

**Committee: Environment**

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**Title: Radio Broadband**

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**Agenda Item**

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Item for  
Information

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## Summary

1. This report provides an insight into the workings of radio broadband and how it can assist businesses within Uttlesford that currently have slow or no broadband coverage. As a bonus the service can also be used by domestic properties.

## Recommendations

2. It is recommended that:
  - i. Uttlesford District Council works in partnership with Buzcom to deliver a radio broadband service for the residents of the district; and
  - ii. A grant of £30,000 is given to Buzcom from the 2009/10 Local Authority Business Growth Initiative (LABGI) monies, which are held in the Business Development Reserve, to enable the provision of two transmitters in the north of the district and the use of the High Garrett Police Tower. The grant to be payable in instalments based around an agreed plan of invoices and milestones.

## Financial Implications

3. The grant would be made from the 2009/10 LABGI award. Savings from the proposed UDC use of the service could be in the region of £6,000 per annum. This saving would be used to replenish the LABGI fund to the total sum invested (£30,000).

## Background Papers

None

## Impact

Communication / Consultation	A major advertising campaign will be entered into as part of the process
Community Safety	Differing views are held as to the impact of radio waves on the health and well being of both people and wildlife (such as bees). Radio broadband operates at a significant higher frequency than mobile phones for which almost all of the impact research has been undertaken.
Equalities	None
Human Rights	None

Legal implications	This is a grant to Buzcom using the LABGI money. Uttlesford will not be entering into any contractual arrangement with Buzcom
Sustainability	None
Ward-specific impacts	It is likely that the two transmitters will be located in the villages of Tye Green Wimbish and Widdington
Workforce Workplace	None

## Introduction

4. Uttlesford is a very rural district and as such significant areas have either low or no broadband coverage. Most of the British Telecom (BT) Exchanges in the district are copper wired which restricts the speed of broadband available. In addition, over copper wire the broadband signal reduces in strength and therefore performance as the distance from the exchange increases.
5. For areas that have little or no traditional broadband coverage there is at present only one real alternative which is satellite broadband. Whilst this provides the broadband required it is at a relatively slow 3.6Mb per second and comes at a cost in the region of £30 per month with a set up fee of around £200 and monthly usage limit of less than 10Gb. Some satellite broadband is also delivered from non-UK satellites, which means that financial trading tends to be in Euros and UK only internet services such as some video streaming is not accessible. In addition, poor atmospheric conditions such as wind and heavy rain significantly impact upon the quality of service.
6. Radio broadband is not a new concept it has been around for at least the last decade, but advances in technology now make it a viable proposition for hard to reach areas such as those in Uttlesford.

## Radio Broadband

7. As the broadband is delivered via radio there is no need for a telephone line and therefore no restrictions relating to the BT Exchange.
8. The signal is transmitted from four or five locations, on existing masts or water towers and received by the business/household via a small receiver which is attached to the existing television aerial.
9. Differing views are held as to the impact of radio waves on the health and well being of both people and wildlife (such as bees). Attached is an 'independent' report from Dr Andrew Goldsworthy which looks specifically at birds and bees. Predictably this report is challenged by those in the telecoms industry.
10. What can be said is that radio broadband operates at a significantly lower power than mobile phones for which almost all of the impact research has been undertaken.
11. Radio broadband is not affected by poor atmospheric conditions. There are in an area such as Uttlesford really only two types of disruption to the signal that can occur, the first is from trees and tall buildings and the second is military radar activity, although this can be overcome by the provider switching channels when interference is detected.
12. Broadband speeds are an emotive issue with many customers claiming to not get the speed for which they are paying. Radio broadband is no different and speeds quoted are based on aggregate throughput, actual connection speed will be influenced by

local conditions such as tree cover or line of sight to a transmission point for example.

### **Essex County Council (ECC) and Maldon District Council (MDC)**

13. In early 2010 a partnership between ECC & MDC introduced a radio broadband service in the Maldon area. In March 2010, following a competitive tender process, Buzcom was selected by ECC to supply the radio broadband network to cover the Maldon District.
14. Two fibre optic connections, one originating in Chelmsford and a second in London for resilience were established. Transmitters were then located, mostly on water towers, across the Maldon district.
15. With the whole of the Maldon area covered 94% of people applying to have radio broadband have been successfully connected. The remaining 6% cannot receive a significant signal to make the solution viable. This is primarily as a result of trees and other tall structures around the business/house causing the signal to distort beyond use.
16. As part of the initial promotion of the service a number of 2.4Ghz hotspots throughout the Maldon area, in pubs and parks, were set-up for customers to try for free.

### **How this would work in Uttlesford (UDC)**

17. The council would enter into a partnership with Buzcom by way of a grant for £30,000 with the monies payable based on a mix of milestones and invoices. Such an example could be
  - Receipt of invoice for infrastructure hardware
  - Receipt of invoice for transmitting license
  - Receipt of invoice for transmitter leases
  - Installation of hotspots
  - Uttlesford 'go-live'

No monies will be given prior to receipt of invoices.

18. It should be noted that as a result of how the company has been formed there are actually four separate entities involved in delivering the radio broadband service
  - Sapien Investments Ltd (Company No. 07347716)  
The holding company
  - Buzcom Kit Ltd (Company No. 07359105)  
A wholly owned subsidiary of Sapien Investments Ltd. It holds the infrastructure equipment of the network (the backbone) as an asset. It charges Buz Broadband Ltd monthly for the use of the infrastructure to provide the network.
  - Buz Broadband Ltd t/a Buzcom (Company No. 07194617)  
A wholly owned subsidiary of Sapien Investments Ltd. The trading company which buys the customer radio equipment, arranges the installation and activation of the equipment to join the Fibre Wifi Ltd broadband network. Buz Broadband Ltd holds the contracts with the water companies and repeater locations.

It also contracts with the provider to bring the high speed fibre line into Chelmsford.

- Fibre Wifi Ltd (Company No. 07202343)  
A wholly owned subsidiary of Sapien Investments Ltd. Interfaces with the customer and collects the installation and activation payments together with on-going monthly subscription fees.

Where this report refers to Buzcom it actually means any or all of the above four companies.

19. The two fibre optic connections in Chelmsford and London would be used. Existing transmitters in High Roding and High Easter already cover the southern part of the district including Dunmow.
20. To cover the north and centre of the district it will be necessary to locate two new transmitters on water towers most likely in the villages of Tye Green, Wimbish and Widdington. To further help with the coverage a transmitter will also be located on the Essex Police Tower at High Garrett.
21. The High Garrett Police Tower is critical to this project to ensure coverage across the north of the district. Unfortunately the cost of using the tower is high with the agents acting on behalf of the Police charging four times the annual rent that is charged by the water companies.
22. It is believed that these three sites will be sufficient to cover all areas within the district however should any small pockets still remain Buzcom will resolve to fix these, by installing booster units, at their own cost.
23. The council and Buzcom into a large advertising campaign both web and press promoting the service and acting as a registration point for interested residents. As with Maldon it is intended to install 2.4Ghz hotspots throughout the UDC areas in pubs and other suitable locations to allow potential customers to try for free before they buy the service. Any costs will be met from the £30k grant.
24. The contract for broadband delivery would be between Fibre Wifi Ltd and the business/householder there would be no contractual arrangement with UDC
25. Each customer will receive a small 5Ghz receiver (30cm x 8cm), which is usually attached to their aerial pole, to receive the signal. The receiver also acts as the router. The customer is presented with a network cable in their business/home either ready for a stand alone connection or connected to a wireless modem. As the receiver is small and attached directly to the aerial pole there are no restrictions for installations on Listed Buildings.
26. In many remote areas businesses are often run from residential properties there is no differential between business and residential broadband. In addition, to make it as easy as possible, there are only two core packages plus a high user business option (Wireless Leased Line Replacement). Information on the packages are shown on the following page.

Name	Aggregate Throughput	Cost Per Month £	Contention Ratio *	Monthly Usage Allowance **
Super Fast	25Mb per second (12.5Mb per second download and 12.5Mb per	12.25	40:1	40Gb

	second upload)			
Ultra Fast	50Mb per second (25Mb per second download and 25Mb per second upload)	32.25	40:1	40Gb
Wireless Leased Line Replacement	From 4Mb per second (2Mb per second download and 2Mb per second upload)	195.00	1:1	None

\* "contention ratio" is the maximum number of other people you will have to share the connection infrastructure with. So a contention ratio of 40:1 would mean that the maximum number of people you could be sharing the connection with at anytime is 39 other people. If all 40 people were downloading at the same time then your download speed could drop hugely, in reality though this doesn't happen and you can enjoy much faster download speeds. Typical broadband contention is 50:1

\*\* If the allowance is exceeded the customer will not be cut-off but offered the opportunity to pay £1 per additional 1Gb. This is reduced to £5 for 10Gb if bought in advance. A 40Gb allowance will allow around 400 hours of internet surfing a month, or the equivalent of about 13 hours a day, every day of the month.

27. In addition to the monthly charge there is a one-off set-up cost

- £135 for the 25Mb connection; or
- £195 for the 50Mb connection; and
- £49 for a wireless router if a single connection is insufficient for the needs of the business/household.
- The Wireless Leased Line Replacement installation costs start from £195

28. Another significant benefit to the customer is that by paying the monthly fee for a business/residential connection they will also get free wireless broadband throughout Uttlesford as part of their 40Gb allowance.

29. Buzcom sub-contracts the installation and support work. As part of this agreement Buzcom will, where possible, sub-contract this work to Uttlesford based companies.

30. If authority to proceed is given at this meeting it is expected that the service will be fully operational within four months.

31. The potential of this project was discussed by the Economic Development, Skills and Learning Working Group which is part of Uttlesford Futures. This group fully supports the use of LABGI funding to facilitate the early implementation of radio broadband across Uttlesford.

32. The grant would be made from the 2009/10 LABGI award which is currently held in the Business Development Reserve. On 4 March 2011 the Government announced that it was making available £50m funding for the delivery of superfast broadband. Having looked at the criteria and funding requirements it is aimed at Tier 1 authorities with large scale projects costing significantly more than £30,000 to implement. It does talk about private sector involvement but seems to be implying the local authority would lead; this is not what this report is proposing. In addition, the guidance says the bid will have more chance of success the more local funding is made available which implies the council would have to contribute towards the cost. The timescale for bids (decision May 2011) also means it is likely that this proposal

would need to be delayed. Given all of this information it is felt that continuing with the project as is rather than making a bid is the best way forward.

33. With the money being given by way of grant there is no requirement for repayment. However it has been agreed that Uttlesford District Council will be given free access to the service, subject to paying the initial installation costs. Uttlesford District Council has in the region of 25 broadband lines which could transfer to this service which would provide the following business benefits:

- The Council will be able to save money by cancelling existing broadband contracts. It is proposed to transfer those savings to the Business Development Reserve for the next 5 financial years (to a maximum of £30,000) to replenish the pot and enable further invest to save business opportunities to be undertaken.
- The Council would be able to further roll-out remote working including real-time access to systems and information whilst at customer's homes. Time savings would be achieved as there will be no need to download the days work to a laptop prior to going out, nor uploading the resulting information from the visits made.

Radio broadband is extremely secure and meets US military standards.

34. In addition to the business benefits it has been agreed that the council in partnership with Buzcom will provide free internet access to all residents within sheltered units. The council will look to install an internet access point which is available to all residents plus free internet access will be made available to each room as requested.
35. This approach fits with the Government's Race Online 2012 campaign which is being led by Martha Lane Fox the UK Digital Champion. The aim is to make the UK the first nation in the world where everyone can use the web. The UK has 40 million adult internet users, with 30 million people using the web every day. However, there are 9 million adults in the UK who have never used the internet; four million of these are among the most disadvantaged with 39% being over 65.

### Risk Analysis

Risk	Likelihood	Impact	Mitigating actions
Buzcom cease to trade	2 – Any business is subject to market conditions, however Buzcom are a debt free company	3 – Customers would be without broadband and there may be damage to UDC reputation as having been seen to fund the project	Regular meetings with Buzcom during the project. Payments to be staged to reduce risk.
Financial resources available to Buzcom restrict rollout	2 – The companies involved have limited working capital	4 – Delayed roll-out may affect consumer confidence and therefore take-up	Staged payments will reflect the initial set-up costs incurred by the companies
Insufficient numbers of customers sign up to the service	2 – Whilst Uttlesford has significant areas without reasonable broadband no-one can be certain of the uptake	3 – The business may cease to trade	Advertising and marketing campaigns as well as free trial locations

1 = Little or no risk or impact

2 = Some risk or impact – action may be necessary.

3 = Significant risk or impact – action required

4 = Near certainty of risk occurring, catastrophic effect or failure of project.