



**North Yorkshire County Council
Richmond (Yorks) Constituency Committee – 20 November 2019
Mobile Communications Update**

1.0 Purpose of the Report

- 1.1 This report is to provide an update on Mobile Phone Coverage Programme with a particular focus on the Richmond area.

2.0 Update - General

- 2.1 North Yorkshire is poorly served when it comes to mobile phone coverage with only 19% indoor coverage by all four operators and 65% geographic coverage by one of the operators compared to 91% nationally.
- 2.2 The Mobile Communications Strategy sets out what NYCC are doing to overcome the issues and in doing so, become a National rural exemplar for improving mobile coverage and a place where mobile operators choose to do business. (see Appendix 1)
- 2.3 Mobile phone coverage increase has slowed over the last year with Mobile Network Operators (MNO's) concentrating on upgrading their existing network to 4G and introducing new mobile services ie voice over 4G. This is clearly indicated by the number of planning applications received for new infrastructure, 9 in 2017, 1 in 2018 and 0 in 2019 within Richmond.
- 2.4 One reason for this is that the MNO's were anticipating to have to improve coverage as part of a new spectrum deal and therefore did not want to increase prior to it being mandated. However this has been superseded by the Shared Rural Network. (see section below)
- 2.5 The new voice over 4G service provides improved mobile phone coverage however you must have a handset that supports the service and be on a contract that permits calls over it.

3.0 NYCC Infrastructure Programme

- 3.1 NYCC secured £1m funding from York, North Yorkshire, East Riding (YNYER) Local Enterprise Partnership (LEP) and have identified a opportunity to improve mobile phone coverage.
- 3.2 Due to State Aid Rules NYCC are only allowed to intervene where there is no 4G mobile phone coverage by any operator, this is called a "not spot".

- 3.3 NYCC tendering exercise attracted three bidders for potentially six sites, however none of the MNO's submitted a bid despite showing interest in earlier market engagement stages of the process. Arqiva were appointed as our preferred partner in the project in January 2019. Arqiva are an independent infrastructure provider with over 8,000 installations nationwide.
- 3.4 The contract model NYCC are using ensures that prior to building any infrastructure at least one anchor tenant (MNO) must be signed up who will provide improved mobile coverage.
- 3.5 The response from the MNO's has generally been poor and the reasons believed for this are:
- 3.5.1 Operators are currently not incentivised nationally to improve their network coverage.
- 3.5.2 The 700Mhz/3.6-3.8Ghz spectrum auction at the end of 2019 by Ofcom has coverage obligations attached to it. MNO's do not want to expand prior to having to under the licencing obligations.

4.0 Shared Rural Network

- 4.1 To overcome Ofcom mandated licencing obligations within the 700Mhz/3.6-3.8Ghz spectrum auction the MNO's proposed a [Shared Rural Network](#), which has received the backing of government following successful lobbying by NYCC officers.
- 4.2 There are three key elements to the Shared Rural Network
- The MNO's are to share existing infrastructure which will remove areas where only one operator has coverage.(partial not spots)
 - The government are to make available the Emergency Services Masts to be used by all the mobile operators.
 - The MNO's are forming a company to manage the roll out of new infrastructure for all operators and are promising 95% geographic 4G coverage by 2025.
- 4.3 This is the first time all four mobile operators are to work together to provide coverage to rural areas.
- 4.4 Key to this succeeding is enabling the deployment of the right infrastructure to support multi operator occupancy, i.e. lattice mast rather than pole masts.
- 4.4 NYCC will be working closely with DCMS and the MNO's to ensure that we can enable this to happen at the earliest opportunity in North Yorkshire.

5.0 Emergency Services Network

- 5.1 The current Emergency Services Network "Airwave" is to be replaced with a service utilising BT/EE's network infrastructure.
- 5.2 The new network involves BT/EE extending their own network (ESN) and government funding infrastructure Extended Area Services (EAS).

5.3 The EAS scheme will see 24 new masts in North Yorkshire (9 within Richmond) with the ESN delivering a further 12 currently. The scheme was originally due for completion in 2020, it has been extended to 2023 however we are seeing progress with the masts at; Land off B6255 near Hawes, Crow Tree Farm Gunnerside and Dixon Gill Bradley beginning to be built. Appendix 2 shows the proposed current location of the masts.

5.4 With the Shared Rural Network proposal being accepted this means that EAS & ESN infrastructure will have commercial services provided from them by all operators wherever possible.

6.0 5G Rural Connected Communities Bid

6.1 The government have launched a 5G Rural Connected Communities project (RCC) which will support the overall strategy for improving mobile coverage and driving successful 5G implementation in the UK by;

- Improving the case for investment in rural network deployment by testing new commercial and technical solutions for more efficient deployment of advanced network infrastructure including 5G.
- Support the business case for 5G by building and improving demand from new use cases that incentivise investment in rural areas.

6.2 NYCC are part of a consortium of SME's and Academia who have bid for monies to improve mobile phone coverage in areas with additional Use Cases being Health and Wellbeing tackling loneliness and improving remote care, tourism and early flood warning.

6.3 Subject to a successful bid and public consultation the areas currently identified for the trial within Richmond district are;

- Reeth, Hudswell, Marske, Grinton, Muker
- North Coverdale, Leyburn, Middleham, Harmby

7.0 Recommendation

NYCC recommend that Richmond Area Constituency Committee note

7.1 NYCC's approach to improving mobile phone coverage throughout Richmond and North Yorkshire including the bid for 5G Rural Connected Communities funding from DCMS.

7.2 The Shared Rural Network proposed by the MNO's and backed by £1b of government and private sector funds to improve rural mobile coverage.

7.3 The new Emergency Services Network and Extended Area Services program delay however masts are beginning to be built and will be commercially available to all operators moving forward.

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08/11/19

Mobile Communications Strategy



Foreword

Welcome to North Yorkshire County Council’s Mobile Communications Strategy which sets out the County Council’s plans to support economic growth through the delivery of improved mobile connectivity whilst preparing the county for the next generation of mobile technology. This complements North Yorkshire County Council’s Digital Strategy.

The modern world is one of being connected, and enjoying the full range, and access to, both broadband and mobile technology whatever, and wherever, local people choose to do, both in business and in the pursuit of leisure activities.

There are a number of areas across North Yorkshire which either have limited, poor, or no mobile connectivity (called ‘Not Spots’). This severely impacts on the county and the ability of many of our local communities to compete with neighbouring, better connected communities in providing a desirable, healthy environment in which to live, do business and spend our leisure time, alongside an attractive tourism offer.

The County Council fully understand how important, effective mobile coverage is – alongside superfast broadband access – to ensuring our towns and villages remain vibrant places where businesses can grow and young people and families can make their homes.

We are committed to supporting better mobile coverage. It is essential to do so if our county is to encourage business growth and attract visitors and people to live in the area.

Currently, issues exist around the varying levels of coverage across the county, including ‘not spots’ with no coverage and areas with a poor signal or call-only 2G coverage. Large parts of the county are poorly served and there is a need for communities, Government, district planners and mobile operators to work together to overcome opposition to mast installations. We know these issues must be addressed if we are to meet our aspirations for what is now an essential utility for economic growth.



County Councillor Don Mackenzie
Executive Member for Access

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Vision – 2030

North Yorkshire County Council (NYCC) recognises the importance a truly digital infrastructure can have on the economy of the future. We are looking to ensure that the county is at the forefront of rural and urban technological advances and ensuring that we use these to our advantage as we look to be a rural exemplar.






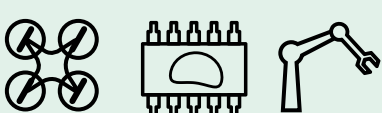
There are many technology solutions that will change the ways we go about our daily lives in the future from assisted farming techniques, for livestock improving animal husbandry, increasing arable productivity through better decisions, to the automation of cars and the information flows that will enable automated parking, street bin emptying, intelligent street lighting, etc.

Health and social care are moving rapidly into this arena as they see this as being key way of managing the demand on the services due to the increase in population and life expectancy.

Technology advances within this area will enable remote monitoring of patients, virtual GP appointments, enabling more efficient use of time.

These linked with the improvements in urban areas that our market towns can enjoy through the deployment of the latest technologies will provide a vibrant place in which to live and do business.

The key to achieving all of this is having in place the digital infrastructure that will deliver 95% geographic 4G/5G coverage by all mobile operators. This will enable us to support all these and future activities with the latest fibre and mobile phone signal technologies.

Enhanced Mobile broadband eMBB	Massive Machine type communications mMTC	Ultra-reliable and low latency communications uRLLC
		
		
Improved consumer experience More connected devices Faster connection speeds Virtual and Augmented Reality	e-health Transport and logistics Environmental monitoring Smart energy networks Smart agriculture, smart retail	Vehicle-to-everything communication Drone delivery Autonomous monitoring Smart manufacturing

Introduction

North Yorkshire is England's largest county and covers 3,103 square miles (803,761 ha), stretching from Scarborough on the North Sea coast to Bentham in the west and from the edge of Teesside to south of the M62. It has a population of 611,600 and 261,400 households.

It is a culturally and economically vibrant county with high quality landscapes and heritage, high standards of education provision and a diverse and strong local economy – all of which make it an extremely attractive place to live and work in and to visit. There are some challenges for service provision, however, including the rural nature of much of the county.

We also have an ageing population and many younger people leave the county following secondary and further education.

People who are 65 years old and over make up 23.7% of our population. This compares to 17.9% in the population of England as a whole. North Yorkshire has a lower proportion of young people than the national average – 25.8% under 25 compared to 30.2% nationally.



This document outlines the County Council's vision for improving mobile phone coverage in North Yorkshire and builds upon the work already underway to improve broadband access.

It is widely recognised that providing excellent digital and mobile connectivity (digital inclusivity) generates economic growth. This is particularly challenging in a rural environment like North Yorkshire where there are large areas of protected landscape including two National Parks and a number of smaller settlements which are disadvantaged because they do not have access to the same level of service that larger more urban settlements currently enjoy. This can be a major barrier to economic growth and the resilience of some of these communities resulting in outward migration, loss of skills, reduced levels of investment, unsustainable demographics, and the loss of essential rural services.

However with NYnet's* superfast programme achieving 90% coverage and due to increase to 94% by 2021 and the fibre connectivity to all North Yorkshire schools and property scheme the County Council are clear in their vision to be digitally inclusive to provide the services to overcome the economic barriers.

*NYnet Limited was established by North Yorkshire County Council in 2007, with the aim to improve connectivity and broadband services across the North of England for both the Public and Private Sectors.

North Yorkshire's Priorities for the next five years

We in North Yorkshire recognise that key to the future of the county is to have a good Digital Infrastructure, both in superfast broadband and 4G mobile coverage as standard. As we all move further into the digital world at a pace, ensuring that we provide the key services that everyone requires is key to ensuring that North Yorkshire is a place that people want to live, work and visit. Our vision is to have:

Connected Communities – we aspire to have all our communities within the county connected with both superfast broadband and 4G mobile coverage enabling them to connect to the latest digital services.

Access to 4G across the county – ensure that there is 92% geographic 4G coverage across the county through encouraging the expansion of the mobile operators networks. This will remove one of the barriers to economic growth and encourage people, businesses and tourists that North Yorkshire is a place to come to live, work and play.

Removal of ‘not spots’ – by developing a programme of work and working with the industry and key partners within the districts we will remove the identified areas of no coverage ‘not spots’.

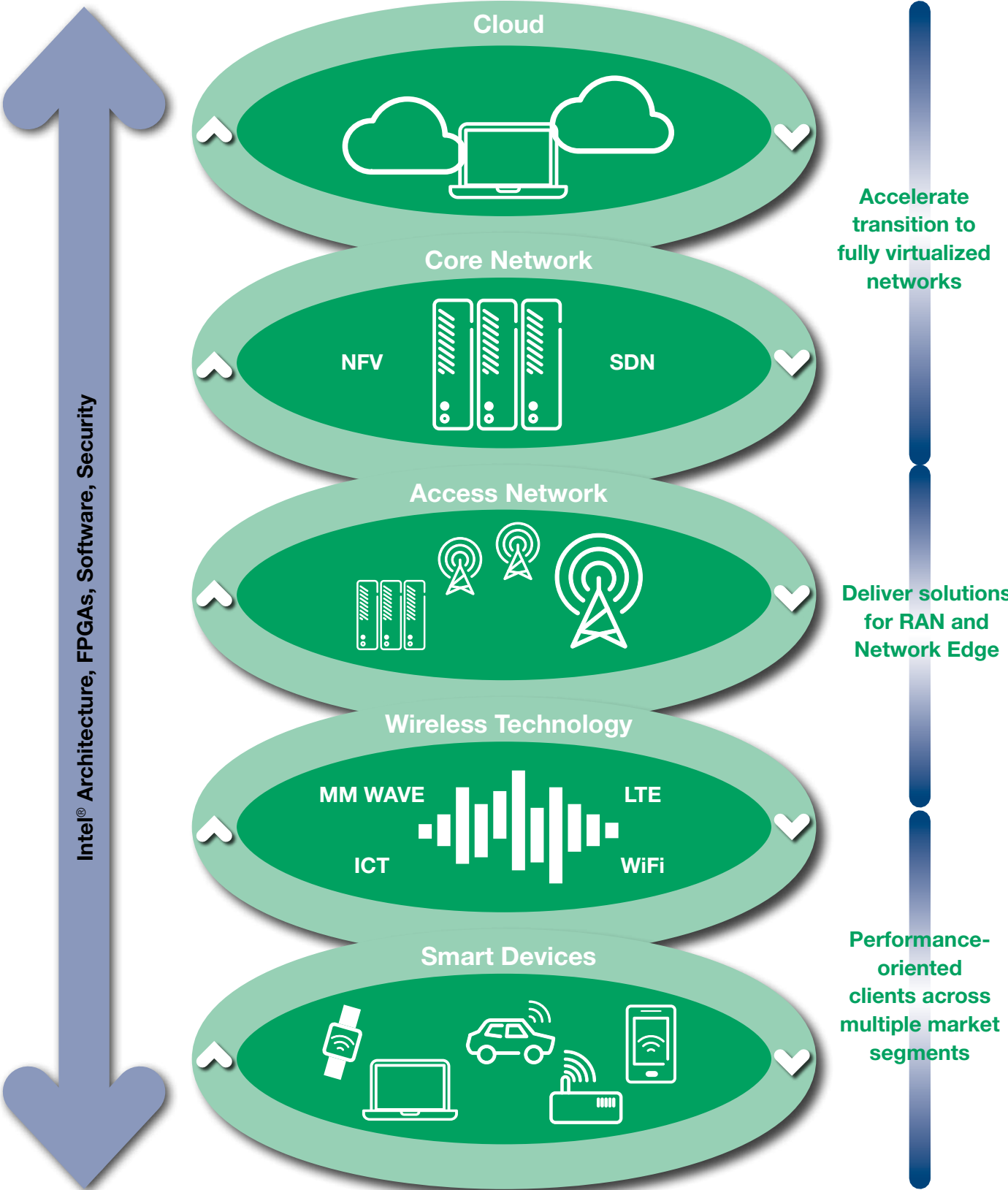
Removal of call drop outs or ‘not dots’ – by working with the mobile operators enabling them to identify issues and improve their networks within the county.

Best place to do business in the UK for the mobile operators – through a number of initiatives we will ensure that North Yorkshire is a place where the mobile operators find it easy to do business and is the destination of choice for private investment. By working closely with our local planning authorities and economic growth officers we are ensuring that it is easy for the industry to work within the county.

5G ready – by overcoming the 4G challenges we will be prepared for the next generation of mobile technology, 5G.



5G End-to-end Strategy



The Strategy

The UK Government and Ofcom realise for the UK to be the best place to start and grow digital businesses, we need greater investment to build fixed and wireless networks that are fit for the future, and take advantage of the benefits of fixed and mobile convergence. The wide-scale deployment of these next generation technologies will underpin the UK's modern Industrial Strategy and the Grand Challenges in areas where the UK can lead the global technological revolution. We want every part of the UK to be able to benefit from the significant economic developments that digital connectivity brings.

When looking at the speed, resilience and reliability that consumers want and businesses need in order to grow, it is clear that full fibre and 5G are the long-term answer. These technologies have the potential to transform productivity, and to open up new business models. Full fibre networks are faster, more reliable, and more affordable to operate than their copper predecessors. 5G will deliver faster and better mobile broadband, and enable revolutionary uses in industry sectors like manufacturing, health and transport.



UK Government and Ofcom also recognise that coverage levels are not what they should be. In Ofcom's Connected Nations report 2017 they state that *"although current coverage levels have been met there is still a large difference between urban and rural coverage."* They recognise that the current stated acceptable levels of coverage are too low and need to be amended to reflect the actual user experience.

Ofcom and the industry recognise that the auction of the 700 MHz bandwidth spectrum licences in the summer of 2019 is key in improving rural 4G coverage and preparing Britain for the future 5G coverage. Key to this auction is the coverage expectations attached to the successful bids which has the potential to improve rural mobile coverage and the timescales to deployment.

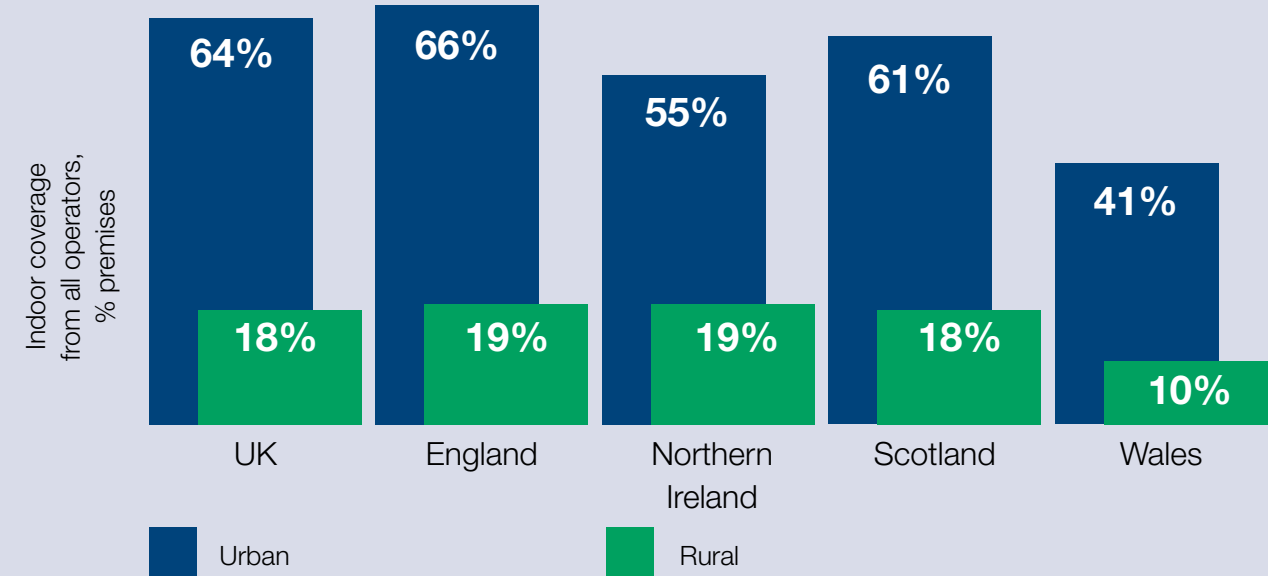
The move from population coverage to geographic coverage will assist in the rural context however Ofcom realise that further intervention is required if rural coverage is to improve to acceptable user levels.

The Challenge

How do we improve mobile phone coverage in rural areas where the mobile operators are unwilling to go as there are not viable business reasons to do so?

Ofcom state in their 2017 Connected Nations report that *"In the rural areas of all nations, including England, consumers continue to experience levels of coverage that are substantially lower than those in towns and cities. Just 19% of rural premises can receive an indoor 4G service from all operators, compared to 66% of premises in urban areas."*

Indoor 4G coverage from all operators in urban and rural areas



This is further backed up by NYCC's own research and survey into coverage which found that *"Continuous coverage above the Ofcom minimum levels was lower than expected, although it was always assumed that the results would see signal levels "bumping along the bottom" it was worse than expected, with far more short No Service events (Not Dots) than anticipated."*

Rural Limitations

Improving coverage in rural areas is challenging, especially in mountainous or extremely remote locations. In addition to practical difficulties of installing and maintaining network equipment in these locations, the commercial business case for operators to provide coverage in areas of low population density can be challenging.

The difficulty and expense of providing a link back to the communications network is one of the main challenges in rural areas with many installations in difficult to access locations to provide coverage.

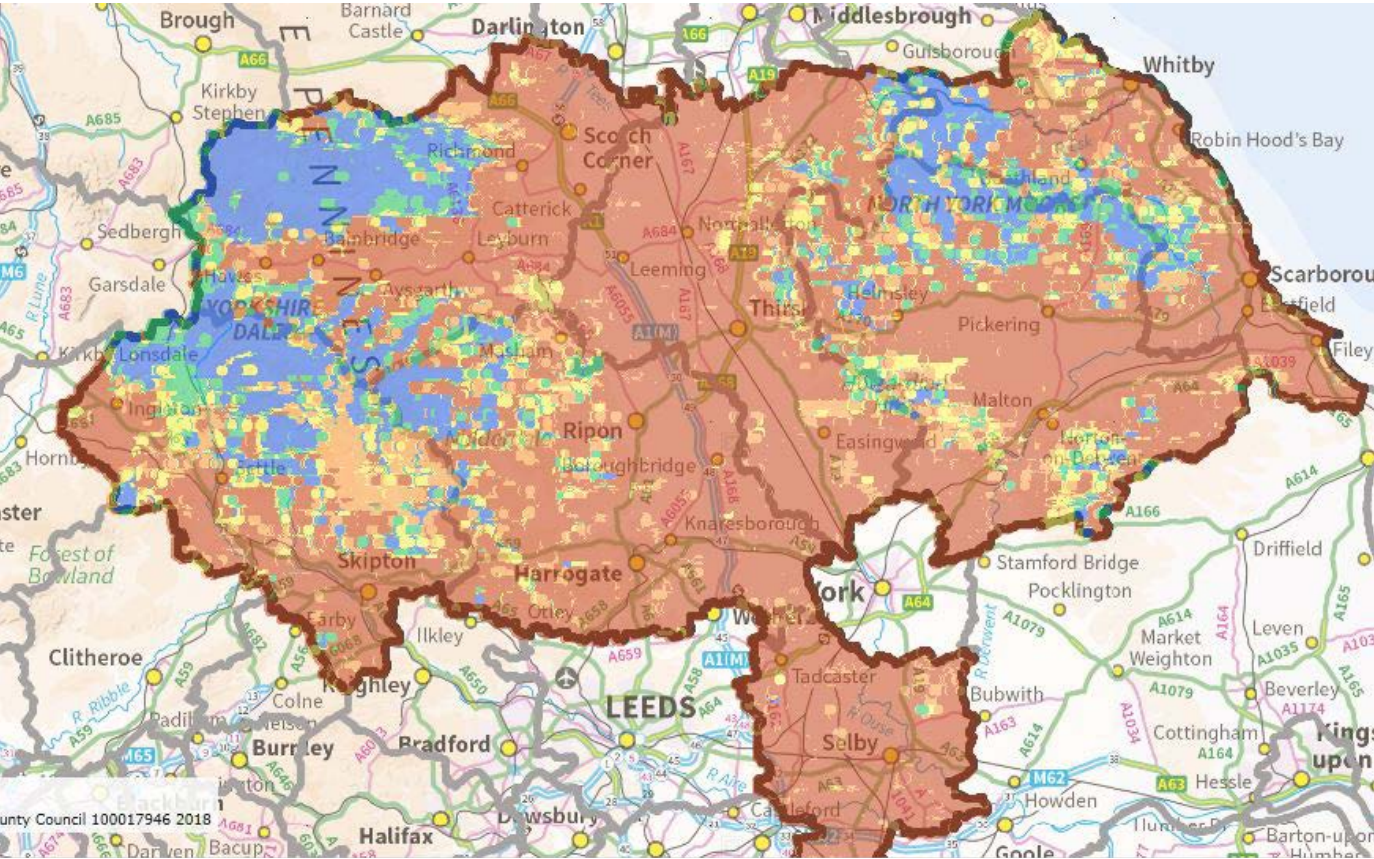
What are we doing about it?

NYCC recognise the issue and have put in place the following strategies to overcome the issue.

Digital Champion – NYCC have appointed Cllr Don Mackenzie as Digital Champion and employed a Mobile Phone Programme manager to develop and oversee a range of interventions to improve the coverage.

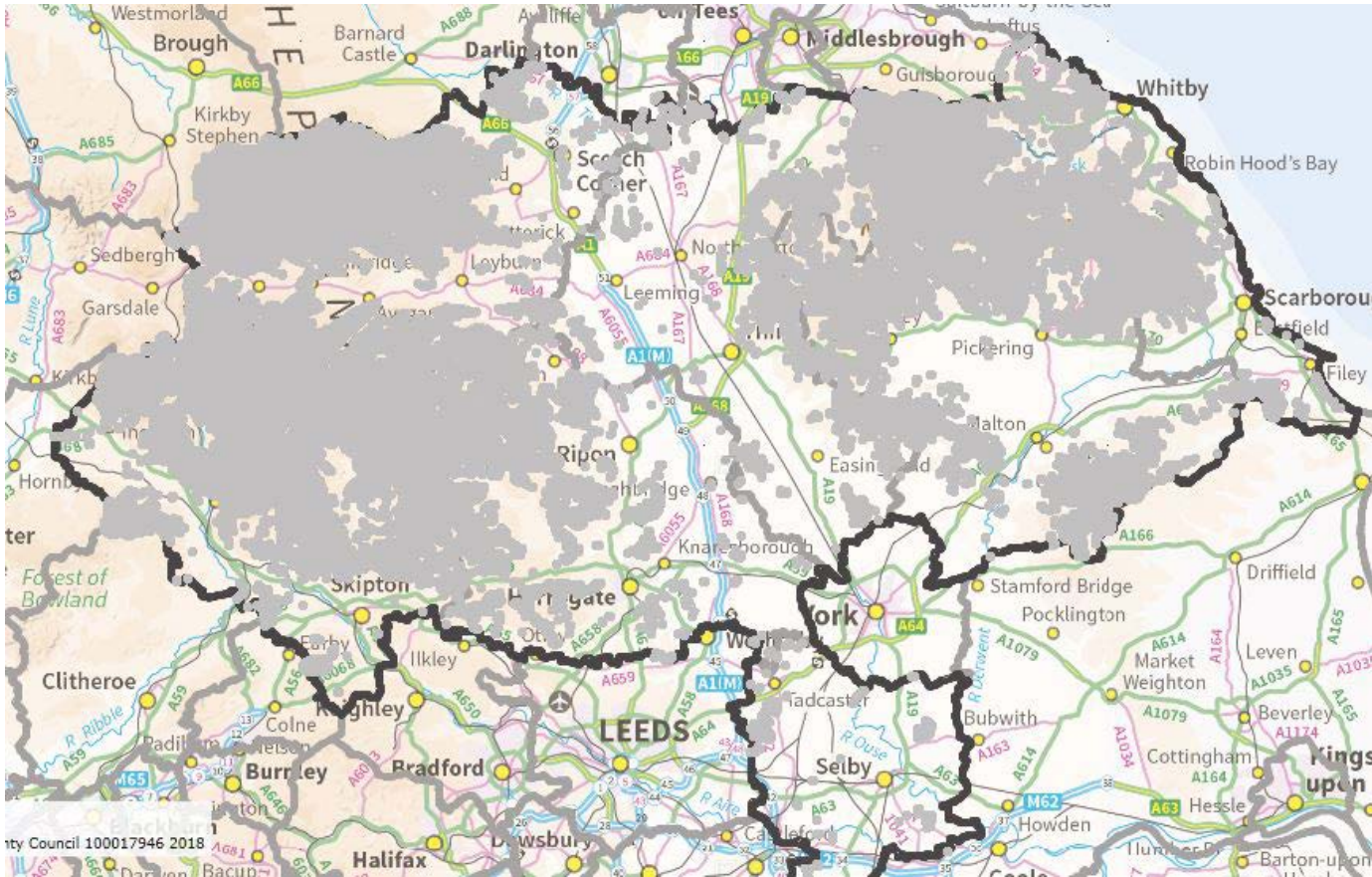
Gathering Information – NYCC have gathered data from various sources to enable us to understand the current coverage picture. The map below shows the current position within the county according to Ofcom.

This shows that approximately 35% geographically of the county has no mobile coverage and a further 20% is not covered by all 4 mobile network operators.



■ No Coverage ■ 1 MNO ■ 2 MNOS ■ 3 MNOS ■ 4 MNOS

MNO – Mobile Network Operator ie EE, Three, O2, Vodafone



(Grey areas = no indoor 4G coverage)

This indicates the poor level of indoor 4G coverage across the county with levels being at around 40%.

NYCC commissioned a drive through survey of the county to ascertain the actual levels of coverage for all the operators within the North Yorkshire. This showed that the coverage by the individual operators is poor across large areas of the county however collectively there is some form of coverage in approximately 65% of the county. This reduces the number of areas where we could potentially intervene as we need to invest in areas of no coverage/poor coverage by all the operators to meet state aid rules. One of the key findings was that a large part of the remainder of the county would potentially be covered by the new Emergency Services Network if commercialised.

Developing Key Contacts – we have been developing contacts with Mobile Operators, Planning Authorities, Economic development officers and elected members. This has led to a number of key outcomes:

- roundtable and individual discussions with the mobile network operators and their overarching body Mobile UK with a view to them sharing their present and future coverage information with us.
- working with local Planning Authorities and mobile network operators to identify and overcome any issues ensuring the successful and timely deployment of mobile infrastructure.
- working with Department of Culture, Media and Sport (DCMS) as part of the Local Connectivity Group in developing best practice guidance on a range of items

around how to improve deployment of mobile infrastructure. One of the focuses is on the use of council assets to provide infrastructure and we currently have two sites under consideration, Castle House Scarborough and Highways Department Selby.

This work has led NYCC to be recognised as an exemplar Council for encouraging improvement in mobile infrastructure and led us to being invited to House of Commons on 5 September 2018 as part of Mobile UK’s “Councils & Connectivity” launch event, hosted by Stephen Hammond MP, Chair of the All Party Parliamentary Infrastructure Group.

http://www.buildingmobilebritain.org.uk/wp-content/uploads/2018/09/68548_Mobile-UK---Councils-and-Connectivity_AW---web-ready.pdf



Funding – NYCC have secured £1M of investment from North Yorkshire and East Riding Local Enterprise Partnership’s (LEP) Infrastructure fund to improve mobile phone coverage. This has enabled us to undertake an initial piece of work around mobile infrastructure to improve coverage. With each piece of mobile infrastructure covering around 16 square km and ranging from £120K to £250K to provide, this monies will not solve all the issues but it is a start of a longer term strategy. As further monies become available we will look to secure further funding to support the programme.

Mobile Infrastructure Programme – following the successful bid for the £1M LEP monies we have developed a programme of work to deliver a number of mobile infrastructures to improve coverage. Using the information from the drive through survey and compared against the present expansion plans of the MNOs and the potential ESN impact on coverage. NYCC have identified an initial nine potential sites where coverage requires improving. The sites identified are:

NY001	A684 West of Leyburn near Sissy Bank
NY002	North End of Coverdale
NY003	C48 West of Masham near Healey
NY004	Appletreewick, Craven
NY005	Skipton on Swale
NY006	A1041 – South of Selby
NY007	Duggleby
NY008	Kildale
NY009	Mickley/West Tanfield

A decision on the suitability of these sites for investment will be made following the survey of the areas and potential mast locations identified. This report will also give us indicative cost to build in these areas. Our current timetable is:

Autumn 2018	Public Consultation Complete
Winter 2018	Tender for infrastructure build
Winter 2018	Contract award
Spring 2020	First site built and operational
Autumn 2020	Initial sites built and operational

Promote our case – utilising our numerous networks and contacts to raise awareness of the issues, ensuring they receive the widest possible coverage. This includes our local MPs, celebrities and the media.

Policy Concessions

From the work that we have undertaken to date we have identified a number of key enablers to improve mobile phone coverage:

7 year rate relief for rural masts – NYCC recognise that the cost of operating mobile infrastructure in rural areas is prohibitive as the numbers of people serviced in an area means that the business case for rural masts are not viable. Up to 40% of the operating costs of a rural mast can be business rates. To assist this the District Council Planning Authorities within North Yorkshire are offering a 7 year business rate relief for new rural mobile infrastructure.

Emergency Services Network – the present Emergency Services Network (ESN) TETRA, is planned to be replaced with a new network provided by EE. This is a separate network to EE’s current commercial network however they can operate on the same infrastructure. Although it is designed primarily to cover the main road network, it does provide greater coverage within rural locations. The new ESN is built up of two elements:

- Improvements to EE’s current network (12 new sites planned across NY)
- Government funded Extended Areas Services (EAS) sites (24 planned across NY)

The building of the EAS sites are being funded by the government and will remain part of the government estate once built. The operation of these sites is being funded by the Home Office, however there has been no decision on what should happen if commercial services were to be made available from these sites. Key to improving the mobile coverage within

the county is the provision of commercial mobile service from these masts. This would improve the geographic coverage within the county to approximately 90%.

Rural Roaming – as the levels of coverage by the individual operators is poor across the county but combined they do give a level of coverage that may be acceptable to users, then one method of ensuring users have an improved experience is by having rural roaming. This is highly controversial as it would detract from investment in the mobile networks by the providers. At present the individual mobile network operators are building infrastructure for their own network improvements to improve market share in areas presently not served, this would cease as they would not build infrastructure for their competitors to gain an advantage from. Some mobile network operators have better coverage than the others due to previous investment in infrastructure, this would be lost if rural roaming was introduced. Ofcom are currently considering if this should be introduced as part of licencing agreement for the release of the 700Mhz spectrum in 2019.

North Yorkshire’s Priorities into Action

As we prepare ourselves for the next Industrial Revolution that 5G will deliver us, it is key that our Vision enables us to make best use of it when it arrives. The action plan below shows what we are doing to position ourselves ready for a digital future by overcoming the issues we have and positioning North Yorkshire as a rural exemplar.

Vision Theme	Owner – Action	Timeframe for implementation
Connected Communities	NYCC and NYnet will work to ensure that our communities are digitally connected. With further expansion of superfast broadband and connected communities project alongside improved mobile phone coverage, this will deliver clear community benefits.	2023
Access to 4G across the county	NYCC will work with industry, government and home office to increase the access to 4G to 92% geographic coverage within the county.	2023
Removal of “not spots”	Through a joint approach with Emergency Services team, the MNOs and NYCC we will work to remove all not spots.	2025
Removal of call drop outs or “not dots”	NYCC together with the MNOs will review the reasons for these and look to remove them.	2021
Best place to do business in the UK for the mobile operators	NYCC working with the district planning departments, economic development officers, and other local authority teams to ensure that we develop an environment where it is easy for mobile operators to do business.	2020
5G Ready	By implementing the above strategies we will ensure that North Yorkshire is ready for 5G.	2025

Contact us

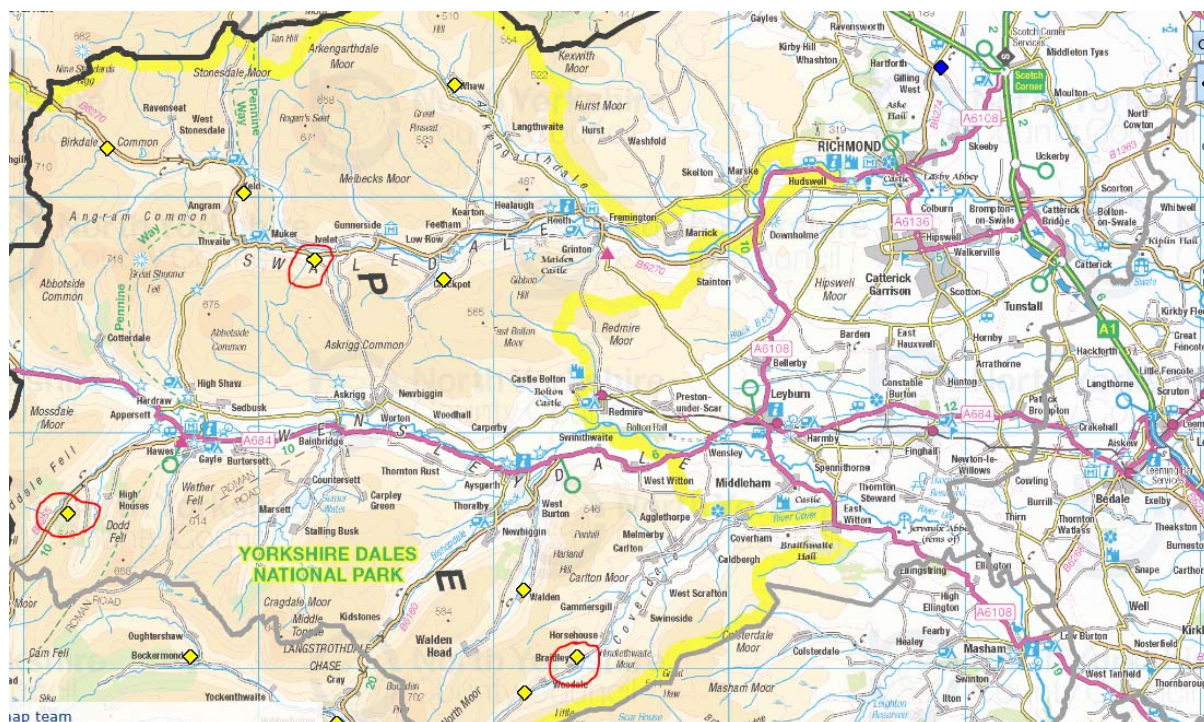
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You can request this information in another language or format at

www.northyorks.gov.uk/accessibility



Yellow triangle = Proposed EAS masts, Blue triangle = Proposed O2 mast
 Red circled = masts currently being built