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CITY OF **VANCOUVER**

ADMINISTRATIVE REPORT

CITY OF VANCOUVER

Report Date:	April 28, 2008
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TO: Vancouver City Council

FROM: General Manager of Business Planning and Services, in consultation with the General Manager of Engineering Services

SUBJECT: Municipal Wireless Network Update

RECOMMENDATION

THAT Staff defer further work on searching for a private partner to co-build and manage a municipal wi-fi network, due to the costs and business risks highlighted by supplier responses to the *Request for Expressions of Interest (RFEOI) PS08004 – Community Wireless Broadband Initiative*.

CITY MANAGER'S COMMENTS

Wireless network providers indicated in their responses to the City's recent Request for Expressions of Interest that they would be unable to build and operate a pilot wireless network for the City without cost to the taxpayer: in terms of an initial capital investment, access to City infrastructure and resources, or anchor tenancy (where the City would pay the provider to use the network for City wi-fi applications). Since the City has only started to explore the use of mobile business applications, the City Manager recommends that Council place the search for a partner on hold. While staff continue to investigate how mobile business applications based on wi-fi technology could assist in providing effective and efficient service to the public, it is not anticipated these opportunities would be available during the period contemplated by the pilot and would in any case likely require city-wide coverage. To enable private sector wi-fi network providers to enter the Vancouver market in the interim, the City's Engineering Department will complete a policy framework outlining the terms and conditions of access to City infrastructure.

The City Manager therefore RECOMMENDS approval of the foregoing.

COUNCIL POLICY

There is no applicable Council Policy.

PURPOSE

The purpose of this report is to outline the findings and recommendations arising from the recent Request for Expressions of Interest (RFEOI) issued by the City to determine the business conditions under which suppliers of wi-fi networks would be willing to enter into partnership with the City to build a wi-fi mesh network covering roughly 2 square kms. of downtown Vancouver in time for the 2010 Olympic Games.

BACKGROUND

In January 2006, Council asked Staff to investigate options for implementing a municipal wi-fi network for the City. In February 2007, a staff report to Council (RTS # 05576) recommended that responsibility for building a City-wide network remain with the private sector due to project costs and risks, but that Staff should develop a policy framework to protect City assets used in the building of a network. Council directed Staff to conduct a public consultation process and Request for Proposals (RFP) to select a private partner with a view to implementing a wi-fi network as outlined in Option 4 of the report.

Shortly after Council's directive, some 'early adopter' municipalities experienced challenges in attracting or retaining parties interested in building and operating municipal wi-fi networks. These cities tended to be those with a goal of offering a ubiquitous free service through a public-private partnership with little or no impact on the municipal budget. In some cities, the initial provider withdrew its services; in others, expansion plans for pilot projects did not materialise. One prominent wi-fi market consultant noted that there would be 'no more free lunch' for cities looking to implement municipal wireless networks.

In contrast, cities which were successful in implementing and operating wi-fi networks had the following in common: they had a compelling business case for a wi-fi network which justified the cost of the network and allowed free or low cost public access as a spin-off benefit; they also expected to invest in their network on an ongoing basis, similar to other components of their municipal infrastructure. The most successful business cases were in cities that had few or costly telecommunications alternatives to wi-fi.

These changes in the wi-fi market posed a challenge for Vancouver as Council's initial directive stated that a wi-fi network should be built at no cost to the taxpayer. To assess the willingness of suppliers to work with the City in a way which still met our objectives, Council approved a change of scope from a formal study and RFP to an exploratory Request for Information[1)], and from a City-wide network to a 2.3 km^2 pilot area of downtown (covering

[1] *June 2007 (RTS # 06792); the RFI format was subsequently changed to a Request for Expressions of Interest (RFEOI) on the advice of the City's Purchasing Department*

both commercial and community areas), to be in place in time for the 2010 Games. The findings and recommendations arising from applicants' responses are outlined below.

DISCUSSION

The City received twelve responses to its Request for Expressions of Interest (RFEOI). Responses were evaluated by representatives from Corporate IT, Engineering and the City's Olympic and Paralympic Operating Office, under the guidance of Civitium, LLC, an independent consultant.

Each respondent offered a unique approach to meeting the City's requirements. However, none of the responses met all of Council's objectives: most delivered only partial business and technical solutions and none could be implemented at no cost to the City.

Qualified respondents were categorised as follows:

- Incumbent Carriers – companies which already operate a local wireless network - or are planning to build one - and would like the City to become a customer of their network
- Experienced Network Providers – companies in the business of building network solutions on behalf of third parties. NB: not all of these companies could supply an end-to-end solution including technical design, provisioning, implementation, customer service/support and billing.
- Co-operative Network Providers – grass-roots providers with experience in the gradual build out of co-operative community networks but who lack experience in large-scale implementations.

All RFEOI respondents expected the City to enter into some form of risk-sharing arrangement. While each respondent offered its own unique business model, the following potential risk areas were identified by the evaluation team:

- Financial Risk

  Cost estimates to construct the pilot network averaged $1.75M. Operating costs were less well defined; however the industry average is around 15-20% of the initial implementation cost (i.e., ~ $300,000 / year). All of the business models proposed by respondents required financial investment by the City, usually in the form of up front capital, ongoing operating costs and/or anchor tenancy, as well as access to City resources and infrastructure.

  The cost of building and operating a wi-fi network means that the City and its partner(s) would require a consistent revenue stream to ensure financial pay back. Experience from other cities indicates that anchor tenancy provides the most reliable revenue stream. Applicants also suggested alternative revenue sources: e.g., a variable rate structure based on different service levels (i.e., a commercial rate with increased bandwidth and speed and a level of free service with lower bandwidth and speed) and advertising or subscription-based services. However, these sources of revenue have proven less predictable than a guaranteed anchor tenancy model. Securing a consistent revenue stream has been one of the major issues for existing public/private municipal wireless networks.

The requirement for the City to step up to an anchor tenancy presents a challenge as we currently have very limited needs for wireless network access. A number of departments are considering mobile applications but investigation into these systems cannot begin until the underlying business applications are in place (18 – 24 months). To be effective these applications would also require a city-wide wireless network (e.g., for site inspections and field work), as well as assurances on the security of City data over a wi-fi network. The City also has an extensive fibre network which connects over 80% of sites (including all major locations) directly to our fibre backbone. Other cities, lacking this infrastructure, used the need for an internal data network to drive their business case for wi-fi.

- Business Risk

  Most respondents indicated they would require a detailed site investigation and market analysis before finalizing their financial model. Others limited their initial tenure to five years; the implication being that the City would assume responsibility for the network if its partner walked away.

  Not all respondents had experience with implementing and operating an end-to-end wireless network, including customer support and billing. Should the City choose to partner with one of these suppliers (e.g., for reasons of technical expertise), City staff would likely be responsible for assembling a consortium capable of delivering the required turn-key solution.

  Wireless technology is continually evolving. It is unclear what level of ongoing investment would be required from the City to keep the network current.

- Timing

  It is unlikely that a pilot network could be in place before end 2009:

  - If the City were to proceed with a wi-fi network, an RFP process would be required to select a partner because none of the RFEOI responses contained enough detail to enter directly into negotiations with a preferred supplier. This process would take roughly 3 – 4 months.
  - Experience from other municipalities and City contracts, indicates that the most time-consuming element of the project is likely to be the contractual negotiations to construct a partnership and risk-sharing agreement between the various stakeholders: e.g., the City and its network partner(s), plus key stakeholders as required (Translink, BC Hydro, etc.). This process alone could take up to one year.
  - Building and optimizing the pilot network could occur over a 3 – 6 month outside of any required City contracts, permits and processes.

- Use of City Infrastructure and Staff

  Respondents to the RFEOI assigned a variety of roles and responsibilities to the City as part of a future partnership arrangement. These roles included: financial investor, anchor tenant and subject matter expert/supplier for City infrastructure (e.g., power poles, traffic signals). These expectations are not unreasonable in a partnership agreement. However, the City is constrained in its ability to comply:

- The City has built an extensive fibre network through fibre-for-conduit exchange agreements with major carriers; these agreements specifically prohibit the re-sale of spare capacity to competitors
- The City does not own outright all of the infrastructure to which suppliers requested access: e.g., some poles are jointly owned with BC Hydro or Translink. Permission to share this infrastructure would require a negotiated agreement with stakeholders
- Staff had originally intended access to City infrastructure to be on a cost recovery basis. Some RFEOI respondents indicated that they would expect the City to cover these costs as part of our contribution to the partnership.

Some RFEOI respondents made the assumption that City staff would be available to assist with site inspections and preparation, right of ways, implementation, etc. This is a reasonable assumption because it leverages staff's knowledge of City infrastructure. However, City staff is currently occupied with other major projects: e.g., replacing the current telecommunications systems with VOIP telephony, the 311 non-emergency call centre and replacing legacy systems with new business applications which support mobile devices. Assigning resources to a municipal wireless network initiative would involve re-prioritization of existing work or hiring of additional staff.

ALTERNATIVES/OPTIONS

There are two options arising from the RFEOI responses:

1. **Proceed immediately to the RFP stage to select a supplier to co-build and manage a pilot wi-fi network.** This option would meet some of Council's original objectives but is not recommended because of the costs and risks involved; it is also unlikely that the network could be in place by end 2009 as requested by Council.

2. **Defer further work on City-enabled development of a wi-fi network until the City has identified potential wireless applications and the most appropriate network solution to support them.** This is the recommended option because it ensures that the City could be an anchor tenant and provide a guaranteed revenue stream to a wireless provider – either in a partnership agreement or as a customer. Since wireless technology is evolving, this approach also allows the flexibility to match the business application with the most cost effective technical solution available at the time**.**

   It is still possible that a private sector provider will step forward in the interim and construct a wi-fi network – most likely in response to the requirements of another anchor tenant. Should this occur, staff remains open to discussing potential network use with such a supplier. To enable private sector deployment of a wireless network, the Engineering Department will finalise the policy framework outlining conditions of use / access to City infrastructure.

FINANCIAL IMPLICATIONS

There are no financial implications at this stage. The business rationale for future wireless applications would be brought to Council for approval.

SOCIAL IMPLICATIONS

A key driver in the initial request from Council was to bridge the digital divide by providing free or low-cost access to the Internet via a wi-fi network. For this reason, the proposed pilot area covered an area of the Downtown Eastside. Not proceeding with the pilot means that only commercial Internet service will be available in this area. However, providing an Internet connection is only the first step in bridging the digital divide. Users also need a wi-fi enabled device (PC, laptop, PDA) and in some cases special booster equipment (CPE) to strengthen the signal in their building. It should also be noted that the responses received in the RFEOI process did not fully address the City's requirements in this area. While most respondents were willing to offer a level of free service (subsidised by commercial-rate traffic), not all were willing to provide free signal boosters and the increased level of customer support required by this group.

The City already provides free access to the Internet in certain locations: the Vancouver Public Library has wi-fi 'hot spots' in each of its branches, as well as Internet-enabled PCs in libraries and some community centres.

CONCLUSION

Supplier responses to the recent Request for Expressions of Interest confirmed that Vancouver is subject to similar market conditions experienced by other North American municipalities and that any wi-fi network would require significant investment by the City, as well as risk and resource sharing. It is therefore recommended that the City does not proceed with implementing a pilot municipal wi-fi network in time for the 2010 Olympic Games. Instead, Staff recommends deferring a decision on building new, or using existing, wireless networks until the City is closer to implementing mobile business applications. To support private sector providers who are interested in implementing wi-fi networks in Vancouver in the interim, Engineering will finalise a policy framework to enable access to City infrastructure.

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