

Emergency Communications of Southern Oregon

Radio Infrastructure Project
Ashland City Council October 1, 2019



ECSO Radio Project Objective

- The primary objective is to design and obtain a system that provides critical mobile and portable on-street coverage across the county, and improves interoperability with adjacent Counties and other agencies.

ECSO Agencies (who will this help)

- **Jackson County**
 - Sheriff's Department
 - County Services/Animal Control
 - County Roads
 - Airport Fire
- **City of Medford**
 - Police & Fire
- **City of Ashland**
 - Police & Fire
- **City of Central Point**
 - Police
- **City of Eagle Point**
 - Police
- **City of Talent**
 - Police
- **City of Phoenix**
 - Police
- **City of Jacksonville**
 - Police & Fire
- **City of Rogue River**
 - Police
- **City of Butte Falls**
 - Police & Fire
- Rogue River Rural Fire
- Fire District #3
- Fire District #4
- Fire District #5
- Fire District #6
- Fire District #9
- Greensprings Fire Department
- Lake Creek Rural Fire
- Prospect Fire Department
- Crater Lake National Park
- U.S. Forest Service
- Bureau of Land Management
- Southern Oregon University

History

- FCC Mandated Narrowbanding 2010
- Department of Homeland Security, Office of Emergency Communications, Interoperable Communications Technical Assistance Program (DHS- OEC/ICTAP) Report - 2014
- ECSO Radio Task Force - 2015
- Federal Engineering Preliminary Conceptual Design - 2017
 - Surveys
- Jackson County Commissioners agreement to carry Bond

What is the need

- The existing Emergency Radio Communications System serving all of Jackson County emergency responders and other public users was built using 1990s technology and is fast approaching obsolescence. The analog components of the system are beyond end of life and there is little vendor support remaining. It will take approximately three years to install a replacement system.
- (RTF) *“In summary, the radio system must be upgraded to meet the diverse needs of the community. Presently, the radio system cannot comply with the ever-changing technologies and increased demand. The system is in a precarious state of possible catastrophic failure due to equipment reaching end-of-life cycles and parts needed for maintenance being no longer available. Therefore, it is absolutely essential that the solution be implemented by the most efficient and effective means.”*

Why does it need replacing?

- *Safety of the field users and the public*
- *End of life of existing analog system*
- *Need to transition to current digital technology*
- *Need to ensure ongoing system compatibility and interoperability*
- *Need to respond to population growth*

Issues

Do you utilize a cell phone that is 12 – 16 years old? How many people do?

There are 5 primary reasons why our communication systems require replacement:

- **1. End of Life:** The existing analog radio system components are already beyond their end of life/end of support or will become unsupported by the vendors in the near future, or the “End of Life”.
- **2. Transition to Digital Technology:** Whether its smart phones, TV’s, or public safety radios the industry and the technology they invent and market has converted to digital. In order to meet nationally recognized APCO interoperable standards for Public Safety Communications, future, and current equipment is all based upon current digital technologies



Issues

- **3. Interoperability:** The ability of public safety responders to share information via voice and data communications systems, on demand, in real time, when needed, and as authorized.
- **4. Population Growth** - With the population expansion into rural areas over the last 20 years in Jackson County, additional radio coverage is required.
- **5. System Coverage** - The existing communication system has multiple areas within Jackson County that have limited, or no coverage. This was exacerbated by the FCC Mandate in 2010 to narrowband all frequencies, at which time we lost further coverage due to having an analog system. Digital has been implemented on two frequencies with Medford Police, however, due to the outdated console systems in dispatch, voice must be translated from analog to digital, and back, causing decreased clarity in voice communication.

Alternative Systems

- Alternative 1
 - VHF P25 **Phase 1** standards based architecture with 12 TX/RX and 6 RX only sites using 6 channels in a trunked, simulcast configuration enabling interoperability between P25 radios regardless of manufacturer.
- Alternative 2
 - 700 MHz P25 Phase 2 system (with multiple simulcast cells and 45 TX/RX sites) that provides the users with increased in-building penetration compared to the VHF alternative, and an easier migration to the new system.
- Alternative 3
 - VHF P25 **Phase 2** system with the same sites as Alternative 1, using 5-channels in a trunked simulcast configuration that enables P25 interoperability between P25 radios regardless of manufacturer.

Alternative 3

All alternatives provide enhanced countywide coverage, increased capacity, and improved interoperability. Based on size and cost of the systems, Federal Engineering recommends Alternative 3.

- Significantly less than the 700 MHz alternative 2
- Double the talk path of Alternative 1
- Redundancy, backhaul, and backup capabilities at the core and dispatch sites
- Better coverage in forested areas of rugged terrain in remote areas of the county.
- One round of project funding, whereas Alternative 1 (P25 Phase 1) would require 2 rounds – once for the initial deployment of the system, and a second when the upgrade to Phase 2 is implemented.

Cost Comparison

Alternative Cost Estimate Comparison			
<i>Category</i>	<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 3</i>
P25 Radio System	\$8,304,000	\$26,505,000	\$10,785,000
Dispatch System	\$1,921,000	\$1,921,000	\$2,399,000
Microwave System	\$4,755,000	\$10,857,000	\$4,983,000
Site Improvements	\$4,691,000	\$23,565,000	\$4,813,000
Subscriber Equipment	\$1,754,000	\$5,370,000	\$4,967,000
Total	\$21,425,000	\$68,218,000	\$27,947,000

Financial Implications

- The cost of the Emergency Radio System Replacement is \$28 million, to be financed by a 20 year General Obligation Bond if approved by voters on November 5th.
- The cost per \$100,000 of Assessed Value would be \$9.00.

Conclusion

LEGAL/POLICY REQUIREMENTS:

- The replacement emergency radio system will meet nationally recognized Association of Public Safety Communications Officials (APCO) interoperability standards (P25).

Safety:

- The primary purpose of all public safety agencies, is to maintain the safety of our citizens and visitors to Jackson County. Without the means to clearly communicate through a mission critical radio infrastructure, the safety of both our citizens, and our public safety personnel are at risk.

Questions?

