

Date: December 11, 2014

From: John Voorhees, Executive Director
Pima County Wireless Integrated Network

To: Chuck Huckelberry
Pima County Administrator

Re: PCWIN Staff follow on responses to Supervisor Miller's Request for Information

As a follow up the following responses have been prepared for Supervisor Miller's Staff:

Question 1. What Services were eliminated?

In the original contract PCWIN Staff elected to contract for the following maintenance elements:

- Motorola Software Service Agreement
 - this is a software only update service – to oversimplify it's similar to a Windows update
- Motorola LMR Technical Support
 - the "1-800" customer service feature – much like tech support for a home computer
- Motorola Network Monitoring
 - as the name implies Motorola can remotely monitor our systems and detect faults
 - Can run remote diagnostics and initiate a technician response
 - It would not cover repair, only monitoring and notification
- Motorola Network Preventative Maintenance
 - This contains elements of the SUA II for lifecycle maintenance. Provides an optional test and alignment on infrastructure equipment to ensure the equipment meets the original specifications from the manufacturer
- Motorola Advanced Replacement
 - Motorola would provide PCWIN with advanced replacement units in exchange for the malfunctioning unit
 - Normally PCWIN would ship a malfunctioning unit to Motorola; they would fix it and send it back. In the meantime the network would have to run without that equipment. This could impact Public Safety operations.
- Motorola NICE Logging Recorder Service
 - PCWIN records all voice traffic on the network (every radio call) and all calls to 9-1-1
 - This is a maintenance service for the audio recording devices
- Ceragon Microwave Maintenance
 - In addition to the Voice Radio Network, radio transmissions on PCWIN are repeated in real time throughout Pima County via a series of Microwave and Fiber optic links.
 - This feature would provide for maintenance of those microwave links by Ceragon, the vendor that provided the original microwave equipment.
- Ceragon Advanced Replacement/Extended Warranty
 - This is similar to the Motorola Advanced Replacement service.

PCWIN staff was unsure at the time whether all of these services would be retained, so a cancellation provision was added to the language of the agreement to allow PCWIN to adjust its service subscriptions to meet the needs of staff once the network became operational.

As the network became operational, staff revisited the post-warranty service options. PCWIN staff chose to eliminate the following services:

- Motorola Software Service Agreement
 - This service became obsolete with the introduction of the SUA II. The SUA II covers not only software but firmware and hardware
- Motorola Network Monitoring
 - Pima County has a Network Operations Center that provides 24/7 monitoring of the entire Pima County IT network (PCWIN is just one system on that network).
 - The City of Tucson is endeavoring to bolster its network monitoring capability to add complete situational awareness over the PCWIN network (recall from the previous memo that the network “backhaul” is an amalgam of the County and the City’s IT networks).
 - Motorola network monitoring would be redundant.
- Motorola Preventative Maintenance
 - The Pima County staff has ample experience and training to accomplish the required checks and calibrations of the PCWIN network.
 - Through the original 2004 bond PCWIN staff was able to purchase tools and testing equipment required to fully maintain the network’s infrastructure
- Motorola/Ceragon Advanced Replacement
 - PCWIN staff was able to purchase a “spares kit” for the voice radio network. This kit contains all of the subsystems of the radio network infrastructure as well as the major components of the network backhaul. With these parts already on site, there is no need to have Advanced Replacement from Motorola or Ceragon
 - The PCWIN Special Revenue Fund includes budget capacity to purchase replacement parts each year.
 - The SUA II will also update those spare parts on hand. In effect PCWIN will have the most up to date systems fielded on the network and in “back shop” storage.
 - The Special Revenue Fund maintains a mandatory 12.5% balance of O&M expenses for unforeseen maintenance requirements.
- Ceragon Microwave Maintenance
 - Many of the Pima County employees hired into PCWIN came with extensive experience in microwave system maintenance.
 - The PCWIN Special Revenue fund has budget capacity to temporarily deploy a Ceragon technician in the event an issue does exceed the knowledge base of the internal technical staff.

The decision to eliminate the majority of post-warranty services in the original contract was in part a cost-saving measure. Staff found the services provided by the System Upgrade Agreement combined with the knowledge and experience of Pima County and City of Tucson’s technical staff offered the most cost effective method to maintain the network. However, this approach is also the best solution for a “whole system” approach to long term maintenance. Not only will the selection of services save money, but it will produce the best network over time.

Question 2. What is the annualized cost of maintenance?

PCWIN negotiated extensively over several years to yield a very good cost structure for the services prescribed. Motorola is reluctant to share the specifics of the cost structure in a public forum. What can be shared are the total costs for all three services (LMR Tech Support, NICE Audio Logging Recorder, and SUA II) for each year over the life of the contract. The table below has an annual total cost for the services:

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
\$823,554	\$890,069	\$895,384	\$901,140	\$944,677	\$959,397	\$974,676	\$990,371	\$1,007,683	\$1,023,741	\$1,041,455
2026	2027	2028	2029	2030	2031	2032	2033	2034		
\$1,059,654	\$1,078,515	\$1,098,240	\$1,118,509	\$1,139,670	\$1,161,684	\$1,184,169	\$1,207,894	\$785,198		

If you desire more specific pricing data, I will defer to the Motorola sales representative for Arizona. Ms. Carrie Hemmen is available by phone at (602) 319-2355.

In addition to the cost of the Motorola services the PCWIN Special Revenue Fund also includes support for eight Pima County Technicians and two administrators. The total cost of their salary and benefits is forecast for the next five years:

2016 - \$889,440
 2017 - \$909,415
 2018 - \$916,170
 2019 - \$936,812
 2020 - \$943,979

It is expected that these forecast personnel costs will remain relatively steady. The 2.5% salary and benefits increase are programmed but subject to the policies of Pima County.

Question 3. On Page 2 of your December 10th memo, it appears that Pima County Information Technology & City of Tucson staff will maintain the voice radio network. What is the rate we would pay if we were unable to do this maintenance ourselves?

There are a lot of facets to this discussion item. To properly address the subject I must first explain how the network functions:

The PCWIN public safety network is comprised of essentially two subsystems: the voice radio network and the network backhaul. Each of these subsystems can be further divided into subordinate categories. The voice radio network is essentially comprised of the subscriber units (the radios-whether handheld, in cars, or on desks), and the radio

frequency (RF) antennae. The network backhaul is the microwave link structure and the fiber optic link structure. In very simple terms the voice radio network allows a single radio to communicate to each RF antenna within range of its signal. If other radios are within line of sight and in range, they can communicate. The network backhaul receives that RF signal and "repeats" it over a more powerful microwave or fiber optic signal link. This allows the 28 tower sites across Pima County to transmit that same voice radio communication from Tucson to Ajo. All 7023 radios in PCWIN have the potential to hear the same radio transmissions in real time because of the network backhaul.

At present, internal staff (County and City) performs all maintenance activity on these systems. I assume that question 3 was posed to inquire whether there would be a savings if contract maintenance replaced internal staff maintenance for the entire PCWIN network (voice radio and network backhaul). With that in mind I offer the following response.

There was much discussion prior to my tenure regarding the right mix of contracted support and internal maintenance. I do not have current estimates for contracted labor. Ms. Carrie Hemmen (Motorola Sales Representative) should be able to assist with cost quotes if necessary. There is a document from a former Pima County IT Director to the PCWIN Steering Committee that discussed the possibility of Motorola assuming full responsibility for the network's maintenance. I will include this document with the memo (titled, Motorola PCWIN Support Proposal Analysis 20121109). The document is rather involved; assuming those reading it will understand the concepts and acronyms. I will certainly make myself available to decipher the language as needed. The 2012 document offers a compelling argument to consider full time Motorola maintenance. However, much has changed in Motorola's service offerings and PCWIN's business model.

The bottom line is that relying solely on Motorola's support would have been similar in cost, based on the 2012 memo. Given the current capabilities of hired internal technical staff and the Motorola new lifecycle maintenance offering, I believe there is cost savings in a blended approach to maintenance. There is also the intangible security knowing that the maintainers of the public safety network are Pima County and City of Tucson employees that answer directly to the government agencies that use the system.

If you require any additional information, please let me know.

Respectfully,



Cc: Jan Leshner, Deputy County Administrator
Mike Hein, Director, Office of Emergency Management and Homeland Security