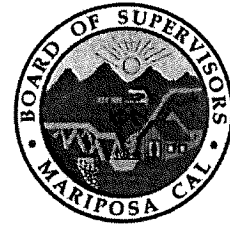




# MARIPOSA COUNTY

Administration · 209-966-3222



## **RESOLUTION - ACTION REQUESTED 2015-50**

MEETING: February 3, 2015

TO: The Board of Supervisors

FROM: Mary Hodson, Interim CAO

RE: Authorize Purchase of Wireless Microphones and Approve Budget Action Transfer

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### **RECOMMENDATION AND JUSTIFICATION:**

Authorize the Purchase of Wireless Microphones for the Board of Supervisors' Chambers and Approve the Budget Action Reducing General Fund Contingency and Increasing Appropriations in the Board of Supervisors Budget to Fund the Purchase (\$4,000).

When the new sound system was installed in April of 2014, the County was advised by the sound system contractor to consider replacing the existing wireless microphones within 1 to 2 years to avoid failure. While still in use, the existing microphones are now in danger of completely failing with one being held together with tape. With the completion of the new audio system in the Board chambers, staff is recommending that the wireless microphones also be replaced at this time. Purchasing new microphones will bring the entire sound system to the same level of technology.

Attached is a summary comparison and details of the two quotes received for the purchase of replacement microphones.

The budget action increases appropriations in the Board of Supervisors' budget and decreases General Contingency to fund the recommended purchase of option #2 in the amount of \$4,000.

### **BACKGROUND AND HISTORY OF BOARD ACTIONS:**

The Board approved the purchase of a new sound system on February 11, 2014, with Res. No.2014-59.

### **ALTERNATIVES AND CONSEQUENCES OF NEGATIVE ACTION:**

Do not fund the purchase and continue to use existing equipment.

**FINANCIAL IMPACT:**

**General Contingency will be decreased by \$4,000 to a new amount of \$558,127.  
02/03/15 001-0104-414-1090 · General Contingency (\$4,000.00)**

**ATTACHMENTS:**

**Mic quotes for BOS (PDF)**

**Budget Action BOS Mics (PDF)**

**CAO RECOMMENDATION**

Requested Action Recommended

*Mary Hodson*

Mary Hodson, Interim CAO 1/27/2015

**RESULT: ADOPTED BY CONSENT VOTE [UNANIMOUS]**

**MOVER:** Kevin Cann, District IV Supervisor

**SECONDER:** Marshall Long, District III Supervisor

**AYES:** Smallcombe, Jones, Long, Cann, Carrier

**BUDGET ACTION FORM**

FUND	DEPT/DIV	ACCOUNT	DESCRIPTION	PROJECT	INCREASE	DECREASE
001	0101-411	04-80	Equipment		\$4,000	
001	0104-414	1090	GENERAL CONTINGENCY			\$4,000
<b>TOTAL</b>					\$4,000	\$4,000

TRANSFER BETWEEN FUNDS						
<b>TOTALS</b>					\$0	\$0

ACTION REQUESTED: (Check all that apply)

Budget appropriation by Board of Supervisors (4/5ths Vote Required): Amending the total amount available in the county budget, or in any one fund of the budget , or appropriating Reserve for Contingencies;

Transfer by Board of Supervisors (3/5ths Vote Required): Moving existing appropriations from one budget to another, or between categories within a budget unit;

JUSTIFICATION: Purchase of wireless microphones for board chambers.

DEPT HEAD SIGNATURE Mary Bilberson DATE 2-2-15

APPROVED BY RES NO. 15-50 CLERK Rene LaRoche DATE 2-3-15

AUDITOR'S USE ONLY BA #
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# COUNTY of MARIPOSA

P.O. Box 784, Mariposa, CA 95338 (209) 966-3222

MERLIN JONES, CHAIR  
JOHN CARRIER, VICE-CHAIR  
ROSEMARIE SMALLCOMBE  
MARSHALL LONG  
KEVIN CANN

DISTRICT II  
DISTRICT V  
DISTRICT I  
DISTRICT III  
DISTRICT IV



TO: MARY HODSON  
FROM: RENE' LaROCHE   
DATE: January 15, 2015  
SUBJECT: WIRELESS MICROPHONE COMPARISON

Mic #1 (SLX24) – Proposal price: \$2,130.24

Mic #2 (QLXD24) – Proposal price: \$3,894.70

I spoke with Jim Hobbs on January 8, 2015 regarding the differences between the two wireless microphones quoted.

Basically, Mic #1 has a potentially shorter use period as it can only access a narrow range of bandwidths and Jim is 90% sure that the FCC will auction off radio frequencies in 2016, so it is conceivable that the frequencies that the lower costing mics use may no longer be useable. Of lesser concern to us, is that Mic #1 is logarithmic and could potentially be picked up off site by someone with the proper equipment. This concern is non-existent with Mic #2 as those mics are digitally encrypted.

The last significant difference is that Mic #2 has rechargeable batteries. We will receive a charging dock (not shown in the first proposal submitted – I requested updated proposals) and two batteries for each mic (a total of 4 batteries,) each of which operate for approximately 10 hours with a full charge. Past battery expenditures for our current model of wireless microphones were only \$31.49 in 2013, and \$21.99 in 2014 so any annual savings from rechargeable batteries would be negligible.

Of the two options quoted, I would recommend going with Mic #2 (#QLXD24) as this model rises to the same level of technology as the new sound system, and because Mic #1 (#SLX24) may be functionally obsolete in a few years due to FCC issues.

MAJOR DIFFERENCES BETWEEN CORDLESS MICROPHONES	
Mic #1 – Proposal Cost: \$2,130.24 SLX24	Mic #2 – Proposal Cost: \$3,894.70 QLXD24
Logarithmic non-encrypted 960 frequencies across 24 MHz bandwidth	Digitally encrypted Frequency range: 20 Hz – 20 kHz Rechargeable batteries

## MIC #1 - SLX24/BETA87A

The SLX4 receiver brings unprecedented ease of use to wireless with Automatic Frequency Selection and Automatic Transmitter Setup. For use with SLX Wireless.

With included rack hardware and detachable antennas, it is ready for immediate installation right out of the box.

Model SLX4L is available with logic output for use with software echo cancellation and remote battery life monitoring. Logic-enabled transmitters include MX690 and MX890.

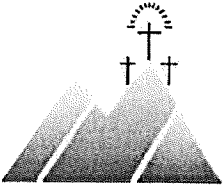
**Note:** When purchasing separate wireless components, please match their frequency bands to ensure proper system operation.

### Features

SLX Wireless Systems feature the patented Audio Reference Companding for crystal-clear sound beyond the limits of conventional wireless technology.

- Automatic Frequency Selection
- Automatic Transmitter Setup
- 960 Selectable frequencies across 24 MHz bandwidth
- Detachable 1/4 wave antennas
- Microprocessor-controlled diversity
- RF presence LED
- 5-segment audio meter
- Multi-function, backlit LCD
- Low battery indicator
- Frequency and power lockout
- Rugged metal chassis
- Volume control on rear of unit
- 1/2 rack design
- Furnished rack hardware
- Non-slip bumpers for use out of rack
- XLR and 1/4" outputs
- Optional logic functionality for software echo cancellation and remote battery life monitoring (SLX4L only)

updated proposal



# Mountain Top Media

33279 Hwy 41, Suite B  
Coarsegold, CA 93614-8759  
Tel. 559-658-6867 Fax. 559-642-3163  
CCL: 628804

## PROPOSAL/CONTRACT

DATE	PROP. NO.
1/13/2015	1197

NAME / ADDRESS
Attn. Rene LaRoche Mariposa County PO Box 1156 Mariposa, CA 95338

TERMS	REP	PROJECT
Pre Paid	JEH	Wireless Mic's

QTY	ITEM	DESCRIPTION
2	SLX24/BETA87A-G4	NEW WIRELESS MICROPHONE SYSTEM FOR BOARD CHAMBER: SHURE SLX SERIES UHF FREQUENCY AGILE WIRELESS MICROPHONE SYSTEM, Includes: (1) SLX Handheld Transmitter with Beta87A Microphone Capsule. (1) SLX4 Diversity Receiver with PS23US (2) 1/4 Wave Antennas (1) Single and Dual Rack Mount Kit (2) AA Batteries (1) Zippered Transmitter Accessory Bag (4) Protective Rubber Bumpers
1	UA221	Passive Antenna Splitter/Combiner Kit. Includes Two Splitter/Combiners, Four Coaxial Cables, and Attaching hardware.
1	UA505	Mounting Bracket and BNC Adapter for Remote Antenna Mounting (Contains one).
4	Hours	Labor charges, Jim: -Remove Existing Wireless Microphone Systems -Install new Wireless Receivers -Install new UHF Antenna Splitter -Install new Antennas. -Program wireless receivers and transmitters. -Test and set gain structure. -Instruct operator in proper care and usage of system. Sales Tax

<b>TOTAL</b>	\$2,130.24
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I \_\_\_\_\_ the undersigned, have read, understand & agree to the above Proposal/Contract.

SIGNATURE \_\_\_\_\_

## MIC #2 - SLX24/BETA87A

Shure QLX-D Digital Wireless is the clear choice for exceptionally detailed wireless audio in widely diverse and demanding environments. A highly flexible system featuring streamlined setup and operation, QLX-D boasts impressive RF efficiency to get more channels on air using less spectrum, while the rugged all-metal construction withstands the rigors of constant use. From corporate seminars to music clubs, classroom lectures to houses of worship, Shure QLX-D Digital Wireless has it covered — delivering confident performance, no matter what the venue.

Featuring a BETA 87A handheld wireless microphone transmitter, QLXD24/B87A combines professional features with simplified setup and operation.

The QLXD24/B87A Handheld Wireless Microphone System is part of the QLX-D wireless systems family. QLX-D delivers outstanding wireless functionality ideal for mid-size events and installations in businesses, hotels, and government offices with conferencing spaces; schools, houses of worship, and live performance spaces.

### System Includes:

- Includes BETA 87A, QLXD4, microphone clip, power supply, 2 AA batteries, battery contact cover, two 1/2 wave antennas, 2 BNC cables, zipper bag, 2 BNC bulkhead adapters, rackmount kit, and user guide

### Main Features:

- Transparent, 24-bit digital audio
- 20 Hz – 20 kHz frequency range\*
- 120 dB dynamic range
- 64/72 MHz overall tuning bandwidth\*\*
- 17 compatible channels per 6 MHz TV channel
- More than 60 pre-set compatible channels per frequency band\*\*
- AES 256-bit encryption
- Ethernet networkable receivers
- Network Scan finds clean frequencies for networked receivers
- AMX/Crestron control system ready
- ShurePlus™ Channels mobile app compatible
- Wireless Workbench® control software compatible
- Rugged metal construction
- Backlit LCD with easy to navigate menu and controls
- 2 x AA batteries provide up to 9 hours of runtime
- Optional Shure SB900 lithium-ion rechargeable battery provides up to 10 hours of runtime
- External charging contacts for docked charging
- Multiple microphone cartridges available, including the legendary SM58® (QLXD2)

### Specifications:

#### QLXD System Specs:

- RF Carrier Range 470–937.5MHz, varies by region (See Frequency Range and Output Power table)
- Working Range 100 m (328 ft) Note: Actual range depends on RF signal absorption, reflection and interference.
- RF Tuning Step Size 25 kHz, varies by region
- Image Rejection >70 dB, typical
- RF Sensitivity -97 dBm at 10<sup>-5</sup> BER
- Latency <2.9 ms
- Audio Frequency Response QLXD1: 20 Hz – 20 kHz (±1 dB) QLXD2: Note: Dependent on microphone type
- Audio Dynamic Range System Gain @ +10 >120 dB, A-weighted, typical
- Total Harmonic Distortion -12 dBFS input, System Gain @ +10 <0.1%
- System Audio Polarity Positive pressure on microphone diaphragm produces positive voltage on pin 2 (with respect to pin 3 of XLR output) and the tip of the 6.35 mm (1/4-inch) output.
- Operating Temperature Range -18°C (0°F) to 50°C (122°F) Note: Battery characteristics may limit this range.
- Storage Temperature Range -29°C (-20°F) to 74°C (165°F) Note: Battery characteristics may limit this range.

#### QLXD4 Receiver Specs:

- Dimensions 41 mm × 197 mm × 151 mm (1.63 in. × 7.75 in. × 5.94 in.), H × W × D
- Weight 777 g (1.71 lbs), without antennas Housing Steel
- Power requirements 12 V DC @ 0.4 A, supplied by external power supply (tip positive)
- RF Input
- Spurious Rejection >80 dB, typical
- Connector Type BNC
- Impedance 50 Ω
- Audio Output
- Gain Adjustment Range -18 to +42 dB in 1 dB steps
- Configuration 1/4" (6.35 mm): Impedance balanced (Tip=audio, Ring=no audio, Sleeve=ground) XLR: Balanced (1=ground, 2=audio +, 3=audio -)
- Impedance 1/4" (6.35 mm): 100 Ω (50 Ω Unbalanced)
- XLR: 100 Ω
- Full Scale Output 1/4" (6.35 mm): +12 dBV
- XLR: LINE setting= +18 dBV, MIC setting= -12 dBV
- Mic/Line Switch 30 dB pad
- Phantom Power Protection 1/4" (6.35 mm): Yes
- XLR: Yes
- Network Interface Single Port Ethernet 10/100 Mbps
- Network Addressing Capability DHCP or Manual IP address
- Maximum Ethernet Cable Length 100 m (328 ft)



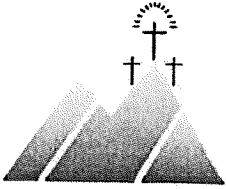
#### QLXD2 Microphone Specs:

- Mic Offset Range 0 to 21 dB (in 3 dB steps)
- Battery Type Shure SB900 Rechargeable Li-Ion or AA batteries 1.5 V
- Battery Runtime @ 10 mW Shure SB900: up to 10 hours Alkaline: up to 9 hours
- Dimensions 256 mm × 51 mm (10.1 in. × 2.0 in.) L × Dia.
- Weight 347 g (12.2 oz.), without batteries
- Housing Machined aluminum
- Audio Input
- Configuration Unbalanced
- Maximum Input Level 1 kHz at 1% THD 145 dB SPL (SM58), typical Note: Dependent on microphone type
- RF Output
- Antenna Type Integrated Single Band Helical
- Occupied Bandwidth <200 kHz
- Modulation Type Shure proprietary digital
- Power 1 mW or 10 mW

#### QLXD1 Body Pack specs:

- Mic Offset Range 0 to 21 dB (in 3 dB steps)
- Battery Type Shure SB900 Rechargeable Li-Ion or AA batteries 1.5 V
- Battery Runtime @ 10 mW
- Shure SB900: up to 10 hours
- Alkaline: up to 9 hours
- Dimensions 86 mm × 65 mm × 23 mm (3.38 in. × 2.57in. × 0.92 in.) H × W × D
- Weight 138 g (4.9 oz.), without batteries
- Housing Cast aluminum
- Connector 4-pin male mini connector (TA4M)
- Configuration Unbalanced
- Impedance 1 M $\Omega$
- Maximum Input Level 1 kHz at 1% THD 8.5 dBV (7.5 Vpp)
- Preamp Input Equivalent Input Noise (EIN) System Gain Setting  $\geq +20 -120$  dBV, A-weighted, typical
- Output Connector SMA
- Antenna Type 1/4 wave
- Impedance 50  $\Omega$
- Occupied Bandwidth <200 kHz
- Modulation Type Shure proprietary digital
- Power 1 mW or 10 mW
- Frequency Range Specific - varies by region

updated proposal



# Mountain Top Media

33279 Hwy 41, Suite B  
 Coarsegold, CA 93614-8759  
 Tel. 559-658-6867 Fax. 559-642-3163  
 CCL: 628804

## PROPOSAL/CONTRACT

DATE	PROP. NO.
1/13/2015	1198

NAME / ADDRESS
Attn. Rene LaRoche Mariposa County PO Box 1156 Mariposa, CA 95338

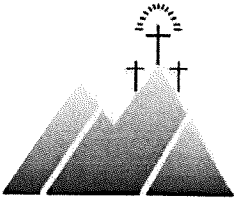
TERMS	REP	PROJECT
Pre Paid	JEH	Wireless Mic's

QTY	ITEM	DESCRIPTION
2	QLXD24/87A-G50	<b>NEW WIRELESS MICROPHONE SYSTEM FOR BOARD CHAMBER:</b> Shure QLX Series Encrypted Digital Wireless Microphone System. Passive Antenna Splitter/Combiner Kit. Includes Two Splitter/Combiners, Four Coaxial Cables, and Attaching hardware. Mounting Bracket and BNC Adapter for Remote Antenna Mounting (Contains one). Shure Lithium-Ion Rechargeable Battery. Dual Docking Charger with PS45US Power Supply. Labor charges, Jim: -Remove Existing Wireless Microphone Systems -Install new Wireless Receivers -Install new UHF Antenna Splitter -Install new Antennas. -Program wireless receivers and transmitters. -Test and set gain structure. -Instruct operator in proper care and usage of system. Sales Tax
1	UA221	
1	UA505	
4	SB900	
1	SBC200-US	
4	Hours	

<b>TOTAL</b>	\$3,894.70
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I \_\_\_\_\_ the undersigned, have read, understand & agree to the above Proposal/Contract.

SIGNATURE \_\_\_\_\_



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 Tel. 559-658-6867 Fax. 559-642-3163  
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## PROPOSAL/CONTRACT

DATE	PROP. NO.
1/13/2015	1198

NAME / ADDRESS
Attn. Rene LaRoche Mariposa County PO Box 1156 Mariposa, CA 95338

TERMS	REP	PROJECT
Pre Paid	JEH	Wireless Mic's

QTY	ITEM	DESCRIPTION
2	QLXD24/87A-G50	NEW WIRELESS MICROPHONE SYSTEM FOR BOARD CHAMBER: Shure QLX Series Encrypted Digital Wireless Microphone System. Passive Antenna Splitter/Combiner Kit. Includes Two Splitter/Combiners, Four Coaxial Cables, and Attaching hardware. Mounting Bracket and BNC Adapter for Remote Antenna Mounting (Contains one). Shure Lithium-Ion Rechargeable Battery. Dual Docking Charger with PS45US Power Supply. Labor charges, Jim: -Remove Existing Wireless Microphone Systems -Install new Wireless Receivers -Install new UHF Antenna Splitter -Install new Antennas. -Program wireless receivers and transmitters. -Test and set gain structure. -Instruct operator in proper care and usage of system. Sales Tax
1	UA221	
1	UA505	
4	SB900	
1	SBC200-US	
4	Hours	

<b>TOTAL</b>	\$3,894.70
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I, Rene LaRoche the undersigned, have read, understand & agree to the above Proposal/Contract.

SIGNATURE