

DEPARTMENT OF PUBLIC WORKS
Quality, Excellence, Innovation

Raul M. Rojas
DIRECTOR

DATE: June 15, 2017

TO: MERA Next Generation Project Oversight Committee & Finance Committee

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FROM: Pat Echols, Operations Officer

SUBJECT: AGENDA ITEM **H**: RECOMMENDATION ON CONVENTIONAL RADIO CHANNELS AND RELATED COSTS

Accounting

Recommended Action: Recommend to the Governing Board that MERA provide funding to facilitate quarterly preventative maintenance cost of conventional radio system resources in support of the Next Gen system.

Airport

Building Maintenance

Background & Discussion: At their May 10 meeting, the Governing Board approved funding one-time costs to relocate conventional radio resources necessitated by the Next Gen Project and requested that staff refer the discussion of annual maintenance and radio replacement costs to the Next Gen Project Oversight Committee and the Finance Committee for a recommendation to the Governing Board (staff report attached).

Capital Projects

Certified Unified Program Agency (CUPA)

Communications Maintenance

Analog equipment that is highly reliable provided that periodic preventative maintenance is performed. Typical maintenance tasks include checking transmit and receive frequency, power output, modulation, verifying line input/output levels, inspect antenna condition (VSWR and Visual), checking receiver sensitivity, checking cavity tuning, cleaning fans/filters, examining battery condition (if battery backed up), and conducting on-the-air tests with dispatch.

County Garage

Disability Access

Engineering & Survey

Flood Control & Water Resources

Given that preventative maintenance for the MERA system equipment is performed on a quarterly basis, the same schedule is used for conventional equipment maintenance as both are located in the same facilities. On this basis, the cost to provide preventative maintenance for all conventional radio is currently about \$4,500. Replacement cost of a single radio varies between \$5,000 and \$10,000. Given the high reliability/durability of the conventional radios (some have been in operation for over 30 years), it is difficult to estimate replacement costs. There will likely be a period of many years with no replacement required. Accordingly, staff is requesting that MERA support funding for the preventative maintenance of all conventional radios. The County would continue to fund any conventional radio replacement costs.

Land Development

Purchasing

Real Estate

Reprographic Services

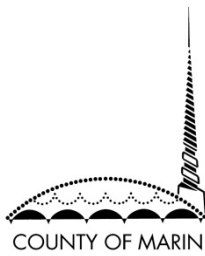
Road Maintenance

Stormwater Program

Transportation & Traffic Operations

Waste Management

Attachment: May 10, 2017 Governing Board staff report



DEPARTMENT OF PUBLIC WORKS

Quality, Excellence, Innovation

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DATE: May 10, 2017

TO: MERA Governing Board

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SUBJECT: AGENDA ITEM **E-3**: RECOMMENDATIONS ON CONVENTIONAL RADIO CHANNELS AND RELATED COSTS

Recommended Action: Approve Executive Board recommendations to provide funding to facilitate relocation of conventional radio system resources in support of the Next Gen system.

Accounting

Airport

Background & Discussion: Existing conventional radio channels provide backup to the current MERA digital trunked system as well as interoperability with local, State and National agencies in Marin County. The conventional radio facilities are located at Bay Hill/Bodega, Big Rock, Civic Center, Dollar Hill, Forbes Hill, Civic Center Jail, Mt. Barnabe, Mt. Tamalpais, Pt. Reyes (Mt. Vision), San Pedro, Sonoma Mt., Stewart Pt. and Tomales Fire Station. Motorola's proposed design for the MERA Next Gen system will not require support equipment or microwave links at the following sites: Forbes Hill, Bay Hill/Bodega, Sonoma Mt. and Tomales Fire Station.

Building Maintenance

Capital Projects

Certified Unified Program
Agency (CUPA)

Communications Maintenance

County Garage

Disability Access

At your last Board meeting, County staff provided summary of the affected conventional radio channels and proposed recommendations for relocating and retaining these resources as MERA transitions to the Next Gen system. Questions were raised whether MERA should be obligated to incur costs to sustain the conventional channels and also needed additional time to review the recommendation details. Subsequently, DPW staff further reviewed the recommendation in an effort to identify additional cost savings. The revised estimated cost to sustain conventional channels is \$75,300, which includes County DPW labor for relocation of existing equipment.

Engineering & Survey

Flood Control &
Water Resources

Land Development

Purchasing

Real Estate

The MERA Executive Board reviewed and discussed the revised recommendations summarized herein at their May 3 meeting and expressed support for funding the one-time costs to relocate the conventional channels as part of the Next Gen system currently under design by Motorola. The Executive Board requested that staff quantify the cost of annual maintenance and radio replacement, and provide a future update to your Board regarding these costs and ownership of these resources moving forward.

Reprographic Services

Road Maintenance

Stormwater Program

Transportation &
Traffic Operations

Waste Management

In summary, cost savings were identified by the following actions:

- 1) Share a microwave channel with Sonoma County from Big Rock to Sonoma Mt. for VFIRE21
- 2) Move radios from Sonoma to OTA and reuse older radios instead of replacing them.
- 3) Sonoma site will be eliminated so no new microwave will be required.
- 4) Performing all conventional tower work at same time
- 5) All FCC licensing obtained at the same time
- 6) New radios at Tomales are lower priced radio models.
- 7) Conversion of channels at Big Rock combined with other site improvements to save time and antenna work. Existing radios will be reused and not replaced.
- 8) Using lower priced radio models for CHP and Aircraft.
- 9) Only essential radios will be moved from Forbes Hill to Dollar Hill. Radios will not be replaced.
- 10) Radios at Mt. Barnabe will be converted and not replaced.
- 11) Radio at Mt. Tam will be converted and not replaced.
- 12) Radio at San Pedro Ridge will be converted and not replaced.
- 13) Eliminated 15% contingency

The following actions are recommended to support conventional radio channels when the NextGen system becomes operational:

The Marin conventional radio channels supplement the MERA trunked system. The conventional radio systems are not only a backup to the MERA system, they are the only means of communication with non-MERA radios coming into Marin. A non-MERA user coming into Marin County cannot simply program a MERA radio channel into their radio. Marin County Fire Department is the State OES regional coordinator for Marin County and therefore needs access to authorized OES interoperability channels. The Marin County Sheriff is the coordinator for law interoperability within the County. Marin County is surrounded by agencies that communicate on Low Band, VHF, UHF, 700 MHz and 800 MHz. Some of the more common agencies are:

CHP (Low Band & 700 MHz)	Napa County – Law and Fire VHF
Solano County – Law and Fire VHF	Sonoma County Law – UHF
Sonoma County Fire – VHF	SMART – VHF

- Communications with Sonoma County Fire and CHP occur almost daily. Marin County Fire is constantly monitoring the mutual aid channels along with such channels as “Air Guard” and VFIRE21. The California Fire Service and Rescue Emergency Mutual Aid System requires that participating fire agencies (all agencies in Marin are participating agencies) establish emergency communications capabilities within the Fire/Rescue Mutual Aid System. The primary frequency is VFIRE21 which is located on Sonoma Mountain Sonoma County fire resources are our primary mutual aid providers and they can only communicate on VHF conventional channels. Every time that a Sonoma

County resource responds into Marin, VHF conventional channels are used. This is a frequent occurrence. This occurs for incidents as simple as routine medical aids, vehicle accidents, structure fires and more complex incidents. VHF conventional channels are assigned to every vegetation fire in Marin. This is to maintain interoperability with incoming ground and air resources (90% of the vegetation fires receive 4 aircraft on initial dispatch)

- The Marin County Coastal Incident Response Plan, which covers the entire county and every agency that borders water, dictates that VHF conventional channels are used for command and tactical communications for all events along and in the water of Marin County.
- Most medical helicopters only have VHF conventional channel capabilities. Eliminating the VHF conventional infrastructure takes away our dispatch centers' ability to communicate with these important resources.

Marin County Sheriff is continuously monitoring CALAW1, CALAW4, UCALL40, 8CALL90 and 7CALL50. At a minimum, the following conventional channels should be retained:

7 CALL 50	AIR GUARD	AIRCRAFT	8 CALL 90	CDF #1
CHP	U CALL 40	CDF #2	Jail Backup	V CALL
PRNSS	10COMM/OES	MARIN LOCAL	CA LAW 1	OES FIRE
CA LAW 4	CA PARKS	USCG16/22a/9	UHF CLERS	V FIRE 21
VHF CLERS	UHF MEDICAL	UTAC (1-4)	VHF MEDICAL	7TAC

The above conventional channels may remain integrated in the MERA Next-Gen system with the exception of the conventional channels at Sonoma Mountain. The conventional channels at Sonoma Mountain are the key issue since MERA will no longer have a presence at Sonoma Mountain. Sonoma Mountain presently has VFIRE21, CA LAW 4, Medical Mutual Aid, COMM/OES, 7CALL50, 7TAC's, Marin Local and a UTAC channel.

The following activities would have to take place in order to completely vacate the MERA facility on Sonoma Mountain:

- 1) Move all channels except VFIRE21 and Medical Mutual Aid to the new OTA site. VFIRE21 and Medical Mutual Aid are shared by Sonoma County and are not in the MERA facility.
- 2) Negotiate with Sonoma County to have them provide one microwave circuit (DS0) from OTA to Sonoma Mountain for Marin County control of VFIRE21. Medical Mutual Aid is a repeated channel and does not need a microwave connection.
- 3) Purchase new radios for the critical channels of Marin Local, COMM/OES, VFIRE21 and Medical Mutual Aid for installation at the new Tomales site to supplement coverage from OTA.

Relocation Cost Summary:

New Tomales Site

- 1) Move the 700 MHz Interop Calling and Tactical channels from Bay Hill Road to the new Tomales site. Utilize 700 Mhz antennas from Bay Hill Road at the new Tomales site. Purchase and install three new radios to support Marin Local, COMM/OES, VFIRE21 and Medical Mutual Aid. Marin County Radio to move equipment, tower contractor to install antennas and licensing to be contracted out. Estimated cost is \$50,000. (\$4,500 is DPW labor)

Big Rock

- 1) Convert the existing simulcast Marin Command Channel to a simulcast UCALL channel and convert existing CWMA channel to a UTAC channel. Total estimated cost for conversion and licensing to be \$2,480 (\$1760 is DPW labor)

Civic Center

- 1) Replace the CHP low band radio with newer radio (\$7,500).
- 2) Replace the Aircraft radio with a newer radio (\$7,500).

Dollar Hill

- 1) Convert the existing Marin Command simulcast channel to UCALL.
- 2) Install CALAW1 which was moved from Forbes Hill.
- 3) Install CDF#1 radio which was moved from Forbes Hill.
- 4) Install CDF#2 radio which was moved from Forbes Hill.
- 5) Total estimated cost for conversion, installation, antenna work and licensing to be \$3,680.(\$1,870 is DPW labor)

Mt. Barnabe

- 1) Convert the existing CWMA channel to a UTAC channel. Total estimated cost for conversion and licensing to be \$1,380. (\$880 is DPW labor)

Mt. Tam

- 2) Convert the existing CWMA channel to a UTAC radio. Total estimated cost for conversion and licensing to be \$1,380. (\$880 is DPW labor)

San Pedro

- 1) Convert the existing Marin Command channel to a UTAC radio. Total estimated cost for conversion and licensing to be \$1,380.(\$880 is DPW labor)

Sonoma Mt.

- 1) Move all channels except VFIRE21 and Medical Mutual Aid to the new OTA site. VFIRE21 and Medical Mutual Aid are shared by Sonoma County and are not in the MERA facility. Total estimated cost is \$3,460 (\$1,760 is DPW labor)
- 2) Negotiate with Sonoma County to have them provide one microwave circuit (DS0) from OTA to Sonoma Mountain for Marin County control of VFIRE21. Medical Mutual Aid is a repeated channel and does not need a microwave connection. Lease might be up to \$100/mo. Could donate existing microwave equipment for 20 years free rent
- 3) Vacate the MERA site.