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TO: Mayor and City Councilmembers

THROUGH: Darin Atteberry, City Manager 

FROM: Steve Catanach, Light and Power Manager 

DATE: October 1, 2013

SUBJECT: Response to Leadership Team question on Agenda item #11 – 800 MHz Radio Communication System

During the Monday September 30th, 2013 Leadership Team meeting the following question was asked:

**This appears to be an expensive fix. Could staff provide an explanation as to why this needs to be done at this point in time and if / what less costly options were considered?**

The radio system and its reliability are vitally important to the electric crews and locators. We use it to call in crew locations, obtain hot-line orders, and communicate each step of primary electric switching operations between crews and Supervisory Control (SCO). It is imperative that transmission and reception is clear. The lives of personnel and care of our infrastructure depend on it.

On January 1, 2013, the FCC mandated that all of our radio frequencies be narrow banded. The Utilities system had been a wide band system. Moving to a narrow band system immediately created a loss of quality in our radio communications. Volume levels were effectively cut in half, and transmission and reception became sporadically unreadable, had static, and volume levels varied from radio to radio.

Utilities staff examined three separate options as we defined the ongoing problems with the radio system;

- Upgrade the existing narrow band system and continue to band-aid and patch the older infrastructure. Staff has worked with Wireless Advanced Communications (WAC), the City's radio contractor, to improve the quality of the existing system. WAC has provided Utilities with loaner equipment which has improved some of the volume issues with the existing system but transmissions continue to break up and are difficult to understand.

- Replace the existing radios and broadcast infrastructure (towers & repeaters) with a new digital MotoTRBO system. The MotoTRBO system utilizes a digital signal over the narrow-band frequency range. MotoTRBO is the same radio system that is currently used by the City's Streets Department. Approximate cost of the MotoTRBO system was close to \$1 million. The MotoTRBO system does not provide the ability to communicate with multiple agencies, other than Streets, the recommended 800 MHz system does. There is also a risk that narrow band frequency licenses may be eliminated in the future. Additionally, a MotoTRBO system replaces existing broadcast infrastructure with new components, but there is still an ongoing cost and responsibility for operations and maintenance.
- Replace the existing radios with an 800 MHz digital system. The City will only be buying 800 MHz radios and amplifiers with this solution. The broadcast infrastructure is owned, operated and maintained by a regional cooperative, the Northern Colorado Regional Communications Network (NCRCN). The NCRCN is integrated with the Consolidated Communications Network of Colorado. This integration allows 800 MHz communication across the state. Platte River Power Authority, Longmont, Estes Park, and Loveland along with Fort Collins Police, PFA and the majority of emergency responders operate 800 MHz systems. This common platform will allow the different entities to better communicate during emergencies or mutual aid events. Of note, we don't lose the ability to communicate with the Streets Department with this system; some of the radios purchased will be dual-band radios so that Utilities snow plows can continue to communicate with the Streets Department as necessary.

Although the 800 MHz solution has the highest initial cost the proven quality of the communications, elimination of the requirement to own and operate broadcast infrastructure, and the added flexibility to communicate with PRPA and partner Cities, plus Police and PFA provided added value that led staff to recommend this option.