MICROWAVE AND LAND MOBILE RADIO REPLACEMENT PROJECTS

NEXT GENERATION OF RADIO TECHNOLOGY FOR RELIABLE COMMUNICATIONS

February 6, 2017

BOARD ACTION REQUESTED



PRESENTATION PURPOSE

- Provide background information on Microwave and Land Mobile Radio Systems
- Explain purpose and scope of replacement projects (included in 2017 budget)
- Request Board Action to authorize service agreement amendment this afternoon



SYSTEM BENEFITS



Natapoc Radio and Microwave Site

- Provides reliable communications for mobile crews and remote sites for protecting, operating and maintaining District assets safely and effectively
- Highly available telecom systems meet operational needs during normal and emergency conditions
 - Recent Examples:
 - 2012 Lake Wenatchee Ice Storm
 - 2015 Chelan Fires
 - 2016 Leavenworth Fire



SYSTEM DESCRIPTIONS

They are different and distinct:

- Microwave System:
 - Highly reliable radio-based <u>transmission system</u> used to transport critical voice and data traffic
 - Land Mobile Radio traffic, Transmission Telemetry, W/WW Control Systems, Hatchery communications, Phone/Data – Remote Sites, Other Agency use
- Land Mobile Radio System:
 - Dedicated and purpose-built radio system used to deliver critical voice communication to District personnel
 - System Ops, Line Ops, CM, W/WW, Fiber, F&W, Hatcheries, Fleet, Facilities, Warehouse, Etc.



WHY REPLACE?



Blag Mountain Radio and Microwave Site

- Systems have exceeded their useful life:
 - 20-year-old equipment
 - No longer supported by manufacturers
 - Increasing risk of failure
 - Difficult to locate parts
 - New systems offer:
 - Industry Standards
 - Additional traffic types/services
 - Increased bandwidth
 - Ability to expand radio coverage



PROJECT DEVELOPMENT

- Consultant Selection
 - Adcomm Engineering
- Assessment and Feasibility Study
 - Conducted Site Assessments
 - Interviewed Stakeholders
 - Gathered Essential Requirements
 - Considered Alternatives
 - Push-to-talk over cellular
 - Satellite
- Business Case
 - Recommended replacement with likekind systems to meet essential functionality
 - Recommendation reviewed and approved by operational unit Managing Directors



TV Badger Radio and Microwave Site



MICROWAVE PROJECT



Wenatchee HQ Microwave

- Site & Power Improvements (2017)
- New Microwave Equipment
 - Design (2017)
 - Technology Review
 - Current and future requirements
 - Purchase and Install (2018)
 - Run parallel systems to minimize interruptions
 - Migrate traffic
 - Phase out old equipment (2019)



MICROWAVE COST ESTIMATE

- Feasibility (Completed)
- Contract Engineering
- Equipment Purchase
- Contract Installation
- Sales Tax
- District Labor
- Contingency

\$136,000 \$353,000 \$1,374,000 \$747,000 \$178,000 \$355,000 \$577,000

\$3,720,000

MICROWAVE REPLACEMENT



LAND MOBILE RADIO PROJECT

- New Radio Equipment
 - Design (2017)
 - Technology Review
 - Current and future requirements
 - Purchase and Install (2018)
 - Run parallel systems to minimize interruptions
 - Change out mobile and portable radios
 - Phase out old equipment (2019)



Ski Badger Radio and Microwave Site



RADIO COST ESTIMATE

- Contract Engineering
- Equipment Purchase
- Contract Installation
- Sales Tax
- District Labor
- Contingency
- RADIO REPLACEMENT

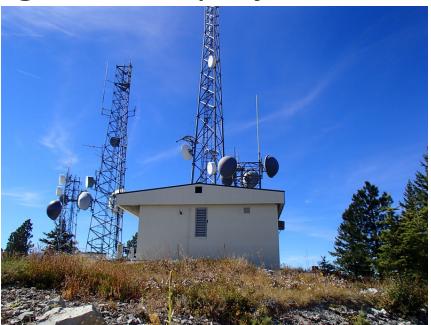
\$450,000 \$3,100,000 \$690,000 \$320,000 \$200,000 \$840,000





NEXT STEPS

 Request approval of resolution to amend SA-TA with ADCOMM Engineering for Contract Engineering for both projects



Burch Mountain Radio and Microwave Site







Rock Island Powerhouse 1 Microwave