

BDUK Industry Day

Agenda

<i>Registration & Coffee</i>		09.30 – 10.00
Introduction & Welcome	Ed Vaizey	10.00 – 10.10
Setting the context	Jeremy Hunt	10.10 – 11.00
	Caroline Spelman Martha Lane Fox	
<i>Coffee</i>		11.00 – 11:30
Policy Update	Adrian Kamellard & others	11:30 – 12:30
Session round up and comments	Adrian Kamellard	12:30 – 12:45
<i>Lunch</i>		12.45 – 13.20
USC Theoretical exercise	Matt Agar & Mary James	13.20 – 14.15
Infrastructure Paper	Simon Towler & Jeanne Grey	14.15 – 14.45
<i>Coffee</i>		14.45 – 15.00
Superfast Broadband pilots & questions	Adrian Kamellard	15.00 – 15:45

Rt Hon Jeremy Hunt MP

**Secretary of State for Culture, Olympics,
Media and Sport**

Q & A – Jeremy Hunt

Caroline Spelman MP

**Secretary of State for the Environment, Food
and Rural Affairs**

Martha Lane-Fox

UK Digital Champion

Q&A

BDUK Update – Adrian Kamellard

What we're going to cover

<i>Universal Service Commitment</i>	<i>Superfast Broadband</i>
Policy Detail	
Mapping results	
Definition of USC	
Delivery Approach	
Enablers and Constraints	
USC Theoretical Exercises	
Infrastructure Sharing Paper	
	Superfast Broadband Pilots

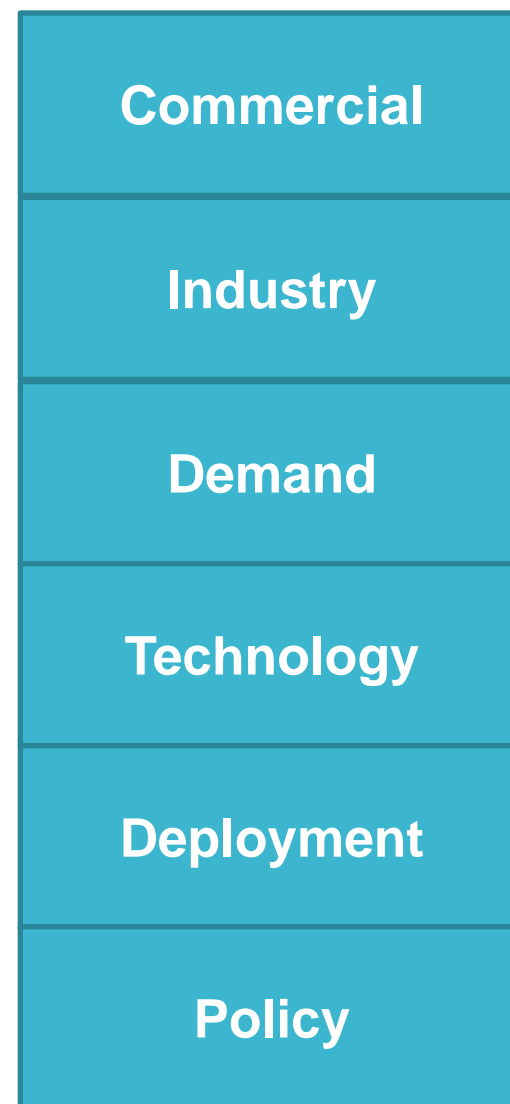
Policy Environment

- Our aspiration is to get a basic level of connectivity to virtually all of the UK
- Funding is £200m (subject to spending review) to cover USC and superfast broadband pilots
- Solution for USC is likely to involve the whole of the industry
- We are technology neutral – getting a basic level of connectivity for all of the UK will need a range of technologies
- ‘Inside Out’ vs ‘Outside In’ is the wrong way of thinking about the approach to fixing USC
- Will need to consider the balance between USC solutions that are components for superfast broadband
- We will be providing capital funding only – there will be no ongoing user subsidy

BDUK Objectives

- Use effectively the funds provided to meet the USC
- Increase the penetration of high speed connectivity and plan for the use of public money (from whatever source) if necessary
- Explore the potential for reuse of public networks and assets to reduce the cost of making high speed connectivity available to poorly served areas in the UK
- Work with and influence the other areas of the public sector (e.g. OFCOM) involved with and responsible for the delivery of the Government's policy objectives to ensure the rapid rollout of high speed connectivity services across the country

- Who we are
- Structure and Resources
- Policy responsibility
- Governance



The Challenge

- UK broadband market is dynamic and competitive but the market has expanded in to all areas where it is economic to do so
- Some areas are uneconomic due to a number of factors, for example:
 - How rural the area is
 - Density of premises
 - Lack of take up
 - Cost of new infrastructure
- Our challenge is to make as many of these areas sufficiently attractive for the private sector

BDUK Progress to date

- To meet the challenge, BDUK has been busy:
 - Establishing BDUK
 - Developing more detailed definitions of USC and superfast broadband
 - Collecting data and mapping broadband ‘not spots’ & ‘slow spots’ across the UK
 - Developing commercial approaches
 - Developing potential delivery models
 - Exploring the reuse of networks funded by the public sector

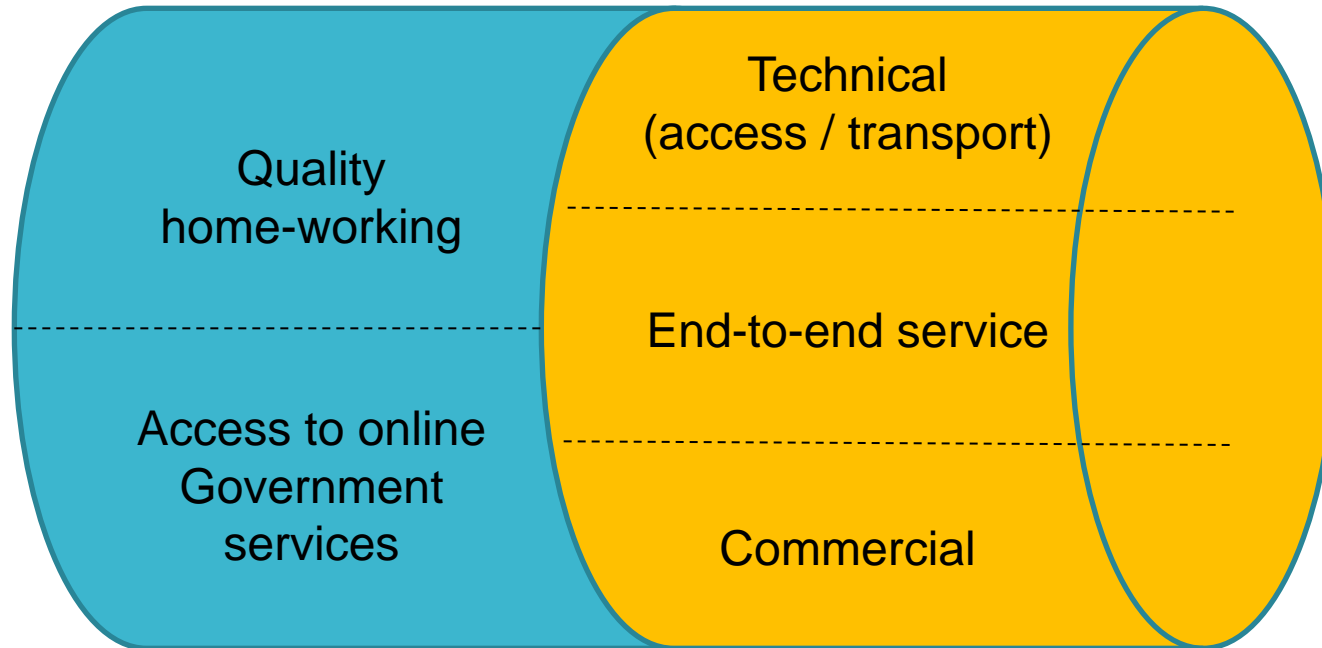
What we're going to cover

<i>Universal Service Commitment</i>	<i>Superfast Broadband</i>
Policy Detail	
Definition of USC	
Mapping results	
Delivery Approach	
Enablers and Constraints	
USC Theoretical Exercise	
Infrastructure Sharing Paper	
	Superfast Broadband Pilots

Definition of USC “2Mbps”

Consumer-facing

Market-facing



Different
technologies
=
Variations on
2Mbps USC
definition

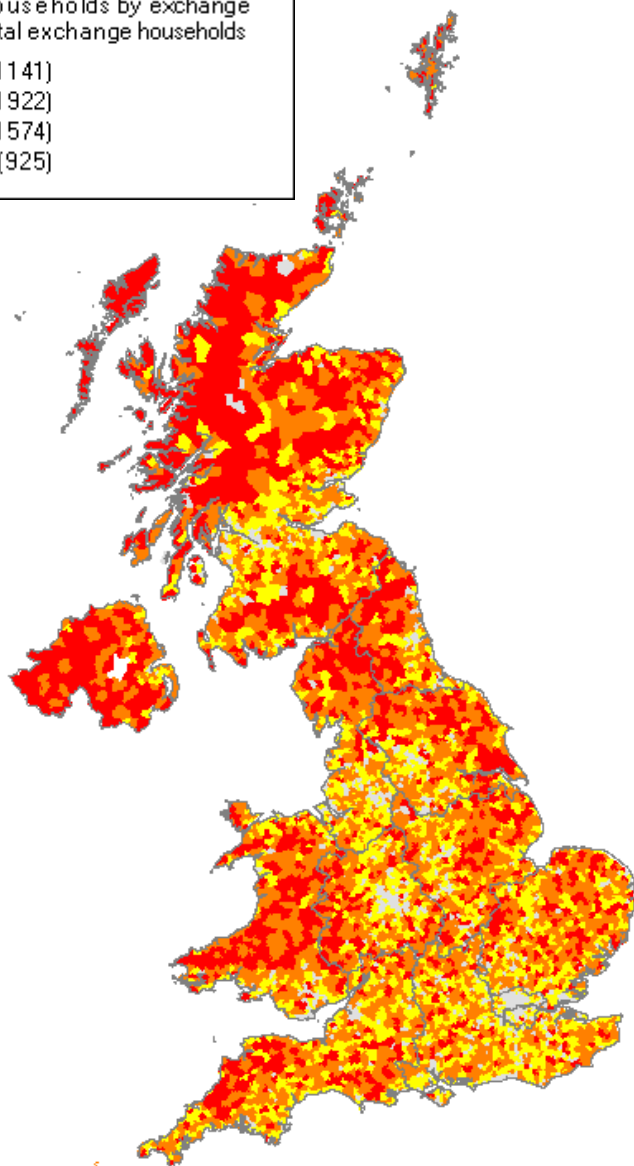
What we're going to cover

<i>Universal Service Commitment</i>	<i>Superfast Broadband</i>
Policy Detail	
Definition of USC	
Mapping results	
Delivery Approach	
Enablers and Constraints	
USC Theoretical Exercise	
Infrastructure Sharing Paper	
	Superfast Broadband Pilots

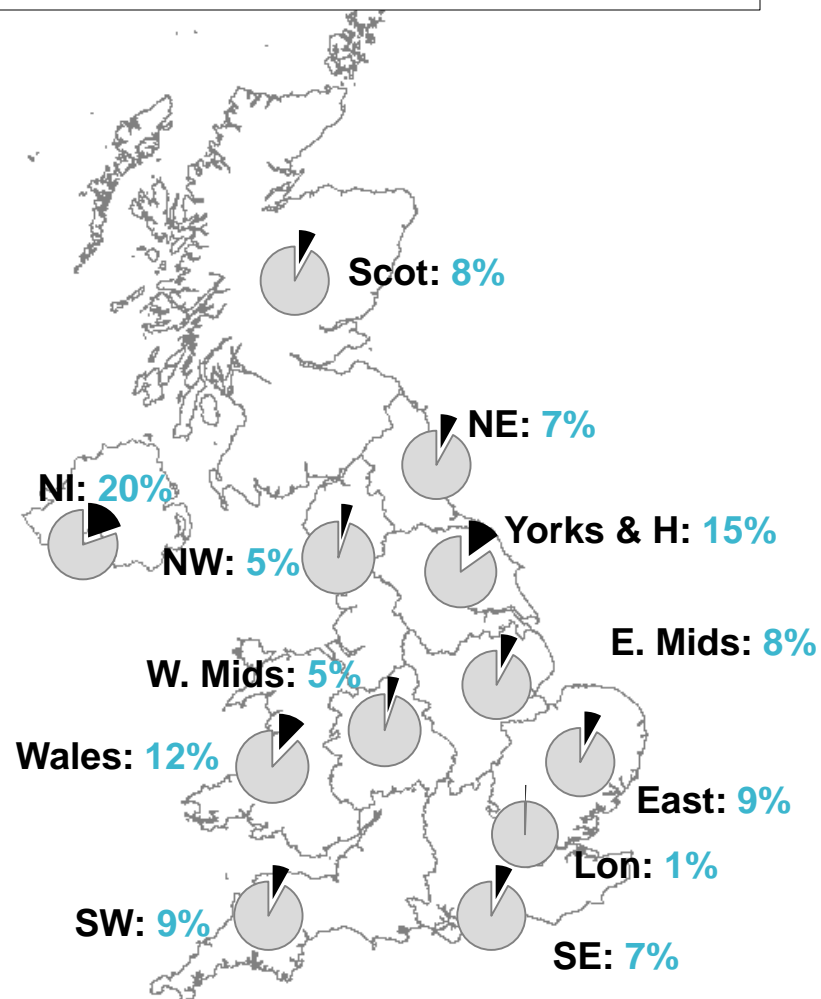
Modelling outputs – High-level

Sub 2 Mbps households by exchange
Proportion of total exchange households

35% +	(1141)
10% -35%	(1922)
1% -10%	(1574)
0%	(925)



Proportion of households in each region that have sub 2 Mbps (long lines)
[UK sub 2 Mbps household level = 8% of UK households]

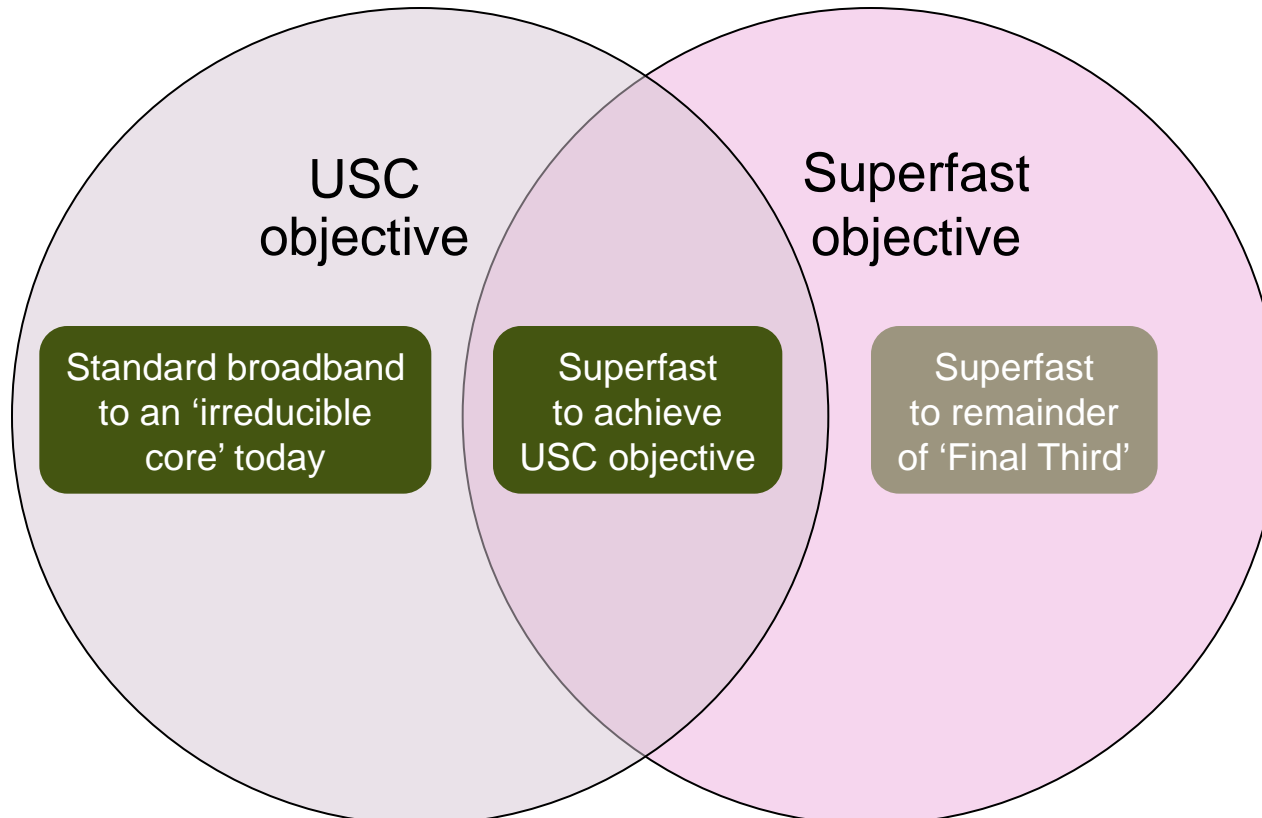


What we're going to cover

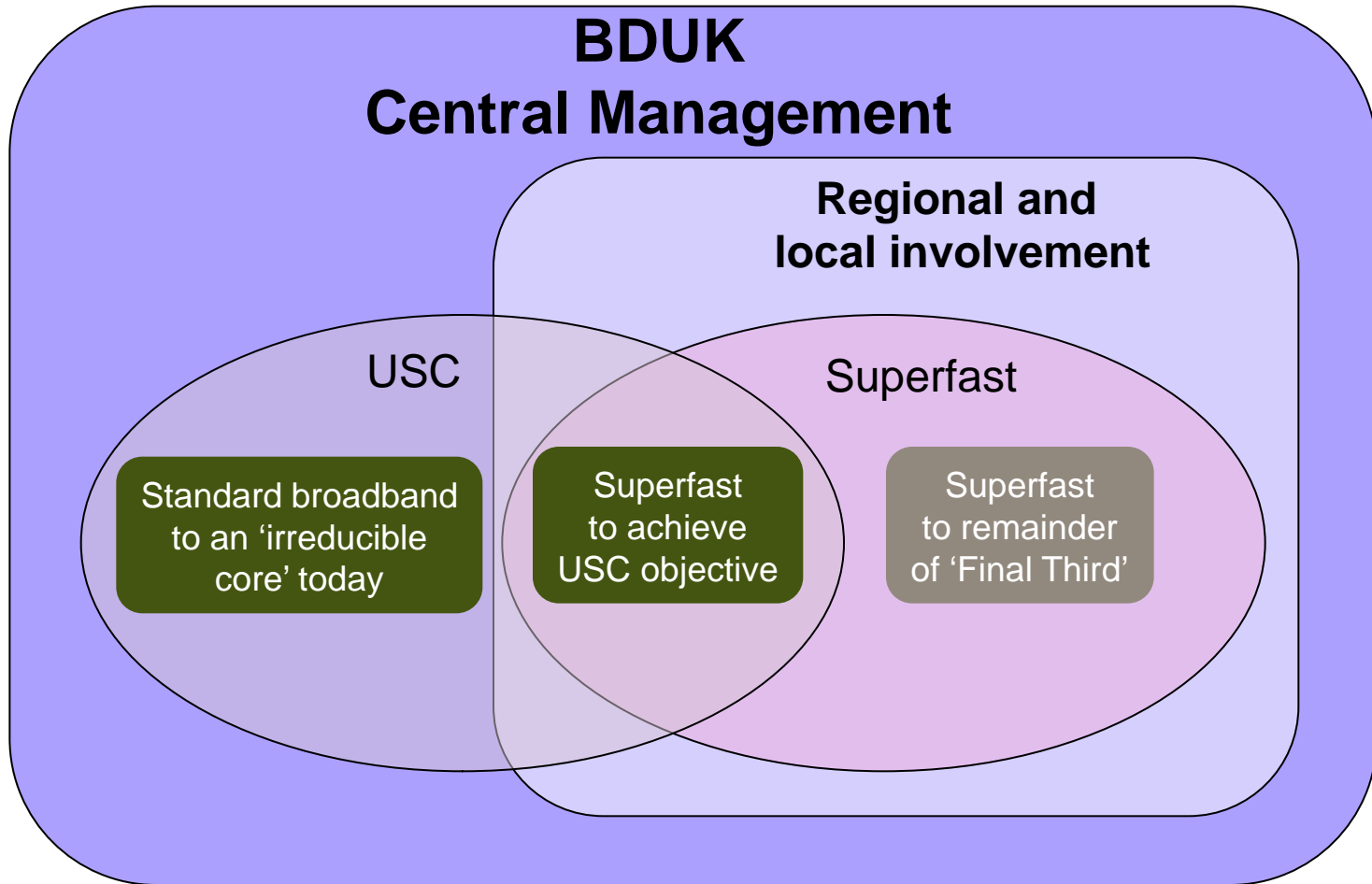
<i>Universal Service Commitment</i>	<i>Superfast Broadband</i>
Policy Detail	
Definition of USC	
Mapping results	
Delivery Approach	
Enablers and Constraints	
USC Theoretical Exercise	
Infrastructure Sharing Paper	
	Superfast Broadband Pilots

Private sector delivery of superfast broadband

Government intervention in uneconomic areas



Draft Operating Model



What we're going to cover

<i>Universal Service Commitment</i>	<i>Superfast Broadband</i>
Policy Detail	
Definition of USC	
Mapping results	
Delivery Approach	
Enablers and Constraints	
USC Theoretical Exercise	
Infrastructure Sharing Paper	
	Superfast Broadband Pilots

Enablers – Demand

- Public subsidy is not the only enabler
- Understand that demand and take up are key drivers whether an area is economic or not
- Actively support efforts to collect consumer demand information
- Government's digital inclusion efforts important part of driving demand
- Demand is not just consumers – also includes public sector & businesses

Enablers – Public Sector Networks

- What is reuse?
- BDUK strategy will incorporate reuse of public sector network assets, where possible
- Local authorities beginning to recognise opportunity
 - Example: Dorset County Council
- Discussions with bodies such as the National Education Network about the potential for reuse and co-investment
 - Investigating the commercial and legal issues

Enablers – Regulation

- Regulation
 - Imposed regulation (OFCOM etc)
 - Industry agreements (standards etc)
- Thinking about how future changes will affect what we do
- Will feed our views into consultations
- Keen to support industry initiatives where relevant

Constraints – State Aid

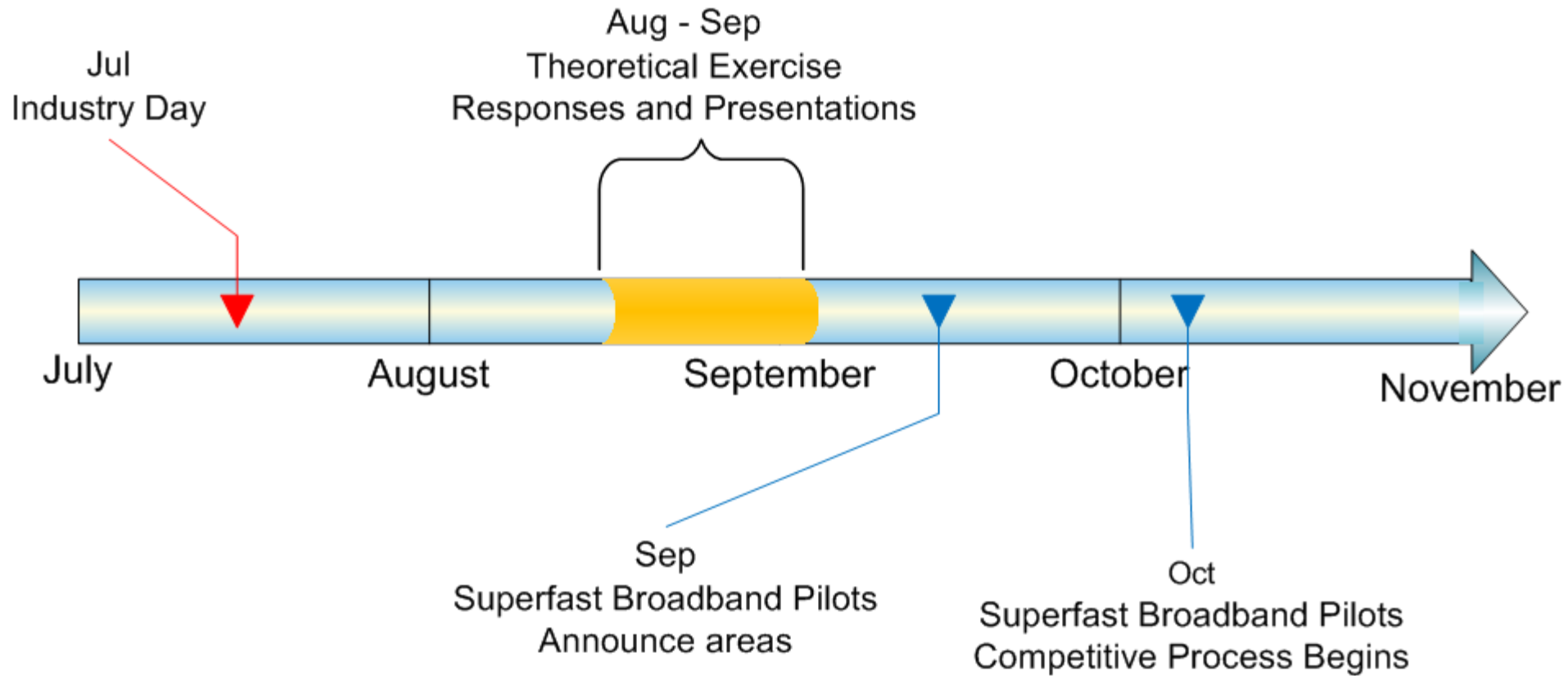
- In dialogue with European Commission about a coordinated, national, framework approach
- BDUK to streamline approvals, with standard processes and information for notifications
- All projects will still need to be compliant with the European Commission's guidelines, including:
 - Third party access
 - Technology neutral
 - Use of existing infrastructure

Questions

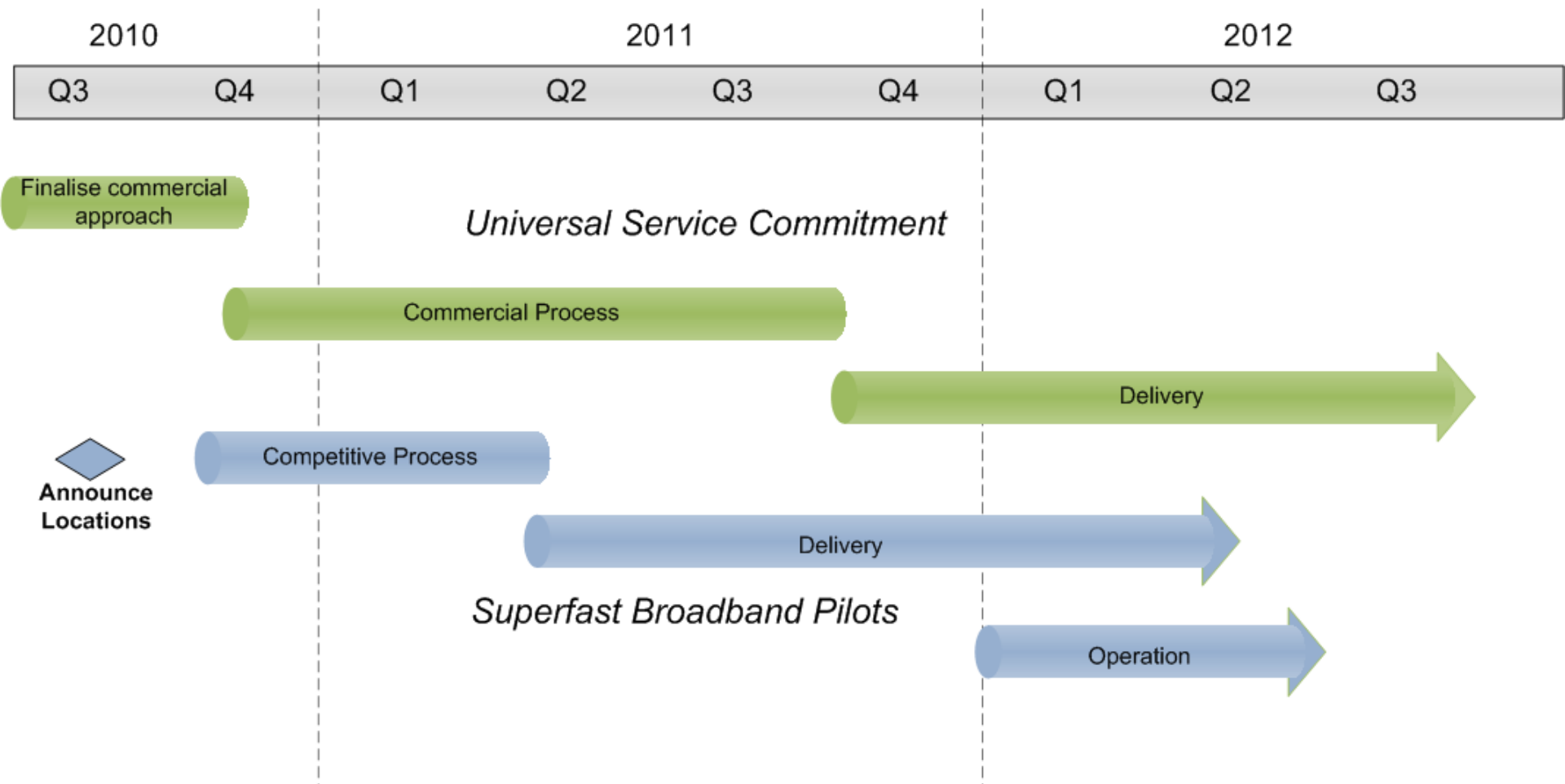
Next Steps

- USC Theoretical Exercise
- Superfast broadband pilots
- Development of commercial approach
- Start USC procurements

Timeline (1)



Timeline (2)



Morning Session Wrap up

Lunch!

Welcome Back

What we're going to cover

<i>Universal Service Commitment</i>	<i>Superfast Broadband</i>
Policy Detail	
Definition of USC	
Mapping results	
Delivery Approach	
Enablers and Constraints	
USC Theoretical Exercise	
Infrastructure Sharing Paper	
	Superfast Broadband Pilots

USC Theoretical Exercise objectives

- Purpose
 - Investigate solutions to USC problem at most granular level
 - See different solutions in different geographies
 - Extrapolate and model at aggregate UK level
- Outcomes for BDUK
 - Understand implications for national delivery of USC
 - Inform decisions about competitive commercial processes
- Outcomes for suppliers
 - Opportunity to demonstrate capability to deliver USC objective
 - Opportunity to shape future competitive processes

The “exam question”

- Theoretical exercise only
- 3 ‘real world’ areas in different geographies
- Maps show approx 50 post-codes with <2Mbps broadband, and suppliers’ infrastructure in the area
 - **Theoretical** speed estimate based on modelled line-length to centre of post-code
- Suppliers to provide ‘complete’ and optimal solutions for broadband coverage in the area
 - What is the technical solution?
 - What is the impact on broadband speeds?
 - What are the indicative costs and revenues?
 - What is the investment gap needed to make such a project viable and long-term sustainable?

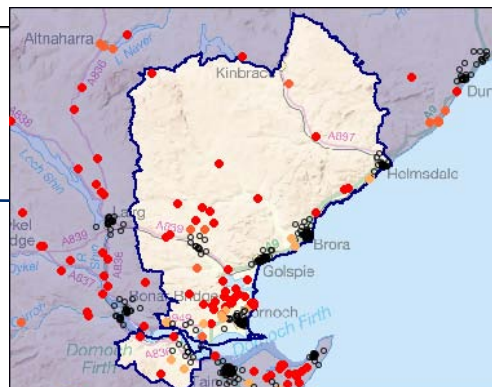
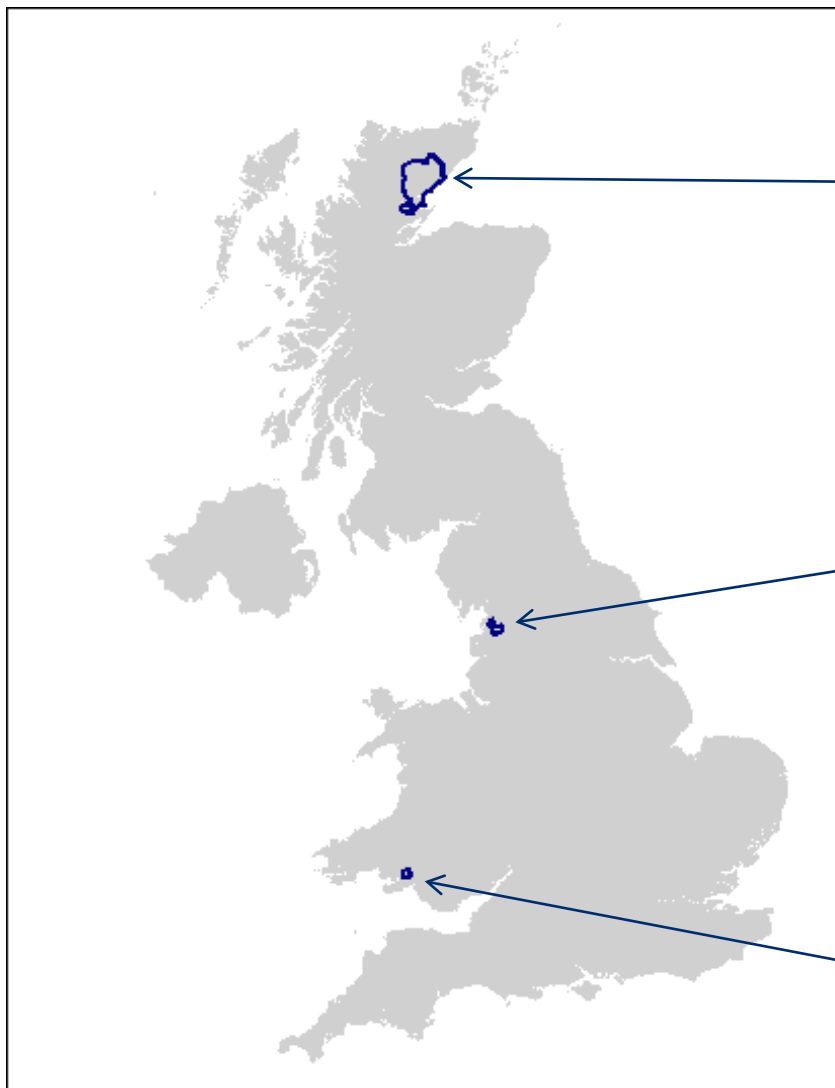
Choice of solutions

- ‘Complete’ solutions
 - Sufficient access and data transport infrastructure for all ‘not-spot’ and ‘slow-spot’ postcodes
 - Access an ISP service for a reasonable one-off install and monthly recurring charge
 - Ongoing provision of service remains commercially sustainable
- Cost effective solution – up to supplier to balance:
 - Lowest cost to government; vs.
 - Greatest penetration of superfast broadband
- Solutions should assume current regulatory framework
 - But identify effect of changes

Teaming and partnerships

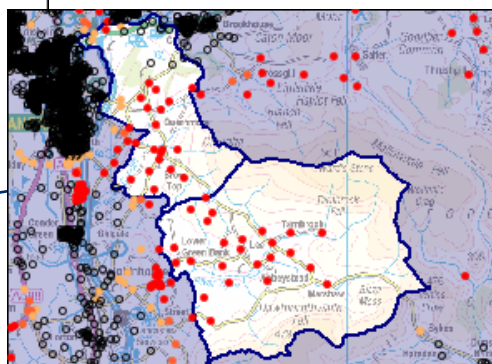
- Solutions require supply chain with multiple components
 - e.g. fixed, radio and satellite providers, ISPs
- Assuming industry will form teams to develop complete, integrated solutions for the area
 - BDUK not mandating teams or matchmaking
 - Supplier names published on BDUK website
 - A supplier can be in multiple teams if appropriate
 - Shouldn't form exclusive relationships at this point

USC Theoretical Exercise locations



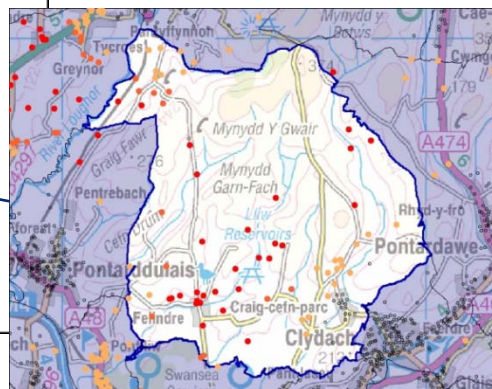
HIGHLANDS
East Sutherland and
Edderton Ward

Postcodes: 333
<2M postcodes: 70
<2M delivery points: 865
Area size: 1,500 sq. km



LANCASTER
Quernmore and Over
Wyresdale Communities

Postcodes: 61
<2M postcodes: 48
< 2M delivery points: 273
Area size: 100 sq. km

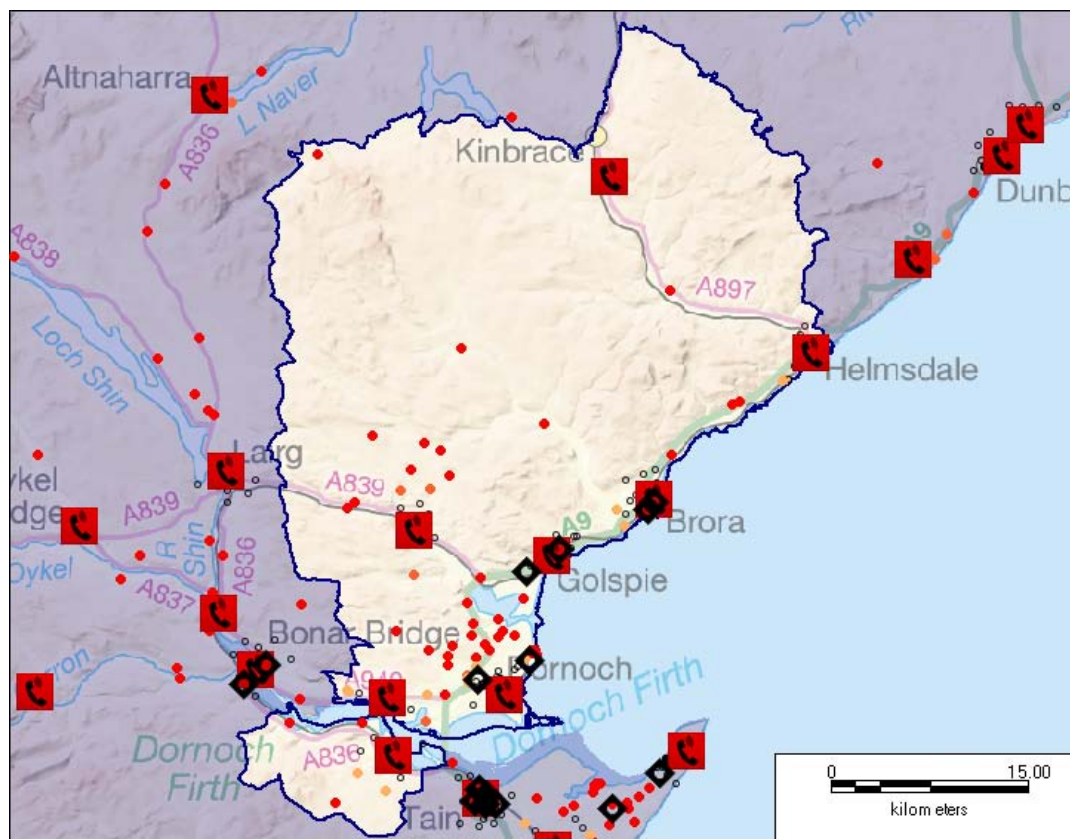


SOUTH WALES
Mawr Community (centred
on Felindre)

Postcodes: 86
<2M postcodes: 57
<2M delivery points: 289
Area size: 58 sq. km

Area 1) Highlands, N. of Inverness

East Sutherland and Edderton Ward (1,500 km²)



Postcodes: 333

Sub 2M postcodes: 70

Sub 2M households: 865

 BT Exchanges

 BT cabinets

Key features

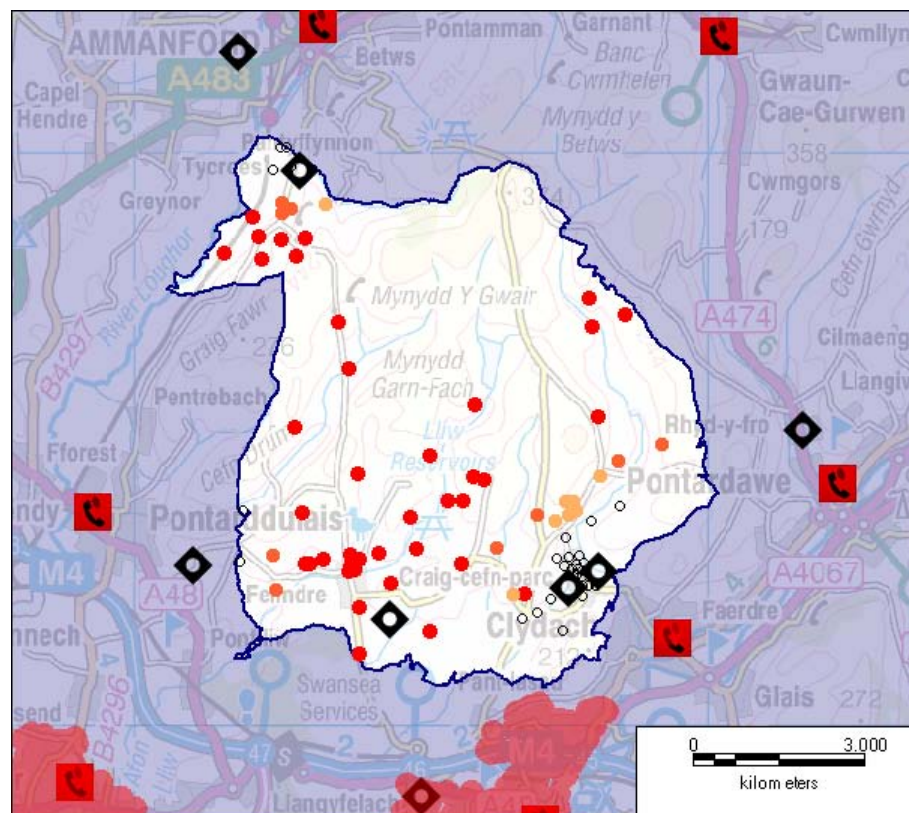
- Remote, hilly geography
- Low distribution of households
- 1 Exchange Activate exchange
- Microwave back-haul

Relevant assets:

- Some PCPs on East coast
- Pathfinder North network into schools and PS locations
- Thus fibre on East-coast to Thurso for oil industry
- Mobile masts and TV repeaters

Area 2) S. Wales

Mawr Community (centred on Felindre) (58 km²)



Key features

- Rural, but close to major urban area
- Encircled by multiple LLU exchanges

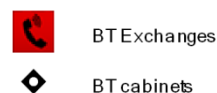
Relevant assets:

- Significant levels of fibre into Swansea
- Most exchanges fibre enabled
- Fibre installed into villages with deployment of schools network
- Wireless B2B provider
- 3G masts on boundary

Postcodes: 86

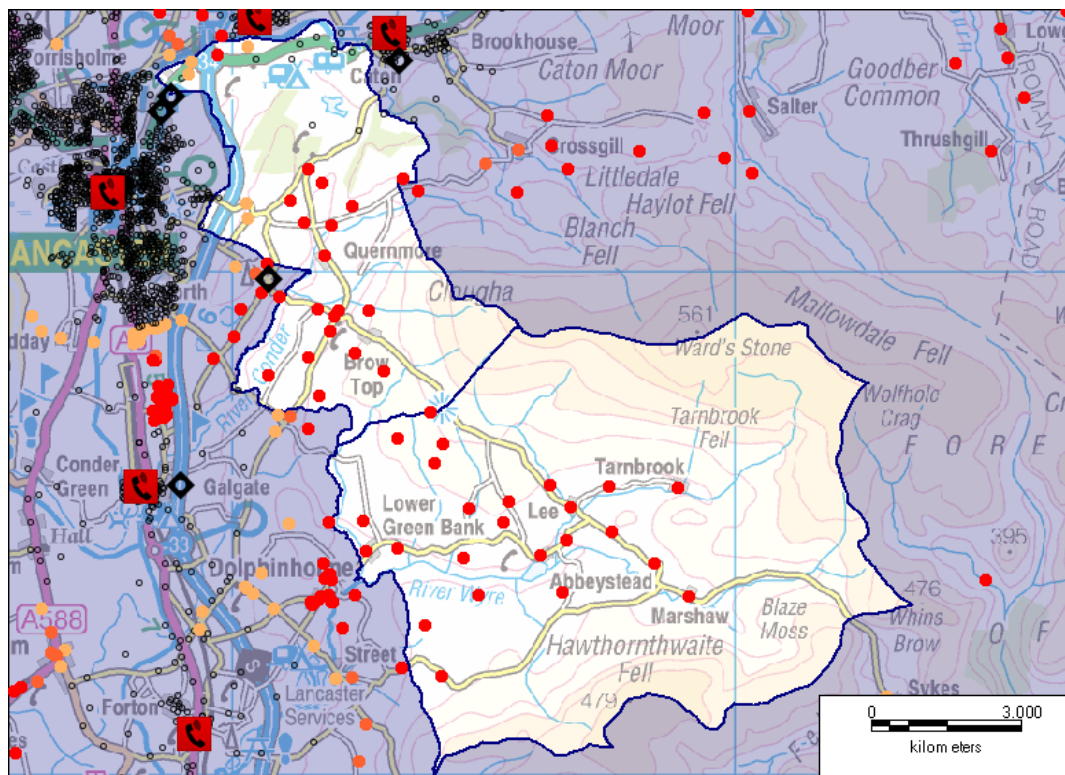
Sub 2M postcodes: 57



Sub 2M households: 289



Area 3) Lancaster

Quernmore and Over Wyresdale Parishes (100 km²)



-  BT Exchanges
-  BT cabinets

Postcodes: 61

Sub 2M postcodes: 48

Sub 2M households: 273

Key features:

- Rural / suburban mix
- Good 3G coverage
- Small World cable company in Lancaster

Relevant assets:

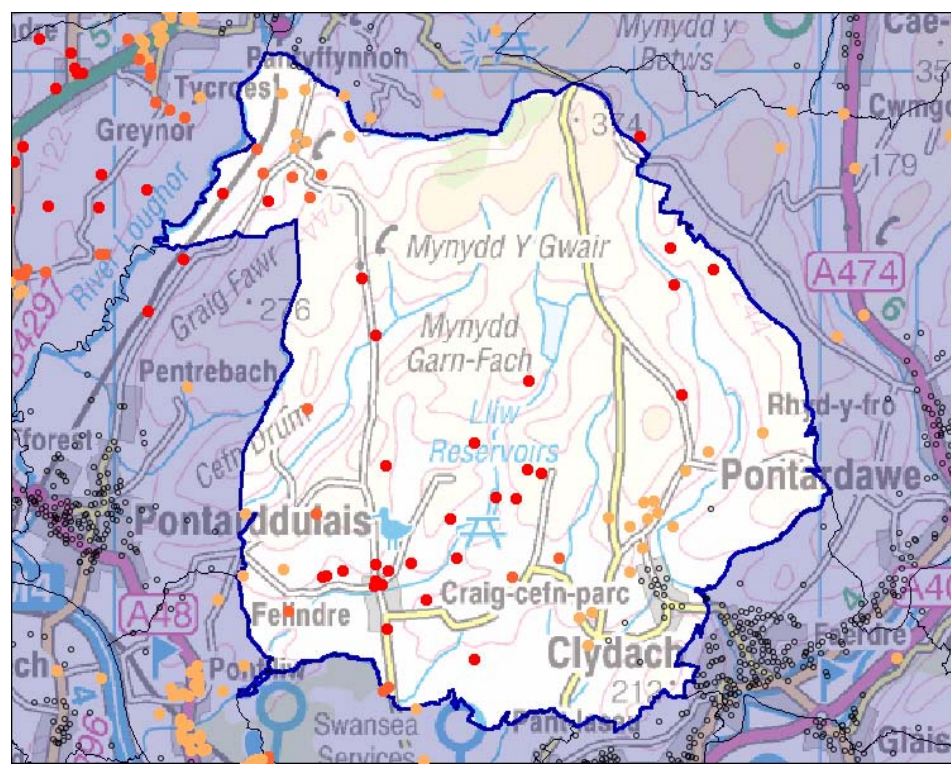
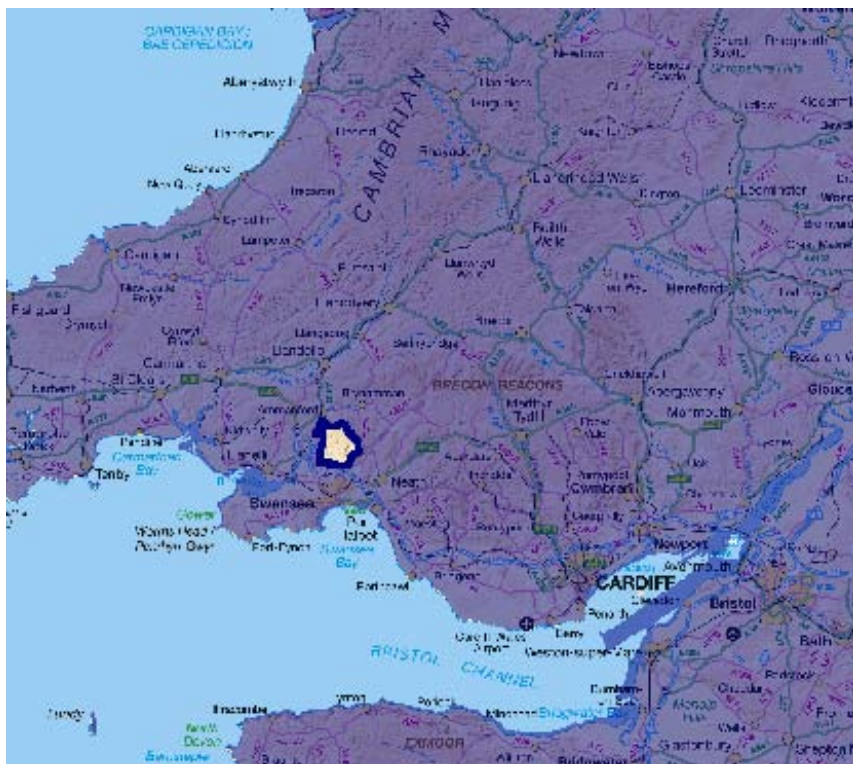
- Wireless trials nearby
- Close to edge of Virgin network
- Virgin Media Business deploying to 8 Lancashire NHS Trusts

Resources

- Available data and sources for each area
 - Area boundaries (inc Exchange areas)
 - Modelled distances and broadband speeds
 - BT, Virgin and alt. net. provider infrastructure
 - Mobile and wireless infrastructure
 - Some utility infrastructure
 - Public sector locations and networks
 - Consumer and business demographics
- Provided as data tables
- Local champion contact details

S. Wales exercise – overview

Surrounding area

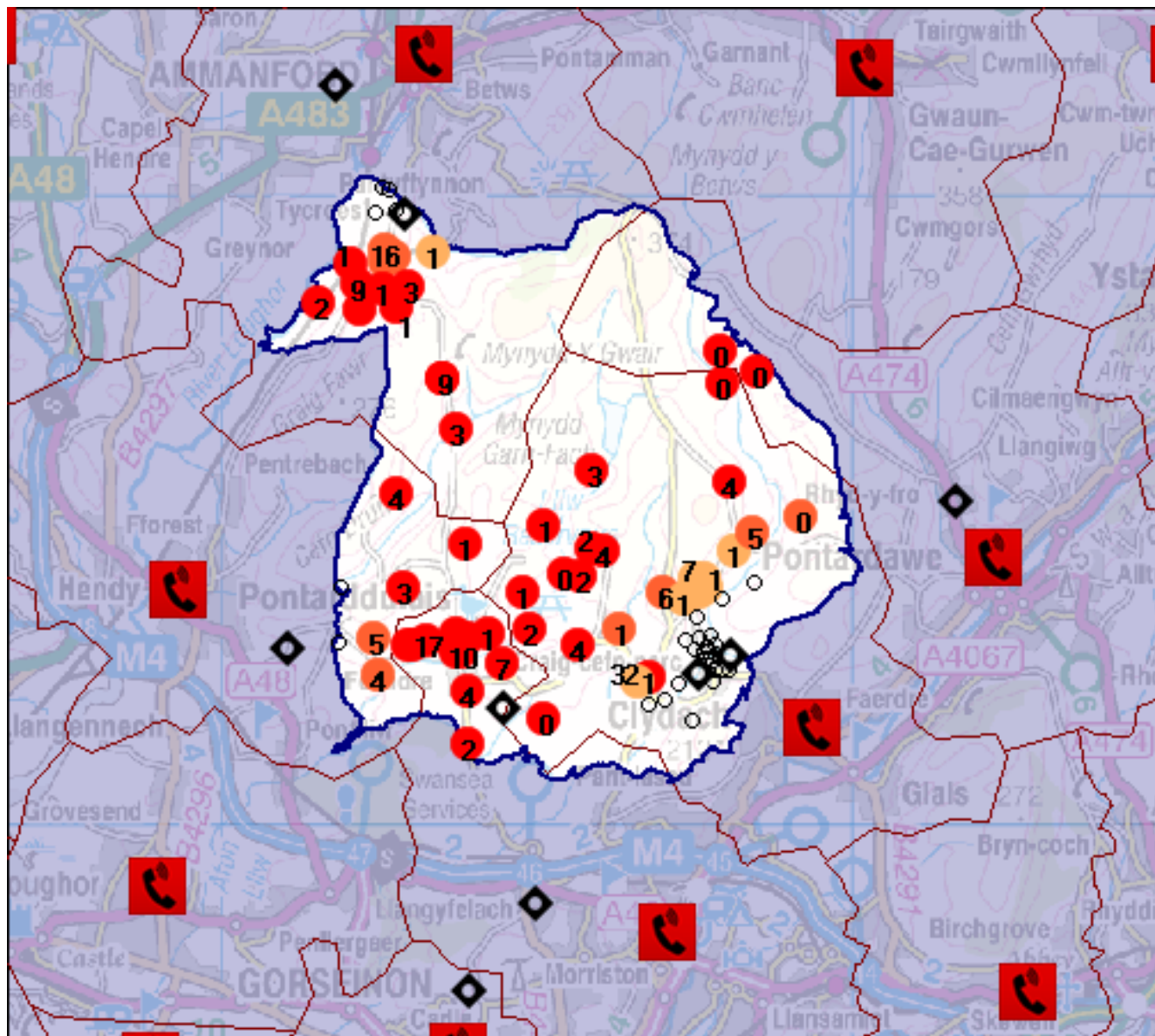











Mawr Community
(including the towns of Felindre & Clydach)



57 not-spot and slow-spot postcodes
289 households
49 businesses

S. Wales exercise – <2Mbps households

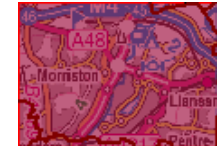
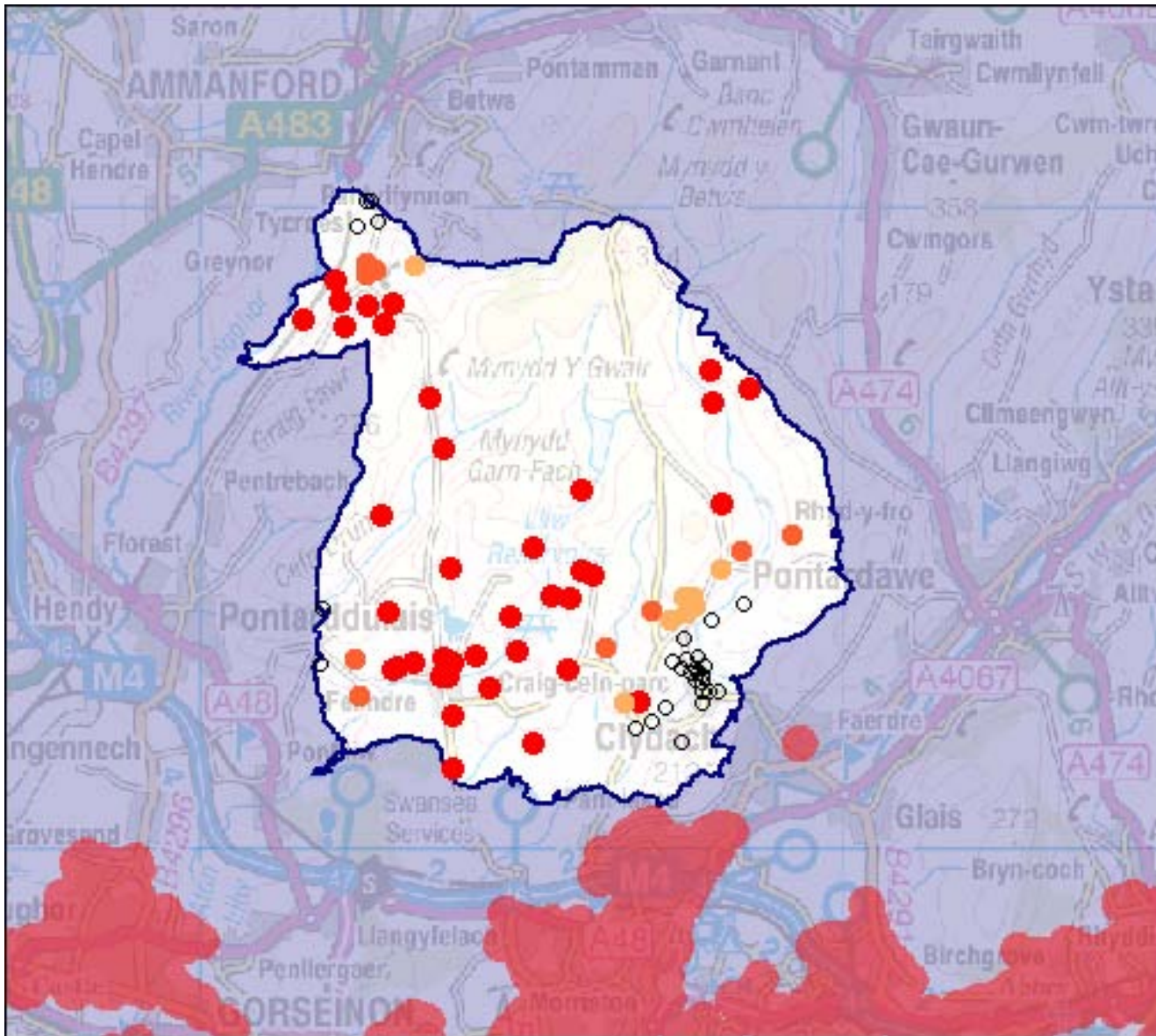


-  PCP
-  0-500 kbit/s
-  500-1000 kbit/s
-  1000-2000 kbit/s
-  BT exchanges
-  BT cabinets
-  Mawr Community boundary
-  BT exchange boundaries
-
- 10  Number of households within the postcode

S. Wales exercise – exchange list

Exchange code	Name	Lines - residential (approx.)	Lines - business (approx.)	Exchange not-spot households	Case study not-spot households	LLU ops	WBA mkt	WBC	FTTC	Cable
SWADW	Ammanford	5,651	279	57	57	2	2	○	○	○
SWCJW	Clydach	4,749	192	92	92	2	2	○	○	○
SWMLZ	Morrison	18,257	1,030	126	102	5	3	●	○	◐
SWPDU	Pontardawe	4,873	278	23	0	3	2	○	○	◐
SWPDW	Pontardulais	4,200	197	21	14	2	3	○	○	○
SWRVH	Ravenhill	10,912	302	24	24	2	3	○	○	◐

S. Wales exercise – Virgin areas

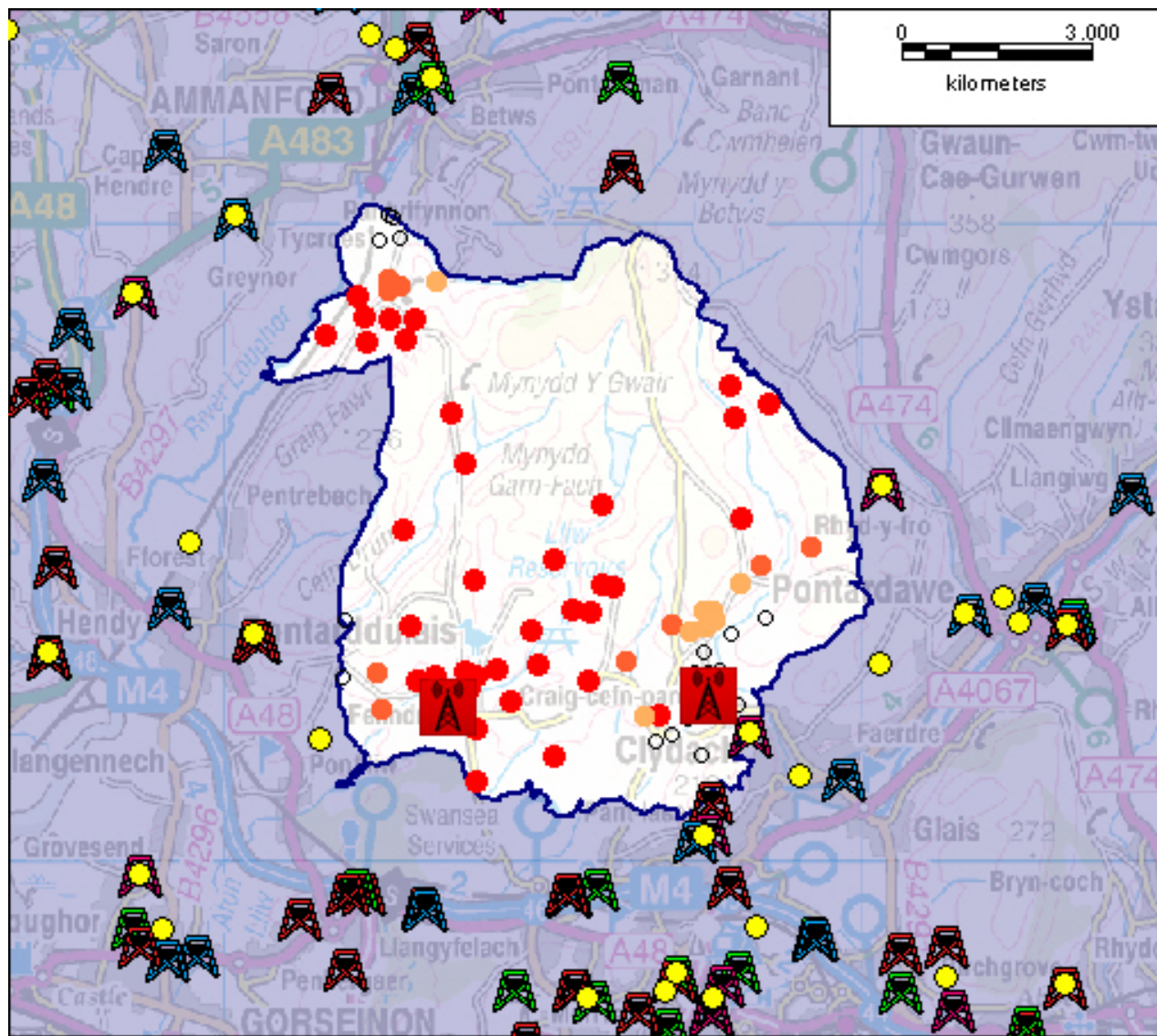


Virgin Media
areas

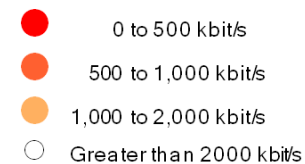
Case study not-spots and slow-spots

- 0 to 500 kbit/s
- 500 to 1,000 kbit/s
- 1,000 to 2,000 kbit/s
- Greater than 2000 kbit/s

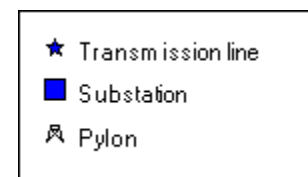
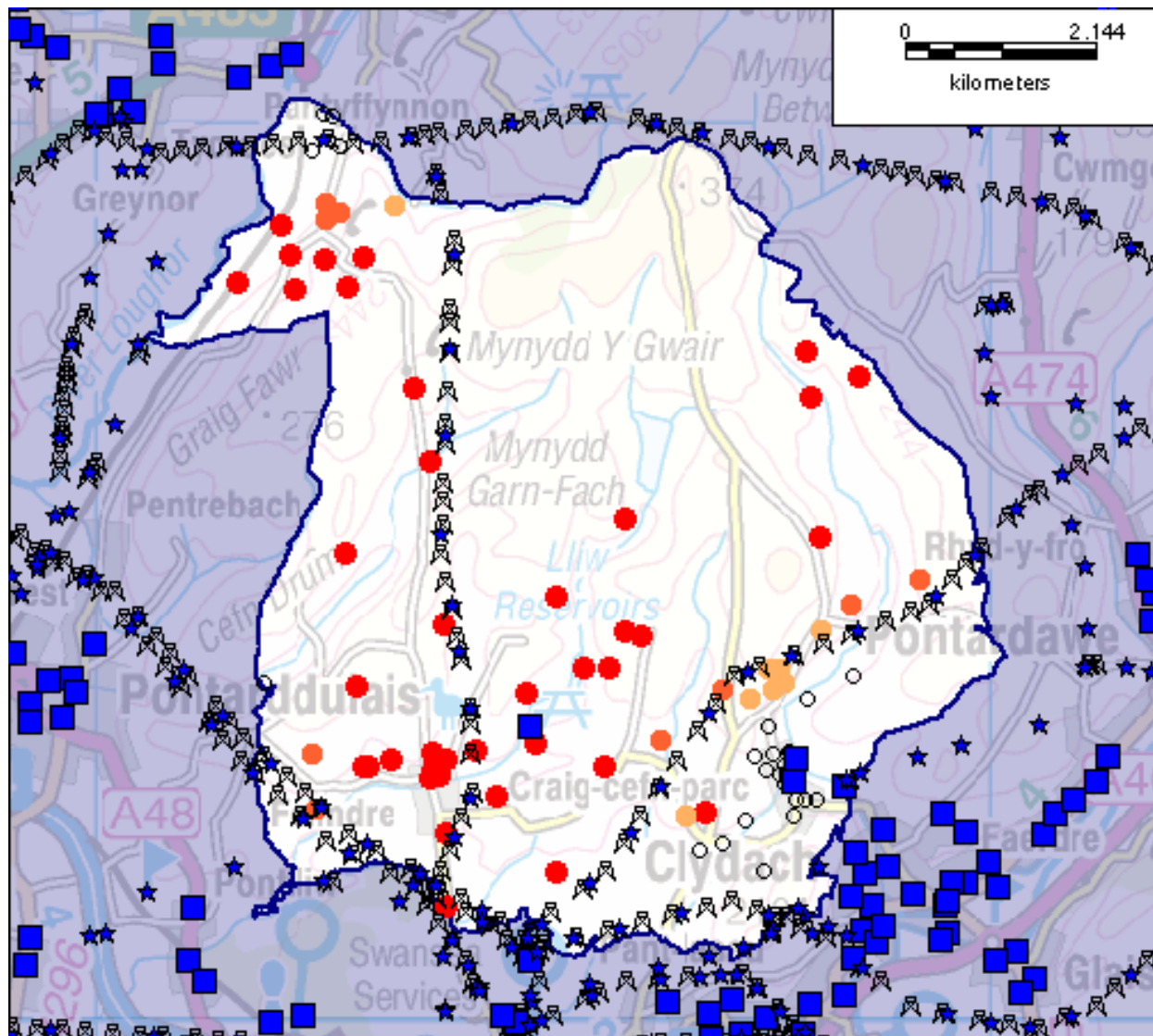
S. Wales exercise – radio assets



Case study not-spots and slow-spots



S. Wales exercise – utility assets

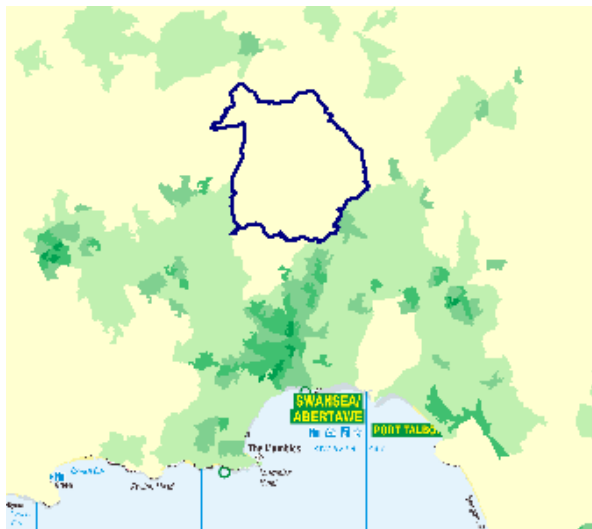


Case study not-spots and slow-spots

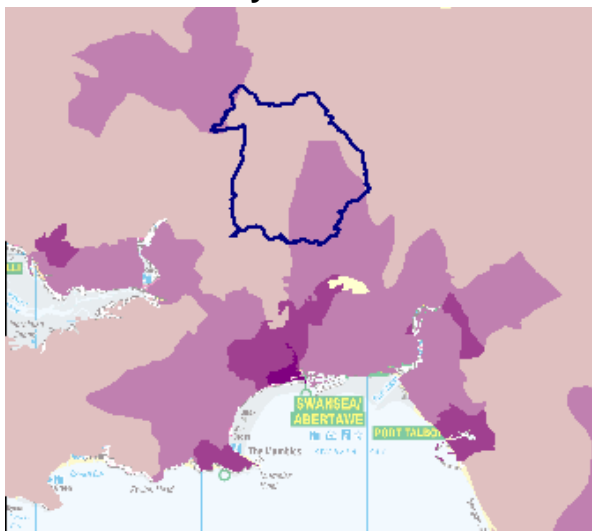
- 0 to 500 kbit/s
- 500 to 1,000 kbit/s
- 1,000 to 2,000 kbit/s
- Greater than 2,000 kbit/s

S. Wales exercise – demand indicators

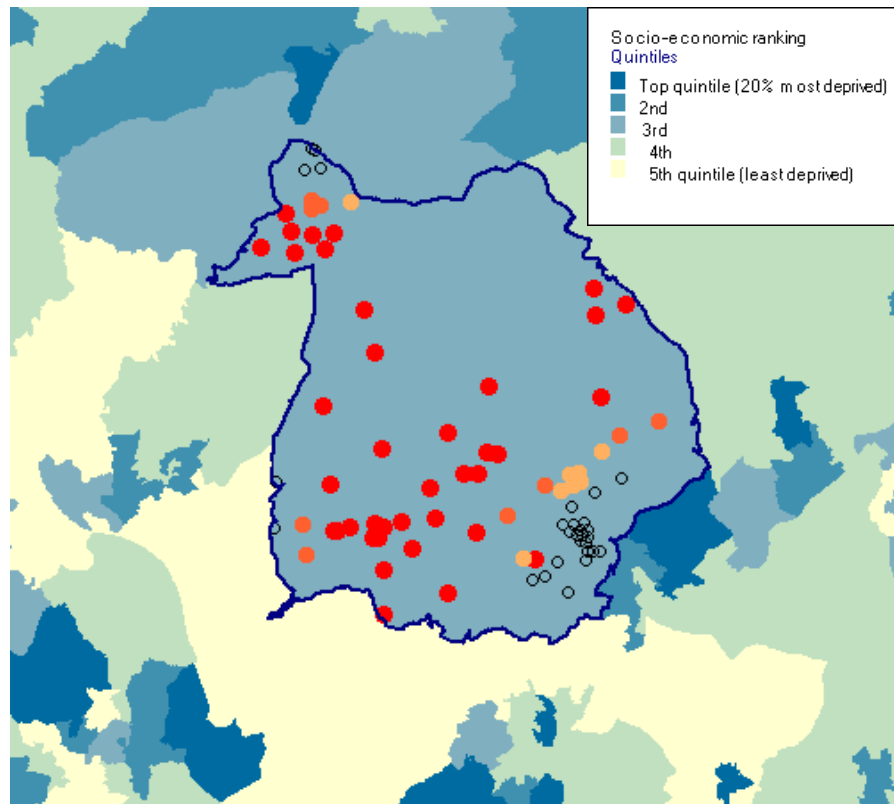
Household density



Business density

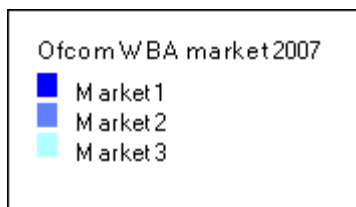
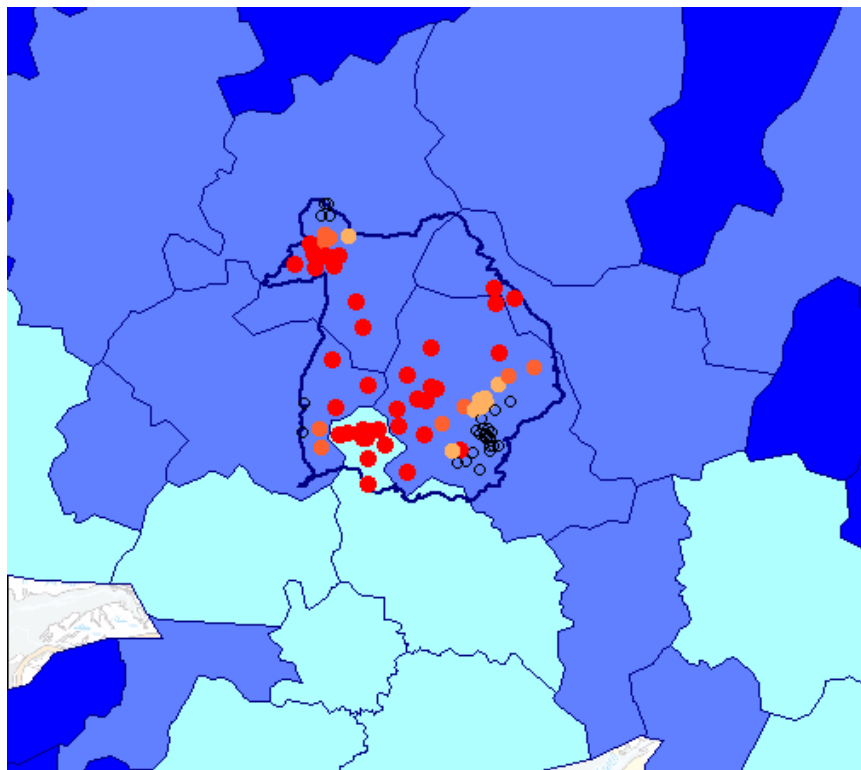


Socio-economic indicators

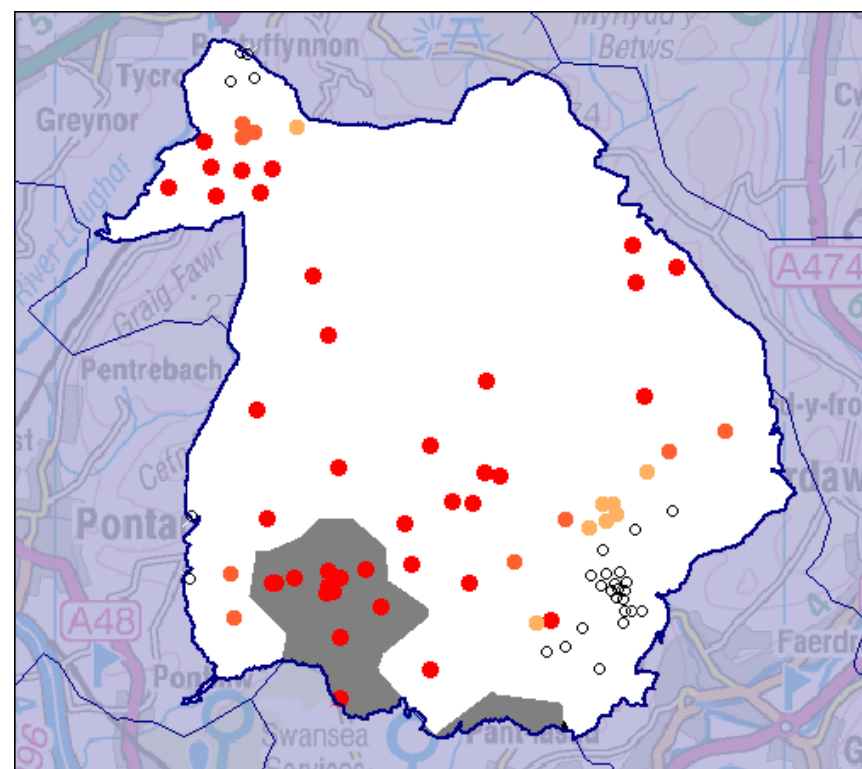
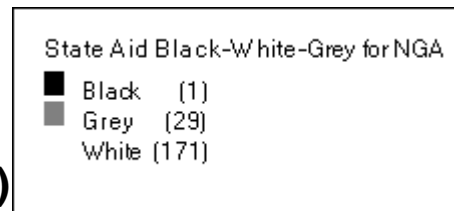


S. Wales example – regulatory, State aid

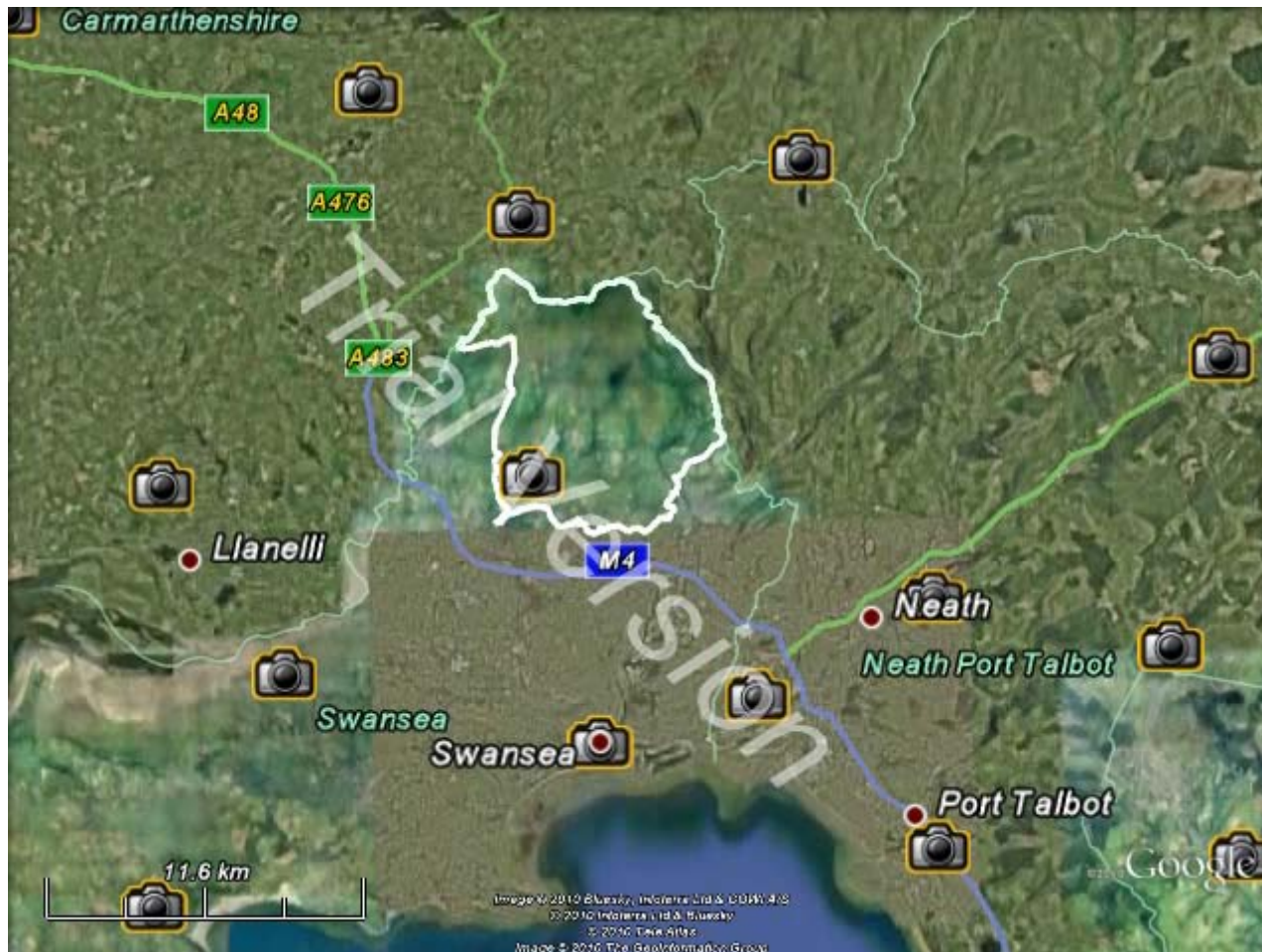
WBA markets



State aid (indicative)



Desk-based research – software tools



<<Google Earth video presented on the day>>

Form of response

- See Request for Information (RFI) document
- Written report
 - Section on supplier(s) organisation
 - Section on each exercise area
 - Solution description – impact on speeds
 - Impact of geography / scale / regulations on solution choice
 - Deployment timescales, relevant experience
 - Indicative costs, revenues, project returns, investment gap
 - Variant responses also possible
- Opportunity to present
 - Opportunity to discuss solution choice, relevant assumptions, commercial / technical / practical hurdles

Timetable and Logistics

- Key dates in the process

Industry Day	15 July
Area information released (requires receipt of signed mutual NDA)	16 July
BDUK and area champions available to answer questions	19 July – 20 August
Confirm intention to submit response	26 July
Deadline for responses	3 September
Supplier presentations to BDUK	23 August – 3 September

- Questions and further information
 - BDUK – process questions
 - Local champions – area information
- Supplier visits encouraged
 - Liaise with local champion
 - Code of conduct must be followed

Small print

- Supplier responses will be confidential
 - But will share overall conclusions with industry
- Financial information provided will be treated as indicative
 - Will not prejudice future procurements or competitions
- Suppliers will not be remunerated for this exercise
- Participation in this exercise is entirely voluntary
 - But responses will inform the choice of commercial strategy

Process outcomes and next steps

- Choose commercial model(s) based on market capacity and capability
- Develop assumptions about cost effective solutions
- Extrapolate conclusions nationally to model irreducible core and overall range of technology mix
- Update business case for release of USC fund
- Begin procurement for USC

What we're going to cover

<i>Universal Service Commitment</i>	<i>Superfast Broadband</i>
Policy Detail	
Definition of USC	
Mapping results	
Delivery Approach	
Enablers and Constraints	
USC Theoretical Exercise	
Infrastructure Sharing Paper	
	Superfast Broadband Pilots

Broadband Deployment and Sharing Other Utilities' Infrastructure

Simon Towler and Jeanne Grey

Discussion document questions

- Do you agree that the ability to share other utilities infrastructure would reduce the costs of rolling out superfast broadband and facilitate investment?
- We think that encouraging infrastructure sharing might help companies extend the reach of their networks further into harder to reach rural and remote areas. What infrastructures would be most useful in achieving this objective? How much difference do you think that more infrastructure sharing would make to the ability to reach these areas?
- What do you see as the main barriers to infrastructure sharing?
- What benefits are there for utility infrastructure owners in making their infrastructure available for sharing?
- What additional incentives would infrastructure owners like to see in place to encourage more sharing?
- What government action would be most likely to ensure the quickest and most effective deployment of broadband through infrastructure sharing? Is legislation likely to be required or would industry co-operation be quicker and more effective?

What we're going to cover

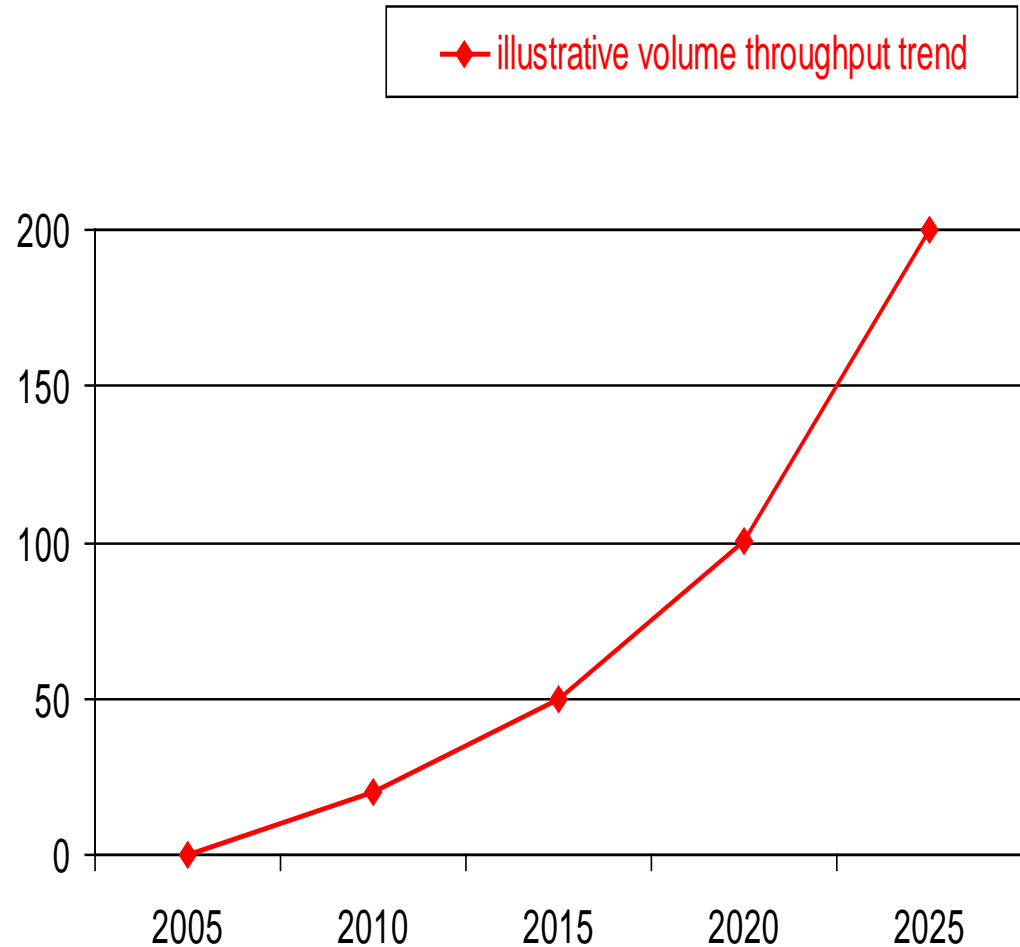
<i>Universal Service Commitment</i>	<i>Superfast Broadband</i>
Policy Detail	
Definition of USC	
Mapping results	
Delivery Approach	
Enablers and Constraints	
USC Theoretical Exercise	
Infrastructure Sharing Paper	
	Superfast Broadband Pilots

Introduction

- Many examples of superfast broadband initiatives in the UK
 - Thank you for sharing information with us
- BDUK will initiate its own superfast broadband pilots
 - Delivering high speed connectivity
 - Supported by high quality data transport
 - At affordable rates
 - In rural and hard-to-reach areas and routes
 - Where market is unlikely to serve
- Projects and their locations have not yet been chosen – selection process is underway

Superfast Broadband

- Superfast is a question of volume throughput
- Today's broadband has an average potential throughput of c.6Mbit
- Superfast has a potential throughput of over 20Mbits – no upper limit



Objectives

- BDUK's superfast broadband pilots can be used to investigate:
 - *Actual* economics of deployment and operation in hard-to-reach areas – where only assumptions exist currently
 - Impact of utility infrastructure sharing
 - Impact of reusing public sector networks
 - Impact of demand registration and aggregation
 - Impact of open access to passive infrastructure on ISP marketplace
 - Different commercial mechanisms to meet State Aid requirements
 - Cost effectiveness of solutions

Economic & Financial

- Average value of the subsidy expected to be between £5m and £10m
- Projects may be of differing sizes with the potential for one being quite large and one being quite small
- Funds are to be used to subsidise capital costs – there will be no ongoing subsidy
- Services must be available to customers at a fair market price

Location selection criteria include

Prioritise locations that:

- Are currently uneconomic due to unattractive payback period – but are long-term commercially sustainable
- Provide opportunity to reuse existing infrastructure:
 - Telco supplier's infrastructure
 - Utility infrastructure
 - Public sector networks
- Leverage additional sources of funds (e.g. European)
- Provide maximum learning opportunities
 - Cost, revenue take-up and other project information
 - Testing delivery and commercial models

Location Selection Process

- BDUK will provide RDAs and DAs with objectives and preference criteria
- Any organisation proposing a location will be asked to send it to BDUK who will log and forward to the relevant RDA
- BDUK will ask each RDA / DA to provide one suggestion, along with calculating indicative cost of the pilot - in parallel BDUK develops its own suggestions
- Combined long-list reviewed against criteria by BDUK
- BDUK proposes three projects from long list within expected funding limits
- Minister approves final decision of locations

Project Selection

- Formal evaluation criteria will be created as part of the bid process, however we have a number of ideas:
 - These projects are about market testing; we want them to show ***ambition***
 - We may trade geographic coverage for more or better lessons learned
 - We're technology neutral **but** these are market testing rather than technology testing projects
 - Will want the projects to show us how the market can be made and shaped with public money in these areas
 - Will be happy to see proposals that show potential for growth: growth of coverage, growth of capacity and capability and growth of services available
 - We would like to see projects that help develop and/or build on industry initiatives (e.g. those run by NICC)

Commercial Sustainability

- We want a lasting legacy for the communities where the projects operate
 - This is more than just revenue covering the opex
- Will need to show that the infrastructure will support expected growth in bandwidth, or the economics of the project will allow future investment for this
- Will need to show how additional services may be catered for in the future
- Will need to show how the business as well as consumers within the areas will be served

Potential process

2010

2011

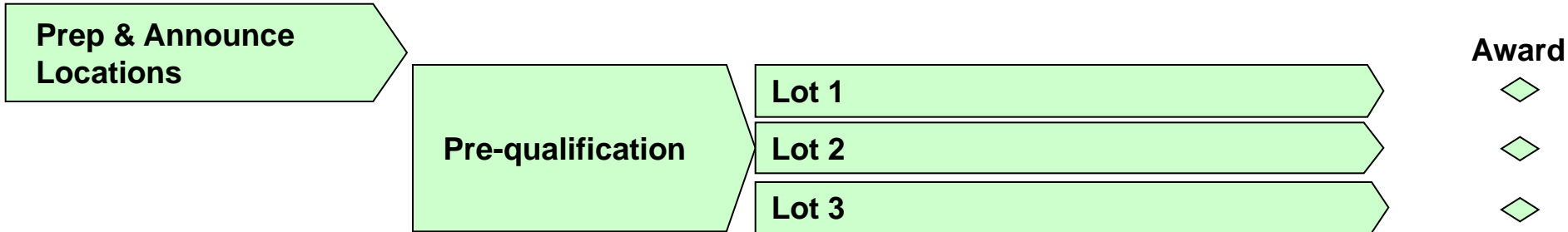
Q3

Q4

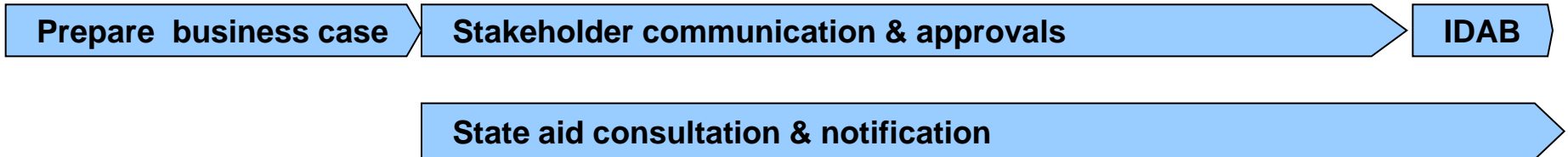
Q1

Q2

Procurement



Approvals



Questions

Wrap up
