

## City Wide Wireless Network

### RECOMMENDATIONS

1. To approve the commissioning of a feasibility study to examine the potential for establishing a city wide wireless network across Derby.
2. To authorise Director of Resources to commission such a study from one of the Councils's existing technology partners in the first instance or, if that is not practical, otherwise to seek tenders from suitable specialist organisations

### SUPPORTING INFORMATION

2. **Introduction**
  - 2.1 We increasingly have to operate within a knowledge and information based economy, underpinned by the need for effective and accessible communications.
  - 2.2 Both the public and the private sectors continue to develop new and innovative electronic services, more and more information is being made available in a growing range of multi media formats and alongside all this, the expectations of our citizens and our local businesses are not surprisingly growing.
  - 2.3 Within Derby we have a clear focus on putting the citizen at the centre of our service delivery model and in building strong neighbourhoods and communities within a joined up multi agency partnership to support this. We also keep sight of the importance of social inclusion to ensure that no one is denied the ability and the means to take advantage of this fast moving knowledge and information economy.
  - 2.4 Communications is at the very heart of our modern day economy. Where would we be without the mobile phone, without access to the internet and without all the innovative services and information that is being delivered across all the many different communication channels?
  - 2.5 As a local authority we do have an important role to play in supporting, enabling and delivering the communications infrastructure to support all this. Many leading cities across Europe and the United States have grasped hold of this agenda and are facilitating the development of city wide networks based on leading edge wireless technology. Within the UK a number of cities have started to introduce limited

wireless network capabilities through the deployment of wireless hotspots to provide flexible remote access to the internet. In many respects a cities communication network is no less an important part of the cities infrastructure than the network of streets, roads, pipes and cables that already exist.

### 3. **A Vision for Derby**

3.1 The vision has to be developed around the benefits that the wireless infrastructure would potentially provide to citizens, to businesses and of course to public sector services. The starting off point would be to look at three key benefit areas:

- reduced operational costs
- increased employee productivity through better efficiency and effectiveness
- increased user satisfaction.

3.2 However, the vision does potentially go much wider than these and the development of a broadband wireless network would contribute to a much wider basket of strategic benefits across the City.

#### **Customer Service Strategy**

3.3 The availability of a flexible broadband network would help:

- to create an organisation with the skills, processes and culture to deliver better access to improved public services  
*Governments are moving away from the concept of a physical location as the main access point for services to the concept of a mobile, virtual customer services organisation*
- to make it more convenient, easier and quicker for the citizens of Derby to deal with public sector organisations  
*Citizens could be provided with access to services from any location within the City through access to an interactive citizen's portal from the mobile network at no cost. Local Authorities like Brescia in Italy and Oula in Finland have already developed a number of initiatives for free wireless access to Government services. The German City of Berlin is at the leading edge of this process having created a number of mobile customer service offices where services can be provided on the move, bringing the service to the citizens rather than the more traditional model which is the reverse.*
- to make sure that all the people of Derby have equal access to the services that they need  
*An equal access policy is at the heart of broadband Government wireless initiatives. The provisioning of wireless broadband connections and of preferred access to PC's for less advantaged citizens is one of the main drivers for the creation of such networks*
- to provide more responsive, more reliable and more satisfying services that meet the expectations of the people of Derby for better access to better quality public services

*The availability and accessibility of data for public sector workers in the field is critical in order to provide immediate and accurate response to unexpected events. Data availability in real time and with mobile access is also a pre requisite for the effective management of City assets and transport.*

- to deliver better access to better quality services in the most cost effective way. *Citizen on line self service has long been considered as the most cost efficient way to provide services. The development of a city wide wireless infrastructure for public access is the most cost effective way to match advanced e Government services with publicly available access solutions*

### **Economic development in Derby**

#### **3.4 Derby's economic development focus and initiatives would benefit from the development of a broadband infrastructure ...**

- The areas of engineering, creative industries, tourism and retail could leverage on the infrastructures availability through the provision of a flexible and sustainable telecommunications infrastructure. *The cities of Amsterdam and Almere have recently announced the development of a broadband infrastructure covering the entire population and small and medium sized enterprises.*
- The planned development of a science and technology park in Sinfen Moor would benefit from the availability of a wireless network. *Similar initiatives in Stockholm (the Kista Technology park) and Turin (Wireless Torino initiative in an old Fiat industrial area) have proved to be very successful in attracting dynamic ICT content and service providers in the area of mobile services*
- The development of a number of mobile tourist services on top of a wireless network would support the growing cluster of tourism. *Cities such as Florence and Jerusalem have already completed the deployment of a wireless infrastructures around the city centres and the historical sites and provide tourists with palm computers for navigating around the City and to receive streaming information on historical sites, shopping areas, bars, restaurants and public transport*
- The development of a wireless program could attract new businesses into the City, especially in the mobile services area. It would also allow small and medium sizes enterprises to leverage on a number of internet business solutions on top of the network, such as e-commerce, e-supply chain, e-logistics and e-procurement. *The Finnish City of Oula has focussed on the development of a wireless city strategy with the objective of stimulating economic development by attracting leading wireless and mobile service providers and manufacturers. According to the a recent study in Europe conducted by momentum Research, the development of internet business solutions by SME's could provide an average productivity increase of 1.23% for both public and private sector.*

### **Tackling social and digital exclusion in Derby**

- 3.5 The availability of a broadband network is one of the main pre requisites in the development of a social inclusion program around cities in Europe. Inclusion initiatives aimed at enabling disadvantaged citizens to gain access to ICT and online services backed up by training and community based support services need the presence of a flexible, low cost access infrastructure.

*Manchester City Council has worked with local community organisations to develop EastServe, a community wireless access network for East Manchester, aimed at introducing broadband services to local areas.*

### **Mobile and flexible working in the Council**

- 3.6 Five main scenarios typically apply for public sector workers ...

- a. Staff interviewing citizens including housing benefit, adult services, child support, health visitors. They often need to enquire on citizens data and to update and print material. They also require access to an online diary and appointments system
- b. Inspectors, including planning and building control and regulations, food and retail premises inspections, health and safety, roads and infrastructure inspection, housing conditions. They need to enquire real time on past inspection records and to enter findings on the current situation. They also need additional devices such as cameras.
- c. On street staff/rapid response, including traffic and parking, community support, police, litter and graffiti patrols, emergency and repair. This group is fully mobile and whilst not needing access to corporate records they need to enter situation reports in real time so that they can be dealt with and closed quickly. They also require access to a real time alert or scheduling system.
- d. Members, Executives and Managers. This group is highly mobile across multiple locations, attending meetings, speaking at events, liaison roles. They need real time access to personal information systems such as voice, e mail and calendaring
- e. City management workers including roadside and street maintenance, house and asset repair, general maintenance. They need to enter situation reports and also require access to a real time alert or scheduling system to receive support requests.

### **Public Safety and Transport in Derby**

- 3.7 Government organisations are focussed on behaviour monitoring for crime reduction, emergency response coordination and municipal assets monitoring  
*The Italian city of Comino has implemented a wireless camera infrastructure for monitoring their important monuments that has reduced more traditional implementation costs of approximately 80%*

- 3.8 Traffic monitoring and parking management systems, RFID (Radio Frequency Identification)-enabled applications for intelligent transport management are all areas where a broadband wireless solution can deliver real benefits.

*The city of Paris has developed a wireless infrastructure on top of which mobile customer care services such as travel planning, real time connections and timetables, fare information, traffic disruptions monitoring are all being offered*

#### 4. **Feasibility Study**

- 4.1 The concept of a city wide wireless network does offer up some potential opportunities for Derby and would reinforce Derby's position as a leading city of technology. However, at this stage we are at a very early stage in looking at the potential rather than a definite solution. The next step would logically be to undertake a detailed feasibility study to examine all aspects of the potential for establishing a city wide wireless network across Derby

- 4.2 The key issues that will need to be covered in this feasibility study include:

- the potential benefits (financial and non-financial) to the Council and other public sector bodies
- the scale of potential revenue opportunities from the WiFi project
- confirmation of the lead technological option
- initial costs estimates for a range of potential coverage models:
  - Council only option WiFi linking Council buildings
  - public sector option – WiFi network covering all public sector buildings
  - general coverage option – WiFi covering all significantly populated areas
  - universal coverage option – WiFi network covering all of Derby
- an initial timetable including analysis of what kind of pilot would be appropriate and options to roll out the project in stages so as to limit project risks
- analysis of the potential impact on the Street Lighting PFI in terms of cost and potential delay in implementation
- analysis of the main risks in the project and discussion of their scale and how they might be mitigated
- consideration of the potential for partnerships and collaboration
- consideration of accessibility and equalities issues.

- 4.3 The feasibility should provide the basis for a clear business model that will clarify:

- what the likely benefits and revenue options for the project are
- whether the network will be mainly for public sector use, mainly for use by the general public/businesses or even balanced between the two
- what the timetable and roll out of the project might be
- how the project is likely to fit with the streetlight PFI project
- whether potential public sector partners are willing to become actively involved
- what the major risks to successful deployment are and how to effectively manage those risks.

- 4.4 On the basis of the feasibility study the Council should be in a position to determine whether the project is indeed worth pursuing, what the most appropriate

technological solution is likely to be and what the initial coverage of the network, including pilot, is likely to be. This would then be followed by the design of a detailed business model and the commencement of discussions with potential partners.

#### 4.5 Appendix A defines the proposed terms of reference for the Feasibility Study

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<b>Background papers:</b>	None
<b>List of appendices:</b>	Appendix 1 – Implications Appendix 2 – Feasibility Study – Proposed Terms of Reference

<b>IMPLICATIONS</b>
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**Financial**

1. The costs of undertaking the feasibility study have not yet been quantified, but it is proposed to use pump priming budget to fund this initial study.

**Legal**

- 2.1 There are two options for commissioning the feasibility study:
  - A. establish whether any of the Council's existing technology partners have the required level of expertise, the capability, the independence and the availability to undertake the study
  - B. put out a tender to engage a specialist organization to undertake the feasibility study based on a defined tender specification.
- 2.2 It is proposed that option A be explored first and if not practical to revert to option B.

**Personnel**

3. None directly arising.

**Equalities impact**

4. The issue of accessibility is built in as one of the items to be considered as part of the feasibility study.

**Corporate objectives and priorities for change**

5. This initiative supports all of the Council's key priorities.
  - Improve the quality of life in Derby's neighborhoods
  - Encourage life long learning and achievement as a catalyst for economic growth
  - Build healthy and independent communities
  - Deliver excellent services, performance and value for money.

### Feasibility Study – proposed Terms of Reference

#### Potential benefits to the Council

- **Connectivity Cost Savings** – The feasibility study should pull together data on the Councils existing data connectivity costs and estimate how those costs are likely to increase in the next 3-5 years based on the Councils existing plans (e.g. due to Internet Protocol (IP) telephony, increased mobile working etc). It should also estimate the scope for mobile phone cost savings through use of the WiFi network.
- **New Productivity Opportunities** using WiFi Network – The above figure is likely to significantly understate the benefit to the Council, since the council is likely to be able to adopt much more radical strategies in various areas (mobile working, multi-tasking of mobile workers, home-working & hot-desking etc) than would be possible in the absence of a WiFi network. The feasibility study should seek to confirm/refute this hypothesis and illustrate what the additional benefits might be. It should also explore the possible benefits of WiFi connectivity within all Council offices.
- **Other Benefits** – A WiFi network would also open up new possibilities for the Council in various areas, for example:
  1. use of WiFi-enabled devices, e.g. WiFi video surveillance rather than fixed line CCTV, automated air pollution/noise monitoring etc
  2. improved City Management and Emergency Response co-ordination
  3. Opportunities to tackle digital exclusion via free internet access to council services or subsidised internet access for disadvantaged groups.

These benefits are likely to be hard to express in financial terms, but the feasibility study should list these opportunities and highlight those that are likely to be most important to the Council.
- **Economic Development Benefits** – The WiFi project could have a huge impact on the image of Derby and so attract firms - and particularly hi-tech firms - to locate in the area. Depending on likely take-up of connectivity offerings from the general public and SMEs (see under revenue opportunities), it could also dramatically increase e-skills in Derby and exploitation of the internet by local SMEs. This could have a secondary impact in terms of encouraging the provision of services to a Derby community that is much more e-oriented than currently. These effects are all hard to quantify, but vital to bear in mind when the business case for the project is being considered.

#### Potential Benefits to Other Public Sector Bodies

- **Police:** The feasibility study should analyse the potential benefits to the police of the WiFi network and give some indication of their likely attitude to the project. The issues would be similar to those in relation to the Council itself, for example:
  1. What are they currently paying for data connectivity and how is that likely to change over the next 3-5 years?
  2. How extensively do they plan to use mobile applications in the next 3-5 years and how interested would they in using a shared WiFi network to support these applications?
  3. Would they be interested in WiFi voice within the Derby area?



If the police do see value in the project, the feasibility study should also explore how they might be prepared to participate in the project – in order of desirability: co-funding; pre-commitment to a minimum service purchase; no commitment but readiness to consider service contract when the project is up and running; or not likely to want to participate.

- **Schools:** The feasibility study should explore the likelihood that schools would purchase connectivity from the WiFi network. So it should cover:
  1. How much schools currently pay for connectivity and what connectivity they get;
  2. How likely is this to change over the next five years?
  3. To what extent are schools locked into existing contracts?It would also be worth getting a reaction from some schools as to whether they would be interested in purchasing connectivity from the WiFi project.
- **Other Public Sector Opportunities:** The feasibility study should also check that there are not other public sector opportunities, for example:
  1. Would the university be prepared to support an offer of WiFi access for all students throughout Derby?
  2. Are there any other public sector organisations that might be interested that we have not mentioned, GPs. However, small public sector organisations like GPs could simply be treated as a form of SME (see below).

## **Potential Revenue Opportunities**

- **Revenue from the General Public:**
  1. **Regular users:** Use of the WiFi network could be sold to the general public to provide connectivity at home and on the move. Such an offering would to a large extent be competing in the highly competitive home DSL (Digital Subscriber Line) market. However, it may be attractive to people who cannot currently access DSL or to people who wanted DSL access at several locations without having to pay several subscriptions (assuming they have a portable access device such as a laptop) or if this form of access was cheaper than comparable DSL offerings. The feasibility study should research the potential size and value of this market. Among other things, it would need to determine:
    - a. current level of DSL and cable home broadband availability
    - b. current level of take-up of above (vs national average/other UK areas)
    - c. typical prices currently available to Derby public.It should also seek to assess whether there would be interest in the specific advantages of this offering (access from anywhere in the Derby area as opposed to access only from one place (the person's home)). Finally, the study should identify a list of potential partner who the Council could approach with a view to exploiting this opportunity if the WiFi project goes ahead.
  2. **Occasional users:** There may also be some scope for generating revenue from occasional users on a hotspot basis. This revenue stream is likely to be relatively small, but the feasibility study should assess this.
- **Revenue from SMEs** – This opportunity is similar to that in relation to the general public. However, SMEs may be particularly interested in an offering that gave them the ability to have connectivity at work, while on the move in the Derby area and at home for one subscription. The feasibility study should seek to estimate the size of this potential revenue stream

- **Revenue from Larger Enterprises** – It is possible that enterprises with large numbers of mobile workers active in the Derby area may be interested in obtaining connectivity via the WiFi network. The feasibility study should assess this possibility by asking some of the most likely candidate companies.