

## **Broadband Provision in Littlebury Parish**

### What is high speed broadband?

Broadband is defined as an internet connection that is always on as opposed to dial up where the connection has to be established every time you need it. Broadband provision is now virtually ubiquitous in the UK. There is no formal definition of what constitutes high speed broadband but generally it is taken to be a download speed of 10Mbit/s or more. The US FCA last year defined the term as greater than 25Mbit/s. In its Local Plan Uttlesford DC has set a target of 10Mbit/s though in our response we have suggested this is too low. Though a few Mbit/s is perfectly adequate for email and web browsing any applications involving video require much higher data rates. For standard definition video such as iPlayer, BT Sport and Netflix the minimum recommended is 3Mbit/s. For HD video the minimum is 5Mbit/s. For gaming and 4K TV streaming at least 12Mbit/s is required. Thus for a typical family with multiple simultaneous users a minimum of 20Mbit/s is desirable. With increased working from home, more and more data hungry applications and the move from live broadcast to on demand TV and entertainment the data rate requirements can only increase.

The above figures are download data rates. Most people don't need such fast uploads except for applications such as interactive gaming. However, if you want to make extensive use of cloud storage for large files such as photographs and for back up a high upload data rate is desirable.

High speed broadband is now deemed an essential service just like electricity and telephone. There is strong evidence that broadband speed is a factor in determining price and saleability of homes, particularly those for families.

### What are the broadband technologies?

#### Wired technologies

The legacy wired technology is ADSL which uses the old copper telephone wires. In this Parish and most of the UK these are owned and maintained by Openreach (part of BT) though many other service providers use them under open access agreements. The latest version of ADSL is capable of providing speeds of 25Mbit/s or more but unfortunately the speed falls off rapidly with distance from the exchange so that after 5km it has dropped to less than 3Mbit/s. Hence in most rural areas such as ours DSL speeds are low. Also the A stands for asynchronous which means the upload speeds are typically 5 to 10 times lower.

Coaxial cable is also asynchronous but is capable of delivering download speeds of up to 100 Mb/s. There is only one national cable provider in the U.K. – Virgin.

The highest data rates are achieved with optical fibre. In theory the speed is limited only by the optics and electronics so in the backbone network speeds of thousands of Mbits are used. The advantage of optical fibre is that there is very little degradation with distance and it is synchronous. Openreach uses fibre to the cabinet, where the final link to the home is over the old copper phone lines. Thus the actual speed received depends on distance from the cabinet. In urban areas where this distance can be very

short, typically a few hundred metres to less than 1 km, this approach can provide speeds up to about 35 Mbit/s to the home. BT and a number of other providers use the Openreach fibre network.

The ultimate is fibre to the premises where optical fibre is brought into the house. This is the approach used by some of the newer operators such as Gigaclear. Speeds up to 1000Mbit/s (1Gbit/s) are offered. Since these companies do not own a national infrastructure they must connect to a national backbone fibre network such as those owned by the mobile phone companies, National grid or Openreach. This is called backhaul. BT has just announced that it too will start offering fibre to the home in selected metropolitan areas.

#### Terrestrial Wireless

4G (mobile phone) can in theory give up to 150Mbit/s but in practice 30 to 50 Mbit/s is attainable. Technologies in development (5G) will increase this further. It is possible to connect a computer to the personal hot spot of most smart phones. Alternatively one can buy mobile wifi hot spots or dongles. However data plans are generally quite expensive and whilst suitable to mobile users or those that only want to send email or browse the web they do not lend themselves to heavy domestic use.

Wifi/WiMAX. Wifi is routinely used for short distance data transmission in homes, offices and public areas. There are several companies that are offering wide area WiMAX to rural communities by putting a wireless mast on a high point such as a church tower. One well established provider, County Broadband, offers download speeds of up to 32Mbit/s. Like the local fibre suppliers these providers must also backhaul onto a national network.

#### Satellite

The one advantage of satellite is that it is available anywhere a dish can get a direct line of sight on a satellite. The downsides are high latency (delay), and impact by weather, particularly fog and heavy rain. There are a number of providers in the U.K. offering download speeds up to 50 Mb/s and upload up to 10Mbit/s. However, the amount of use is capped and generally speeds are throttled the more you use even within your allowance. Data plans are more expensive than wired broadband but cheaper than mobile though there is an upfront cost of several hundred pounds for the equipment. Government subsidies are available in some parts of the country (including Essex) where other technologies are not available.

#### What is the Current Situation in the Parish?

The village of Littlebury has access to Openreach fibre to the cabinet. From my enquiries I have ascertained that most residents are able to achieve download speeds of over 30Mbit/s. Virgin cable also claim to serve the village though I am not aware of anyone who is a customer.

3G/4G mobile data service is generally good in the village and EE has announced an upgrade to its highest speed service this month.

The outlying hamlets currently have only ADSL provided over Openreach copper wires. Download speeds are typically 2 Mbit/s though some households report slower and the rate can degrade at times of high usage (when the kids get home from school!). Note that the hamlets are served by two different cabinets. Catmere End and the eastern part of Littlebury Green (01799 numbers) are served from Saffron Walden exchange and a cabinet which I believe is in Littlebury. The central and western parts of Littlebury Green (01763 numbers) are served from the Chrishall exchange.

Mobile phone coverage is poor in parts of the parish, particularly the western end of Littlebury Green.

In 2016 Gigaclear announced that, subject to a percentage of the residents signing up, it was planning to provide a fibre to the home solution to Catmere End and Littlebury Green as part of its Duddenhoe End project. The target subscription percentage was met and service dates of November 2016, later amended to mid-2017, were promised. This has not materialized and there has been little communication other than one email to say that the project is still committed and that prices will rise by RPI. A number of people have contacted Gigaclear with frustratingly little response. However, we do seem to have established that there are technical issues with the Manuden backhaul (presumably Gigaclear need to connect to the National Grid fibre backbone near Manuden) and that the project is still at network planning stage with no date for implementation.

Openreach also claims that it intends to provide a fibre based solution on to 01763 numbers but no date is given. It is clear that a FTC solution will not work unless a new cabinet is installed in the village. For 01799 customers the cabinet is fibre enabled but the length of copper wire does not allow acceptable speeds. Openreach claim they are looking at a solution but again have given no dates for implementation.

County Broadband claim that Littlebury Green is on the fringes of their current wireless network. I have requested a meeting to discuss what it would take to put a wireless solution in place.

### Superfast Essex

Superfast Essex is an initiative set up by Essex County Council with central government grants to provide high speed broadband across the county. Its target is modest at 10 Mbit/s. It is working with a number of fibre and wireless providers to bring broadband to those areas which are not covered by commercial providers.

On 31 August Superfast Essex closed a consultation on Phase 3 of its rollout to which I and a number of residents responded. Amazingly Littlebury Green is shown as already having a solution. When I queried this it was explained that since two commercial carriers (Openreach and Gigaclear) had responded that they intend to service the area within the next 3 years we do not qualify for government support. It also means that residents of the area do not qualify for a subsidy on satellite solutions.

### What is the way forward?

There are no issues for Littlebury Village which is well served by national standards.

For Littlebury Green and Catmere End we are now in a difficult position. Superfast Essex will not support us as there are commercial providers promising a solution. Yet neither of these commercial providers will give a date and there is no guarantee they will not pull out. We have little choice but to hope they deliver. In the meantime a number of residents have agreed to keep the pressure on Gigaclear. I propose we co-ordinate with Duddenhoe End PC which is part of the same project. I will pursue County Broadband to investigate the feasibility of a wireless network, though this will require a suitable location for a transmitter and we don't have a church tower in Littlebury Green or Catmere End. I will also take up the offer from Superfast Essex to send someone to a POC meeting so we can express our concerns more forcefully. Any resident that desperately wants higher data rates has the unsatisfactory and expensive choice between the mobile phone network (if they can get it) and satellite.

Mike Scott, September 2017