PLYMOUTH CITY COUNCIL

Subject:	Connectivity: Broadband
Committee:	Growth and Prosperity Overview and Scrutiny Panel
Date:	19 September 2012
Cabinet Member:	Councillor Evans
CMT Member:	Anthony Payne, Director of Place
Author:	Sheldon Ryan, Economic Development Officer, Economic Development.
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Ref:	
Key Decision:	No
Part:	I

Purpose of the report:

The purpose of this report is to explain the current state of broadband connectivity in Plymouth focussing on all major providers in the city.

As with other complex technology related issues there is a danger of misinformation, misunderstanding and disproportionate attention being paid to loud but not necessarily correct opinions and demands for action. This report will help the Council to provide robust and informed responses to: what the situation is regarding connectivity, what the Council is doing and why and what is within the scope of the Council to action and what is not,

The Economic Development team has for the first time accurately mapped connectivity across the city, analysed connectivity related economic issues and opportunities, and has designed and is implementing a clear set of initiatives to address these based on best practice.

The report will explain in non-technical language the importance of broadband to the city's economy and to society in general. It will provide an explanation of the technology which drives this agenda, the Government policy which has emerged as a result and the history of efforts to improve connectivity in Plymouth.

The report will go on to explain connectivity mapping, and then discuss the issues and opportunities for the city and what is being done by the Economic Development team to address these.

Lastly the report will make recommendations of how more benefit could be extracted in this area by the Council and its partners.

Corporate Plan 2012-2015:

Delivering Growth – Broadband is a widely recognised driver for business growth, competitiveness and as an inward investment asset.
Raising Aspirations – The internet is a necessary component of education and a link to knowledge.
Providing Value for Communities – Increased broadband uptake will facilitate the shift from face to face to online public service provision and in doing so save the city millions of pounds.

Reduce Inequalities – Slow uptake of broadband across the city is a major risk and opportunity to equality through digital exclusion.

Implications for Medium Term Financial Plan and Resource Implications: Including finance, human, IT and land

Likely to be a requirement for £30,000 for awareness and demand raising marketing activity and expert telecoms guidance. At present there is staffing provision of 0.25 FTE is dedicated to this area.

Other Implications: e.g. Child Poverty, Community Safety, Health and Safety, Risk Management and Equality, Diversity and Community Cohesion:

The report raises an issue: that digital exclusion, i.e. sections of the community that cannot or don't access the internet are at risk of exclusion from public services, education, and economic benefit. This will have an impact on equality and diversity. The report states that the economic aspects of inclusion are being addressed by the Economic Development team but that other aspects may require further consideration given the community, social and education based impacts.

Recommendations & Reasons for recommended action:

It is the recommendation of this report that further consideration be given to better understand the issues involved, audit current activity and, if appropriate, produce and implement actions to focus on the non-economic aspects of digital inclusion.

Alternative options considered and reasons for recommended action:

Background papers:

Sign off:

Fin		Leg		HR		Corp Prop		IT		Strat Proc	
Originating SMT Member											
Have you consulted the Cabinet Member(s) named on the report? No											

1.0 Introduction – what is broadband?

The report will begin by explaining the technology involved – without this it is difficult to understand the topic in hand.

Broadband is measured in 'megabits per second or Mbps' which is essentially a measure of the flow rate of data, hence the 'bits' (of information) per second. Broadband has been marketed under many names as speeds have increased over the years. The most recent incarnation is called 'superfast broadband'. For the purposes of this document superfast broadband will be 20 Mbps and over as per the official Ofcom definition. There are also many other definitions such as the one from BT which is 80-100 Mbps (corresponding to their latest product).

The following table will explain what different broadband speeds can achieve in terms of actual functionality.

Broadband speed		This speed is suitable for...
250k to 1.5 Mbps	Very slow	Basic email, limited web browsing
1.5 to 3 Mbps	Slow	Streaming music, standard definition video, remote surveillance, telecommuting
3 to 6 Mbps	Devon average 6.4 UK Average 6.2	File sharing (small/medium files), internet TV (iplayer, 4OD, video conferencing etc)
6 to 10 Mbps	Plymouth average 8.7	Online gaming, streaming movies online, instant web page loading
10 to 25 Mbps	Fast	Telemedicine, remote education, high definition (HD) internet TV
25 to 50 Mbps	Very fast	HD video surveillance
50 to 100 Mbps	Superfast	Video conferencing (multiple users), remote supercomputing
100 Mbps+	Ultrafast	Real-time data collection, real time medical image consultation

Av. speeds Ofcom 2011. Internet speed is measured Megabits per second Mbps.

1.1 Why is superfast broadband important for Plymouth?

Broadband is good for the economy
Superfast broadband is good for the economy. A study by Arthur D. Little in 2010 concluded that GDP increases by 1% for every 10% increase in broadband 'penetration' i.e. people who use broadband.

A study by Regeneris in 2012 stated that for a typical UK city, superfast broadband (in this case 40 Mbps and above) could lead to:
• 320 business start-ups as a result of Cloud Computing (online services and storage) and support for 1,580 home workers.
• Around 436 jobs created through business creation and improved business performance.

Although it is often assumed that these benefits mainly affect high tech industries the biggest positive impact is felt within the service and creative sectors. Increased connectivity also enables increased home working and thus empowers flexible working and therefore diversity.

In a report commissioned by the Plymouth City Centre Company in 2010 Adroit concluded that digital connectivity would be "important to the successful delivery of the Local Economic Strategy" and would form a "unique opportunity for Plymouth to take the lead" also that demand would be broadly met by the private sector.

1.2 **Broadband is good for society**

Superfast Broadband is also very important for the social development of Plymouth. Broadband provides benefit to education, job seeking, shopping, transport, social networking, banking, communications and information provision. A comprehensive report for the Labour Government in 2008 called 'Digital Britain' noted the importance of broadband and digital literacy. The recommendations of this report are broadly accepted by both parties and form the basis of policy today which places an emphasis on Britain developing the "best network in Europe". Amongst other facts the report showed that there is a now a widening pay divide between those who can and cannot use a computer. Also, in addition to the less tangible benefits of broadband usage purely by using price comparison websites and online-only deals savings of £23 per month per person can be made.

The Government policy 'Digital by Default' also sets a clear direction of travel that more and more government services will be delivered online. With downward pressure on prices online service delivery will become much more prevalent. The most impactful changes are predicted to come within healthcare, and the integration of data across services.

The internet revolution should be good news for everyone, but for those unwilling or unable to engage there is a serious of risk of becoming more disadvantaged, poorly served, disengaged, isolated and ill-informed as the rest of society benefit and progress. Digital exclusion mainly affects people from deprived areas, the elderly and the disabled groups. Each different group has very different barriers to engagement and as a result differing potential interventions.

1.3 **What is driving demand for broadband?**

It is important to remember that for the foreseeable future there will be increasing demand for connectivity, both in terms of speeds and 'bandwidth' (which refers to the overall amount of data that is required).

Since the 1980s broadband speed has roughly doubled every two years. Demand is being driven by numerous factors such as the meteoric demand for smart phones and tablets (66x increase between 2008-2012 globally) and the rise of video on demand transmitted on the web. By 2015 there will be two connected devices for every person on earth (Cisco 2012). This shows no sign of slowing.

The private sector will broadly supply this demand in most cities (including Plymouth) but not necessarily in rural areas.

1.4 **What technologies are providing the solution?**

In Plymouth there are two infrastructure suppliers: BT and Virgin. BT Openreach is obliged by law to resell their network as a condition of their denationalisation in the 1980s. They resell to the likes of Tiscali, Talk Talk and confusingly BT (retail).

(Refer to diagram on the next page - explanation of telecoms technologies)

In terms of technology BT Openreach supply services over a copper network which was originally designed for telephone messaging
(This refers to the first 'copper' network).

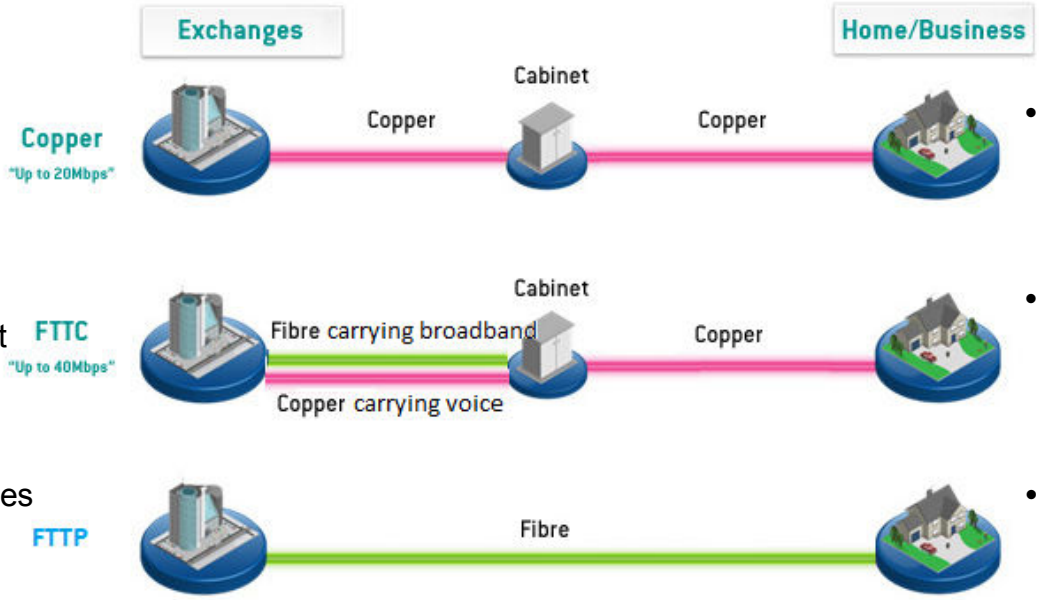
In order to meet demand BT are currently working on a £2.5 billion fibre optic upgrade programme to their network across the UK (including Plymouth). High capacity fibre optics is being laid from BT central exchanges to street level cabinets (green boxes, which typically supply in the order of 100 houses). By 2014 BT will have

fibre enabled 80% of Plymouth enabling access to speeds of between 80-100 Mbps (so easily fast enough for current demand).
(This refers to 'fibre to the cabinet' network).

The BT network will also have the capacity to eventually become 100% fibre and deliver speeds of 300 Mbps (enough for future demand).
(This refers to the fibre to the premises network)

Virgin supply services over a hybrid, high capacity copper based network which was originally intended to deliver cable TV. Virgin bought this network and currently has no plans to extend it until they have recouped their significant national investment. This network is currently capable of 80-100 Mbps.

Explanation of telecoms technologies



- Traditional phone network (20mbs)
- What BT are delivering now (80-100 mbps (by 2014))
- Ambition for the future (300 mbps+)

In addition to these 'wired', land-based networks there are also mobile wireless networks which effectively sits on top of and use the land based network to transmit messages. At present the UK uses slow 3G technology to access the internet while on the move using smart phones etc. Within the next few years the latest technology called 4G will provide speeds of over 50 Mbps, to smart phones which is higher than is currently available to most large businesses.
4G technology may be one of the technologies that provide connectivity to areas that are currently non-cost effective for the private sector to connect.

Fibre on demand connections will also be widely available shortly which will provide 'under connected' businesses with 300 Mbps connections at cost.

1.5 **Recent broadband history in Plymouth**

Plymouth City Council previously engaged with Fibre City, who offered to connect the city with fibre to each home. Fibre City became insolvent due to a number of reasons and as a result the offer never materialised. In the meantime, as a response to commercial demand for broadband Virgin bought and began to run an extensive broadband network across the city and BT started an extensive upgrade programme across the city.

1.6 **Is Plymouth well connected?**

Yes. Plymouth punches above its weight in terms of connectivity. The Economic Development team recently commissioned a study which used various data sources to compile the mapping and data listed below.

Plymouth has an average broadband speed of 8.7 megabits per second, against a national average of 6.7 so is in the top 24% nationally. Superfast broadband (20Mbps+) is available to 88% of city with an 'uptake' (actual subscribers) of 69%. Uptake figures are very important because they are an indicator of the future likelihood of upgrade and again the figures for Plymouth are in the top 25% in the UK.

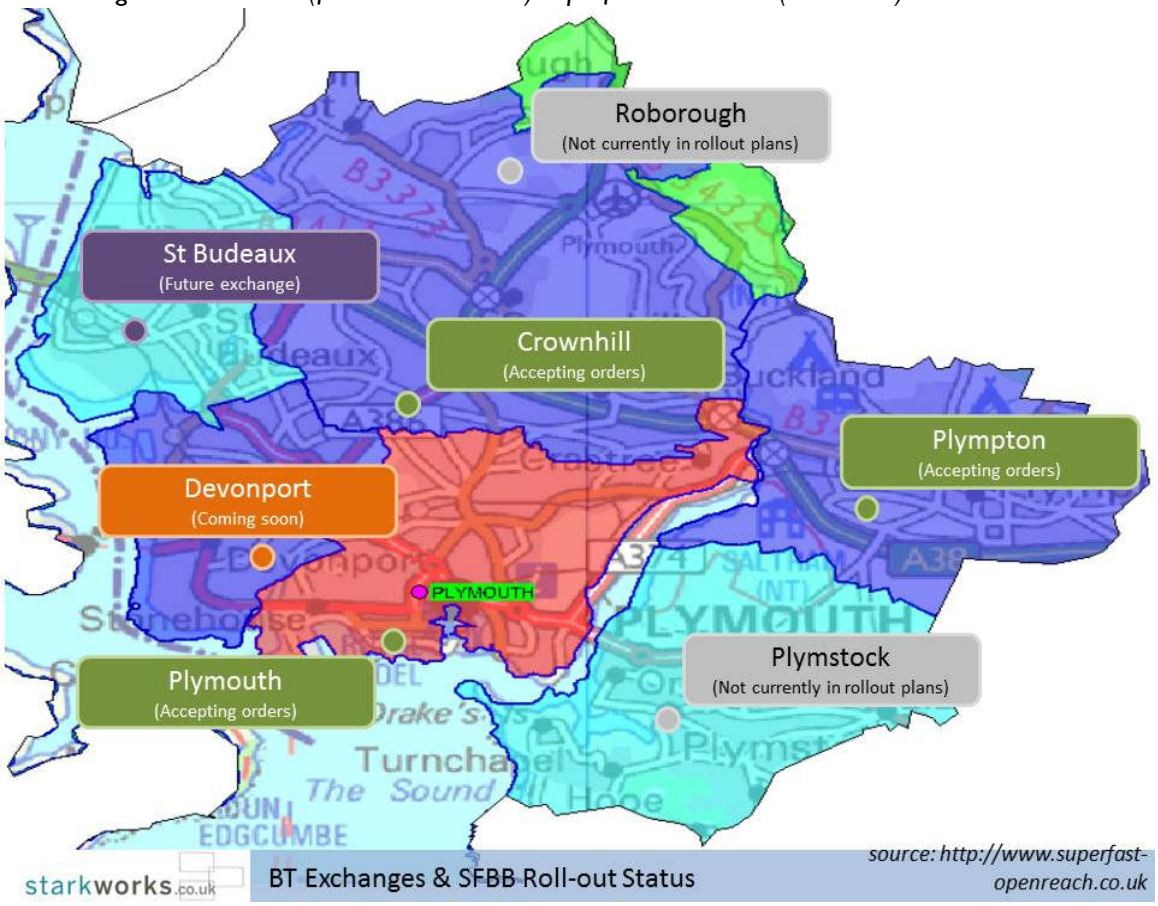
The Virgin network covers 105,000 premises with speeds of up to 100 Mbps and the BT Openreach upgrade programme now covers 65% of premises with speeds of up to 40 Mbps.

By 2014 the BT Openreach upgrade programme will cover 80% of premises and by then further technology advances will mean that customers will be able to access speeds of up to 80-100 Mbps.

Because the network is delivered on a commercial basis some areas of the city are not well connected. This is because they are either too sparsely populated and/or are too expensive to connect often due to engineering issues. In Plymouth 10.3% of premises are reported as having less than the current 2 Mbps bandwidth target stated by UK Government. This figure is relatively low for a city of Plymouth's size and there are no large continuous areas of poor connectivity (Stark works 2012).

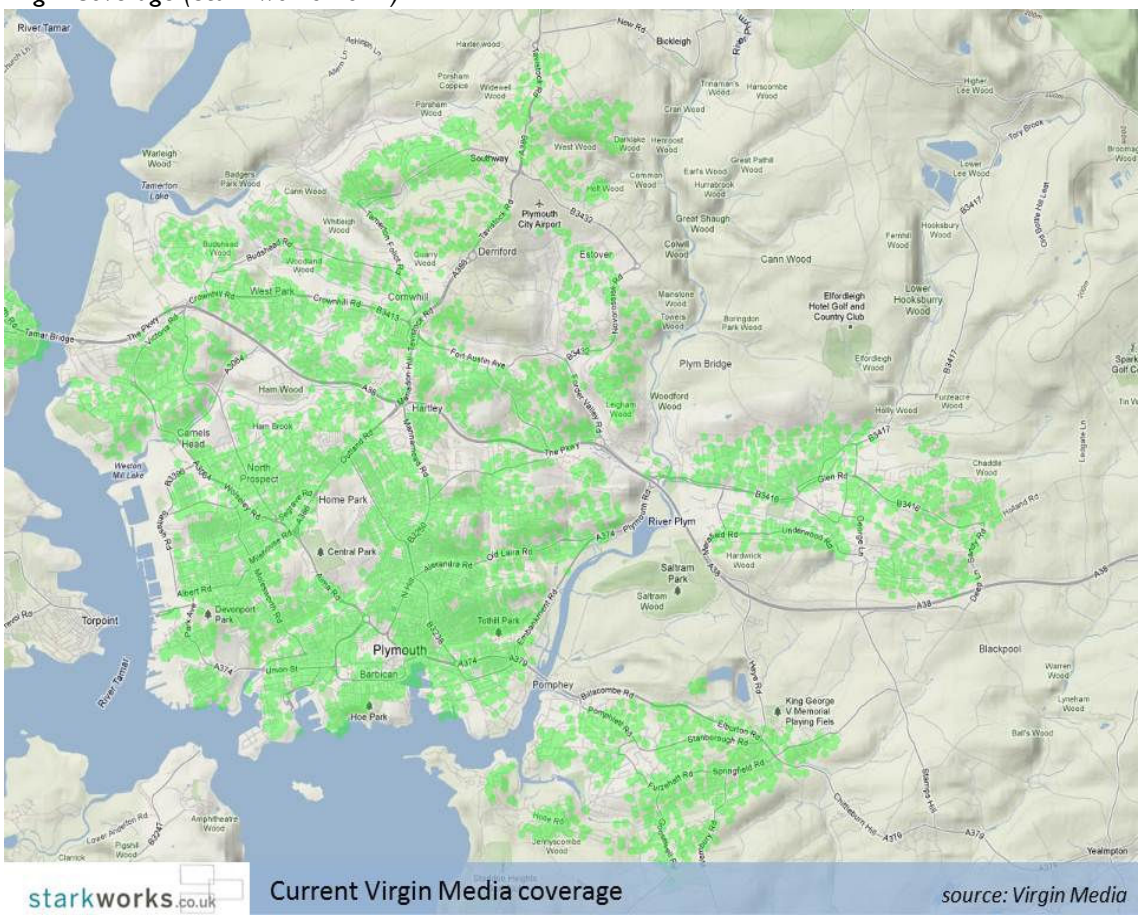
Demand led supply from the private sector is likely to deliver the necessary increases in broadband supply across the board but the Plymouth City Council Economic Development team has developed a programme of activity designed to accelerate this process.

BT exchanges enabled with (fibre to the cabinet) superfast broadband (source BT)

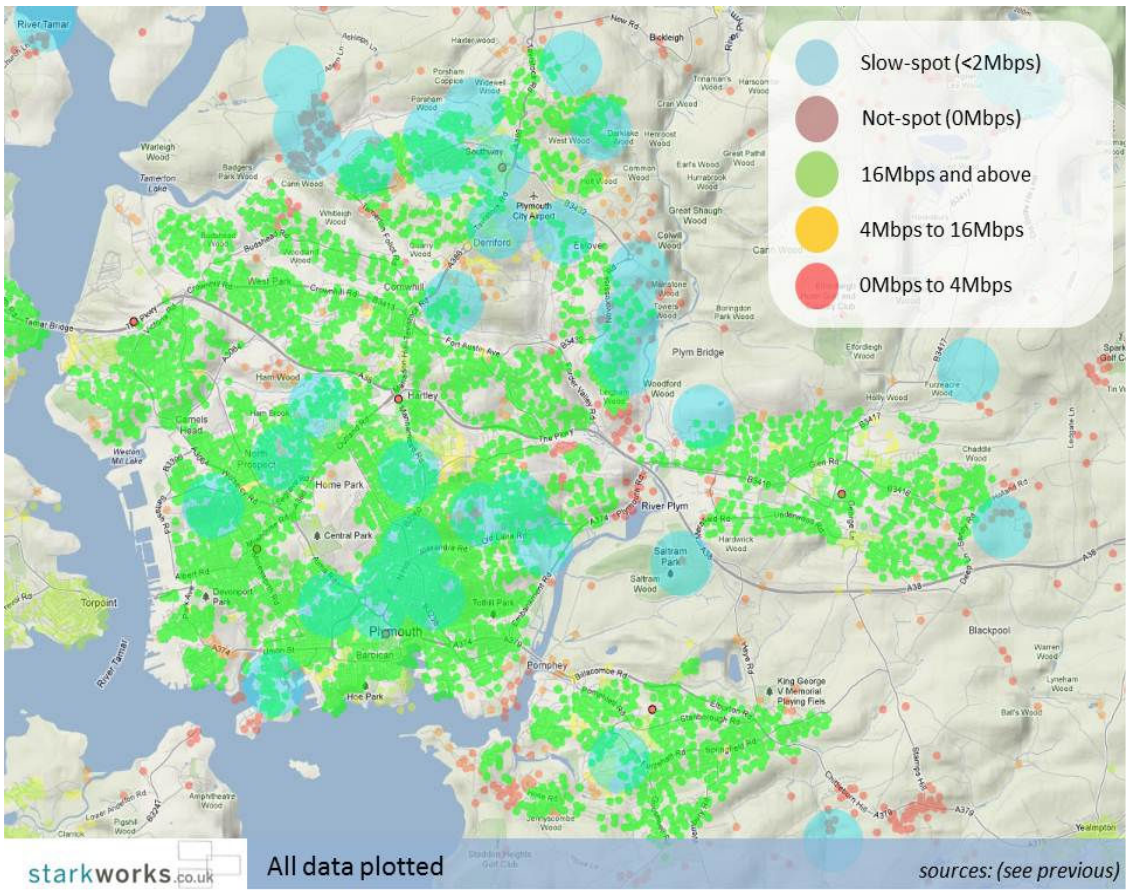


Areas shown as 'accepting orders' are not 100% covered by BT superfast broadband. 'Accepting orders' signifies that the exchange has been fibre enabled and a percentage of local cabinets have been enabled. BT has a policy of continual upgrades at cabinet level based on a cost against likely commercial demand model.

Virgin Coverage (Stark works 2012)



Combined coverage showing speeds available (Starkworks 2012)
No colour implies no data available.



1.7 **Broadband policy and funding for broadband**

UK Government has stated the goal to have the "best superfast broadband network in Europe by 2015" and has signed up to the European target which states that "by 2020, there should be 100% coverage of 30 Mbps, ½ subscribing to 100 Mbps or above". This goal is clearly going to be challenging to achieve and considerable money has been committed by Government to achieve this, but more will be required if the goal is to be achieved.

In order to hit these challenging goals, UK Government has put £.5 billion into rural broadband for areas such as Devon and Cornwall where the private sector will not meet demand. For cities £100 million has been invested into the 10 largest cities and this summer Plymouth was in scope for a maximum pot of £5 million along with 27 other cities.

The £5 million (maximum) pot could only be accessed by cities that have large continuous poorly connected areas (which Plymouth clearly does not have), it also required considerable match funding and involved numerous unacceptable risks to delivery. For this reason on the advice of the consultants what consultants the Council has declined to bid for this funding and instead will continue to lobby for more viable funding to be made available.

1.8 **What are the digital issues for Plymouth?**

Digital issues in Plymouth fit into three broad categories:

Broadband supply - Plymouth is well connected but there are still 10% of premises which are not. It is important that uptake of broadband is high to stimulate further investment for the poorly connected 10% and also keep the other 90% well connected as demand for speed increases.

Utilisation - Internet use is economically and socially beneficial. It is therefore important that all groups get more benefit from broadband. This means business and particularly SMEs becoming more efficient from using new web based products and services. It also means ensuring that everyone obtains benefit from broadband.

High demand users – the city will benefit if it can provide cutting edge broadband to high demand users at competitive prices.

The issues in Plymouth are typical for (and certainly no worse) than in other comparable cities in the UK. With the possible exception that issues of digital exclusion mirror the comparative levels of deprivation in the city and are therefore likely to be worse than in more affluent cities. While the Economic Development team have an understanding and ability to impact these issues from an economic perspective by working with business the wider social issues will require increased understanding and more concentrated community level activity if the city is to avoid creating digitally excluded groups.

1.9What is the Council doing?

Led by the Economic Development team and answerable to the Plymouth Growth Board the Digital Plymouth Steering Group provides expert guidance.

Demand building activity – a wide programme of targeted marketing activity to raise the demand for and benefit derived from broadband. Activity will focus on specific sectors for example, tourism, high tech businesses, SMEs from deprived areas, home workers, creative sector, poorly connected areas.
This programme of activity will incentivise future upgrades to broadband supply for the entire city including the under connected areas. Demand building activity will also increase the benefits derived from utilising the internet – be they social or economic.

Digital Plymouth supports the Council's wider push to bring services online as this will also incentivise demand. However it also risks creating further exclusion if sections of the city cannot access the new online services.

Digital exclusion – The Economic Development team has worked hard to understand this complex issue which can be split into two areas:

- Supply, i.e. ensuring that everyone in Plymouth has the ability to connect.

The Economic Development team considered various interventions in partnership with BT, and Citizens Online etc. and involved the Council Social Inclusion unit and social housing providers. Meetings are now in progress to find a suitable solution. In terms of actual supply, the huge rise in mobile connectivity and TV delivered online will have a large positive impact on actual connectivity so this will become less of a problem in future.

- Demand building activity and access to suitable equipment

The Economic Development team delivers the Urban Enterprise programme which is designed to help people from excluded groups set up businesses (including a digital component) and provides finance which can be used to access IT equipment. Other Economic Development supported programmes such as the Fredericks Foundation provide finance for excluded groups to access IT equipment and training.

The Social Inclusion team are currently leading on the social aspects of this activity and several community organisations such as Routeways who deliver for the over 50s are also delivering support.

2.0 Recommendations

In terms of supply of broadband to Plymouth the private sector will in most instances deliver sufficient supply to meet demand for the foreseeable future. The Economic Development team has a programme of activity which will accelerate demand, and therefore supply, where possible to keep Plymouth ahead of other areas. If it is viable to do so, the team will also advise on where public funds can be used to do the same.

It is the recommendation of this report, however, that further consideration be given by the Panel to ask officers to better understand the issues involved, audit current activity and, if appropriate, produce and implement actions to focus on the ***non-economic*** aspects of digital inclusion.

Digital Plymouth was established to address the economic aspects of connectivity. This group could guide and feed into the social aspects of inclusion but with the Plymouth Growth Board as its lead/sponsor organisation it should not be solely responsible for this important agenda which has such wide implications to the corporate plan, i.e. raising aspirations, providing value for communities and reducing inequalities.