tackling work in stages (e.g. by simply taking fibre to a community in the first instance) there may be scope for spreading costs while delivering early benefits for people who are keen to take the service or who need it.

Community involvement may be needed to drive demand for superfast broadband and increase take-up, and may also be required to help support some residents.

Members of the community could invest in the local network in return for a guaranteed dividend, possibly making use of funds where a guarantee of income is particularly important. Community commitment to take a service at a fixed cost for a period of a few years could also be used to leverage loan funding for the investment. If the organisation vehicle used was some form of social enterprise any profits made could be re-invested in other community schemes.

A private sector partner could also be expected to invest in community schemes, depending on the extent to which they could share in profits. EU funding is still a possibility, as broadband in rural areas will remain a major issue for Europe for some time. The coalition government has already identified extra funding from the BBC digital switchover programme to be used to enable broadband in rural areas, and there may be further funding in future.



# Next Steps

- Completion of the broadband pilot tender to maximise the number of residents and businesses benefiting in Herefordshire, and provide a basis for seamless continuation of superfast broadband delivery in the rest of the county – aiming to start delivery of the pilot infrastructure improvements in autumn 2011.
- Continue to explore funding sources for broadband infrastructure improvements and delivery of better services.
- Support the wireless schemes in the county, particularly Allpay and Airband as well as enabling community specific solutions.
- Review plans for delivery of HPS services to make better use of internet based opportunities, take advantage of both the pilot and wireless broadband services available, make savings for the Public Services, and increase demand for fast broadband services.
- Engage with businesses to promote opportunities from fast broadband, (such as global markets for sourcing and selling, social network marketing, co-operative ventures, cloud computing, offering new services to other businesses or the public) and help generate demand and eventual take-up.
- Engage with communities and voluntary sector to highlight opportunities and encourage consumer demand, as well as exploring how to involve the digitally excluded and provide them with ongoing support.

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