Delivering super-fast broadband in the UK

Response to Ofcom's consultation of 23 September 2008 ("Consultation")

by Geo Networks Limited ("Geo")

December 2008
Non-confidential version

Geo Networks Limited
Hutchison House 5 Hester Road London SW11 4AN Main +44 (0)20 7350 5820 Fax +44 (0)20 7350 5821 www.geo-uk.net
Registered in England & Wales Company No: 4614924

Contents

1. EXECUTIVE SUMMARY

- Geo has unrivalled expertise in delivering fibre network infrastructure both for the private sector and on major public sector projects. Geo's national and London networks are the newest non-legacy networks in the UK and our business is focused on providing dedicated optical fibre for our customers. Our strong focus on infrastructure means that we have a unique insight into the intricacies of infrastructure sharing and duct access. Geo welcomes the opportunity to share this expertise with Ofcom.

- The best outcome from this consultation would include:

  - Greater regulatory certainty to encourage alternative middle mile infrastructure;

  - A duct access remedy to ensure competition at the deepest level where it can be effective and sustainable;

  - Ofcom to champion a raft of other cross-government measures to encourage NGA throughout the UK including a root and branch reform of the taxation of NGA networks (under the business rates regime).

- All investment in NGA is to be welcomed – whether it comes from the private or the public sector. Each has a role to play, and it is for Ofcom to ensure that these investments are open to all operators and not just BT.

- Regulatory certainty is a pre-requisite for any investment in NGA and the fundamental regulatory principles set out in the Strategic Review of Telecommunications remain appropriate: Ofcom should define the set of assets which represent enduring economic bottlenecks, and then provide regulated access to these assets to foster competition downstream. Reaffirming this position will have a profound impact on investment incentives, and will in turn influence where competition is likely to be possible.

- 'Core' networks, connecting the main business centres of the UK, are broadly competitive today. Geo provides open access passive infrastructure solutions between points of presence in these centres. Since Geo introduced this offering to the UK in 2005, it has become the optimal way for LLU operators to deliver core network services; it has led directly to increased competition and ultimately, has lowered the cost of higher bandwidth services to the consumer. This in turn has helped to accelerate the roll-out of such services.

- Access to passive infrastructure in the form of LLU has resulted in an analogous change in access network economics, driving bandwidth up to the technical limits

of the physical network. In an NGA environment a new passive product will be needed if the competitive benefits secured by LLU are to be maintained. The options appear to be unbundling of the copper sub-loop, optical fibre and duct access. Duct access has the benefit of greater operational simplicity and less impairment of recent investments in optical fibre made by BT Group.

- Today, it is the 'middle mile' (backhaul) where most capacity bottlenecks occur. With access to passive infrastructure, greater regulatory and market certainty, this area too could benefit from a change in economics which de-couples bandwidth demand from cost, and therefore alleviates this capacity constraint. With the right regulatory certainty, including adequate advanced visibility of incumbent pricing, investments could be made by competing infrastructure providers over the required timeframe in the majority of the more densely populated areas of the UK.

- Ofcom should prioritise the development of a duct access product from Openreach. In relation to NGA, this would significantly aid the development of competing business models including at the sub-loop as well as, for example, wireless broadband roll-out. An Ofcom decision in support of a duct access remedy, combined with a timetable for consultation on its implementation, would be the most appropriate outcome from this consultation.

- BT must be subject to carefully-defined controls to prevent them from damaging competition in relevant markets. Advanced visibility of BT backhaul and GEA pricing is essential to allow alternative investors to build the business case for middle mile competition. Further, BT must not be allowed to launch downstream products until upstream inputs are viable.

- Geo believes that careful attention will be needed in relation to industry standards in order to maximise efficient NGA investment. Geo proposes the establishment of an industry group to agree and implement standards for the commercial, technical and operational aspects of infrastructure sharing. This is discussed in more detail in the main body of the response.

- As set out above, public intervention is appropriate in geographic areas where private investments will not be viable or timely. The design of these interventions is critical. They must always be undertaken by competitive procurement (which can be used to attract private investment wherever possible). It is imperative that such procurement ensures that funding support is made available to those who will use it most efficiently and effectively. Open access to passive network elements such as optical fibre and co-location should be an essential requirement for all such public sector investment. By definition, this is only

needed where there is market failure – so it is crucial that public investment does not compound the problem by directing new public money just at BT.

- The current public policy environment provides a fertile environment for NGA to gain priority for action within government. The European Economic Recovery Plan identifies broadband as a key area for government action, stating that *"The Commission and Member States should work with stakeholders to develop a broadband strategy to accelerate the upgrading and extension of networks."* The Digital Britain project is the ideal forum to make this real. We look to Ofcom to champion NGA through Digital Britain.

2. BACKGROUND AND INTRODUCTORY COMMENTS

a) *Geo is in a unique position to contribute to the NGA debate*

Geo has unrivalled expertise in delivering fibre network infrastructure both for the private sector and on major public sector projects. Geo's network is the newest non-legacy network in the UK and our business is focused on providing dedicated optical fibre for our customers. Our almost exclusive focus on infrastructure means that we have a unique insight into the intricacies of infrastructure sharing and duct access in relation to next generation networks to share with Ofcom.

Geo's disruptive business model is based on a distinctive conceptual approach towards the industry, which we have given much intellectual thought to before and since Geo was formed in 2004. In Geo's view there is a fundamental difference between the infrastructure required for modern data networks and the network equipment used to supply services over them. Consequently, the industry is best viewed as three distinct and inter-related areas: infrastructure, network and services. Geo is positioned primarily in the area of infrastructure and the fibre, space, environmental management systems and power that we provide have more in common with real estate than with traditional telco services. We provide these services to our customers on long-term leases so that they are able to exploit and change the use of these assets over time as they wish. If requested by the customer, we also offer to design and build optical transmission solutions and, again on an optional basis, to operate the resulting in-life private network service for the customer.

This business model is consistent with Ofcom's own approach in the Telecommunications Strategic Review whereby BT's access infrastructure was separated from the downstream business. Indeed, Geo's approach is borne from its senior management team's prior experiences in other alternative telecoms operators, including the early and doomed attempts to invest in LLU in competition with BT's own active product set. This regulatory failure led directly to a campaign for the structural separation of BT's open access network and strongly influenced Geo's core strategy when it was launched.

Geo has valuable experience in the practicalities of national and urban fibre deployment. Our 3000 km optical fibre network is the newest, highest quality and most reliable optical fibre network in the UK (please see illustrative map in Annexe C). It tracks the national mains gas pipeline and connects all major commercial centres. Our London network is the most reliable in the capital, currently spanning 85km, extending fast and buried deep in Thames Water's sewer system, making it highly diverse, resilient and secure (please see illustrative map in Annexe D). Insights from our unique experience here will be invaluable to Ofcom in informing its decisions on supporting new ways to deliver investment in next generation access infrastructure.

The new and different approach that Geo has taken has not only been profitable for Geo but has genuinely altered the shape of the market. Before Geo began providing fibre-based backbone network and backhaul services to large broadband providers it was virtually impossible for customers to secure access to wide area optical fibre infrastructure to allow them to design their own networks, choose their own technology solutions and benefit from the fixed and low cost scalability which high quality assets provide. This ability for new entrants to these markets to compete on a level playing field in at least the core network (as if they were their own telco) with vertically-integrated players such as BT and Virgin Media has been a critical factor in the successful roll-out of LLU services over the last few years, increasing competition in the broadband market and lowering prices to consumers. Today, Geo continues to grow its significant position in this market as well as assisting its customers in finding ways of using infrastructure-based solutions to improve the quality, capacity and cost of the critical "middle mile" backhaul networks. It is in this middle mile that the ever-increasing network demands from bandwidth-hungry internet services such as YouTube and iPlayer are felt most keenly by ISPs.

However, Geo's dedicated fibre proposition has gained significant traction in far more sectors than just the broadband market. It serves customers in a number of markets:

- wherever a large data network is needed to connect two or more customer sites;
- for carriers, mobile operators, systems integrators;
- in the public sector including a landmark relationship with the Welsh Assembly Government and extensive deployment within the NHS Connecting for Health project; and
- in traditional early adopter end-user markets such as financial services, broadcasting, media and professional services.

In certain sectors, such as that for critical data centre connectivity for the very largest end users, this rapid market transformation has taken hold to such an extent that dedicated (or "dark") fibre is now almost always requested in a major request for a competitive tender, at least as an alternative to a managed service and often exclusively.

This is a significant transformation from the time before Geo's entry to the market when no telco in the UK willingly and openly offered this service. Before 2004, a large customer would occasionally request dedicated fibre, knowing the advantages it would bring, and a telco might grudgingly provide it in private rather than lose the business. Now this choice is a reality for many businesses and public sector organisations who understand it provides a fundamentally lower cost and superior way of running an essential long-term input to their organisations' successful operations.

The contract with the Welsh Assembly Government to build its new FibreSpeed network in North Wales merits particular analysis in the context of the NGA and wider broadband debate. Geo won a competitive tender to build and operate a new 270km optical fibre network through from Holyhead to Manchester. Funded jointly by the European Regional Development Fund, the Welsh Assembly Government and Geo, this initiative was notable from the outset by the Government's insistence that the successful supplier should operate the network on an open access basis.

The business model that was ultimately created in negotiation with Geo was for an operating business (FibreSpeed) which sells exclusively to service providers on a wholly transparent and equivalent basis, including critically access to passive network components. These service providers in turn use FibreSpeed's services and their own to engage the end-user community and sell network-based services and solutions. The network has just been launched by the Deputy First Minister of Wales and goes live in January 2009. Early indications are for high market demand in an area which to date has been poorly served by competitive broadband infrastructure. Based as it is on some of the core business principles which Geo has evolved in its experience of taking the UK's first open access network business to market, we feel that there are some critical lessons which must be learned from this experience if the public sector is to have a role to play in the development of the country's broadband infrastructure.

In essence, Geo is relying for success on the quality and size of its own fibre assets, together with its skills in network integration, new build, network design and network operation. Its disaggregated business model appeals to customers who have the technical competence to select and control their own data networks (even if they then outsource the network build and operation). Above all, it relies upon the current supremacy of optical fibre as the transmission medium of choice for large data networks and isolates the volatile component – how the fibre is lit – so that the ever-changing technologies in this space are presented to the customer as options it can control at the lowest possible unit cost over the much longer lifetime of the fibre asset.

The result for Geo has been an average contract term to date of over 10.5 years: increasing revenue and profit visibility for investors and building a rapidly growing business. The company is already profitable, has no debt and plenty of cash to continue its expansion. Earlier this year, the success of its business model led to Geo's acquisition out of the Hutchison Whampoa Group by Alchemy Partners, the UK's leading private equity firm.

b) *Conclusions to introductory comments*

In conclusion to our introductory comments:

- Geo is a major player in UK telecoms infrastructure with particular experience of issues related to NGA;

- Geo has created a business model that has genuinely changed the market; and
- our experience will be invaluable in continuing the growth of the competitive UK broadband sector and for informing the NGA debate.

3. NEXT GENERATION ACCESS IS VITAL FOR UK PLC

It is clear that next generation access will bring significant benefits to UK consumers, business and the economy more widely. Recent difficulties in financial markets and the likelihood of a recession only serve to emphasize the importance of this critical national infrastructure.

This consultation marks a decisive moment for Ofcom to define its role within the wider national and European NGA policy context. The desirability, indeed the eventual necessity, of higher speed broadband in the UK is beyond dispute; in the words of the European Commission: "Equipping Europe with this modern infrastructure is as important as building the railways in the nineteenth century".[1] The Broadband Stakeholders Group and Caio reports have set out in detail the benefits for business, education, health and leisure services that will accrue from super-fast broadband. The benefits to individual consumers, companies and the country as a whole were recognised as substantial and ranging widely; from the potential for radical new uses for broadband to lessening the country's impact on the environment. Geo, like the other major players in the industry, is looking to Ofcom to set the regulatory picture and to support other government initiatives, such as Digital Britain, to encourage competitive, efficient deployment of next generation access networks.

At a time when public sector investment is being promoted as a way to mitigate the effects of the economic downturn, local governments have an ideal opportunity to invest in next generation access. The Prime Minister set the scene for this investment in his speech to the CBI annual conference:

> *"We have a unique opportunity to do in the 21st century way, what was done in the 20th century by the American New Deal. As they built roads and bridges to create their infrastructure, we can use the period of adjustment to build our technological infrastructure, and build our human capital to equip us for the opportunities ahead."*[2]

Similarly, the European Economic Recovery Plan includes measures for "smart investment" by government to "accelerate the transition towards a knowledge-based and low carbon economy" including €1 billion from the EU for fibre networks investment in the coming year. Ofcom can help the public sector to seize this opportunity by providing a consistent regulatory and standards framework for optical fibre. Already the UK has seen

[1] European Economic Recovery Plan (COM (2008) 800
[2] Gordon Brown, Speech to the Confederation of British Industry Annual Conference, 24 November 2008

successful examples of the deployment of open access fibre networks for example in South Yorkshire.

4. REGULATION AND THE MARKET

a) *The right regulatory regime is essential if the benefits of NGA are to be realised*

All investment in NGA is to be welcomed – whether it comes from the private or the public sector. Each has a role to play, and it is for Ofcom to ensure that these investments are open to all operators (and not just BT), and that they are directed towards the creation of a vibrant and competitive wholesale market for next generation broadband access.

Regulatory certainty is a pre-requisite for any investment in NGA and the fundamental regulatory principles set out in the Telecommunications Strategic Review remain appropriate: Ofcom should define the set of assets which represent enduring economic bottlenecks, and then provide regulated access to these assets to foster competition downstream. This positioning will have a profound impact on investment incentives, and will in turn influence where competition is likely to be possible.

The changes in demand and supply associated with NGA are leading to a shift in the boundary where competition is effective and sustainable. Increasingly, it is possible for competitors to build and maintain even deeper levels of infrastructure. Geo operates at this very deep infrastructure layer, and has first hand experience of this growth in demand.

Ofcom's approach needs to be realistic. Clearly, such deep infrastructure competition will not be sustainable evenly throughout the UK. However, the benefits of having such competition where it is possible far outweigh the costs of supporting this model of competition with an appropriate regulatory regime.

The regulatory picture in relation to NGA is necessarily complex. Accepting that deep infrastructure competition will not be sustainable everywhere, there will always be a need for active remedies. However, these should not be pursued to the exclusion of passive access. Ofcom should continue to implement its regulatory principles: encouraging competition at the deepest level of infrastructure where it is effective and sustainable.

The experience of Geo and its increasing success is testament to the fact that very deep infrastructure competition is both effective and sustainable. Ofcom should continue to support these business models which bring such substantial benefits to users.

b) *Regulatory priorities*

Open access networks: regulated duct access product

'Core' networks, connecting the main business centres of the UK, are broadly competitive today. Geo provides open access passive infrastructure solutions between points of presence in these centres. By accessing passive infrastructure and deploying their own transmission equipment, Geo's customers avoid the most significant capital costs associated with building a network, but still realise very low marginal costs for additional

bandwidth. This type of cost structure is not available to companies buying downstream active bandwidth solutions. This low marginal cost is ideal in a world where bandwidth demand is growing very quickly, and will ultimately be passed on to consumers through a combination of faster broadband speeds, less restrictive usage caps, and lower prices.

These same benefits could be extended beyond the core and into the 'middle mile' (backhaul) with appropriate regulatory intervention. This area, or market, is undoubtedly an economic bottleneck. Throughout the vast majority of the country, there is no viable business case for replicating BT's duct infrastructure. However, with access to this duct, appropriate transparency over BT's pricing, and certainty over the longevity of this regulatory regime, competitor investment would be forthcoming in large parts of the country.

Adequate advanced visibility of incumbent pricing – in relation to both backhaul and GEA - is essential to allow alternative investors to build the business case for middle mile competition. This is not currently the position. Geo is still analysing Openreach's recent massive and unprecedented drop in wholesale Ethernet pricing which seems to be unrelated to cost (24 November 2008). The impact will undoubtedly be significant[3]. Ofcom previously obtained voluntary price commitments from BT in wholesale broadband markets in order to give confidence to LLU investors. A comparable approach is needed for the middle mile if the benefits of NGA are to be realised. With the right regulatory certainty, investments could be made by competing infrastructure providers over the required timeframe in the majority of the more densely populated areas of the UK.

In the less populous areas, and in particular in socially disadvantaged post-industrial and rural areas, public intervention is to be encouraged in the middle mile. This is because the market is unlikely to deliver competition on its own.

By a combination of regulated access to BT bottleneck assets, and open access to publicly funded infrastructure investment, competition could be extended to the middle mile in large parts of the UK. This would remove capacity constraints and reduce costs as explained above in relation to the core. End users would therefore benefit from even lower prices and faster speeds.

Access to passive infrastructure in the form of Local Loop Unbundling has already resulted in an analogous change in access network economics, driving bandwidth up to the technical limits of the physical network, effectively removing any cost driven capacity constraint at this level of the network. In an NGA environment a new passive product will be needed if the competitive benefits secured by LLU are to be maintained. The options appear to be unbundling of the copper sub-loop, optical fibre or duct access. Duct access has the benefit of greater operational simplicity and less impairment of recent investments

in optical fibre made by BT Group. Geo would be keen to discuss the practicalities of duct access further with Ofcom. It is worth noting that significant work has already been done on this in countries such as Portugal and France, among others.

Ofcom should therefore prioritise the development of a duct access product from Openreach. In relation to NGA, this would significantly aid the development of competing business models including at the sub-loop. An Ofcom decision in support of a duct access remedy, combined with a timetable for consultation on its implementation, would be the most appropriate outcome from this consultation.

The fundamental economic justification for a duct access remedy should be based on an assessment of the supply and demand conditions across all downstream markets. A large proportion of the demand for duct from alternative operators has traditionally come from the business sector. Geo is no exception to this rule, and its access network infrastructure in London is particularly well suited to this market being buried very deep in the sewers, and therefore offering unique levels of security and resilience. However, a significant proportion of Geo's new business comes from supporting LLU operator roll-outs, and providing the flexibility to deliver very high bandwidth and cost effective backhaul solutions.

Perhaps the single biggest financial hurdle in rolling out NGA networks is the cost of backhaul. A duct access remedy would help significantly in this area, but to have the greatest impact on competition, any remedy should focus on duct access per se, and not be specifically targeted at sub-loop unbundling. Doing so would allow competitors to aggregate demand from a range of services, including the more traditional business sector demands, and therefore not only expand the geographic area over which NGA becomes viable, but also help accelerate the roll-out.

Geo has direct experience of duct access – both in using spare capacity in alternative utility ducts, and also in sharing telecoms duct infrastructure. Although there are considerable operational hurdles to be overcome, it is easy for these to be overstated. Geo is very keen for Ofcom to explore these issues in more detail and would welcome the opportunity to share, face to face, our practical experiences of the commercial and operational arrangements for duct and infrastructure sharing.

There are two principal competition benefits of duct access over the main alternative passive remedy of access to dark fibre: flexibility in provisioning; and flexibility in pricing. The first of these is an example of the innovation potential that stems from deep infrastructure competition. Although this argument usually focuses on differences in the final retail product, characteristics such as bandwidth or contention ratio, the ability to deliver new services in a timely manner is of critical importance in this infrastructure market. Innovation can therefore relate to the speed with which services are provisioned, the time taken to upgrade, and the levels of disruption to existing services. These factors

will be of utmost importance in the roll-out phase of NGA as new backhaul circuits are deployed and existing circuits upgraded at a relatively fast pace.

The second benefit comes from the ability to price innovatively. As noted above, Geo often sells on the basis of long term contracts in order to meet the needs of its customers. This type of flexibility to offer alternative pricing models to suit the financing arrangements for our customers' investment needs would not be possible under a non-discriminatory regulated pricing regime. Once again, this type of flexibility, provided by encouraging deep infrastructure competition, could help make some of the more marginal NGA business cases viable, and in doing so speed up and expand the roll-out.

Ofcom and other stakeholders must learn from past mistakes. When LLU was first introduced in the late 1990s, BT was allowed to launch its own broadband services significantly ahead of its competitors – a setback which has only been remedied comparatively recently. The same must not be allowed to happen with NGA where a significant time-to-market advantage on GEA could have a similar effect. This means real operational attention needs to be given to duct access and other remedies (including appropriate controls on BT's GEA products) now.

The need for active remedies

There will always be a need for active products to ensure that investment continues to flow to broadband services, and the current wide coverage throughout the UK is maintained. However, it is important for Ofcom to confirm the principles by which it will regulate access, and how it will decide where competition is viable and where it is not. This will have a profound impact on investment incentives, and will in turn influence where competition is likely to be possible. If Ofcom is to support deep infrastructure competition where it is possible, then a very clear statement to that effect is needed. The work on active remedies, although important, should not distract from the commitment to deep infrastructure competition.

c) *Regulation – the broader picture*

Public procurement

Where public investment in NGA is appropriate, it is critical that the procurement is fully competitive. We discuss how this would be best achieved in Section 5 below.

The Caio Report

The Caio review signalled a willingness to consider practical common sense measures to ensure disincentives to investment in NGA are removed wherever possible. In Annexe B we included a checklist of policies needed to encourage a joined-up approach to maximising the efficiency and success of both private and public investments. The report

contains a sensible list of initiatives for Ofcom and government to take to encourage private investment in NGA. In particular we support:

- **Initiatives to lower the cost of build out**: Geo welcomes the Caio report's focus on lowering build out costs of NGA and we anticipate that Ofcom's duct survey and further work by industry will have much to add in this respect, beyond the data collected for the Broadband Stakeholder Group's report.

- **The adoption of open access network models at the infrastructure level:** In Geo's view open access network models at the infrastructure level are essential to the long-term future of a competitive broadband economy, as discussed in Section 4 above.

- **Establishing common standards for local access networks (particularly those funded by public money):** Geo believes that careful attention will be needed in relation to industry standards in order to maximise efficient NGA investment. We make a detailed proposal for this in Annexe A. Geo would be keen to work with the standards group suggested in Annex A to move quickly to a short, clearly defined trial phase before full launch.

- **Reforming the business rates system:** Reforming the business rates system (as it is applied to optical fibre cables) represents a real opportunity to encourage investment in the deployment and use of new fibre. Fibre and copper cables are currently treated differently, creating barriers to investment for fibre to the home and this taxation should either be removed or made more simple and equivalent for copper and fibre. In today's regime, the activation of fibre infrastructure by competing players triggers an increased rates bill. BT, on the other hand, pays a fixed rates bill on its whole network. This is a direct penalty on NGA roll-out by anyone except BT. In fact there is a strong case for business rates to be disapplied entirely to NGA roll-out: the incentive properties of the tax regime currently act as a serious disincentive to NGA investment. This is true particularly in rural areas where long build distances inherently involve bigger tax bills. It seems counter-intuitive to deal with other, less significant policy issues while leaving the punitive tax regime in place. Such an approach fundamentally undermines the policy vision set out so eloquently by Ofcom.

All of these issues generate real-world threats to the viability of NGA. There is a clear role for Ofcom in championing the cause of NGA right across government. Geo strongly encourages Ofcom to take up this challenge.

5. PUBLIC SECTOR INVESTMENT

a) *Public procurement contracts*

Geo welcomes Ofcom's inclusion in this consultation of the debate on the role of the public sector in next generation access investment. Next generation access networks present an important investment opportunity for the public sector in areas where the competitive market will not deliver. Geo has first hand experience of working with the public sector to provide world-class communications services to businesses in Wales as part of the landmark FibreSpeed project (see case study below). Further, across the public sector, from Local Authorities to central government departments, public sector policies and other business drivers have led to an explosion in the amount of data that these organisations themselves need to network and next generation access networks will be able to provide the infrastructure, networks and services needed to support them.

Public intervention is appropriate in geographic areas where private investments will not be viable or timely. In Geo's view, it is quite likely that we will continue to see the market fail to deliver competitive optical fibre infrastructure in many of the UK's regions and metropolitan areas (even in parts of the largest cities). Existing European, National and Regional government funds should be directed carefully and in a planned way to address this gap and help reduce the Digital Divide. Recently announced initiatives such as the Commission's European Economic Recovery Plan may well play a critical and rapid role in addressing these issues.

The design of these interventions is critical. They must always be undertaken by competitive procurement (which can be used to attract private investment wherever possible). It is imperative that such procurement ensures that funding support is made available to those who will use it most efficiently and effectively. Open access to passive network elements such as optical fibre and co-location should be an essential requirement for all such public sector investment. By definition, this is only needed where there is market failure – so it is crucial that public investment does not compound the problem by directing new public money just at BT.

Unfortunately, this may be the default recourse for the many government bodies that have been accustomed to dealing with the legacy operator. But there is absolutely no *a priori* reason why BT would be best placed to utilise public funds more efficiently in the next generation environment. Ofcom identifies the scope for a best practice regime in the section 11 of the consultation. Geo strongly supports such a regime and would like to see a code of practice put in place for such tenders to ensure that the bidding environment is genuinely conducive to competition.

Co-ordinated and thoughtful government intervention to a consistent set of investment criteria is critical if any investment is not to be wasted. Open access networks must be mandated where public money is used. Any policy in this area needs to be entirely consistent with the regulation of BT's duct network. Regulated in the right way, the ability to access passive duct infrastructure in BT's network could represent a highly complementary lever to effective public sector intervention in the local or regional backhaul markets, as could newly deployed wireless networks operating off the same infrastructure.

b) *Case Study: FibreSpeed*

The FibreSpeed project is a truly innovative collaboration between the public and private sectors that will enable world-class business communication services to be delivered to businesses across Wales. Geo will provide an optical fibre network serving North Wales, linking into Manchester and will deliver modern broadband communications. The £30million contract is funded by the European Regional Development Fund and the Welsh Assembly Government. The network will link 14 strategic business parks in North Wales, potentially expanding to incorporate approximately 50 locations across Wales by 2010 (see illustrative map in Annexe E). FibreSpeed is an open access network, available on a wholesale basis to service providers, ISPs and telcos, who are able to treat it as an extension of their own network.

FibreSpeed is expected to have a positive impact on the telecoms market by making available an alternative infrastructure that could be used by other network operators, such as local loop unbundlers, fixed network operators, system integrators and wireless and mobile network operators. In the longer term it will have a transformational impact on Wales, helping economic growth through development of the ICT industry, increased foreign investment, new firm creation, increased productivity, formation of new industry clusters and the promotion of new ways of working.

6. FORMATION OF AN INDUSTRY STANDARDS GROUP

As mentioned in section 4 above, Ofcom should seek to enable all investments in NGA, whether from BT, its competitors, or from the public sector. One consequence is that there will be a variety of approaches to NGA build - different operators will try different technologies and techniques in their roll-out. Whilst this creates a process which should stimulate innovation, Ofcom must ensure that passive open access solutions are available as 'anchor products' in all parts of the network, and thereby keep barriers to entry at a minimum and maintain a wide variety of options for competition throughout the value chain.

Ofcom must ensure that the chaos experienced during the development of cable networks is not repeated in relation to next generation access networks. Whilst Chief Executive of Ofcom, Stephen Carter describe the cable network regime as "…in my view one of the most damaging pieces of regulation, the licensing of 100 plus local and fragmented cable franchises which has taken 20 years to consolidate."[4] The lesson from that example is that standards are important not only in the transmission technologies and interfaces adopted by operators, but also in the processes surrounding the construction and access to physical infrastructure. Once again, Geo has significant experience in this area, and would welcome the opportunity to discuss this further with Ofcom.

Geo has worked on a proposed Passive Infrastructure Standards Working Group with other prospective members in response to this consultation. The purpose of the group would be to agree an appropriate set of standards for the commercial, technical and operational aspects of passive infrastructure sharing and in doing so, help overcome barriers to the establishment of a market. The group's remit would include technical requirements for duct and other potential passive products; requirements for information to be issued by suppliers on, for example, capacity and availability; acceptable installation practices; and service levels. A more detailed draft proposal for the working group is included in Annexe A.

[4]Stephen Carter, Chief Executive, Ofcom, 'Briefing on Ofcom and telecommunications' on Phase One of Ofcom's Strategic Telecommunications Review 28 April 2004

7. CONCLUSIONS

It will be clear from the rest of this submission that Geo considers there is a strong case for decisive intervention by Ofcom to ensure optimal outcomes in three key areas:

- Greater regulatory certainty to encourage alternative middle mile infrastructure;
- A duct access remedy to ensure competition at the deepest level where it can be effective and sustainable;
- Ofcom to champion a raft of other cross-government measures to encourage NGA throughout the UK including a root and branch reform of the taxation of NGA networks (under the business rates regime).

It is notable that the Consultation undertakes little direct analysis of Ofcom's legal duties in the current context. In Geo's view there is a good case that Ofcom are under a legal obligation to act. Under the Communications Act 2003, when carrying out its functions, Ofcom must have regard to "*the desirability of encouraging the availability and use of high speed data transfer services throughout the United Kingdom"* (s.3(4)(e) Communications Act 2003. It is clear from the Ofcom consultation that action in some form is required to meet this objective.

One such function referred to in section 3 of the Act is that of undertaking market analysis in accordance with Article 16 of Directive 2002/21/EC.

In accordance with the recommendation of the European Commission (2007/879/EC) ("Relevant Markets Recommendation"), Ofcom should analyse, inter alia, Market 4, identified in the Annex to that recommendation as "Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location". Hitherto this market has been thought of primarily in terms of access to the local loop. However, in the recent Draft Commission Recommendation on regulated access to NGA, the Commission recommends that on undertaking a market analysis concerning access to NGAs (carried out in accordance with Article 16 of Directive 2002/21/EC):

> "*Where NRAs find that one or more operators have SMP in Market 4 (including shared or fully unbundled access), they should mandate access to new and existing ducts (with associated measures and processes necessary to ensure access is effective), civil engineering works and other elements which are not active, necessary for the roll out of competing infrastructure, and in particular of fibre, street cabinets or an optical equivalent." (General Principle 4)*

Further, the guidance notes to the Relevant Markets Recommendation specifically enjoin NRAs to consider duct access remedies where fibre is rolled out to the sub-loop.

Accordingly, the legislative framework strongly supports Geo's view that Ofcom must act decisively to ensure access to the right forms of passive infrastructure. In particular, Ofcom should consider these matters in any review of Market 4 – ideally in the near term. We look forward to working with Ofcom on these important issues.

8. RESPONSES TO SPECIFIC CONSULTATION QUESTIONS

This section contains Geo's views on the specific questions put by the Consultation. We have limited our responses to those areas of our specific expertise. The questions are shown in normal font; answers are indented and shown in italics.

What will super-fast broadband mean for consumers and businesses?

Question1 - Is there further evidence available on the applications and services or consumer benefits that may be supported by next generation access?

Yes. It is Geo's expectation that the benefits to the UK from next generation access will be even more profound than anticipated. Geo's own experience over the last four years has shown that, in spite of scepticism from some quarters when we entered the market, the fibre-based backbone network and backhaul services that we provide have proved to be a necessity for large broadband providers and customers requiring sizeable data networks. Geo expects that NGA deployment will have a similar transformational effect. See chapter 2 above.

Question 2 - Who should lead on defining and implementing a process for migrations to and from next generation access networks? What roles should industry, Ofcom and other bodies play?

Geo looks to Ofcom to play a leading role in promoting NGA. The experience of early regulatory failure in relation to Local Loop Unbundling, and the consequent damage to the market, must not be repeated for NGA. Ofcom's proactive engagement from the start is the key to avoiding a similar situation in which competitors attempt to invest in passive products which are in competition with BT's own active product set.

We see industry taking a greater role in establishing standards across a variety of NGA products and we include a proposal for a cross-industry body for this purpose in Annexe A.

Our vision for the future and the regulation should play

Question 3- What role is there for Ofcom in the ongoing debate on next generation access versus industry's role in progressing this debate through multi-lateral and bi-lateral discussion?

Please see Geo's response to question 2.

Question 4 - How far does current regulation, including market definitions, equivalence and the BT's Undertakings, need to evolve as result of next generation access deployment?

In Geo's view, the current regulatory structure can work for NGA. Duct access appears to fall clearly within Market 4 as specified in the European Commissions Recommendation on Relevant Markets in the electronic communications sector[5]. Ofcom should therefore carry out a market review in accordance with s. 78ff Communications Act.

Competition remains key to delivering the benefits of next generation access

Question 5 - How important are passive products such as forms of sub-loop unbundling and duct access? Can the economics of these products support the promotion of effective and sustainable competition at this level? Which passive products should Ofcom pursue?

Passive products are critical to competition in the final and middle miles in the NGA environment. Geo is of the firm opinion that Ofcom should focus on the development of a duct access product to facilitate the development of competing business models, including at the sub-loop. Please see Section 4 of the main response for the details of our views on passive products and duct access in particular.

Question 6 - What are the characteristics of high quality, fit for purpose active wholesale products? How far can active products with these characteristics support effective and sustainable competition?

Geo sees a limited role for regulated active products, though these may be necessary in the short term to ensure investment in broadband is maintained close to the end user. The key principle of the TSR – that competition should be supported at the deepest possible level of infrastructure – remains valid for NGA. Ofcom does support this opinion in the consultation but we would welcome a clear and certain statement in confirmation so that work can focus on the challenges of developing new passive products for NGA.

Question 7 - Are there other options for promoting competition through regulated access that have not been considered here?

Geo's unique model of providing fibre-based backbone network and backhaul services to large broadband providers has not been considered here. This arrangement enables customers to secure access to wide area optical fibre infrastructure, allowing them to design their own networks, choose their own technology solutions and benefit from the fixed and low cost scalability which high quality assets provide. The successful roll-out of LLU services has been critically supported by this arrangement by enabling new entrants in these markets to

[5] Recommendation dated 17 December 2007. Market 4 is for: "Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location."

compete on a level playing field in at least the core network with vertically-integrated players such as BT and Virgin Media. Geo is keen to meet with Ofcom to discuss further our experience and it's the possibilities it presents for regulated access products.

Question 8 - How far may options for joint investment provide greater opportunities for competition based on passive inputs? Are there lessons that can be learned from similar ventures in other industries? What are the risks and advantages of such approaches?

A duct access product could present opportunities for competition-enhancing joint investment by, for example, allowing Geo and other alternative operators to access BT's existing ducts. What would not be good for competition would be joint investment by BT and a second operator at the sub-loop to create something akin to a monopoly or (effectively) a protected duopoly.

Question 9 - What should be the respective roles of Ofcom and industry in defining and implementing product standards?

Please see Geo's response to questions 2 and 3 above.

Key to delivering effective competition and investment is pricing

Question 10 - How far do stakeholders consider the pricing approach outlined here of pricing flexibility for active products and cost orientation plus considerations for risk is appropriate at this stage of market development?

Including a risk consideration in the pricing of passive products at would not be appropriate where that product is access to existing ducts since there would be no risk element. It may be appropriate in relation to new ducts where building between the cabinet and the exchange. We would like Ofcom consult fully on the pricing approach in a separate consultation on duct access.

Question 11 - Will indirect constraints allow for an approach based on more price flexibility for active products? How will such an approach affect the incentives of different operators to invest and deliver super-fast broadband services to end customers?

It is too early to be certain of the effect that indirect constraints will have on the pricing of active products. Though it is possible that prices would be constrained by others at the subloop, downstream business and broadband by LLU operators, Geo is sceptical of the extent of the impact these would have.

Question 12 - What period of time would be appropriate for such an approach to ensure a balance between the need for longer term regulatory certainty with the inherent demand and supply side uncertainty in super-fast broadband and next generation access?

It is too soon to tell what this period of time should be.

Question 13 - What are the key factors that could make a review of any pricing approach necessary?

It is important that Ofcom undertakes an initial review as soon as these products are launched. After launch, each product should remain under constant review.

Eventually there will be a transition from copper to fibre

Ofcom rightly notes in the consultation document that this is an early stage in the development of next generation access (Section 3). In Geo's view, it is not possible to answer the following questions in a meaningful way until at least the first stages of NGA deployment have been completed. We urge Ofcom to focus on developing passive open access remedies at this time.

Question 14 - How far can the generic model for transition outlined here deliver both incentives to invest in next generation access while ensuring existing competition is not undermined?

Question 15 - What triggers would be appropriate for the commencement of any transition process?

Question 16 - Once triggers or circumstances for transition are achieved, what would be an appropriate period for the various phases of transition (consultation, notice period, transition)?

Question 17 - Over what geographic area should any process of transition be managed, for example region by region or nationally?

Regulation can play a smaller role in increasing revenues

Question 18 - What actions, if any, should, Ofcom undertake to support new revenue models from next generation access?

Geo does not have a view on this issue.

What role can the public sector play in next generation access deployment

Question 19 - What role should public sector intervention have in delivering next generation access?

Geo supports investment from the public sector where the market fails to deliver and we believe this will be the case in the 'middle mile' of the network. Our views on the role of the public sector in NGA are set out fully in Section 5 above.

A proposed framework for action

Question 20 - Are these the right actions for Ofcom and other stakeholders to be undertaking at this time? What other actions need to be taken or co-ordinated by Ofcom?

The right actions to come out of this consultation in Geo's view are:

1. A clear statement of Ofcom's regulatory intentions to establish greater regulatory certainty.

2. A decision in support of a duct access remedy, combined with a timetable for consultation on its implementation; as part of this, to conduct a market review in order to ensure that the fundamental economic justification for duct access is based on an assessment of demand and supply conditions across all relevant downstream markets.

3. Ofcom championship of the raft of other cross-governmental measures to encourage NGA throughout the UK including a root and branch reform of the taxation of NGA networks (under the business rates regime).

9. ANNEXES – SUPPORTING INFORMATION

Annexe A: Proposed Passive Infrastructure Standards Working Group

Draft Remit

Background

The Cabinet Office 'Digital Britain' Initiative will be setting out objectives and strategies to encourage the roll-out of Next Generation Access networks, and thereby to promote the development of Super High Speed broadband in the UK. Ofcom has recently consulted on the most appropriate regulatory framework to support the deployment of NGA networks, and has suggested that a set of passive infrastructure products may be needed from incumbent operators. The Passive Infrastructure Working Group (PISWG) is a body of companies who wish or may wish to use such passive products, and hence have an interest in developing comprehensive and efficient standards to minimise barriers to cost effective use and to ensure inter-operability.

Purpose of the Group

Whilst the trading of passive products (for example dark fibre, duct and sub-duct capacity) has been widespread amongst recent market entrants, it is not normally found between these entrants (referred to as 'customers') and incumbents (referred to as 'suppliers'). The purpose of the group will be to agree an appropriate set of standards for the commercial, technical and operational aspects of passive infrastructure sharing. In doing so, this will help overcome barriers to the establishment of a market in accordance with any regulatory directions. The group will define the precise range of standards needed in it's inaugural meetings, but at a minimum will include the following areas:

Technical

Defining requirements for duct, sub-duct, micro-duct fibre and other potential passive products recognising the nature of the supplier's installed base, industry good practice and customers' forecast capacity and performance requirements. This should also consider the technical specification for new build infrastructure to enable efficient sharing on an ongoing basis.

Information

Defining requirements for information to be issued by suppliers such as capacity and availability information on a geographic basis. Consideration will also need to be given to the appropriate handling of this commercially sensitive data. Also to consider information to be supplied by customers, for example forecast requirements and timescales.

Installation

Defining acceptable installation practices, and as far as practicable safety and risk management guidelines. Setting guidelines on the processes to be followed during installation of new fibre to manage the impact on other customers' duct and fibre.

Operations

Defining performance standards, Service Level Agreements and access arrangements for repair and alteration.

Management of the Group

The facilitation of the group, including secretarial service and meeting venue, is to be provided by [Intellect / The Institute of Engineering and Technology / with input from NICC]. The membership of the group is open to any present or prospective provider of electronic communications services in the UK [with Code powers], by written application to the secretariat. The group will elect a number of roles, including a chair and a liaison representative to Ofcom and other critical parties. Members of the group may be asked to pay a small administrative levy to cover expenses.

Draft 1.1 by Geo for comment by prospective members

Dec 2008

Annexe B: Checklist of public policies to support NGA investment

The main body of our response sets out measures and polices to ensure that the regulatory environment encourages investment, public and private, in the provision of Super-fast broadband.

In is in the interest of all stakeholders that these investments are made as efficiently as possible, and to this end there are a number of areas which should be examined to determine whether waste can be eliminated and that public policy is supportive and joined-up:

- When the public sector invests, is the procurement and approval process as efficient and the outcome as dependable as possible?
- For all investments, do standards and regulations support cost effective and innovative implementation?
- Are the interests of other stakeholders impacted by the roll-out of super-high speed broadband (e.g. car drivers, landowners) appropriately balanced?
- Is the tax regime appropriate and supportive of the objectives?

This annexe contains a check-list of the areas which should be reviewed to enable a timely and efficient roll-out.

a) Public Sector Investments – the importance of well designed interventions

Geo has been involved in many tenders for public broadband projects. The cost of bidding ranges from a few tens of thousand pounds to over half a million. In the best cases, we have experienced projects where:

- Requirements have been clear and set in advance;
- Key approvals, including funding and State Aid Approval, are obtained wholly or substantially in advance;
- Appropriate external professional advice has been used; and
- Procurement processes have been clear and timescales have been followed.

Unfortunately, in some cases the opposite has applied. Of the public interventions in broadband, we are aware or have been directly involved in a dis-proportionately high number which have either never reached contract, have reached contract but roll-out has been delayed or substantially changed, or which have been rolled-out but subsequently

not met expectation. Any of these outcomes will entail a high degree of waste; diverting resources which would otherwise be spent efficiently.

As set out in the main body of this response, we strongly support well-designed interventions, probably on an 'outside-in' basis. The commercial and contractual complexity necessary for a successful project can be considerable, and hence for this objective to occur quickly and efficiently, central Government should review as a matter of urgency the best practice:

- The Ofcom / BERR best practice guide[6] whilst a welcome start to raising standards, should be expanded using the model used by OGC for establishment of contractual models and commercial guidance
- The range of public bodies being used to manage interventions should be reviewed. In our experience, smaller public bodies do not generally possess the level of professional skills to design, procure and manage an intervention of the complexity involved. Regional Development Agencies and other devolved, regional and national bodies are better placed
- Central Government should actively engage in standards raising

b) Review of Standards and Regulation

The cost of deployment of optical fibre and associated civil engineering accounts for up to 70% of the cost of rolling –out the new super-high speed broadband infrastructure[7] . The practices used for construction have changed relatively little in the last 50 years, uniquely for this otherwise technologically fast paced industry.

For greater levels of innovation to be applied, regulation, particularly relating to the standards and methods for apparatus to be placed in or below the streets, needs to be reviewed and thereafter remain open for innovation to be adopted quickly.

The responsibility for standards is confusingly distributed between National Joint Utilities Group, Highway Authorities and Utilities Committee UK (HAUC UK), Department of Transport and others. We recommend a single new group to review:

- The codes of practice and standards for installation in the highways to encouraging innovative practice such as the adoption of mini-trenching (as described in international recommendation ITU-T L.48), with both environmental and cost benefit

[6] Public Broadband Schemes: A best practice guide, February 2007 (joint DTI and Ofcom publication)
[7] Source: Consultation, para A8.33

- The unique position granted in the footway to 'CATV', a significant cost and speed of roll-out benefit, to be clarified as available to all parties involved in the roll-out of super-fast broadband

In addition, the cost and delay in roll-out of new networks has been impacted by the introduction of a number of new regulations designed with improvements in traffic flow management in mind. These regulations were designed in an era (the end of the last decade) when public sentiment was believed to favour improving free movement of motor vehicles above the modernisation of broadband infrastructure. That sentiment should now be questioned, based on evidence (for example from Amsterdam) that the general public are sympathetic to short term disruption to traffic for long term high-speed broadband upgrade.

We suggest a review of the regulation impacting roll-out including:

- Parts 3 and 4 of the Traffic Management Act 2004 [TMA], invoked in 2008, give local authorities wide ranging powers to impose significant cost penalties on operators and indeed to refuse to permit works at all. As yet there is no appeal process in place and no case history as to the extent to which these powers can be reasonably used
- Chapter 8 of the Traffic Sign Manual (as updated February 2008) imposes new and arbitrary restrictions on works on predominantly rural roads, precisely where investment in broadband is most needed

The appropriate re-balance of public policy to encourage investment in high-speed broadband should be combined with specific reviews of regulations in these areas.

c) Interests of other stakeholders – landowners

The deployment of any network inevitably impacts landowners, public and private. As far as works in the public highway require rights to be acquired, with the exception of recent modifications set out in section 2 above, the UK has an efficient and cost effective system. However when private land rights need to be acquired, despite the acknowledgement of the necessity of a compulsory process in the Telecommunications Act 1984 and Communications Act 2003, the actual rights granted to operators are ineffective. To apply the process set out in the Electronic Communications Code to a private or public body can take over a year and cost hundreds of thousands of pounds. This could be simply rectified by some practical steps:

- Amend the communications code to define timescales for the processes defined
- Consult and establish as defined process of valuation, under the guidance of am appropriate body, such as the lands tribunal
- Consult and establish reference terms, from which neither landowner nor operator would be able to deviate without good reason

The current trend within the industry is for landowners to dispute and delay the granting of rights, in the hope of gaining financial advantage as the public requirement for broadband rises. This must not prevent the speedy roll-out to be put at risk, particularly in the rural areas where the risk is highest.

d) Taxation regime applied to super-fast broadband

There is a long standing body of law under which telecoms network is subject to business rates[8]. Optical fibre cables have been treated as falling within this approach. Despite indications from government that a review is to be held, no review has been undertaken to our knowledge since the Wood commission of 1997, a time when the significance of taxing optical fibre cables in the current manner was not recognised.

The treatment of optical fibres for rating purposes differs from the treatment of copper cables in a number of respects:

- The valuation system used to determine the taxation level applied to BT's assets is already different to that which we would anticipate might be applied to next generation access assets deployed by others

- A recent Statutory instrument[9] defines the position with respect to Metallic Path Facilities (MPFs) in the case of copper LLU so that the loops are rated as part of BT's hereditament on a receipts and expenditures basis regardless of who is in occupation; but does not cover the same arrangements for optical fibre

The net result is that a new private or public investment to provide next generation access might be treated on a different and less favourable basis than an investment in copper by the incumbent. In addition, copper broadband is treated more favourably than fibre broadband. This is a massive dis-incentive to investment in NGA and must be addressed. We recommend:

- For a defined period, perhaps three years, investors should have the right to valuation on a 'receipts and expenditure' basis for new optical fibre cable assets (to provide a level playing field with BT)

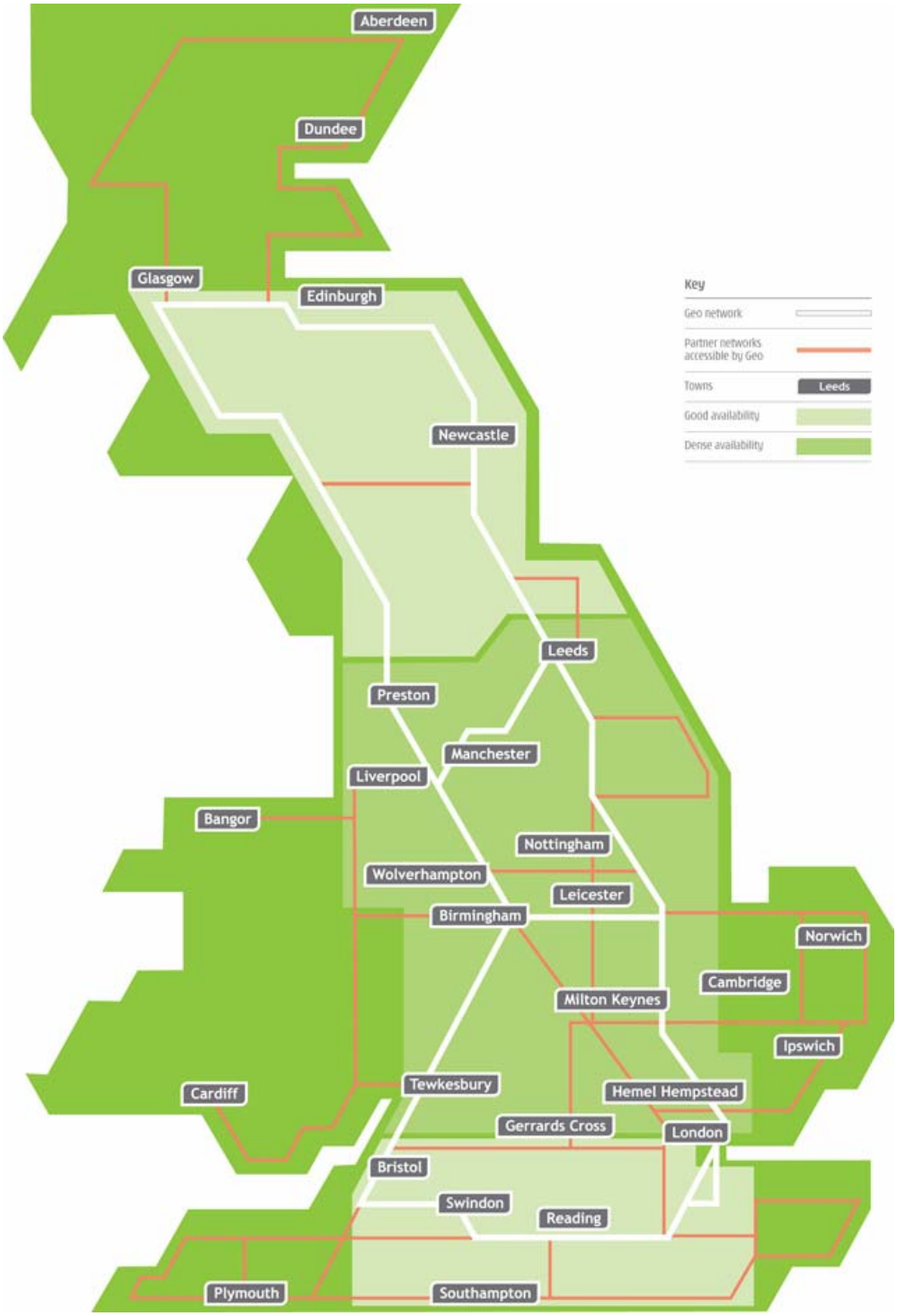
- For the same period, the Statutory Instrument (see above) applying to the basis of rating of LLU be extended to include optical fibre, to provide a level playing field between copper and fibre

[8] See for example *Lancashire and Cheshire Telephone Exchange Company v Manchester* (1884) 14 QBD 267

[9] Central Rating List (England) Regulations 2005 (SI 2005/551) (as amended in 2008) ("the Regulations")

- A successor review to the Wood commission be established to recommend permanent reforms to the plant and machinery order to provide a fair, predictable and technology neutral basis for non domestic rating of telecommunications networks for the long term.

Annexe C: Geo's national network - illustrative map



Annexe D: Geo's London network - illustrative map

Annexe E: FibreSpeed case study – illustrative map