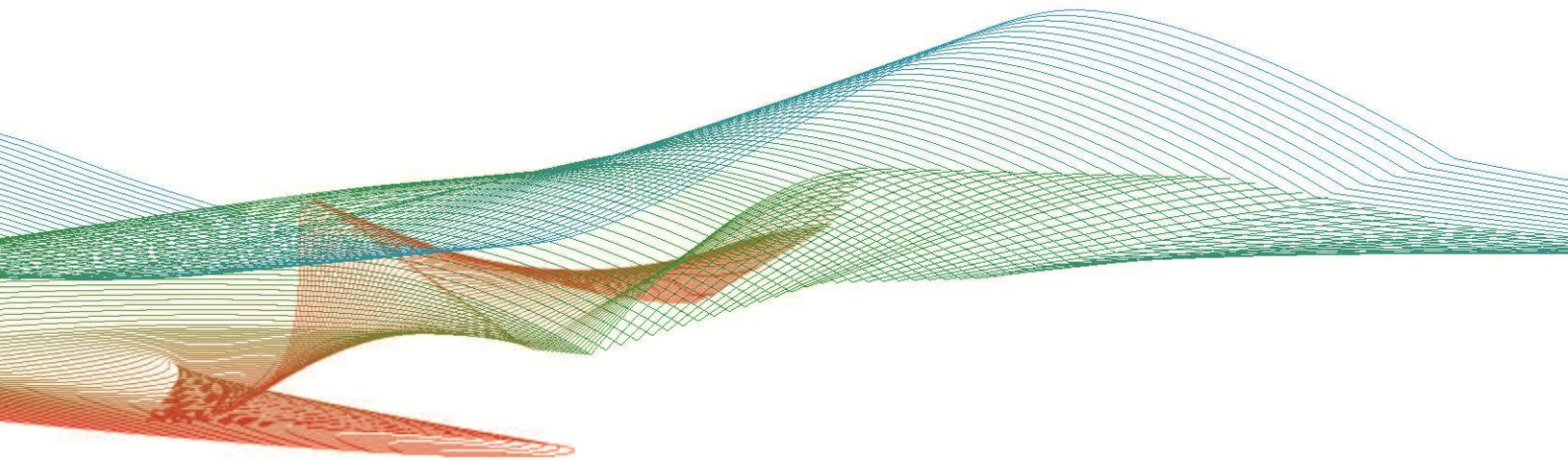


Pennine Lancashire



Report for Pennine Lancashire Chief Executives (PLACE)

Strategic action plan for digital connectivity

12 October 2010

Ref: XPEL1009Bv01

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Annex A: Glossary

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1 Executive summary

1.1 Context

The Pennine Lancashire Multi-Area Agreement (MAA) has identified access to broadband as a key priority for the sub-region. Pennine Lancashire Chief Executives (PLACE) is committed to achieving high speed digital connectivity across the sub-region in order to allow its population to compete in the global economy and interact in the growing digital society. Of particular importance is the deployment of next-generation access (NGA) broadband infrastructure.

PLACE has commissioned Analysys Mason to produce a strategic action plan for Pennine Lancashire that builds upon the Regional NGA Framework¹ and provides a clear set of actions that are tailored to the specific conditions of the sub-region. The action plan is designed to enable PLACE to plan intervention activities in order to improve the level of digital connectivity across Pennine Lancashire.

1.2 Vision and strategic objectives

Based on the strategic objectives of PLACE, and the discussion during the stakeholder workshop, it is clear NGA is of high importance for the entire sub-region to meet both economic and social objectives. During the workshop it was proposed that the strategic vision for Pennine Lancashire should remain the same as that defined in the Regional NGA Framework:

The widespread take-up and use of NGA by all, to enable social and economic prosperity.

Achievement of this vision will lead to the numerous economic and transformational benefits that are associated with NGA.

The vision is supported by four strategic priorities, as shown in Figure 1.1 below.

¹

Making NGA a reality in the North West, Strategic Framework, www.nwda.co.uk/pdf/NGA%20Strategic%20Framework.pdf

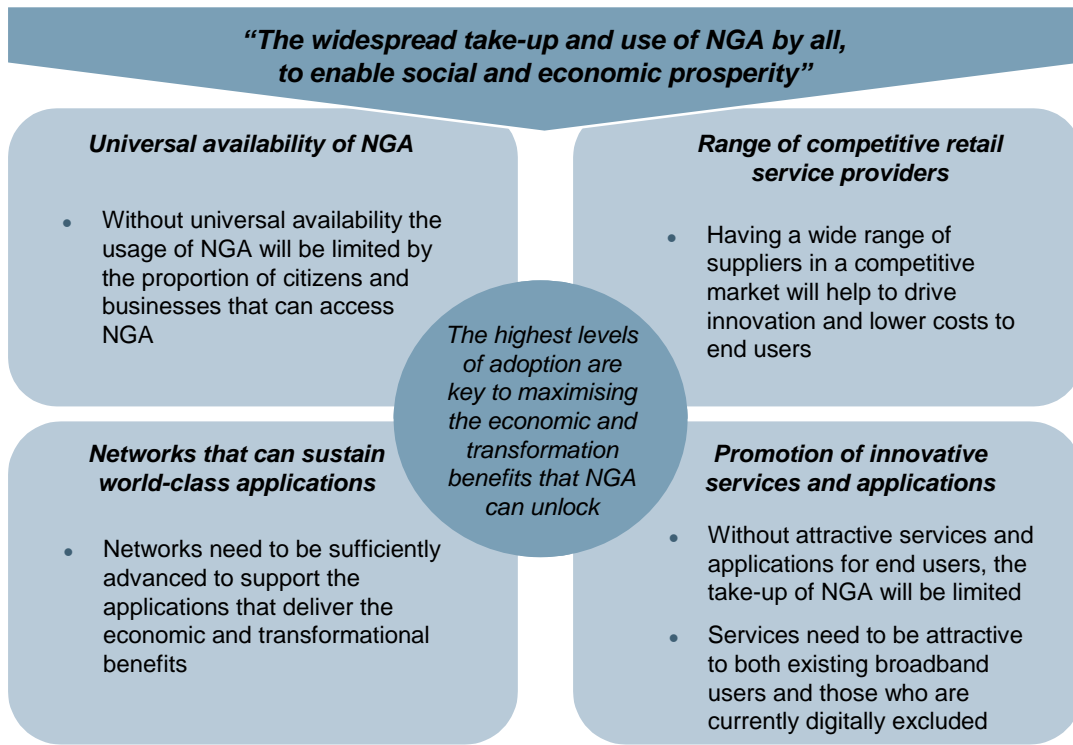


Figure 1.1: Vision and strategic priorities for NGA [Source: Analysys Mason]

1.3 Digital connectivity under a ‘do nothing’ scenario

If PLACE does not take action to improve digital connectivity, 16% of premises in Pennine Lancashire are unlikely to receive NGA services before 2015. Based on the EC guidelines on State aid for broadband infrastructure, these are classified as EC defined ‘white’ areas, where public sector intervention may be justified. 36% of premises are estimated to be in EC defined ‘grey’ areas, where NGA supply is expected from one operator, and 48% are in EC defined ‘black’ areas, where supply is expected from two or more operators.

Area	Total no. of premises	Black area	Grey area	White area
Pennine Lancashire	240 252	48.1%	35.5%	16.4%
Blackburn with Darwen	62 099	54.5%	42.9%	2.6%
Burnley	42 355	54.2%	45.8%	0.0%
Hyndburn	37 884	50.8%	40.6%	8.6%
Pendle	41 160	65.8%	15.1%	19.1%
Ribble Valley	25 328	0.0%	17.5%	82.5%
Rosendale	31 426	39.3%	42.1%	18.6%

Figure 1.2: ‘Black’, ‘white’ and ‘grey’ areas breakdown [Source: Analysys Mason]

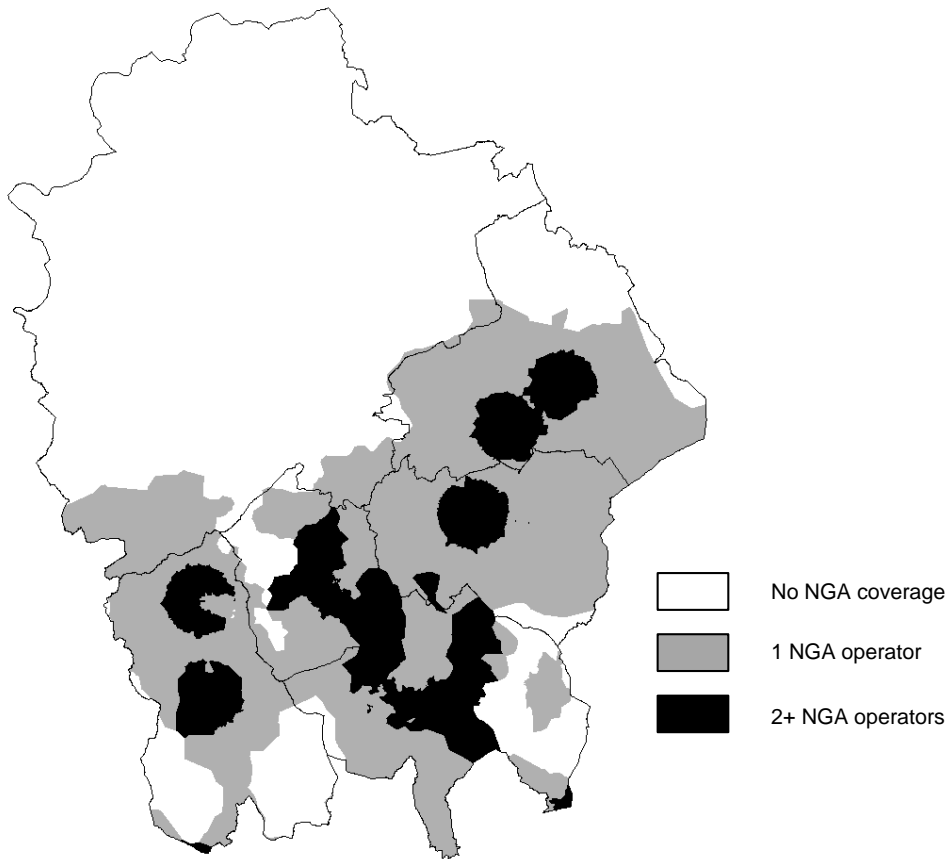


Figure 1.3: BWG map for Pennine Lancashire [Source: Analysys Mason]

1.4 The cost of deploying NGA

Using the methodology and model adopted in the Broadband Stakeholder Group (BSG) study on NGA deployment costs², we have estimated the costs of deploying NGA to the ‘white’ areas in each of the boroughs in Pennine Lancashire. The table below summarises these costs based on three different NGA technologies, which are defined in Section 2.2.1.

²

http://www.broadbanduk.org/component/option,com_docman/task,doc_details/gid,1036/

<i>Area</i>	<i>Premises in 'white' areas</i>	<i>FTTC / VDSL (GBP)</i>	<i>FTTP using GPON (GBP)</i>	<i>FTTP using PTP (GBP)</i>
Blackburn with Darwen	1648	0.4m	2.7m	3.0m
Burnley	0	0	0	0
Hyndburn	3262	1.2m	4.5m	5.4
Pendle	7858	1.5m	6.3m	7.1m
Ribble Valley	20 888	6.1m	29.2m	33.2m
Rossendale	5848	1.6m	7.2m	8.4m
<i>Pennine Lancashire</i>	<i>39 504</i>	<i>10.8m</i>	<i>49.9m</i>	<i>57.1m</i>

Figure 1.4: Estimated cost of deploying NGA in white areas [Source: Analysys Mason]

If appropriate funding becomes available, PLACE may decide to invest directly in the supply of NGA infrastructure. In this eventuality, PLACE should aim to leverage private sector funding to reduce the level of public sector funding required.

1.5 Strategic action plan

We have identified a set of potential actions that PLACE can carry out in order to help achieve the vision and strategic priorities. The actions are broadly achievable within the funding constraints that currently exist, and we believe, from our experience, that they represent credible actions that have succeeded elsewhere.

The potential actions are categorised into three types:

- actions to support strategy delivery – to help implement the strategy operationally on a day-to-day basis, and to gather evidence and information that support demand and supply-side actions
- demand-side actions – to ensure there is evidence of demand in the market
- supply-side actions – to ensure delivery of digital infrastructure.

These actions are summarised below in Figure 1.5.

The actions are discussed in detail in Section 6, under the following headings:

- description
- target outcomes and timings
- stakeholder involvement
- indicative cost
- key issues and challenges.

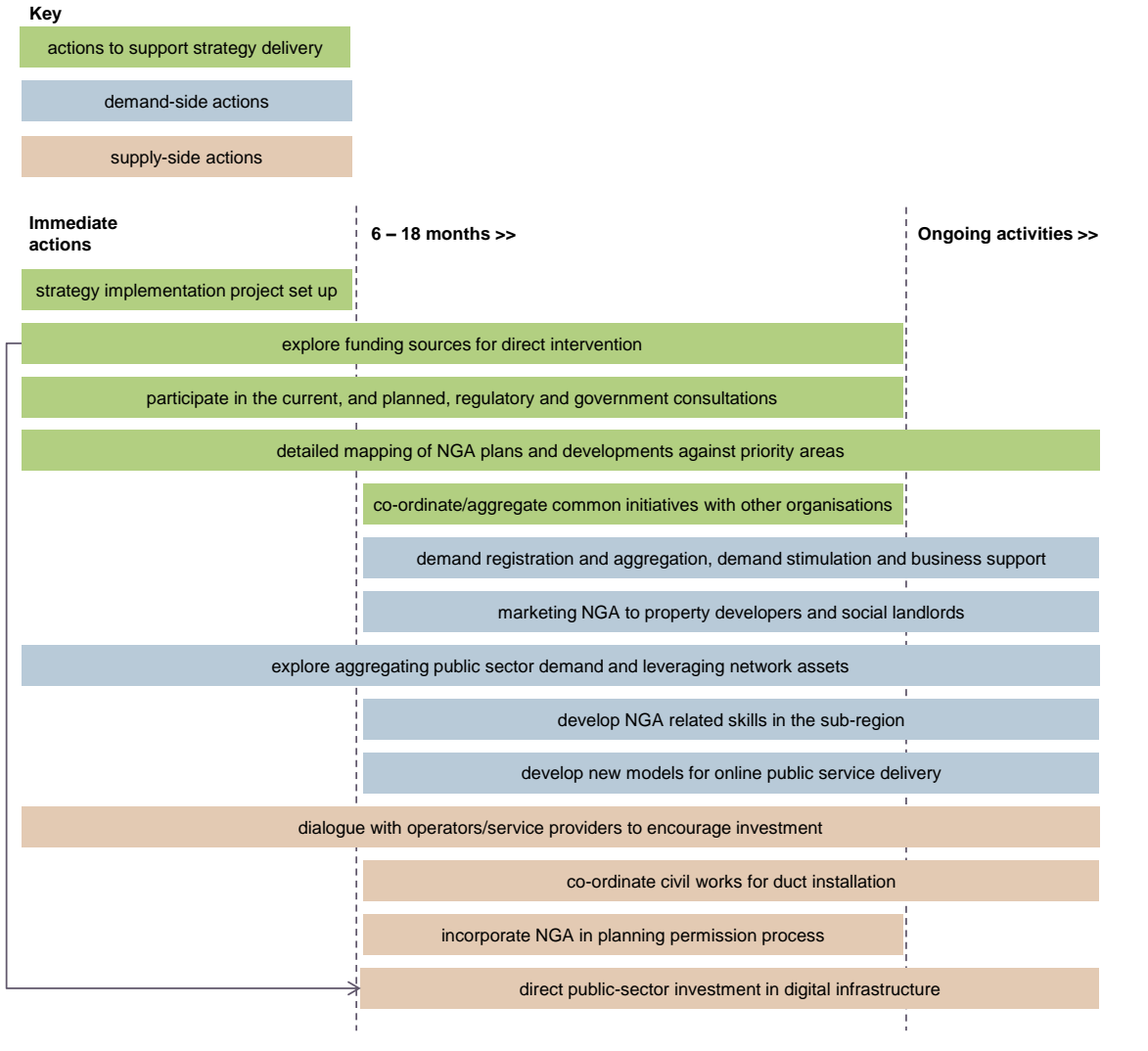


Figure 1.5: Summary of strategic action plan [Source: Analysys Mason]

2 Introduction

2.1 Background to the strategic action plan

The Pennine Lancashire Multi-Area Agreement (MAA) has identified access to broadband as a key priority for the sub-region. Pennine Lancashire Chief Executives (PLACE) is committed to achieving high speed digital connectivity, or Next Generation Access (NGA), across the sub-region in order to allow its population to compete in the global economy and interact in the growing digital society.

Pennine Lancashire has a mixed urban and rural geography, but consists of areas deprived of broadband or high-speed broadband, as identified in the MAA. Operators will only deploy next generation broadband if there is a viable business case, and a significant part of the rural areas are likely to experience market failure, hence public sector intervention is considered necessary to help achieve 100% broadband coverage.

On behalf of North West Development Agency (NWDA), Analysys Mason recently developed a strategic framework for making NGA a reality in the North West (hereafter referred as 'the Regional NGA Framework'), which can be accessed at www.nwda.co.uk/pdf/NGA%20Strategic%20Framework.pdf. The report shows that a significant part of North West, including parts of Pennine Lancashire, will be left out of NGA if there is no intervention from the public sector, and details a list of activities aimed towards making NGA a reality.

PLACE has subsequently commissioned Analysys Mason to produce a strategic action plan for Pennine Lancashire that builds upon the Regional NGA Framework and provides a clear set of actions that are tailored to the specific conditions of the sub-region. The action plan is designed to enable PLACE to plan intervention activities in order to improve the level of digital connectivity across Pennine Lancashire.

2.2 Scope of the strategic action plan

The scope of the strategic action plan is defined in terms of technology scope and geographical scope, as outlined in Sections 2.2.1 and 2.2.2.

2.2.1 Technology scope

The term ‘digital connectivity’ encompasses a wide range of technologies and services, including: Internet services, fixed line telephony, and mobile voice and data services. The scope of this strategic action plan, however, as presented at the stakeholder workshop, is directed towards the advancement of broadband Internet infrastructure and services. Fixed line telephony services are already ubiquitously available across the UK, and the cellular mobile industry is highly competitive, with a clear technology upgrade path that the private sector is likely to implement without public sector support. The focus of public sector activity on the improvement of broadband connectivity is consistent with UK Government policy and the EC Digital Agenda.

Currently there is not ubiquitous first generation broadband availability in Pennine Lancashire, as evidenced in the MAA. The digitally excluded areas are mainly in rural locations, where low population density makes it harder for operators to justify investment in infrastructure. The UK government has committed to a Universal Service commitment (USC), whereby all UK premises will receive download speeds of 2Mbit/s or above by 2015. However, the approach to USC is likely to come under scrutiny because, on 20 September 2010, the European Commission (EC) announced a new digital agenda for the delivery of fast and ultra-fast broadband³ (EC Digital Agenda). The agenda promotes the target of all EU citizens receiving access to basic broadband by 2013, two years sooner than the UK government’s current target.

With these developments in mind, we propose that PLACE does not focus its efforts on intervention for delivery of first generation broadband, but rather it should focus on the progression to Next Generation Access (NGA). The definition of NGA in this document is consistent with the EC’s digital agenda for the delivery of fast and ultra-fast broadband, whereby ‘fast’ broadband is defined as 30Mbit/s or above, and ‘ultra-fast’ broadband as 100Mbit/s or above.

Technology definition of NGA

Wide-scale deployment of NGA in the UK can be enabled by replacing current broadband technology using legacy copper phone lines with new technology, such as fibre-optic cable (fibre) and the latest fixed and mobile wireless technologies. As a fundamental principle, if public funds are to be invested in NGA networks, a technology-neutral approach should be employed. Requirements should be specified in terms of network performance characteristics – such as speed, symmetry, latency, contention, and technical architecture – and the market should be allowed to specify appropriate technologies to meet the requirements.

³

A digital agenda for Europe, 20 September 2010, http://ec.europa.eu/information_society/digital-agenda/documents/edcr.pdf

Nevertheless, for the purposes of analysing the cost of NGA roll-out, a technology definition for NGA is necessary. A technology definition is also needed to satisfy the EC broadband State aid guidelines⁴ (EC guidelines) in order to analyse the future supply of NGA that is expected from the private sector.

The EC guidelines define NGA as fixed line fibre technologies:

“NGA networks are wired access networks which consist wholly or in part of optical elements and which are capable of delivering broadband access services with enhanced characteristics (such as higher throughput) as compared to those provided over existing copper networks”

The EC guidelines do however acknowledge that other technologies may play a role in the future:

“At this stage of technological and market development, neither satellite nor mobile network technologies appear to be capable of providing very high speed symmetrical broadband services although in the future the situation may change especially with regard to mobile services (the next major step in mobile radio communications, ‘Long Term Evolution’ may theoretically reach, if and when adopted, increased peak data rates of 100 Mbps downlink and 50 Mbps uplink).”

Wireless technologies, such as Satellite, high speed packet access (HSPA), long term evolution (LTE) and mobile Worldwide Interoperability for Microwave Access (WiMAX) technologies can provide high speed mobile broadband in the sub-region, and also play a part in providing broadband in areas of deprivation and high rurality. LTE and mobile WiMAX are capable of exceeding the EC Digital Agenda’s definition of ‘fast’ broadband, as they can provide speeds of between 35 Mbit/s and 40 Mbit/s.

Wireless technologies are cheaper to roll out when compared to fibre technologies, however there are limitations. LTE and mobile WiMAX are unproven in the UK, as spectrum has not yet been released for these technologies, and there has been limited commercial success of sustainable mass market wireless services. Wireless coverage can also be unreliable for indoor usage, and suffers from higher latency and contention issues than fibre based solutions.

Therefore, for the purposes of the costing and analysis needed in this strategic action plan, it is assumed that NGA networks will be defined as fibre-based fixed-line technologies. This is consistent with the definition used in the EC guidelines. The sub-region should however employ a technology neutral approach, and it should be recognised that wireless technologies may have a role in NGA roll-out, particularly where fixed-line technologies are unaffordable, or wireless can be deployed as an interim solution.

⁴ Community Guidelines for the application of State aid rules in relation to rapid deployment of broadband networks, Official Journal of the European Union, 30 September 2009.

There are three distinct types of fixed-line NGA:

- **Fibre-to-the-premises (FTTP)** – where fibre is laid all the way from the telephone exchange to the customer premises, enabling symmetrical broadband services, typically of 100Mbit/s. There are two variants of FTTP: GPON and PTP. GPON technology is used to share a fibre line among several users, and PTP is used to provide an uncontended (dedicated) fibre line to a premise. GPON is more appropriate for residential and small and medium business premises, whereas PTP is more appropriate for information intensive business premises.
- **Fibre-to-the-cabinet (FTTC)** – where fibre is laid from the telephone exchange to street cabinets, enabling faster speeds over the short distance of copper wire that remains. This option is less expensive than FTTP, but performance is slower, particularly for upload speeds, and there are a number of implementation and operational challenges, as well as limitations on upgrade capability.
- **Cable broadband using DOCSIS3.0** – which has the potential to provide download speeds of up to 200Mbit/s. Virgin Media uses this technology to provide its 50Mbit/s service. However, it is worth noting that this network is not open access (i.e. no competitors have access to it) and it could be difficult to implement open access on a cable network.

Each of these technologies (as well as the current ADSL broadband technology) is illustrated in Figure 2.1. It is acknowledged that the quoted speeds represent a maximum (for example, many premises receive less than 8Mbit/s download with ADSL technology).

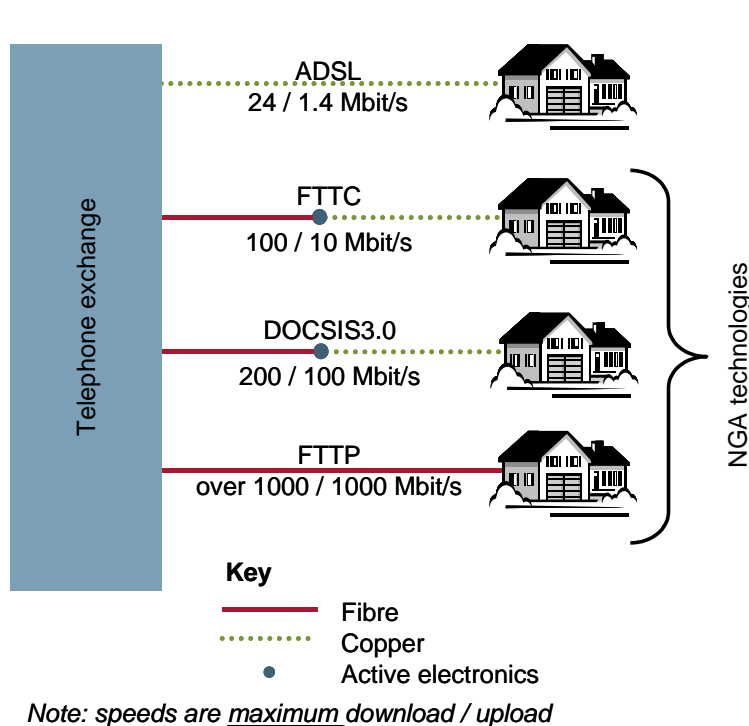


Figure 2.1: Overview of different broadband technologies [Source: Analysys Mason]

2.2.2 Geographical scope

The strategic action plan will target the whole of Pennine Lancashire, which is a sub-region of the North West with a population of 522 000. The area covers the boroughs of Ribble Valley, Pendle, Hyndburn, Burnley, Rossendale, and Blackburn with Darwen, as shown in Figure 2.2.



Figure 2.2: The geographical scope of the strategic action plan
 [Source: Analysys Mason]

The activities of this action plan will be focused on improving digital connectivity in Pennine Lancashire, however some of the activities will benefit from co-ordination with neighbouring areas to deliver economies of scale. It will also be necessary to ensure that activities are aligned with the Regional NGA Framework, and with national initiatives, such as those being led by Broadband Delivery UK (BDUK). These national initiatives are described later in section 4.4.

2.3 Strategic action plan development process

A strategic action plan for the sub-region has been developed by building on the work done for the Regional NGA Framework.

In order to refine the Framework to meet the specific conditions of Pennine Lancashire, further analysis has determined the likely extent of private sector NGA deployments within Pennine Lancashire, as shown in the maps in Section 4. The costs of providing additional coverage were also modelled in order to understand what level of public sector subsidy may be needed to provide universal access to NGA.

The action plan is designed to satisfy sub-regional objectives, and a workshop was held with public sector stakeholders from across Pennine Lancashire to understand the local priorities and any resources or constraints that are specific to the sub-region. The findings from the workshop were combined with a review of available documentation, such as the Pennine Lancashire MAA and the Pennine Lancashire Integrated Economic Strategy (IES), in order to develop a vision and draft strategic action plan that is aligned with local issues, requirements and strategic objectives.

The draft strategic action plan was presented at a workshop with private sector suppliers of NGA infrastructure and services to seek their feedback about its deliverability and sufficiency. The workshop enabled PLACE to initiate dialogue with the private sector, and the feedback received has been used to refine this strategic action plan.

2.4 Structure of this document

The remainder of this document is laid out as follows:

- Section 3 describes the local objectives, the role that digital infrastructure can play in delivering them, and develops a vision for digital connectivity
- Section 4 describes the current situation in Pennine Lancashire, and the likely developments in infrastructure if PLACE does not implement a strategy
- Section 5 discusses the costs of deploying NGA infrastructure
- Section 6 details the strategic action plan for intervention in digital connectivity
- Section 7 provides our concluding remarks and high-level recommendations.

Annex A contains a detailed map of the ‘black’, ‘white’ and ‘grey’ areas in Pennine Lancashire, as per the EC guidelines on State aid.

3 Developing a vision for digital connectivity

3.1 Strategic objectives for Pennine Lancashire

The strategic action plan is aligned with the broader strategic objectives of PLACE. The report *An Integrated Economic Strategy for Pennine Lancashire*⁵ details ten economic objectives for the sub-region, and they are summarised as follows.

- Encouraging enterprise, creating more new businesses and helping small, young businesses to grow.
- Working with companies to help them take up new opportunities, strengthen their long term competitiveness and develop their knowledge assets.
- Developing economic and business infrastructure to encourage innovation, re-investment and new investment.
- Promoting skills development at all levels – targeting those without level 2 qualifications; supporting those with intermediate qualifications in developing higher level skills; encouraging the recruitment and retention of graduate level workers.
- Tackling urban deprivation across Pennine Lancashire and promoting the high quality neighbourhood environments needed to attract and retain skilled labour.
- Tackling worklessness (through skills development and more targeted engagement as support activities) to ensure that all parts of Pennine Lancashire benefit from its economic growth.
- Addressing image and quality of place to make Pennine Lancashire a natural place for new investment and a desirable place to live.
- Promoting links with neighbouring economies (particularly Manchester) which can act as an additional employment destination for Pennine Lancashire residents, increasing their access to higher paid employment.
- Increasing the influence Pennine Lancashire wields with government and within the region.
- Reorganising delivery to enable key projects to be implemented within a robust management regime, and to give funding bodies increased confidence in the ability of the area to deliver.

⁵ *An Integrated Economic Strategy for Pennine Lancashire*, 2009, <http://www.penninelancsplace.org/Shared Documents/Integrated Economic Strategy for Pennine.doc>

As well as the economic objectives there are a number of social objectives for the sub-region, such as improving quality of life and the delivery of public services. Based on discussion during the stakeholder workshop, the social objectives have been split into five areas:

- education and skills
- communities
- safe environments
- healthcare
- quality of life.

3.2 The role of digital connectivity in delivering Pennine Lancashire's strategic objectives

PLACE recognises that broadband connectivity, and particularly NGA, is of great importance to the sub-region, reflecting the prominent position that broadband is taking on current political agendas. The importance of NGA infrastructure is discussed below in relation to PLACE's economic and social objectives.

3.2.1 Economic objectives

Economic development is a key driver of the growth agenda for PLACE, and developing an economy with a sustainable and long-term future is one of the crucial issues facing the region. In 2007, four of the six districts in Pennine Lancashire were ranked within the fifty most deprived areas across England, and worklessness has been identified in the MAA as a key detrimental factor. Improving employment opportunities is a high priority for Pennine Lancashire, and improving digital connectivity will help in supporting this goal. Without appropriate digital infrastructure, Pennine Lancashire will be unable to effectively compete nationally and internationally.

The annual survey of European cities and their attractiveness for business by Cushman & Wakefield⁶ found that 'quality of telecommunications' was the third most important factor in choosing a city from which to operate, behind 'easy access to markets, customers or clients', and 'availability of quality staff'. The quality of telecoms infrastructure ranked slightly ahead of transport links. This trend demonstrates that the availability of NGA would help create an attractive environment for inward investment. The social benefits delivered by NGA will also make Pennine Lancashire a more attractive place to live, which should increase the available workforce.

⁶ Cushman & Wakefield, *European Cities Monitor '09*, <http://www.europeancitiesmonitor.eu/>

There is increasing evidence that the adoption of current-generation broadband has significantly improved the productivity of businesses, innovation and consumer services,⁷ and it is widely accepted that NGA has the potential to have a similar, if not greater, impact. In this case, improving the local access networks not only allows better local business-to-business connectivity, but with significantly faster Internet access, it also improves national and international connectivity through Web-based communications, allowing greater business collaboration and innovation, and development of new skills.

When looking specifically at the benefits of NGA, these will be felt across all industries, but particularly strongly in information-intensive sectors; the digital and creative industries rely on being able to transfer large media files quickly, and the knowledge-based industries are an important element of Pennine Lancashire's Integrated Economic Strategy. These key industries include the business and professional services sector, advanced manufacturing and science industries.

It is believed that NGA also has the potential to accelerate the wider adoption of digital technologies. Some business applications, including videoconferencing and cloud computing,⁸ become feasible propositions once this connectivity is in place. As a result, businesses are able to explore new business models and to adopt new ways of working that were otherwise not possible.

For example, home working can only be enabled if both sufficient business and two-way residential connectivity is assured. Similarly, the ability of an SME to benefit from horizontal supply chains on a global basis can become viable once fast and affordable Internet access is available.

Although ubiquitous availability of NGA would yield the most benefits to Pennine Lancashire, this will not happen in the short term, and there are areas of the sub-region that require immediate action because of poor current-generation broadband speeds. In order to avoid these areas losing important businesses, or being viewed unfavourably by home buyers, there is a case for them to be prioritised by PLACE for intervention activities to supply NGA.

3.2.2 Social objectives

Access to the latest digital infrastructure can improve the appeal of Pennine Lancashire as a desirable place to live and work, subsequently helping to achieve the sub-region's growth targets. NGA can improve the delivery of public services by bringing more of them online, providing greater efficiency and effectiveness. Broadband connectivity is also very effective in helping to bring a community together, and goes a long way to improve the prospects for people living in areas that have high levels of social deprivation.

⁷ For example: "Companies adopting broadband-based processes improve their employees' labour productivity on average by 5% in the manufacturing sector and by 10% in the services sector" (*The Impact of Broadband on Growth and Productivity, MICUS on behalf of the European Commission, 2008*)

⁸ Whereby content, applications and programmes are accessed over the Internet, rather than being stored on home/work computers.

From our previous work with public sector NGA initiatives we are aware of a number of ways in which NGA can support social objectives. These social objectives encompass:

- Education
- Communities
- Safe environments
- Healthcare
- Quality of life.

Education

- Classrooms and school resources are increasingly dependent on Internet connectivity.
- Having broadband access at home has been shown to be beneficial to a child's education.
- The need for broadband connectivity outside the classroom is on the rise, and is often necessary for completing and submitting homework, for parental access and for distance learning courses.
- The need to foster the future working generation with advanced ICT skills is considerable, given that most, if not all, industries now rely on some form of digital communication.

Communities

- The most socially excluded in society are the most likely to also be digitally excluded. Digital inclusion ensures that access to applications that provide opportunities to improve an individual's social or economic position are available to all, for example, online job searches, and searching for the cheapest products and services.
- A successful digital infrastructure strategy will include actions that work towards digital inclusion, which is proven to strengthen local communities.
- Ubiquitous access to broadband would open up opportunities for the police and fire service to make use of alternative engagement tools, such as video streaming to engage with communities.
- NGA will enable libraries to get more services online and to act as high-speed Internet access points for citizens.

Safe environments

- Safety alarms and monitoring equipment can enable the elderly to remain safe and independent in their own homes for longer.
- Fibre access networks would allow improvements in the speed and reliability of fixed and temporary CCTV systems.
- Increasing broadband take-up would help ensure a good communication channel to certain vulnerable groups (the elderly, those with disabilities, socially or economically excluded).

Healthcare

- eHealthcare presents a range of applications with the potential to significantly improve the availability, efficiency and effectiveness of health services, for example:
 - people with limited mobility could interact with a doctor using videoconferencing
 - remote monitoring of data, such as blood levels or blood pressure, for those with long-term illness.

Quality of life

- Flexible working practices through use of teleconferencing among businesses, and home working to provide opportunities for improved work-life balance.
- Greater choice and depth of entertainment applications and content.

3.3 Vision for digital connectivity

In order to develop an effective strategy for digital connectivity in Pennine Lancashire, it is first necessary to define a long-term strategic vision for the area, which encapsulates the goals and ambitions towards which the strategy should work.

Based on the strategic objectives of PLACE, and the discussion during the stakeholder workshop, it is clear NGA is of high importance for the entire sub-region to meet both economic and social objectives. During the workshop it was proposed that the strategic vision for Pennine Lancashire should remain the same as that defined in the Regional NGA Framework:

The widespread take-up and use of NGA by all, to enable social and economic prosperity.

Achievement of this vision will lead to the numerous economic and transformational benefits that are associated with NGA.

3.4 Strategic priorities to support the vision

The stakeholder workshop confirmed that the strategic priorities developed for the Regional NGA Framework apply equally to the Pennine Lancashire sub-region.

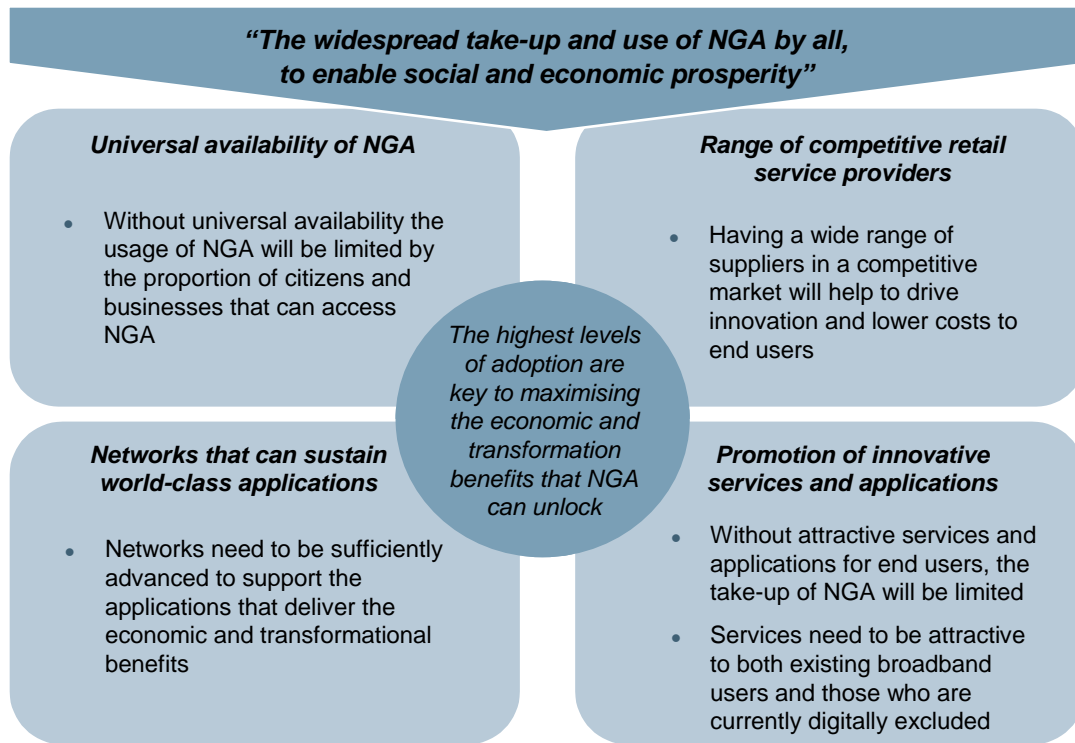


Figure 3.1: Vision and strategic priorities for NGA [Source: Analysys Mason]

Further details of the strategic objectives are available in the Regional NGA Framework, however they are summarised below.

3.4.1 Strategic priority 1: Universal availability of NGA

If the sub-region is to achieve the vision of “widespread take-up and use of NGA by all, to enable social and economic prosperity”, the universal availability of NGA must be provided as soon as practicable. Therefore, the following target for NGA availability has been set:

Pennine Lancashire should have universal access to NGA as soon as possible, with 70% of premises covered by 2013, 90% coverage by 2015, and 100% coverage by 2017.

Without public sector intervention, the private sector is unlikely to provide universal NGA coverage in these timescales due to:

- uncertainty about the potential demand (particularly the level of revenues)
- uncertainty regarding the costs of deploying NGA
- greatly increasing deployment costs in more rural areas.

In delivering universal coverage of NGA to Pennine Lancashire, the approach should be to encourage private-sector investment to the maximum extent possible, and for the public sector to invest only in areas where the private sector will not invest alone.

3.4.2 Strategic priority 2: Range of competitive retail service providers

The sub-region needs to have a range of competitive suppliers to ensure that there is an attractive choice for consumers. It has consistently been seen that competition leads to lower prices, higher use and greater innovation – all positive outcomes for the sub-region.

Competition can be considered at two levels:

- **Infrastructure competition** – Multiple, physically separate networks would provide the ideal competitive environment, however the economics of NGA mean that there is unlikely to be a business case for more than two networks. The EC has also deemed that there is not likely to be a case for intervention if two NGA networks exist in an area
- **Retail competition** – Previous experience suggests that it is essential to have a competitive retail environment with at least three significant players. In addition, there should also be multiple smaller-scale, niche service providers (at a regional or local level) that may focus on specific segments (e.g. SMEs). The Openreach deployment of NGA will be open access, and it has previously demonstrated that it can successfully attract a range of competitive service providers. Virgin Media, however, operates a closed network with no retail competition.

In areas where there is only expected to be access to a single network which is not open access (e.g. from Virgin Media) there is not likely to be a range of competitive suppliers. It may be appropriate to take activities to address this, which could include influencing the regulator for a change in regulation, or investing in a competing open-access network. However, the desire to ensure a range of competitive suppliers in one area should be weighed against a potentially more important desire to ensure ubiquitous access to NGA across the sub-region.

3.4.3 Strategic priority 3: Networks that can sustain world-class applications

To ensure that the sub-region achieves widespread use of NGA, it is essential to have networks that can support world-class applications. Without the ability to support such applications, businesses and consumers will not be as attracted to using NGA networks, or they will not exploit them to their full potential. The region will also be unable to exploit the productivity and competitiveness benefits that NGA is expected to help deliver.

Ensuring that the networks are able to sustain world-class applications essentially means ensuring that the correct mix of technologies are deployed in the region. Due to the performance characteristics of the available technologies, there are two main types of NGA technology that are expected to be delivered:

- fibre to the cabinet (FTTC) – this includes the technology used by Virgin Media⁹, which can typically support around 50Mbit/s downloads; upload speeds are typically significantly less than this (at up to 10Mbit/s)
- fibre to the premises (FTTP) – this can support downloads and uploads in excess of 100Mbit/s.

When solely considering performance, it is clear that FTTP would be preferable to FTTC, as it is almost certain to be able to support world-class applications over the long term. However, the costs of deploying FTTP are much more than those for FTTC and the commercial business case for deploying FTTP is less clear. PLACE may choose to prioritise the deployment of FTTP in priority areas, but this should be supported by a cost-benefit analysis.

3.4.4 Strategic priority 4: Promotion of innovative services and applications

The vision of achieving the widespread take-up and use of NGA by all cannot be achieved through universal coverage alone. Take-up of NGA will be limited by an information asymmetry, in that users have no experience of NGA, so they cannot see the benefits that it will bring to them.

PLACE should aim to stimulate demand among residents and businesses by clearly articulating why using NGA would bring them benefits. The private sector will continue to develop services and applications enabled by the higher bandwidths of NGA, and a key role of PLACE will be to ensure that end users are aware of the full range of services that can be supported by NGA. These activities should be targeted towards two distinct groups:

- the digitally excluded who do not see the need for any Internet services
- existing Internet users who do not see the need for NGA services.

⁹ Virgin Media deploys a cable technology known as DOCSIS3.0. This involves deploying fibre-optic cable to a street cabinet, and has similar capabilities to deploying VDSL from a street cabinet – the technology which Openreach is using as part of its FTTC deployment.

4 Digital connectivity in Pennine Lancashire under a ‘do-nothing’ scenario

In order to develop an effective strategy for public sector intervention in digital connectivity, it is first necessary to understand what the likely developments would be if PLACE were not to intervene. In this section we use the existing evidence base to determine the likely implications of adopting a ‘do nothing’ strategy.

The two main providers of NGA infrastructure in the UK are Virgin Media and the BT subsidiary, Openreach. The plans of these companies are both discussed in more detail in this section, along with the likely impact of central government initiatives.

4.1 Virgin Media

Virgin Media is the UK’s only cable operator¹⁰. It was formed through the combination of the two cable companies, ntl and Telewest.

Virgin Media operates a hybrid fibre coax network for residential cable connections, which has optical fibre already deployed to street cabinets. This advanced fibre access network enables faster and higher-quality broadband services than over DSL. A twin cable consisting of coaxial cable and twisted copper-pair elements delivers broadband to the customer. The network enables video-on-demand services and interactivity to be offered via a set-top box. Virgin Media has rolled-out DOCSIS 3.0¹¹ technology across its network enabling download speeds of up to 50Mbit/s.¹²

Virgin Media provides coverage to about 74% of premises in Pennine Lancashire, covering the majority of urban and suburban areas. This compares favourably to the 54% coverage of regional premises across the North West. One key observation regarding Virgin Media coverage is that Ribble Valley has very low coverage, mainly due to its high rurality.

The NGA coverage map of Virgin Media in Pennine Lancashire is shown in Figure 4.1 below.

¹⁰ With a few exceptions where some small-scale networks are in place serving areas, such as the Isle of Wight.

¹¹ DOCSIS 3.0 is the latest version of the standard that permits the addition of high-speed data transfer to existing HFC infrastructure.

¹² Although the technology is proven for delivery up to 200Mbit/s.

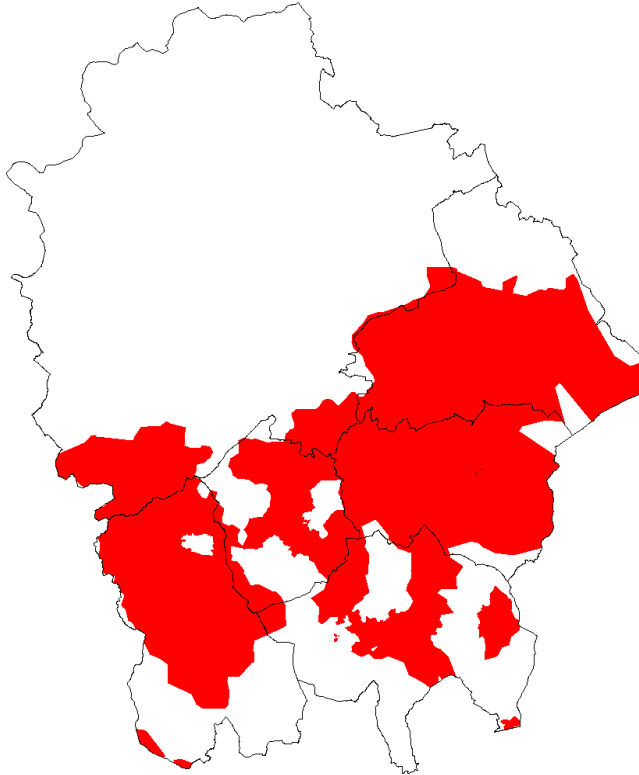


Figure 4.1: Virgin Media NGA coverage [Source: Analysys Mason and Virgin Media]

Virgin Media has made no public announcement that it intends to significantly extend its network coverage, and the existing coverage in Pennine Lancashire is assumed to remain the same until after 2015.

4.2 Openreach (BT)

Openreach operates the existing copper phone line network as an open-access wholesale network, and has a strong track record of attracting a large number of retail service providers. Openreach has launched NGA services in parts of the country, and has announced its intention to deploy NGA to two-thirds of the UK by upgrading certain exchanges. The majority will use FTTC technology, while FTTP is expected to account for 20-25% of the roll out, and will be prioritised in new build areas.

Analysys Mason has carried out an analysis, at postcode level, of the likely availability of Openreach serving different parts of the sub-region with NGA, based on previous announcements by Openreach and our own analysis. Openreach has announced the first 633 exchanges that will be upgraded, which serve 9.3 million UK premises, or 35% of the UK. Six of the announced exchanges serve premises in Pennine Lancashire, and although some of the exchanges themselves are located outside of the sub-region, their coverage areas extend into Pennine Lancashire.

Exchange code	Exchange name
LCACC	Accrington
LCASB	Astley Bridge
LCRAM	Ramsbottom
LCROC	Rochdale
LCROS	Rossendale
MRBUR	Bury

Figure 4.2: Announced exchanges serving Pennine Lancashire premises [Source: Analysys Mason and Openreach]

Using the methodology and model adopted in the Broadband Stakeholder Group (BSG) study on NGA deployment costs¹³, Analysys Mason has estimated the areas that Openreach is most likely to cover by 2015 in addition to the announced exchanges. Openreach’s NGA coverage is expected to extend to all major urban centres in the sub-region during this timeframe.

Using the list of upgraded exchanges and our analysis to forecast future coverage, we predict that Openreach will roll-out NGA to 58% of premises in Pennine Lancashire compared to its national target of 66%. The lower figure for Pennine Lancashire is mainly due to the high level of rurality in the sub-region. The expected NGA coverage by Openreach is shown in Figure 4.3 below.

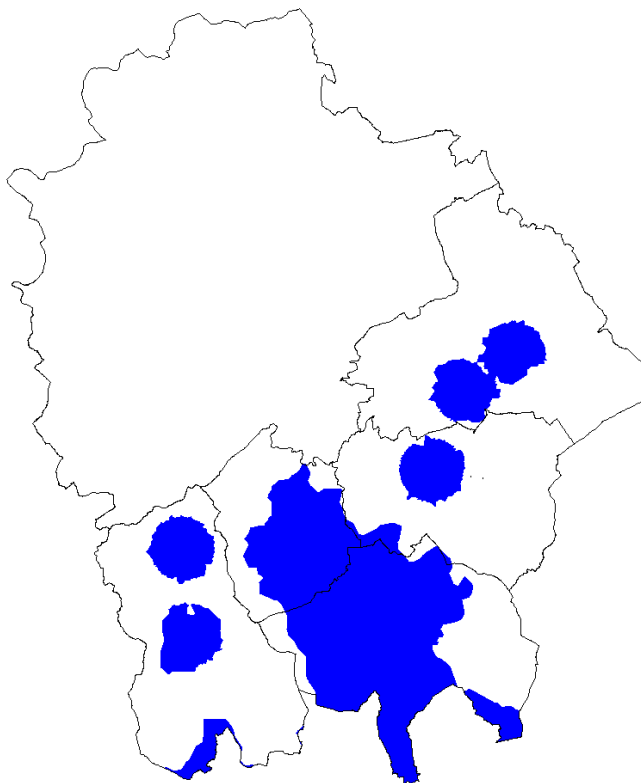


Figure 4.3: Expected Openreach NGA coverage in 2015 [Source: Analysys Mason]

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http://www.broadbanduk.org/component/option,com_docman/task,doc_details/gid,1036/

4.3 Other broadband networks

There is the potential for investment in NGA from other operators, such as H2O Networks, Geo and Vtesse Networks; however Analysys Mason is not aware of any intentions to invest in Pennine Lancashire.

The other main telecoms network that is operational in the area is that of elancs.net, a private company providing wireless Internet access for business premises in Ribble Valley, Pendle and areas of Central Lancashire. elancs.net provides a wide range of symmetrical broadband services, ranging from 1Mbps (GBP350 installation and GBP150 monthly) to 50Mbps (GBP1000 installation and GBP1650 monthly). The technology uses microwave technology, which is costly to deploy due to the need for dedicated point-to-point links and expensive customer premises equipment, as evidenced by the high retail prices.

TheWitchHighway.co.uk is associated with elancs.net, and provides wireless broadband services to residential premises in the same areas. There are two types of services provided – Standard (GBP19.50 monthly) and Priority (GBP29.50 monthly). The actual service proposition is not defined on the website, and we do not have details of service take-up for elancs.net.

The elancs.net network may provide valuable coverage to 1st generation broadband ‘not-spots’, however the performance of the network cannot compete with fibre based NGA technologies unless expensive PTP links are installed.

4.4 Central government initiatives

The UK government recognises the importance of NGA to the digital economy, and the economic benefits that it is likely to stimulate. On 08 June 2010, Jeremy Hunt, the Secretary of State for Culture, the Olympics, Media and Sport, made a speech outlining the new coalition government’s plans for improving broadband infrastructure in the UK. In this speech he confirmed the government’s commitment to delivering a 2Mbit/s Universal Service Commitment (USC) by 2012, and to promoting the deployment of ‘superfast’ NGA broadband across the UK.

Broadband Delivery UK (BDUK) has been established to plan and implement the national initiatives. BDUK currently has four primary goals:

- To ensure delivery of the 2Mbps Universal Service Commitment (USC) within the lifetime of this parliament (2015).
- To ensure this country has the best superfast broadband in Europe by the end of this parliament (2015).
- To ensure the efficient use of funding to deliver Universal Service Commitment and Superfast Broadband.
- To assist other Government initiatives that are dependent upon customers’ ability to access Broadband based services.

The two main initiatives, the USC and the Final Third Project are discussed below.

4.4.1 Universal Service Commitment

The USC will deliver 2Mbit/s broadband services to all of the UK by 2015, using a mix of technologies. The USC is a policy to ensure that all of the UK is able to access current-generation broadband, and is not specifically designed to increase NGA availability. However, in some areas, the most cost-effective solution may be to deploy NGA, so the USC may deliver some limited NGA in the UK. The *Digital Britain* report estimated that around 420 000 homes would benefit from NGA as part of the USC. The USC is proposed to be funded using a GBP200 million under-spend from the Digital Switchover Help Scheme, and funding from the television licence fee.

The recently published EC Digital Agenda for Europe set the target of 2013 for providing universal access to basic broadband, and, in time, we would expect the government to re-assess its targets in response to the EC agenda.

The proposed USC would be in addition to existing Universal Service Obligations (USO) placed on BT. These existing obligations include measures such as provision of telephone lines to all¹⁴ premises, functional Internet access (i.e. dial-up), social tariffs, telephone boxes, text relay services, directory inquiries, and 999 services. The USC would not necessarily be implemented by BT, and will be legally distinct from the existing USO.

4.4.2 Final Third Project

The EC Digital Agenda sets the target that, by 2020, all EU citizens have access to fast broadband of at least 30Mbps and 50% or more of European households have access to broadband at speeds above 100Mbps. The UK government supports this target, and BDUK is investigating potential models through which the government can increase NGA supply.

As described in our work for the BSG¹⁵ and the Digital Britain report, the costs of NGA deployment are likely to be significantly higher for the final third of the UK, and therefore there is a strong chance that the market will not deliver NGA to these areas. Openreach has announced its intention to provide NGA to 66% of the UK.

To address this likely lack of NGA deployment to the final third, BDUK is planning a 'Final Third Project' involving public sector funds. Details of the scheme are under development, but the funds are likely to be raised from the TV licence fee, and could extend coverage to beyond 90% of UK premises.

¹⁴ Some premises are excluded due to very high installation costs.

¹⁵ http://www.broadbanduk.org/component/option,com_docman/task,doc_details/gid,1036/

4.4.3 The ‘do-nothing’ outcome for NGA

With no intervention from the public sector, 82% of Pennine Lancashire premises are likely to be covered by NGA networks by 2015, leaving 18% of premises in ‘white’ areas. The breakdown of this coverage is summarised in the table below.

NGA coverage	Number of premises	Percentage covered
Virgin Media coverage	177,761	74.0%
BT coverage	128,262	53.4%
Virgin Media & BT coverage	109,294	45.5%
No NGA coverage	43,523	18.1%

Figure 4.4: Summary of forecast 2015 NGA coverage [Source: Analysys Mason]

Figure 4.5 shows the expected NGA coverage of both Virgin Media and Openreach in Pennine Lancashire by 2015. It shows that all major urban centres are expected to receive NGA coverage; however there are large unserved areas, particularly in Ribble Valley.

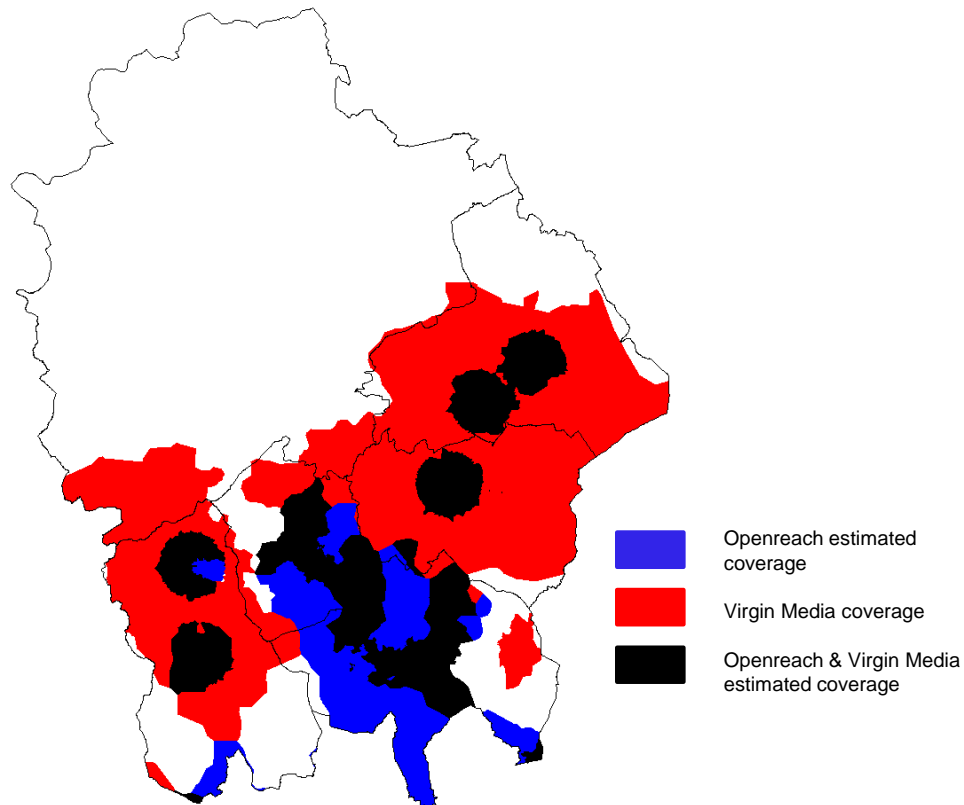


Figure 4.5: Virgin Media and Openreach expected NGA coverage [Source: Analysys Mason]

4.5 EC guidelines on public sector intervention in broadband networks

The EC guidelines on State aid determine the eligibility of an area to receive public sector support, based on the number of operators providing NGA coverage within a time horizon of three years.

“The Commission has consistently made a distinction between areas where no broadband infrastructure exists or is unlikely to be developed in the near term (white areas), areas where only one broadband network operator is present (grey areas) and areas where at least two or more broadband network providers are present (black areas).”¹⁶

The EC has indicated that State aid would not generally be acceptable in ‘black’ areas, and that public investment in ‘grey’ areas can only be justified if there is evidence that existing supply does not meet market demand, such as an area with many information-intensive businesses, or areas where further supply can drive economic development.

To ensure compliance with EC guidelines, Analysys Mason has analysed the expected NGA coverage in Pennine Lancashire, and determined which areas fall into the white, grey and black definitions. Although the EC specifies a three-year time horizon for the analysis of white, grey and black areas, this strategic action plan assumes a more prudent approach by considering likely developments up to 2015. This is in line with BT’s announced target of 2015 for achieving 66% NGA coverage.

Figure 4.6 below provides an estimate of the white, grey and black areas in Pennine Lancashire by the end of 2015. It should be noted that the estimated future coverage areas are based on analysis of publicly available information, and are subject to change as more detailed plans are announced. For example, areas indicated as being black on the map may have ‘pockets’ of grey or white areas. The map is based on Analysys Mason’s best estimate of the likely coverage from Openreach using the ‘geotype approach’ adopted in our work for the BSG. The analysis enables a forecast to be made of the likely prioritisation of areas for NGA roll-out.

The EC State Aid guidelines are essential guidance to help public authorities determine which areas are appropriate for broadband intervention schemes. A geographical analysis, as recommended by the EC guidelines, has been carried out to produce the Black White Grey (BWG) map in Figure 4.6 below.

¹⁶

Source: *Communication from the Commission: Community Guidelines for the application of State aid rules in relation to rapid deployment of broadband networks*, Official Journal of the European Union, 30 September 2009.

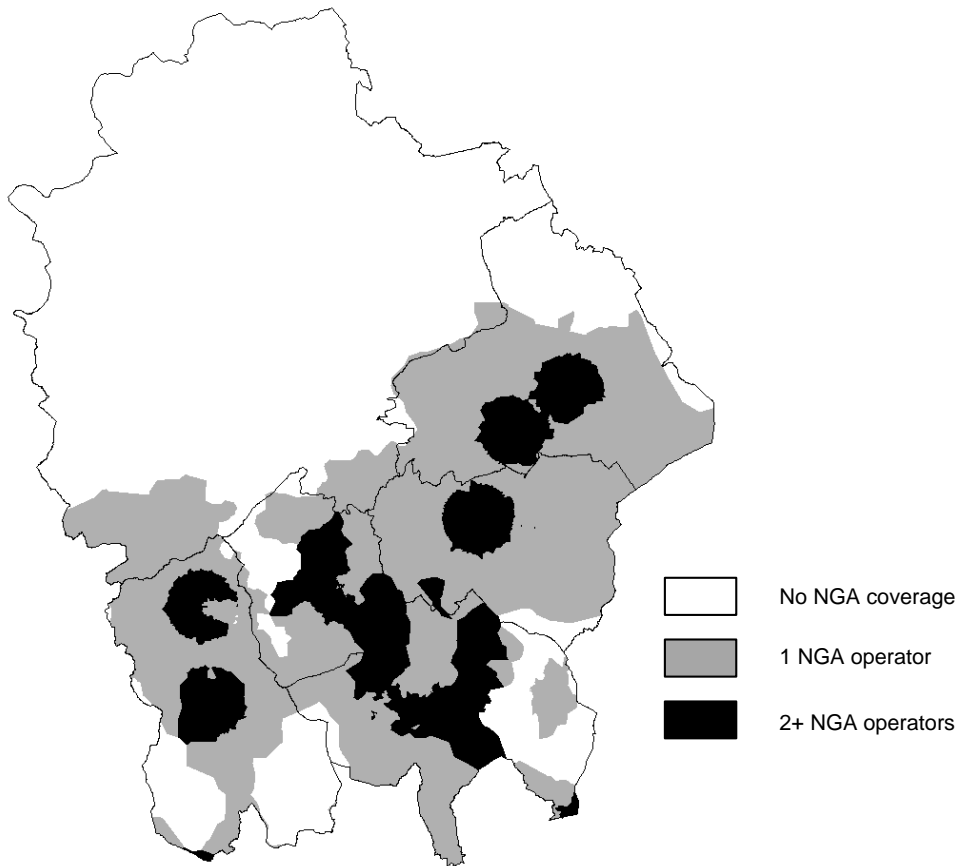


Figure 4.6: BWG map for Pennine Lancashire [Source: Analysys Mason]

An alternative copy of the map is provided in Annex A, which is overlaid onto an Ordnance Survey map to give more geographic context to the information.

The breakdown of each borough's premises into 'white', 'black' and 'grey' areas is shown below.

Area	Total no. of premises	Black area	Grey area	White area
Pennine Lancashire	240,252	48.1%	35.5%	16.4%
Blackburn with Darwen	62,099	54.5%	42.9%	2.6%
Burnley	42,355	54.2%	45.8%	0.0% ¹⁷
Hyndburn	37,884	50.8%	40.6%	8.6%
Pendle	41,160	65.8%	15.1%	19.1%
Ribble Valley	25,328	0.0%	17.5%	82.5%
Rossendale	31,426	39.3%	42.1%	18.6%

Figure 4.7: 'Black', 'white' and 'grey' areas breakdown [Source: Analysys Mason]

¹⁷ Our geographic analysis found just five premises in Burnley that were in the predicted 'white' areas. For the purpose of this strategic action plan these have been treated as outliers and it is assumed that Burnley will be fully covered with NGA. The plan is however flexible to account for the fact that intervention may be required in Burnley if actual private sector deployment differs from our prediction.

Analysys Mason estimates that around 16% of Pennine Lancashire's premises are in white areas; however there are large differences between the boroughs. It can be seen that Ribble Valley consists mostly of white areas and has no black areas, while Burnley and Blackburn with Darwen are expected to have close to 100% NGA coverage by 2015. The shortcomings of a 'do nothing' scenario

There are five areas in which a 'do nothing' approach will result in shortcomings against the sub-region's vision for NGA:

- **non-universal coverage of NGA** – about 18% of premises will not have NGA provision, and that means not all residents can enjoy the transformational benefits of NGA.
- **limited availability of FTTP** – the majority of fibre coverage from BT is expected to be FTTC, because deploying FTTP is more expensive. This scenario means that the requirements of information intensive sectors, such as the advanced manufacturing sectors, may not be met in the short and medium terms
- **slow deployment of NGA** – it may take a long time to have more NGA deployed by BT after its 2015 target is met
- **limited number of service providers** – our forecast shows that only 46% of premises are likely to have access to more than one NGA network by 2015. Without public sector intervention, only 58% of citizens will have access to competitive retail products over Openreach's open access network
- **below average take-up** – the benefits of NGA will be diluted if broadband take-up is not increased. The MMA states that current broadband adoption in the sub-region is below the national average, and demand stimulation is necessary to resolve this issue.

The strategic action plan in Section 6 is designed to address these shortcomings in order to achieve the vision.

5 The cost of deploying NGA infrastructure

Analysys Mason expects around 18% of the Pennine Lancashire premises to be in ‘white’ areas, where the private sector is unlikely to provide them with NGA infrastructure by 2015. Given this likely gap in NGA availability, it is assumed that PLACE would wish to invest in enabling NGA to be provisioned to these areas, if appropriate funding could be secured.

Using the methodology and model adopted in the Broadband Stakeholder Group (BSG) study on NGA deployment costs¹⁸, we have estimated the costs of deploying NGA to the ‘white’ areas in each of the boroughs in Pennine Lancashire. The table below summarises these costs based on three different NGA technologies.

<i>Area</i>	<i>Premises in ‘white’ areas</i>	<i>FTTC / VDSL (GBP)</i>	<i>FTTP using GPON (GBP)</i>	<i>FTTP using PTP (GBP)</i>
Blackburn with Darwen	1648	0.4m	2.7m	3.0m
Burnley	0	0	0	0
Hyndburn	3262	1.2m	4.5m	5.4m
Pendle	7858	1.5m	6.3m	7.1m
Ribble Valley	20 888	6.1m	29.2m	33.2m
Rossendale	5848	1.6m	7.2m	8.4m
<i>Pennine Lancashire</i>	<i>39 504</i>	<i>10.8m</i>	<i>49.9m</i>	<i>57.1m</i>

Figure 5.1: *Estimated cost of deploying NGA in white areas [Source: Analysys Mason]*

As expected, the estimated cost of deploying Fibre to the Cabinet (FTTC) is significantly lower than the Fibre to the Premise (FTTP) technologies. FTTP using a Point to Point (PTP) topology is more expensive than FTTP using Gigabit Passive Optical Network (GPON) because the former provides a dedicated (uncontended) fibre line to the premise.

Although the private sector is unlikely to invest in ‘white’ areas without support, public sector investment should aim to leverage private sector funding as much as possible. BT has announced that Openreach will be investing GBP2.5 billion to provide NGA to 66% of UK premises. Based on this we have assumed that there is a business case for Openreach to invest around GBP135 per premise to connect them with NGA.

¹⁸ http://www.broadbanduk.org/component/option,com_docman/task,doc_details/gid,1036/

Assuming that the private sector is willing to extend this same level of investment into ‘white’ areas, the level of public sector subsidy required would be greatly reduced. The table below summarises the inferred amount of subsidy required from the public sector to deploy NGA to the ‘white’ areas of Pennine Lancashire. A subsidy of GBP5.4 million is estimated to be required to support a FTTC deployment, but this increases to GBP51.8 million for a FTTP (PTP) deployment. It should also be noted that the level of investment per household that the private sector is willing to invest will be sensitive to the return on investment they expect to receive. This, in turn, is affected by the wholesale access obligations that are in place, and by the higher levels of network operational costs that can be expected in more rural areas.

<i>Area</i>	<i>No. of premises in White area</i>	<i>FTTC / VDSL (GBP)</i>	<i>FTTP using GPON (GBP)</i>	<i>FTTP using PTP (GBP)</i>
Blackburn with Darwen	1648	0.2m	2.5m	2.7m
Burnley	0	0	0	0
Hyndburn	3262	0.8m	4.1m	5.0m
Pendle	7858	0.4m	5.3m	6.1m
Ribble Valley	20 888	3.3m	26.4m	30.4m
Rossendale	5848	0.8m	6.4m	7.6m
<i>Pennine Lancashire</i>	<i>39 504</i>	<i>5.4m</i>	<i>44.6m</i>	<i>51.8m</i>

Figure 5.2: *Estimated subsidy required to deploy NGA in white areas [Source: Analysys Mason]*

6 The strategic action plan

In the previous sections we have identified the potential problems of a ‘do-nothing’ scenario and summarised the shortcomings in relation to PLACE’s strategic objectives. From the identification of the shortcomings, we have been able to prepare a suitable action plan to address them.

6.1 Developing the strategic action plan

In order to develop a strategic action plan that is both attainable and relevant to the capabilities and ambitions of those who will deliver it, we have sought to establish the preferred roles of the various stakeholders, and the level of available funding. To develop this understanding we explore the feedback obtained during the stakeholder workshop regarding:

- availability of funding for the delivery of actions
- the role of PLACE in the delivery of the strategy.

6.1.1 Availability of funding for the delivery of actions

In the context of the current economic climate and public sector cuts, the level of public funding available for intervention activities in NGA is likely to be constrained. There are, however, a wide range of funding sources that could potentially be used by PLACE to deliver aspects of the strategic action plan, assuming NGA can be prioritised above other issues and initiatives that seek public funding, such as housing and transport. A number of sources of potential funding are summarised in Figure 6.1.

No.	Name	Description
1	Broadband Delivery Fund (BDF)	<p>BDUK is investing in at least three pilot projects for Superfast broadband. The aim of this initiative is to collect practical data and evidence to investigate actual cost of deployment in rural and hard-to-serve parts, impact of utility infrastructure sharing on changing the economics of private sector investment, and relative impact of demand registration, aggregation and other parallel stimulation activities. PLACE has submitted a proposal for a project involving a public/private partnership that leverages the sub-regions NHS network. The selection process will be happening in September this year, and the procurement phase is expected to begin in October, with contracts in place by March/April 2011. Additional projects are likely to be initiated by BDUK beyond this date.</p>
2	Regional Growth Fund (RGF)	<p>An announcement on the 22 of June 2010 (Budget) that GBP1 billion of funding from the UK Government will be made available across 2011/12 and 2012/13 (a period of two years) to support private sector growth in areas where the private sector is currently weakest. A consultation regarding RGF was launched on 23 July 2010, and more details about this fund will provided in autumn 2010. This fund is expected to target areas with high dependence on the public sector, with the aim that these areas grow rapidly to re-balance the economy. Central Government has indicated that this fund will be used for projects and initiatives that will have a positive impact on jobs growth in the private sector, using private/public partnerships preferably.</p>
3	European Regional Development Fund (ERDF)	<p>This fund has been made available by European Commission (EC) to strengthen economic and social cohesion in the European Union by correcting imbalances between its regions. ERDF can intervene in three objectives of regional policy:</p> <ul style="list-style-type: none"> • Convergence – focuses its intervention on modernising and diversifying economic structures, and safeguarding and creating sustainable jobs • Regional Competitiveness and Employment – prioritises innovation and the knowledge-based economy, environment and risk prevention, and access to transport and telecommunications services • European Territorial Cooperation – focuses on development of economic and social cross-border activities, establishment and development of trans-national cooperation, and increasing the efficiency of regional policy through inter-regional promotion and cooperation <p>Local authorities can apply for this funding to provide NGA in their regions, as evidenced by Digital Region (Yorkshire Forward) and Digital Cornwall, which have both benefited from this funding.</p> <p>ERDF money needs to be match funded, and the UK government cut backs could mean that previously allocated ERDF funding becomes available due to a lack of public sector match funding. Match funding can also come from the private sector, as designed for the Cornwall NGA project, and PLACE could leverage private investment in a similar way.</p>

No.	Name	Description
4	Joint European Support for Sustainable Investment in City Areas (JESSICA)	JESSICA is a new way of using European Union (EU) funding to promote sustainable investments and growth in urban areas. It is being developed by the EC and the European Investment Bank (EIB), in collaboration with the Council of Europe Development Bank (CEDB). Member States are being given the option of using some of their EU grant funding, under the new procedures, to make repayable investments in projects forming part of an integrated plan for sustainable urban development. The investments can be equity, loans and/or guarantees, and are delivered to projects via Urban Development Funds and, if necessary, Holding Funds. North West Development Agency (NWDA) has set up a EUR50 million JESSICA holding fund in cooperation with EIB to support projects to help regenerate sustainable development in urban areas of the North West. London Development Agency (LDA) has also signed a similar Memorandum of Understanding (MoU) for JESSICA.
5	Joint European Resources for Micro to Medium Enterprises (JEREMIE)	This initiative was developed in cooperation with the EC to provide an opportunity for EU Member States through their national or regional Managing Authorities to use part of their EU Structural Funds to finance SMEs by means of equity or loans or guarantees, through a revolving Holding Fund. The Structural Funds must be invested in SMEs by 2015. One North East has recently taken advantage of JEREMIE to set up a fund of GBP125 million in partnership with the European Investment Bank and European Union. The fund was made available in early 2010, and is intended to invest in three main areas: new start-ups, technology-based businesses and growing smaller businesses in the North East of England.
6	Funding channelled through DEFRA for rural development	On 15 July 2009 it was announced that as part of the European Economic Recovery Plan (EERP), the dairy industry and rural broadband in England would benefit from £5.2 million of new European funding. PLACE should keep a watching brief on DEFRA for future funding releases.
7	Local Enterprise Partnership (LEP)	LEP's may influence local authority budgets and other public funding that could potentially be used to deploy NGA. Other areas of the UK have used funding streams such as the Local Enterprise Growth Initiative (LEGI) and the Working Neighbourhoods Fund (WNF) to deploy NGA in the past.

Figure 6.1: Potential sources of funding for NGA [Source: Analysys Mason]

6.1.2 The role of PLACE in the delivery of the strategy

Public-sector interventions can take a variety of approaches. Figure 6.2 demonstrates how actions can be:

- supply side – e.g. reducing barriers to development, investing directly in infrastructure
- demand side – e.g. demand stimulation, marketing
- investment focused – e.g. investing directly in infrastructure
- facilitation focused – e.g. co-ordination between stakeholders, lobbying the private sector (putting greater focus on human resources rather than infrastructure investment).

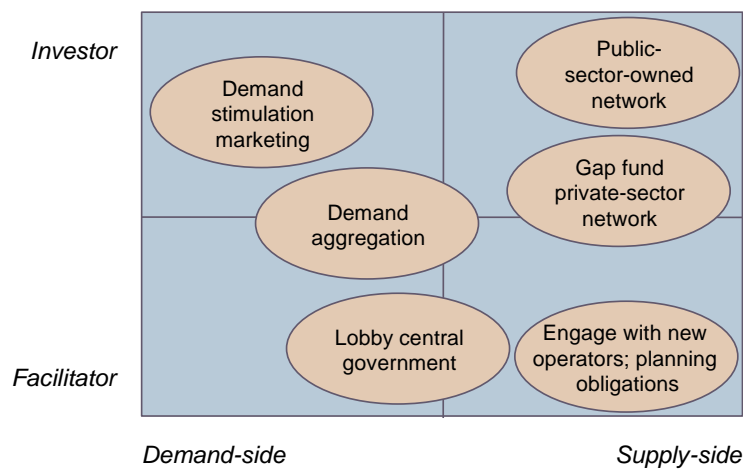


Figure 6.2: Example intervention actions
[Source: Analysys Mason]

Overall, through consultation with PLACE and its regional stakeholders, we understand that, due to the limited financial resources available for investment, the short-term focus of the strategy should be on facilitation-based actions. PLACE has a greater ability to perform roles that will be more intensive on human resources than financial ones, such as lobbying, policy making and co-ordination between stakeholders. However, the strategy will explore direct investment, should greater levels of funding become available in the future.

We also understand that PLACE wishes to explore both demand-side and supply-side actions, but, again, funding limitations will lessen the relevance of financially intensive supply-side measures.

The following section describes a number of potential actions on both the demand and supply-side, all of which are designed to contribute towards achieving the vision of:

The widespread take-up and use of NGA by all, to enable social and economic prosperity.

6.2 Summary of strategic action plan

We have identified a set of potential actions that address the shortcomings of the ‘do-nothing’ scenario, are broadly achievable within the funding constraints that currently exist, and that we believe, from our experience, represent credible actions that have succeeded elsewhere.

The potential actions are categorised into three types.

- Actions to support strategy delivery – to help implement the strategy operationally on a day-to-day basis, and to gather evidence and information that support demand and supply-side actions (see Section 6.3.1)
- Demand-side actions – to ensure there is evidence of demand in the market (see Section 6.3.2)
- Supply-side actions – to ensure delivery of digital infrastructure (see Section 6.3.3).

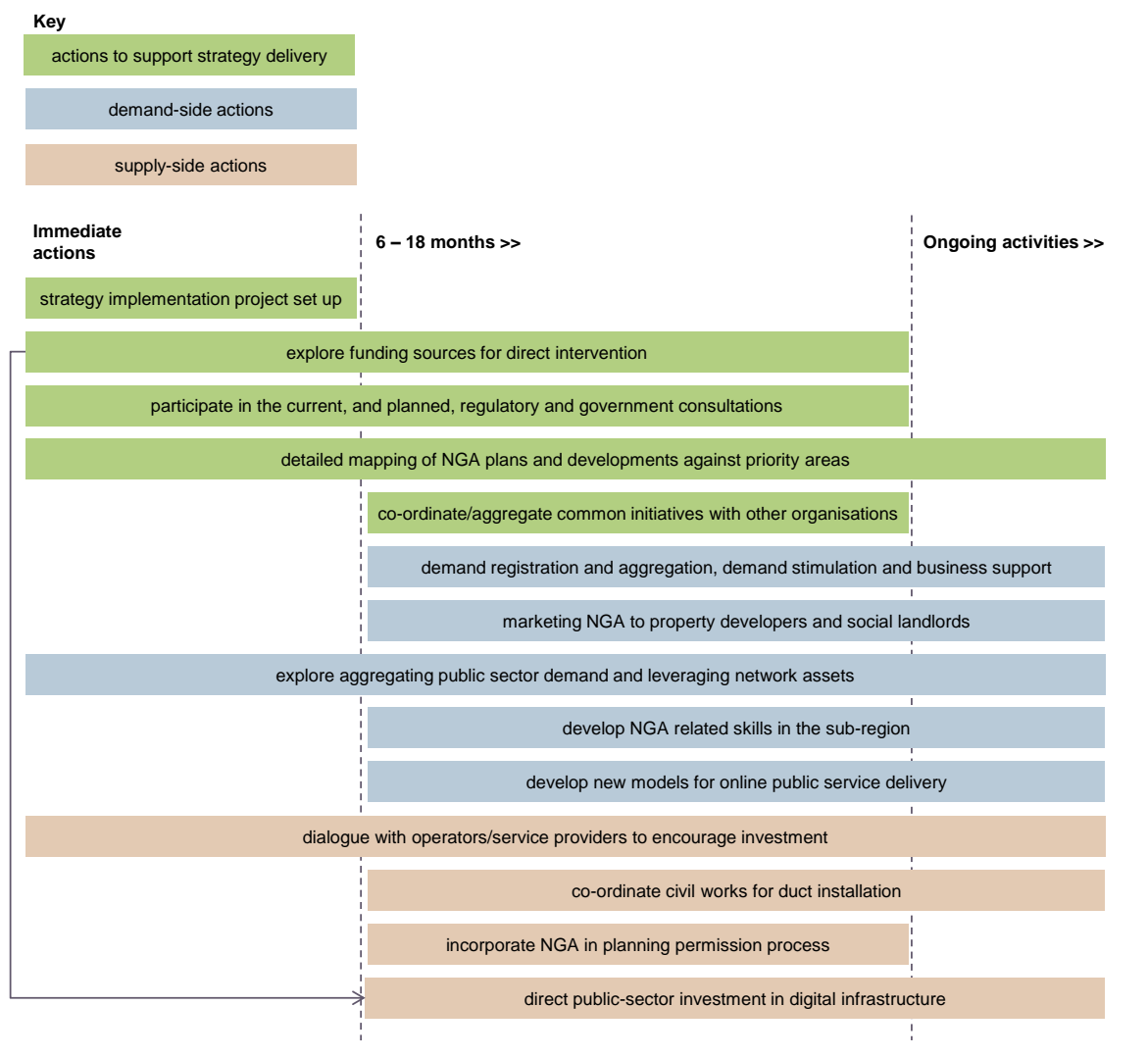


Figure 6.3: Summary of strategic action plan [Source: Analysys Mason]

6.3 Actions in detail

For each action identified we provide the following information: **description; target outcomes and timings; stakeholder involvement; indicative cost; and key issues and challenges.**

6.3.1 Actions to support strategy delivery

- Strategy implementation project set up (Figure 6.4).
- Explore funding sources for direct intervention (Figure 6.5).
- Participate in the current and planned regulatory and government consultations (Figure 6.6).
- Detailed mapping of NGA plans and developments against priority areas (Figure 6.7).
- Co-ordinate/aggregate common initiatives with other organisations (Figure 6.8).

Action	Overview
1. Action: Strategy implementation project set-up	
Description	There is a need to identify and try to secure funding for a strategy delivery project team. Resources need to be identified and an operational budget prepared and approved. A project initiation document (PID) should be prepared, including identification of risks and mitigation actions, should some of the actions not achieve the desired outcomes
Target outcomes and timings	A project team and an approved operational budget should be secured within three to six months of the acceptance of the strategic action plan
Stakeholder involvement	PLACE should formulate a steering group or project board to oversee the strategy delivery project team; however this may form part of the remit of an existing steering group
Indicative cost	Costs will depend on the level of commitment from the strategy, but are likely to include staff and office accommodations costs. These may, or may not, be available from existing budgets, but will be used to support a number of the activities in this strategic action plan
Key issues and challenges	Securing the operational budget and availability of suitable candidates to formulate the project team within the suggested timescales

Figure 6.4: Strategy implementation project set-up

Action	Overview
2. Action: Explore funding sources for direct intervention	
Description	The funding sources identified in section 6.1.1, and others that may be found through additional investigation, should be explored in greater detail to understand eligibility criteria, timing of funding availability, limitations and constraints, and their suitability with regards to PLACE's digital connectivity objectives. Funding applications should be made when it is considered likely that the application could be successful and the funding can be deployed appropriately
Target outcomes and timings	It should be feasible to qualify a set of funding sources shortly following the establishment of the project team. The task should, however, be ongoing, and the identification and management of funding sources should form part of the agenda for project board meetings
Stakeholder involvement	The PLACE project board should guide the project team, but most effort will reside with the project team
Indicative cost	The costs should be containable within the cost of operating the project team, except where specialist advice is sought. A budget for specialist advice should be considered
Key issues and challenges	PLACE will need to agree priorities for investment if public-sector funds become available, and there is flexibility in their deployment, e.g. they could be used to focus on business, or it could be directed towards a digital inclusion initiative

Figure 6.5: Explore funding sources for direct intervention

Action	Overview
3. Action: Participate in the current, and planned, regulatory and government consultations	
Description	To maintain understanding of market developments and, potentially, to influence legislative outcomes, the project should consider responding to current, and planned, regulatory and government consultations on market developments. PLACE should actively monitor consultations and publications from BIS, BDUK, Ofcom and the EC, and develop responses, where appropriate
Target outcomes and timings	The team should respond to consultations by the consultation deadlines, and aim to achieve the desired outcomes in subsequent changes to legislation. For example, influencing Ofcom to improve the competitive environment or promoting common network standards
Stakeholder involvement	The project team, and, potentially, project board members, would be involved in these activities
Indicative cost	The costs should be containable within the cost of operating the project team, except where specialist advice is sought
Key issues and challenges	The influence of PLACE to alter the direction of consultations on its own may be limited. A collaborative approach to consultations with like-minded local and regional bodies may be appropriate in some cases

Figure 6.6: *Participate in the current, and planned, regulatory and government consultations*

Action	Overview
4. Action: Detailed mapping of NGA plans and developments against priority areas	
Description	PLACE should engage in dialogue with suppliers of NGA and BDUK to maintain an up-to-date view of NGA plans in the sub-region. As plans are identified they should be mapped to as granular level of detail as is available. PLACE should also identify any key strategic areas, such as employment sites or areas of high demand (informed by the demand registration activities in the next section), or 'not-spot' areas without access to 1st generation broadband. By graphically comparing this supply and demand data, it will be possible for PLACE to identify priorities for its intervention activities
Target outcomes and timings	Detailed and up-to-date maps of NGA plans, as well as priority areas, will be an essential tool in planning and prioritising intervention activities. The outputs of this activity should be communicated to public sector stakeholders across the sub-region, and should be updated regularly as new information becomes available
Stakeholder involvement	The mapping should be developed in conjunction with BDUK and private sector operators, who may provide support in creating the maps of intended supply
Indicative cost	The costs should be containable within the cost of operating the project team, except where specialist advice is sought
Key issues and challenges	Private sector companies are often reluctant to disclose or commit to exact details of their roll-out plans. Plans are also likely to change in response to market developments, so ongoing dialogue and updating maps will be necessary

Figure 6.7: *Detailed mapping of NGA plans and developments against priority areas*

Action	Overview
5. Action: Co-ordinate/aggregate common initiatives with other public sector organisations	
Description	The project should co-ordinate – and potentially develop – joint actions with other organisations, such as LEPs and other local authorities close to Pennine Lancashire. This could have the benefit of aggregating resources and funding for more efficient and effective action delivery, as well as providing consistency. The supplier workshop confirmed that scale of operations is a very important consideration for the private sector, and co-ordinating intervention activities with other neighbouring areas will provide a greater incentive for the private sector to take action PLACE should also coordinate its actions with those of BDUK and the EC, to ensure that effort is not replicated
Target outcomes and timings	This task should result in the more efficient use of PLACE's resources. Engaging with BDUK will be necessary to prevent PLACE from expending resources on projects that BDUK may otherwise have funded. The task should be initiated immediately but should be an ongoing activity, and tracking and coordinating with other public sector initiatives should form part of the agenda for project board meetings
Stakeholder involvement	The project team would be involved in joint actions with other organisations. Other stakeholders may also be involved, depending on the nature of any joint initiatives
Indicative cost	The costs should be containable within the cost of operating the project team. It may be possible to demonstrate cost savings from collaborative actions
Key issues and challenges	Agreeing the precise actions and timing of actions, with other organisations is not always a smooth process, and compromises may be necessary. The more organisations that are involved, the greater the complexity and challenge to reach agreement. We suggest PLACE takes a leading role in preparing action plans and inviting a limited number of organisations initially to collaborate. Additional organisations can be incorporated after the initial collaboration is proven. Any delay in reaching agreement for collaboration should not compromise the delivery of the digital infrastructure strategy

Figure 6.8: *Co-ordinate/aggregate common initiatives with other public sector organisations*

6.3.2 Demand-side actions

- Demand registration and aggregation, demand stimulation and business support (Figure 6.9).
- Marketing NGA to property developers and social landlords (Figure 6.10).
- Explore aggregating public sector demand and leveraging network assets (Figure 6.11).
- Develop NGA related skills in the sub-region (Figure 6.12).
- Develop new models for online public service delivery (Figure 6.13).

Action	Overview
1. Action: Demand registration and aggregation, demand stimulation and business support	
Description	<p>This represents an integrated set of demand-side initiatives to stimulate the market and generate a 'buzz' around NGA. The business case for a private investor to roll out NGA infrastructure is greatly influenced by the level of take-up it expects to achieve</p>
	<i>Demand registration</i>
	<p>Demand registration schemes are a proven method of providing evidence of the level and location of demand for digital services, and potentially of providing indicators of other factors, such as willingness to pay. PLACE should have an active role in the measurement and aggregation of demand levels. Information can be passed on to infrastructure operators and used as a tool to lobby for network improvements. This activity should include the identification of areas where there is significant demand for FTTP services, and FTTC may be insufficient. The supplier workshop confirmed the importance of this activity, as demand levels can make or break a business case for NGA investment</p>
	<i>Demand stimulation and business support</i>
	<p>To stimulate demand, and thereby increase demand registrations, a structured communication programme and marketing campaign should be used to raise awareness and educate the community about digital services. This could be conducted in collaboration with suppliers. Other projects, such as Cornwall ActNow achieved higher-than-UK-average take-up levels of first-generation broadband from proactive demand-side actions to stimulate demand and by providing business support packages. PLACE could carry out a similar campaign to stimulate demand for next-generation services among the sub-region's consumers and businesses where NGA is available</p>
	<p><i>Demand stimulation can be developed further into structured business support packages to educate and promote the use of digital technologies to businesses. This should utilise the most appropriate local business channels</i></p>
	<p>Some segments of society, particularly older generations and low-income groups, have a higher tendency to be digitally excluded. PLACE should work to identify any barriers to uptake of broadband and address these through its demand stimulation activities. A key driver of digital exclusion is that broadband services are not perceived as relevant to their lives and there is a low understanding of the benefits. This perception is, in part, due to lack of exposure to ICT and the Internet through formal education or employment. Demand stimulation campaigns can address these issues and promote e-inclusion. Demand among digitally-excluded segments of society may however be more difficult to stimulate due to financial constraints. PLACE should maintain an understanding of initiatives promoted and implemented by the Office of the UK's Digital Champion, Martha Lane-Fox</p>
Target outcomes and timings	<p>By quantifying and aggregating demand in the sub-region, PLACE could demonstrate its value to potential investors and show that the locality is well positioned to benefit from early stages of national initiatives led by BDUK – thereby accelerating deployment of digital infrastructure. PLACE should present any demand registration outputs to existing infrastructure operators as well as new investors such as H2O or IFNL</p>
	<p>The set-up, operation and monitoring of an integrated demand registration and stimulation scheme should be in place throughout the short term up to 2015, working to a detailed plan of activities. The different strands of activity will occur at different times, typical of a structured marketing campaign.</p>
	<p>The demand stimulation action should aim to achieve a target take-up of NGA services that is 5% above the national average at 2015</p>
	<p>A business support scheme should aim to deliver direct support to a target number of businesses. The number of businesses that can be targeted is dependent on the resources available</p>

Stakeholder involvement	<p>Demand registration and stimulation could operate (and have funding support) via collaboration with other local, regional, and possibly national, organisations. It is appropriate to consult with LEPs, regional development agencies (RDAs) (or replacement regional arrangements) and nearby local authorities. A national scheme may be most successful, and PLACE should aim to leverage methodologies and systems from elsewhere e.g. the EREBUS system developed by East of England Development Agency. Aggregating demand levels across neighbouring sub-regions would provide a more compelling case for investors, which wish to engage in larger-scale initiatives</p> <p>PLACE should engage with operators (a core part of the potential audience for demand data) in the design of any registration process to ensure that its outputs are credible to support their internal investment cases. It should also help with operator processes for identifying where to deploy new infrastructure. Indeed, such schemes may be run in partnership with operators, and also may have involvement from community groups</p> <p>Demand stimulation activities should be planned in co-operation with private-sector operators that have experience in marketing digital services. PLACE may play a role in supporting the marketing activities of existing or new entrants such as the ISPs that will operate on Openreach's NGA network. It is possible that a marketing agency would be appointed to manage marketing campaigns, which would target businesses and consumers across the borough. PLACE should also consult with any organisations that have been involved in previous e-inclusion work in Pennine Lancashire, to ensure appropriate knowledge transfer.</p> <p>For businesses, there may be local business channels which can lead or support the marketing activities. Business support services could be provided to take businesses from awareness through to implementation and application, ensuring that any barriers associated with increased costs of NGA can be offset by demonstrating efficiency savings and improved ways of working</p>
Indicative cost	<p>The cost of the demand registration process would be highly dependent on factors such as survey method, sample size, and the granularity of output data. Costs could be minimised by running a Web-based registration scheme and marketing activities, though this would obviously only target those with access to current-generation broadband. Direct mail, telephone-based surveys and community activities may be more appropriate for digitally-excluded groups</p> <p>The cost of demand stimulation activities, such as a marketing campaign, would be dependent on factors such as the target audience and the communication channels used. Marketing costs for a similar project came to GBP1.4 million to fund a two-year campaign targeting over 90% of 26 000 businesses. PLACE could employ lower-cost communication methods (e.g. above-the-line advertising and direct mail). As the majority of early adopters of NGA services will be existing Internet users, geographically-targeted Web advertising could be a cost-effective tool for raising awareness and tracking interest through a Web survey. Costs could also be minimised by targeting segments of the population where messages are expected to have the greatest impact</p> <p>It may be possible to recoup some of the costs of a marketing campaign through contributions from service providers that would benefit from increased demand. The potential for joint campaigns with telecoms companies should be investigated in more detail. There are not likely to be any State aid implications in this area so long as any activity is generic and is not biased towards any single provider of NGA</p>
Key issues and challenges	<p>Demand registration activities must provide all of the information needed by the different stakeholders and gain the appropriate level of commitment. It will therefore be important to engage commercial operators seeking to invest in digital infrastructure to ensure that this action will be credible</p> <p>For demand stimulation, any marketing campaign would need to efficiently target the appropriate individuals and businesses in the region. The key challenge will be to design a compelling marketing campaign(s) that reach out not only to those people who are unsure of the benefits of NGA, but also to digitally-excluded groups that have resisted adoption of even current-generation broadband. A key challenge of the demand stimulation campaign would be designing effective messages and a communications plan that targets those businesses and citizens where it can have the greatest impact</p> <p>For business support, the key issue is to design an effective support package that can be efficiently delivered, even though NGA services and use of NGA is still in its infancy</p>

Figure 6.9: Demand registration and aggregation, demand stimulation and business support

Action	Overview
2. Action: Market NGA to property developers/social landlords	
Description	<p>Extensive new property development is both planned and underway in Pennine Lancashire, with approximately 23,000 new homes planned over the next 15 years. NGA infrastructure can be installed in new builds at a much lower cost than existing sites. This opportunity is being lost, however, as current practices are not resulting in the necessary ducting or fibre infrastructure being installed. A key barrier to the installation of this ducting is that operators such as Openreach, which may be willing to invest in the infrastructure, are not involved early enough in the planning process. As NGA provision has been identified as potentially increasing the value of new properties, or being a minimum prerequisite in purchasing decisions, it is in the interest of developers to rectify this problem. PLACE could play a role by marketing to developers to ensure that digital services are given the necessary consideration and that operators are engaged earlier in the planning process</p> <p>We propose the project develops a structured model so that a co-ordinated approach is made to property developers and social landlords. The approach broadly involves explaining the benefits of NGA and introducing operators to property developers and social landlords so that plans for NGA installation are made without direct financial intervention by PLACE</p> <p>A fall-back position, if agreement is not possible between the relevant parties, would be to offer grants (assuming funding can be secured) or to mandate NGA infrastructure using planning laws (discussed further under supply side measures)</p>
Target outcomes and timings	This should be a short term priority action so that property developers and social landlords can be incorporated into the wider demand stimulation activities.
Stakeholder involvement	This activity will involve the project team with appropriate support and guidance from the project board
Indicative cost	The cost for this activity is covered by the budgets for the project team and demand stimulation activities
Key issues and challenges	From Analysys Mason's previous experience, there are numerous challenges associated with encouraging property developers and social landlords to ensure NGA investment is secured for new property builds. Developers do not, generally, understand the complexities of the telecoms market and, unless engaged early in the development lifecycle, will find it difficult to change investment plans to accommodate NGA. There will also be doubts about the return on investment in securing NGA for a development

Figure 6.10: *Market NGA to property developers/social landlords*

Action	Overview
3. Action: Explore aggregating public sector demand and leveraging network assets	
Description	<p>The public sector is a significant user of digital services and, where possible, demand from multiple public sector bodies should be aggregated and communicated to potential NGA suppliers. If the public sector is able to act as an anchor tenant for a new NGA network, this will improve the business case. There are existing fibre-optic network assets owned by the public sector in the sub-region. Of particular note are networks such as JANET and CLEO in the education sector. It may be possible to leverage these existing assets to help increase the wider supply of NGA. Such assets may have a particular role to play in providing alternative sources of backhaul for new networks. It may also be helpful to provide access to public sector land and buildings for deploying network equipment</p> <p>Lancashire County Council are currently in strategic partnership discussions for its public sector network, which includes elements to explore synergies with NGA ambitions</p>
Target outcomes and timings	<p>By aggregating demand from the public sector it may improve the business case for NGA investment and cause the private sector to prioritise Pennine Lancashire for its roll out. The planning of this activity should commence immediately but the timing of its implementation will be constrained by the terms of existing contracts between public sector organisations and telecoms operators</p>
Stakeholder involvement	<p>The project team should lead this activity however it should seek to involve of all public sector organisations in the sub-region, including local authorities, emergency services, the NHS, schools and Universities. If demand can be aggregated with neighbouring sub-regions this would provide a greater attraction for private sector investment</p>
Indicative cost	<p>The cost for this activity is covered by the budgets for the project team</p>
Key issues and challenges	<p>There are potential complications associated with State aid, commercial relationships and public procurement legislation in utilising public sector networks for delivery or stimulation of NGA investment. The variety of public sector contracts with different telecoms suppliers will also complicate the task of aggregating demand, as different public sector bodies will have different contract renewal dates</p>

Figure 6.11: *Explore aggregating public sector demand and leveraging network assets*

Action	Overview
4. Action: Develop NGA related skills in the sub-region	
Description	It will be important to develop skills in the sub-region to establish, operate, maintain and exploit NGA. This could include education programmes, apprenticeships or NGA R&D programmes in the North West's higher education institutions. The engagement of schools and other education establishments with communities will help to promote online learning and access
Target outcomes and timings	This activity should facilitate the deployment of NGA in the sub-region, as well as maximising the benefits derived from the infrastructure. Encouraging the development of technology and skills related to a growing technology will also benefit the local economy
Stakeholder involvement	The project team should lead this activity however the involvement of higher education institutions and technology providers will be key
Indicative cost	Costs for developing formal courses could be significant. However, using technology provider support and education institutions as a channel for seminars and workshops could raise awareness and encourage self-learning
Key issues and challenges	Engaging with education institutions and technology providers and determining what is needed and how to make it relevant and attractive will be the initial challenge. Identifying subsequent channels for widespread engagement by business and citizens to gain relevant skills will be a further challenge

Figure 6.12: *Develop NGA related skills in the sub-region*

Action	Overview
5. Action: Develop new models for online public service delivery	
Description	It is expected that public services, particularly health and education, will increasingly be delivered online and as their sophistication develops, the bandwidth needs will require NGA –level performance
Target outcomes and timings	Increasing effectiveness and decreasing costs by achieving greater use of online public services. Identifying where online public service delivery has facilitated NGA investment and take-up
Stakeholder involvement	This activity should be driven by individual local authorities, and service providers. PLACE should take a facilitation role and aim to ensure that Pennine Lancashire capitalises on other regional or national initiatives
Indicative cost	Optimising the delivery of public services should form part of the budgets of individual public sector organisations
Key issues and challenges	Improved public service delivery will stimulate demand for NGA, however alternative delivery channels (e.g. walk-in centres, telephone) will still be required so as to avoid further alienating the digitally excluded

Figure 6.13: *Develop new models for online public service delivery*

6.3.3 Supply-side actions

- Initiate and maintain dialogue with operators/service providers to encourage investment (Figure 6.14).
- Co-ordinate civil works for duct installation (Figure 6.15).
- Incorporate NGA in planning permission process (Figure 6.16).
- Direct public-sector investment in digital infrastructure (should funding become available) (Figure 6.17).

Action	Overview
1. Action: Initiate and maintain dialogue with operators/service providers to encourage investment	
Description	<p>PLACE should maintain, an ongoing dialogue with organisations which may invest in digital infrastructure. Prime candidates for NGA infrastructure investment include BT, Virgin Media, and smaller operators such as H2O. PLACE should encourage interest and investment in Pennine Lancashire , but the supplier workshop confirmed that private sector companies would like to have more certainty about PLACE’s objectives in the context of its NGA strategy, and more precision about the required outcomes. This information would help suppliers to understand what their business case for investment may be. Operators should be made aware of the current and future opportunities, such as the growth targets for new housing and job creation. This dialogue will also enable PLACE to identify any barriers that are preventing investment in the sub-region such as local planning restrictions, and to identify the most appropriate solutions to particular problems, for example by providing dedicated resources to assist with issues such as street works co-ordination. Another way in which this dialogue could be useful is in identifying common ambitions between different stakeholders and areas where co-operation would be appropriate. For some issues, it may be appropriate to involve Ofcom to ensure that actions and future plans are consistent with current and likely future market regulation</p> <p>Maintaining active communication with industry players will also help the project team to keep abreast of developments in the wider UK market and aim to be an early beneficiary of any nationally implemented solutions. Maintaining an up-to-date knowledge of other national initiatives will be important to ensure PLACE’s actions are not replicating them, and to point towards areas of co-operation where possible</p> <p>As well as engaging with infrastructure providers, PLACE should initiate dialogue with retail service providers. Generating demand among these companies will help to encourage competition, and may also provide a greater incentive for infrastructure providers – such as Openreach – to invest.</p>

Action	Overview
Target outcomes and timings	This should be an ongoing action and should maximise the number of operators or service providers intending to invest directly in NGA, or offer NGA services via wholesale mechanisms, in Pennine Lancashire
Stakeholder involvement	This action will be managed by the project team, but is likely to require senior management level input from PLACE for key meetings
Indicative cost	The costs for this action should be containable within the cost of the project team and the supporting project board
Key issues and challenges	It can be challenging to identify the relevant personnel within operators and service providers, and difficult to secure their time. Provision of information and articulating the opportunities in Pennine Lancashire for the operator / service provider perspective can be a differentiator for attracting attention, as can ensuring operators are aware that their competitors are also involved in the strategy engagement (e.g. such as the strategy action plan workshop with suppliers)

Figure 6.14: *Initiate and maintain dialogue with operators/service providers to encourage investment*

Action	Overview
2. Action: Co-ordinate civil works for duct installation and facilitate road closures and planning applications	
Description	<p>The local authorities within Pennine Lancashire are responsible for managing civil and street works in their areas and co-ordinating with telecoms companies to ensure the appropriate ducting is installed</p> <p>Co-ordination of civil works could help to reduce the costs of deploying NGA as the majority of the costs are from the civil works needed to lay fibre underground. Large cost savings could be made by laying the necessary fibre ducts when roads are dug up for other purposes such as the installation or maintenance of the pipes and cables used for utility distribution</p> <p>Previous attempts have been made to co-ordinate civil works so that fibre can be deployed at the same time as other utilities, but with limited success. This is mainly due to the complexities of co-ordinating the activities of multiple private companies on an ad-hoc basis. It is also often difficult to exploit these synergies as there are no clear standards or specifications defining what type of ducting should be used or how it should be installed. Common standards need to be implemented so that when civil works and new developments are being planned, PLACE can follow clear procedures to avoid missing the related opportunities. Common standards for fibre ducting would also allow any organisation to deploy ducting that is suitable to be used for NGA</p> <p>It may also be possible to have reciprocal arrangements between utilities to ensure ducting can be installed when civil works activities arise, with proactive co-ordination by PLACE</p>

Action	Overview
Target outcomes and timings	<p>Processes to co-ordinate civil works to increase the availability of duct infrastructure should be set up as soon as possible. Over the first year of operation the process should be closely monitored to establish the extent of duct infrastructure installation enabled by co-ordination of civil works, and thereafter the process should be refined and targets for improvements should be set</p> <p>PLACE should also set targets for reducing the lead time for street works to enable duct infrastructure to be installed and to facilitate faster deployment of NGA infrastructure. A reduction in lead times for street works could be time-limited and reviewable annually, and potentially justified by supporting economic recovery measures</p>
Stakeholder involvement	<p>The development of ducting standards will need to be co-ordinated (and possibly regulated) at a national level and should receive input from major stakeholders such as Openreach and Virgin Media. However, PLACE could play an active role in the discourse and in persuading the relevant parties to accelerate the process. BIS has recently held a consultation titled '<i>Broadband deployment and sharing other utilities infrastructure</i>' and PLACE should analyse the results when they are announced.</p> <p>PLACE will also have a role in tracking civil works being performed by utility companies and communicating the opportunities to telecoms operators. Both of these parties would need to be consulted to ensure that the new standards and processes were as efficient as possible</p> <p>The reduction in lead times for street works requires the support of the relevant local authorities. PLACE should work with telecoms operators and local authorities to ensure that efficient processes are in place</p>
Indicative cost	<p>We have assumed there are no direct financial costs of this activity as the actions would be completed by the project team and other stakeholders as part of their current roles. An impact assessment on reducing lead times for street works may identify a consequential cost impact, for example, due to short-notice road closures</p>
Action	Overview
Key issues and challenges	<p>A large number of stakeholders would need to be engaged in order to design processes at a level of detail that makes them easy to follow, and that fulfil the requirements of telecoms operators and providers of utility infrastructure</p> <p>Models for ownership of any new ducts may need to be explored, as would funding mechanisms for any shared civil works. We would expect new ducts to be owned by telecoms operators and, assuming forthcoming obligations from Ofcom mandate duct and pole sharing, any new duct infrastructure installed would be available to other operators</p> <p>For reducing street works lead times, the support of senior management in Pennine Lancashire's local authorities would be required to change the requirements of statutory notices</p>

Figure 6.15: *Co-ordinate civil works for duct installation and facilitate road closures and planning applications*

Action	Overview
3. Action: Incorporate NGA in planning permission processes	
Description	<p>It is seemingly significantly more efficient to deploy next-generation broadband as part of a new-build development, regeneration or redevelopment when compared to deploying next-generation broadband to existing sites. Approximately 23,000 new homes are planned for the sub-region over the next 15 years and PLACE could, therefore, endeavour to maximise the number of new-build premises that have NGA fibre installed</p> <p>The project team should explore with local planning authorities, how to incorporate NGA obligations on property developers before planning permission is approved. The model planning agreement (section 106) details a number of these obligations, but NGA access is not currently catered for as digital infrastructure is treated as a utility. There are guidelines in place such as the guidance from the Department of Communities and Local Government on <i>Data Ducting Infrastructure for New Homes</i>, and the Ofcom consultation on <i>Next-Generation New Build</i>. By applying some areas of these guidelines into mandatory planning conditions, it would ensure that all new-builds have provisions for NGA access. Similarly, the levy or the tariff for infrastructure required of developers as part of their planning permission may be a measure that could be used to provide incentives to deploy NGA infrastructure for new developments</p> <p>We understand from previous work that there may be issues with the powers available to introduce mandatory NGA obligations in the planning permission requirements at a local level. If this is the case then PLACE should actively lobby central government to introduce the required planning policies on a national basis. A national, or at least regional, approach is also favourable because if Pennine Lancashire was to implement such obligations in isolation, there would be a risk that developers would re-target investment into other areas where NGA obligations were not mandated</p>
Target outcomes and timings	The provision of mandatory or incentive-based measures for NGA deployment should be incorporated into planning permission processes as soon as possible, so as to maximise the proportion of the 23,000 planned new homes that have access to NGA
Stakeholder involvement	This activity would potentially need to be co-ordinated at local, regional and national levels. The project team, with support from planning representatives from the local authorities, can play a role in communications to lobby for policy change. LEPs and local planning authorities are also likely to be involved in the process. It will also be important that telecoms operators and property developers are consulted to ensure that any planning obligations introduced are commercially sustainable
Indicative cost	We have assumed there are no direct financial costs of this activity as the actions would be completed by the project team and other stakeholders as part of their current roles. Impact assessments may be required to identify any costs that might be associated with the introduction of changes to planning obligations. Property developers may also claim that additional costs are incurred for NGA deployment, which could affect land development negotiations
Key issues and challenges	<p>There are numerous challenges to securing obligations for digital infrastructure within planning processes; it has been attempted before with Draft Q of the Building Regulations, but the Draft Q requirements were never adopted into legislation</p> <p>Similar challenges apply to the incorporation of NGA checks into planning permission approval processes. Simple criteria would need to be developed for those assessing planning applications to ascertain quickly whether the plans provided sufficiently for NGA requirements. Property developers would only comply with NGA requirements at the minimum cost, but planning regulations would have to ensure the resulting solution was credible. If the policy were not implemented on a national basis, this could create a disincentive for property developers to invest in Pennine Lancashire, if they perceived the NGA requirements as a burden. Another risk is due to there being no guarantee that a telecoms operator would provide services over the infrastructure if it were deployed by the property developer</p> <p>A further issue that will need to be resolved are the commercial arrangements that need to be put in place for the ownership and operation of the resulting NGA assets</p>

Figure 6.16: Incorporate NGA in planning permission processes

Action	Overview
4. Action: Direct public-sector investment in digital infrastructure	
Description	<p>At a national level, the private sector is unlikely to provide ubiquitous coverage of NGA without public-sector intervention. The same is likely in Pennine Lancashire, as explored in the ‘do nothing’ scenario in Section 4. However, if appropriate levels of funding were to become available, PLACE could choose to invest directly in NGA infrastructure with the aim of (i) increasing the percentage of population reached, (ii) reaching the target population more quickly, or (iii) providing a greater proportion with FTTP access as opposed to FTTC – or some combination of these three that helps to deliver the objectives of this strategy in ways prioritised by agreement with stakeholders</p> <p>Investment in infrastructure should follow the guidelines set out in section 6.4 of the Regional NGA Framework¹⁹, to ensure that the project is aligned with regional objectives and is compliant with EC State aid guidelines. The Framework discusses a number of options that must be considered when investing, such as whether the public sector should retain ownership of any new telecoms assets</p> <p>It may be possible to invest in conjunction with BDUK initiatives, the main advantage of this being that PLACE could potentially create efficiencies by using the central planning and procurement functions. Depending on the progress of the BDUK initiatives, PLACE could decide to conduct its own procurement process for NGA infrastructure. This could be necessary if the Final Third Project does not happen, leaving PLACE with greater responsibility for roll-out beyond private investment levels. This independent investment could follow deployment models employed in similar projects such as those in Cornwall, Yorkshire, Northern Ireland or Wales</p>
Target outcomes and timings	<p>The target outcomes for this activity will be wholly dependent on the level and timing of funding that becomes available. By investing directly in infrastructure, either alongside the proposed Final Third Project or in isolation, PLACE should be able to maximise the impact of its own funding in terms of infrastructure development, and its investment could make a material impact on NGA availability above both the private investment and Final Third levels</p>
Stakeholder involvement	<p>Direct investment would be sub-regionally focused and would not require much national co-ordination. It would be important to ensure investment plans took consideration of any developments from private investment or BDUK so as to avoid any overlap and to maximise the impact of the intervention. Investing in conjunction with BDUK initiatives would require close co-operation and negotiations over the terms of any agreement</p> <p>If PLACE needs to instigate its own procurement process, this should involve discussions with a number of potential suppliers. It may also be appropriate to aggregate funding with other organisations such as LEPs or neighbouring sub-regions, to achieve economies of scale</p> <p>Direct intervention would also require consultation with Ofcom and would have State aid implications requiring consultation with BIS and the EC State aid unit</p>
Indicative cost	<p>The provision of NGA infrastructure to the whole of Pennine Lancashire would require substantial investment. Section 5 discusses how providing FTTC to all of the sub-region’s ‘white’ areas would cost approximately GBP11.7 million, with an implied public sector subsidy requirement of GBP5.8 million based on Openreach’s announced investment levels. The costs for deploying FTTP would be far greater, with an implied subsidy of GBP56.3 million, just to address the ‘white’ areas</p> <p>BDUK may provide a proportion of this subsidy through the Final Third project; however the outcomes of this initiative are still highly uncertain.</p>

¹⁹ www.nwda.co.uk/pdf/NGA%20Strategic%20Framework.pdf

Action	Overview
Key issues and challenges	<p>A key issue is to secure funding. If funding can be secured, the main challenge related to investing in NGA development would be deciding where to target the investment so as to best satisfy the conflicting needs of different stakeholders and to maximise the impact on the sub-region's strategic objectives. This decision would also have a dependency on the plans for the Final Third Project, which are yet to become clear</p> <p>Another area of difficulty would be the design and management of any deployment model, which would also need to address issues related to ownership and operation of infrastructure</p> <p>If public-sector money is to be invested in infrastructure, it is important that the project is compliant with EU guidelines on State aid</p> <p>If PLACE is to invest alongside BDUK, a challenge would be agreeing how the funds were incorporated into what could be a complicated national scheme. PLACE would not want to inject money into the scheme if funding would otherwise come from the Final Third Project</p> <p>Securing participation and maximising competition over the new infrastructure would be critical to ensure affordable services. Effective competition helps deliver acceptable pricing and Ofcom regulates pricing where there is insufficient competition</p>

Figure 6.17: *Direct public-sector investment in digital infrastructure*

7 Conclusions

We have examined the local situation in Pennine Lancashire, developed a long-term vision in conjunction with PLACE and its regional stakeholders, and have developed an action plan that aims to address the gap between the current situation and the desirable long-term position in terms of digital connectivity.

PLACE recognises the high importance of providing high quality digital connectivity to the sub-region, particularly NGA broadband. Analysis of the ‘do nothing’ scenario indicates that without public sector action, 18% of businesses and residents are unlikely to be served with NGA infrastructure by 2015, adversely affecting the sub-region’s ability to participate and compete in the digital society.

Analysys Mason recommends that:

- PLACE’s role in the short term should be towards facilitation-based actions
- PLACE should investigate funding options that could be used to increase the scale of intervention activities that is possible
- PLACE should investigate the potential to leverage public sector networks in the region

Adopting the proposed action plan should help to ensure that next-generation digital infrastructure is deployed in Pennine Lancashire more quickly and to a wider population. This will be critical to the future of job creation, retaining industries and businesses, future healthcare provision, protecting the environment and digital delivery of public services – key economic and social objectives of PLACE.

Annex A: Glossary

<i>Term</i>	<i>Description</i>
ADSL	Asymmetric digital subscriber line – enables faster broadband over copper. ADSL2/2+ are the next generations of the technology offering
DOCSIS	Data Over Cable Service Interface Specification – an international standard that permits high-speed broadband to be provided over a cable TV system
DSL	Digital subscriber line – technology providing data transmission over copper networks
Fibre	Fibre-optic cable which can be used instead of copper wiring to enable transmission over longer distances and at higher bandwidths
FTTC/FTTP	Fibre to the cabinet/premises – different levels to which fibre infrastructure can be connected
GPON	Gigabit passive optical network – evolution of point-to-multipoint network architecture, using splitters to allow a single optical fibre to serve multiple premises
HSPA	High speed packet access – a third generation mobile technology
ISP	Internet service provider
LEP	Local Enterprise Partnership
LTE	Long-term evolution – referring to enhancement of 3G
Mbit/s	Megabits per second
NGA	Next-generation access – refers to improved infrastructure in access networks (the last mile connecting the core network to customers) (usually copper) – often achieved by replacing legacy copper with fibre.
Not-spots	Areas of no or poor broadband service
PTP	Point-to-point (dedicated link)
PON	Passive optical network
RDAs	Regional development agencies
SME	Small and medium-sized enterprises
USC	Universal Service Commitment – suggested for broadband in the <i>Digital Britain</i> report
USO	Universal Service Obligation – legally distinct obligation placed on BT to provide universal access to telephony services
WiFi	Term coined for wireless networks, with standards developed by the Wi-Fi Alliance, delivering high-speed wireless local area networking.
WiMAX	Wireless network technology, based on the IEEE's (Institute of Electrical and Electronic Engineers) 802.16 family of standards, offering wireless broadband over long distances (up to 50km base station radius).

Annex B: Detailed black/white/grey maps

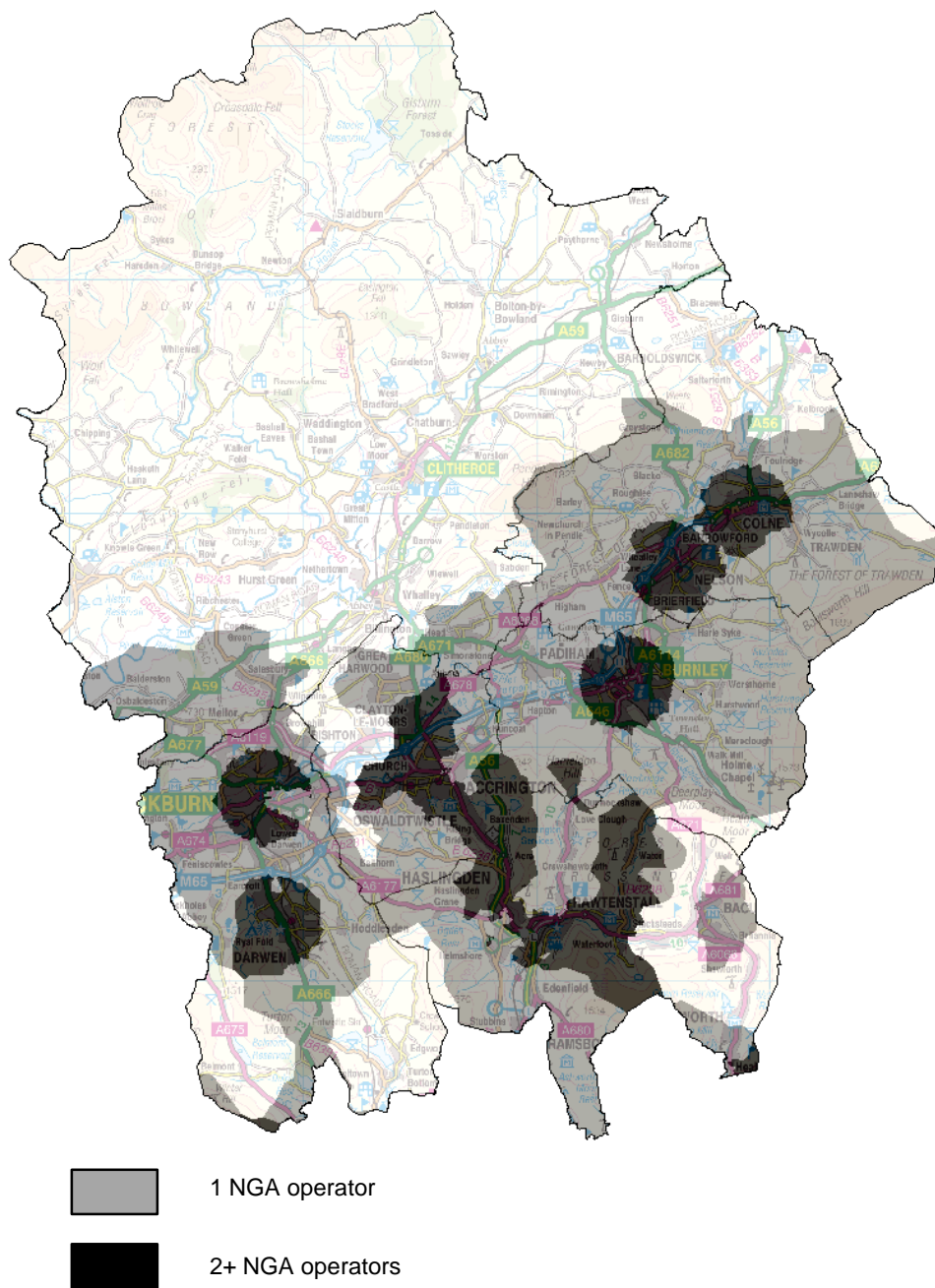


Figure B 1: BWG map of Pennine Lancashire [Source: Analysys Mason, Ordnance Survey]

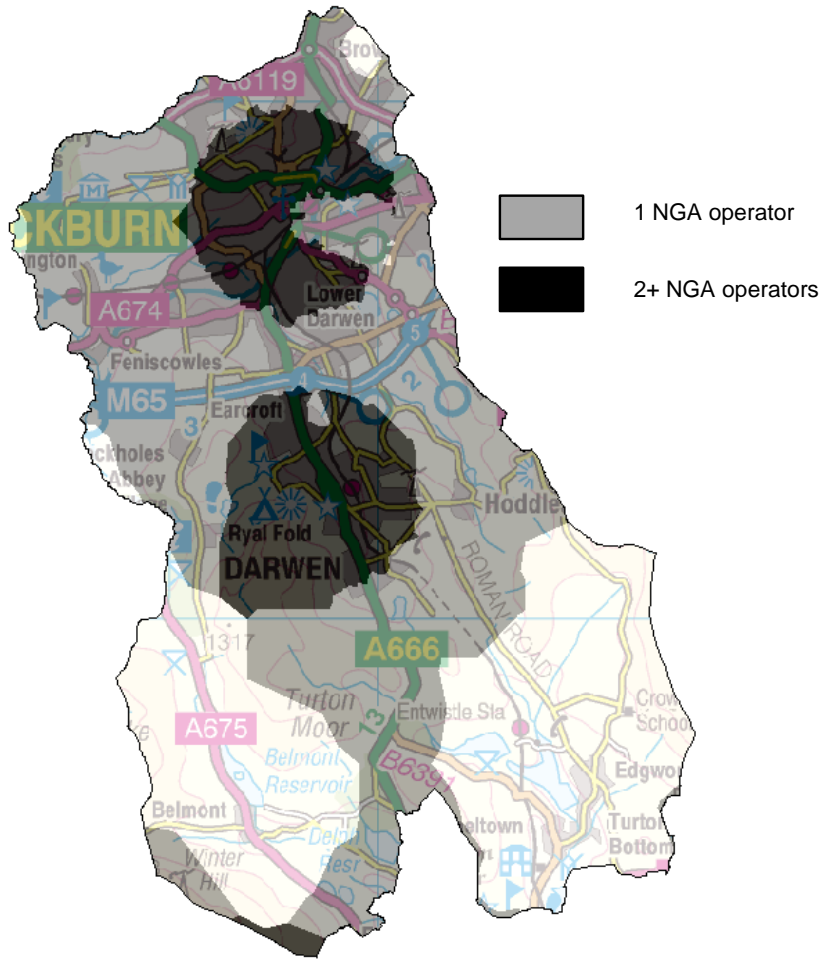


Figure B 2: BWG map of Blackburn with Darwen [Source: Analysys Mason, Ordnance Survey]

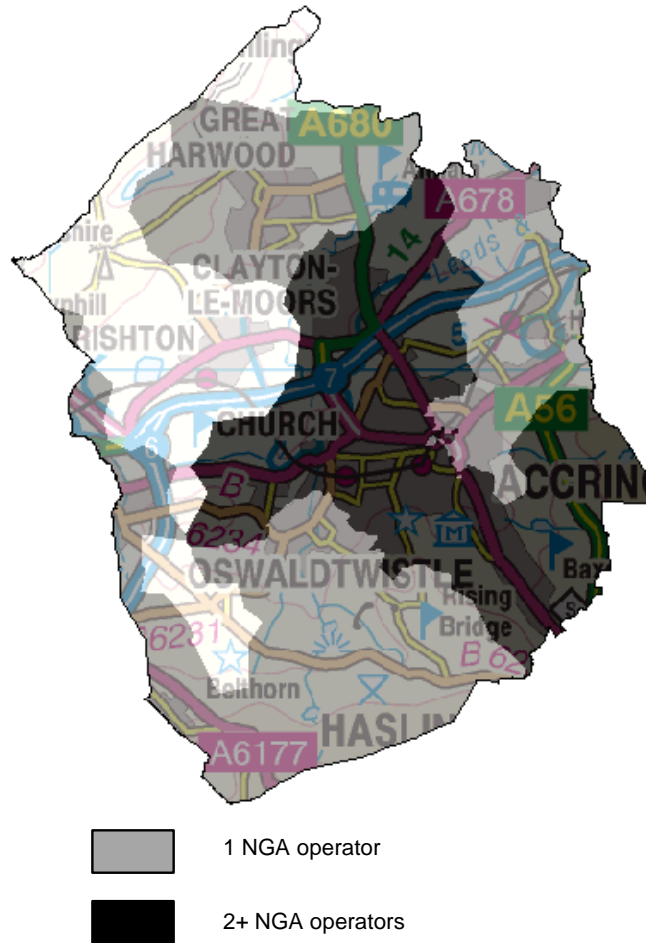


Figure B 3: BWG map of Hyndburn [Source: Analysys Mason, Ordnance Survey]

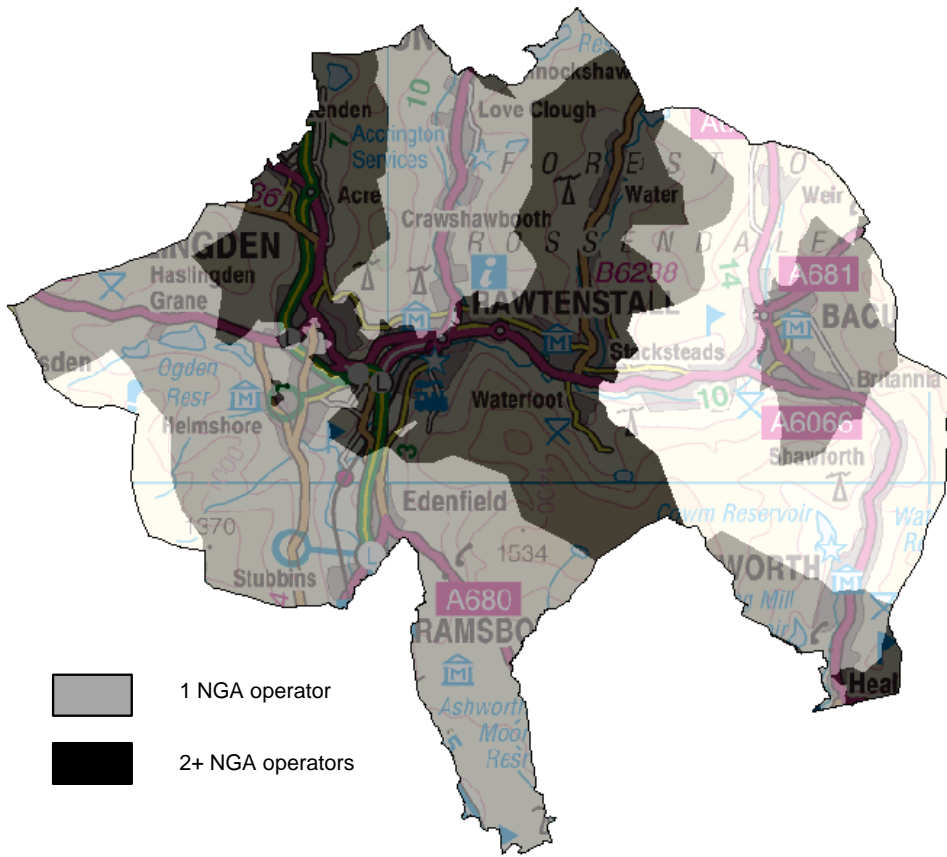


Figure B 4: BWG map of Rossendale [Source: Analysys Mason, Ordnance Survey]

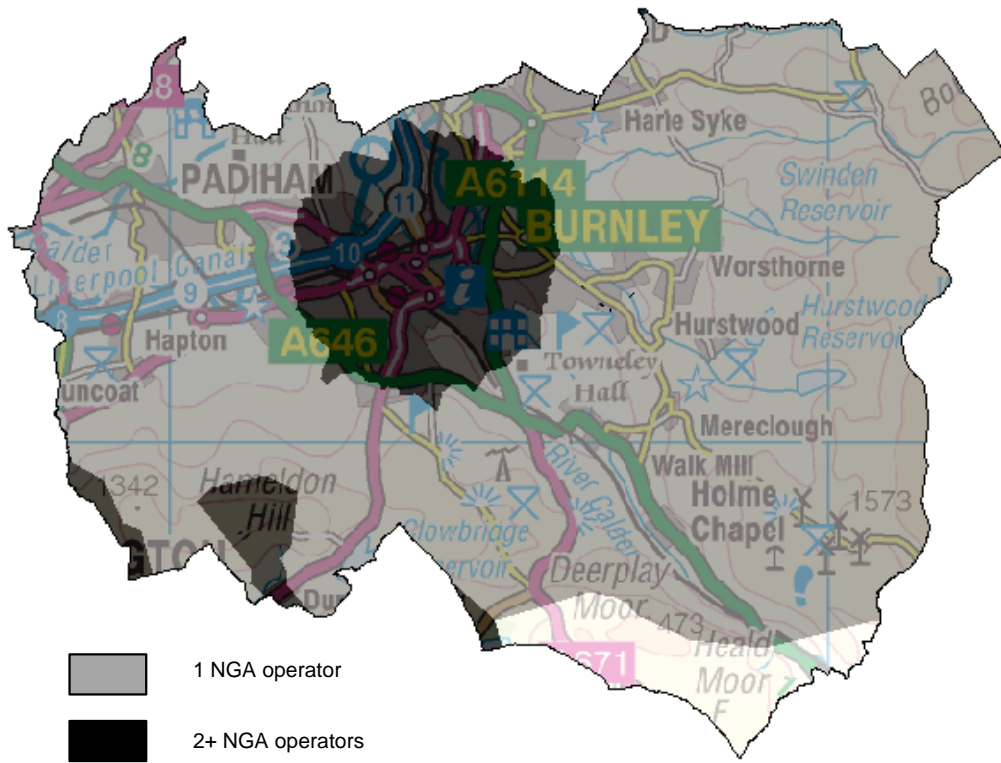


Figure B 5: BWG map of Burnley [Source: Analysys Mason, Ordnance Survey]

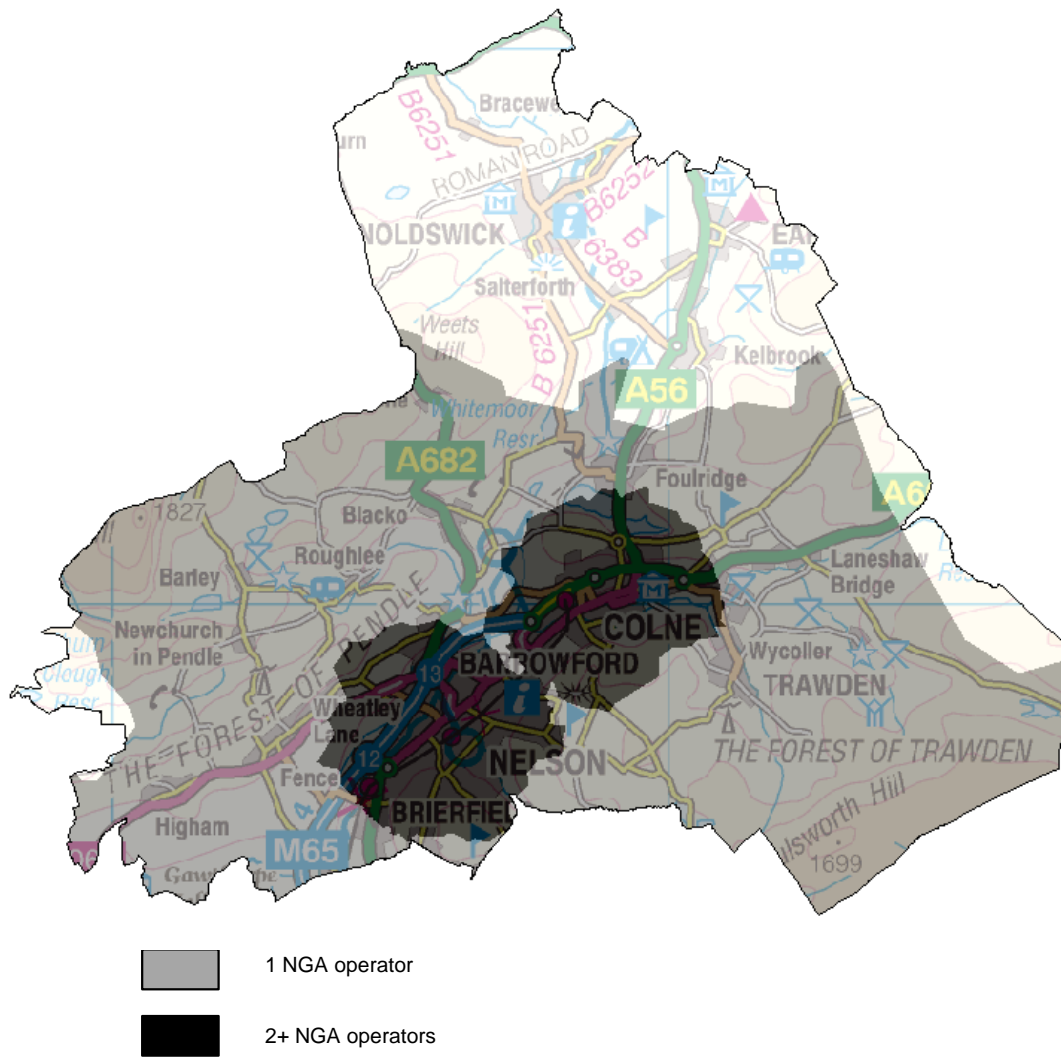


Figure B 6: BWG map of Pendle [Source: Analysys Mason, Ordnance Survey]

Pennine Lancashire

