



Information Technology

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Date: May 12, 2015

To: Digital Technology Committee

From: Paul Kronberger

Subject: Technical RFP Issue

The direction for the RFP and pilot project includes requiring a preferred 4G/LTE solution in the vendor responses. This introduces technical challenges in the way of licensed and unlicensed radio spectrum. We have been working with staff from the UW on requirements, including the necessary radio frequencies. This work has identified significant issues with the use of various frequencies.

Utilizing FCC-licensed radio spectrum is the standard model for wireless service providers and provides some protection against competitors crowding in the same frequencies or causing interference. However, the financial commitment of licensed spectrum is significant and requires a large market to recuperate costs. The Educational Broadband Service frequencies in the 2.5GHz band and the Public Safety Spectrum which comprises the 700MHz and 4.9GHz bands are not available to the City of Madison for the purpose of bridging the digital divide. There are two ranges of unlicensed radio spectrum frequencies available to use, the 2.4GHz ISM and 5GHz U-NII bands. These are commonly used by cordless phones, microwave ovens, Wi-Fi and other wireless communications. While these bands may be used, the inherent unregulated nature of these frequencies can make them unreliable as any entity may establish wireless access points for Ethernet service and cause interference.

In addition, we have discussed the requirement that Police and Fire may also use this network in times of emergency. Public Safety networks are ruggedized and built for unpredicted peak network traffic also known as "worst case scenarios." Commercial networks in contrast are built according to known traffic patterns including predictable peaks. A network designed for in-home low/no cost internet access would not meet the needs of Public Safety responders.

Lastly, as you know, State Statue 66.0422 requires the City to hold public hearings and conduct a cost benefit analysis before broadband service may be provided to the public. The Mayor's fiber direction will require a second separate analysis. Both of these will necessitate hiring an outside firm to conduct and prepare. With the potential change in direction, I believe that this matter also needs discussion.

We need your input on the pilot project items mentioned above as well as the Mayor's direction on a city wide fiber network. Please note the question about continuing the pilot project. I look forward to our discussion at this week's meeting. Thank you.