

## MONTECITO FIRE PROTECTION DISTRICT

### Agenda for the Regular Meeting of the Board of Directors

Montecito Fire Protection District Headquarters  
595 San Ysidro Road  
Santa Barbara, California

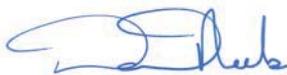
July 22, 2024 at 2:00 p.m.

Agenda items may be taken out of the order shown.

1. Public comment: Any person may address the Board at this time on any non-agenda matter that is within the subject matter jurisdiction of the Montecito Fire Protection District. (30 minutes total time allotted for this discussion.)
2. That the Board of Directors authorize the Fire Chief to approve an agreement with Commline, Inc., for the Land Mobile Radio Simulcast System Upgrade, in an amount not to exceed \$497,319.24 plus contingency not to exceed 20% of the award amount to be used at the discretion of the Fire Chief. (Strategic Plan Goal 5)
  - a. Staff report presented by Fire Chief Neels.
3. That the Board of Directors authorize the Fire Chief to enter into a Professional Service Agreement with Keith Turcot, 5 Bar Engineering, LLC. (Strategic Plan Goal 5)
  - a. Staff report presented by Division Chief Ederer.
4. Approval of Minutes of the June 24, 2024 Regular Meeting.
5. Fire Chief's report.
6. Board of Director's report.
7. Suggestions from Directors for items other than regular agenda items to be included for the August 26, 2024 Regular Board meeting.

### Adjournment

This agenda posted pursuant to the provisions of the Government Code commencing at Section 54950. The date of the posting is July 18, 2024.



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David Neels, Fire Chief

Note: In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the District office at 969-7762. Notification at least 48 hours prior to the meeting will enable the District to make reasonable arrangements.

Materials related to an item on this agenda submitted to the Board of Directors after distribution of the agenda packet are available for public inspection in the Montecito Fire Protection District's office located at 595 San Ysidro Road during normal business hours.



# Agenda

## Item #2





**STAFF REPORT**

**To:** Montecito Fire Protection District Board of Directors  
**From:** David Neels, Fire Chief  
**Prepared by:** Travis Ederer, Division Chief  
**Date:** July 22, 2024  
**Topic:** South Coast Land Mobile Radio Simulcast Upgrade Contractor Bid Acceptance

**Summary**

The South Coast Land Mobile Radio system has evolved over the last decade, with the current project being the simulcasting of both Channel 11 and Command 12 from Gibraltar and Shepherd Mesa. The District solicited competitive bids in accordance with the Public Contract Code Section 20813.

**Discussion**

Invitations to bid were solicited for this project from April 17, 2024 to June 17, 2024. Project description, scope of work, and submission information was posted on the District website, and published in the Montecito Journal. Project tours and bid clarifications were provided to all interested bidders.

A public bid opening was conducted at Station 91 on June 17, 2024. One bid was received from a well qualified vendor, CommLine, Inc. This bid met or exceeded all requirements articulated in the invitation to bid.

The bid submission from CommLine, Inc., as submitted, was significantly above our projected budget for the project scope (\$370,000). The following discussion items address potential opportunities for savings, and justification(s) for the cost increase in support of design improvements:

Option		COMMLine Bid	Potential Savings with subcontractors	Total Cost
Option #1	Upgraded receive sites with IT connectivity, no longer reliant on legacy telco connections	\$525,909.24	(\$54,540) (install pole, rf antennas) (\$30,000) (install/align microwave)	\$471,369.24 \$441,909.24
		<b>TEP Pole/antenna Install</b>		<b>Grand Total</b>
		\$25,950.00		<b>\$497,319.24</b> <b>\$467,319.24</b>
Option #2		COMMLine Bid	Potential Savings with subcontractors	Total Cost
Option #2	Install equipment to utilize current, unreliable telco infrastructure at receive sites	\$428,411.26	(\$54,540) (install pole, rf antennas) (\$30,000) (install/align microwave)	\$373,871.26 \$343,871.26
		<b>TEP Pole/antenna Install</b>		<b>Grand Total</b>
		\$25,950.00		<b>\$398,821.26</b> <b>\$353,821.26</b>

## **Conclusion**

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Staff recommends that the Board authorize the Fire Chief to approve an agreement with CommLine, Inc. in an amount not to exceed \$497,319.24 plus the standard contingency not to exceed 20% of the award amount to be used at the discretion of the Fire Chief.

## **Attachments**

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1. Invitation to Bid
2. CommLine, Inc. Bids
3. TEP Installation Quote

## **Strategic Plan Reference**

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Strategic Plan Goal #5: Strengthen our Infrastructure



# INVITATION TO BID

The Montecito Fire Protection District (MFPD) requests Competitive Sealed Bids for:

**ITB# 2024-001**

## **Simulcast Land Mobile Radio System Upgrade**

### **1. Overview**

#### **1.1. General Project Description**

The District is seeking a firm fixed price proposal to upgrade their Public Safety analog VHF radio system. The system has a channel 11 repeater at their Gibraltar Peak (GIB) site and a channel 12 repeater at their Shepard Mesa (SHEP) water tower with four additional receive only sites, all voted from Fire Station 91 (FS91). The MFPD would like to replace the two repeaters with four repeaters, simulcasting channels 11 and 12 from both sites. Included in this work is an IP microwave link between GIB and SHEP, another link between GIB and FS91, a combiner duplexer at GIB and SHEP, DC power system, and site health monitoring and alarm systems at all three locations. Services shall be included for delivery, installation, existing receive JPS voter and Avtec console integration, testing and cutover, and a 5-year maintenance contract with annual preventive maintenance.

MFPD intends to proceed with a winning bidder such that commissioning can occur before the end of 2024.

## 1.2. Invitation to Bid (ITB) Coordination

All communications concerning this ITB must be submitted via email to the ITB Project Manager and copied to the Project Administrator.

Administrator: Travis Ederer, MFPD Division Chief Operations, [tederer@montecitofire.com](mailto:tederer@montecitofire.com); 805-969-7762

Technical Specialist: Keith A. Turcot, Principle, 5 Bar Engineering, LLC, [kturcot@5barengineering.com](mailto:kturcot@5barengineering.com); 805-699-0714

Project Manager: Dan Underwood, Underwood Management Resources, Inc.; [dan@underwoodmgmt.com](mailto:dan@underwoodmgmt.com); 805-451-6250

## 1.3. Associated Consultants / Team Members

MFPD has hired the following consultants to assist in the design, management, and coordination of this project:

- Project Management – Underwood Management Resources, Inc (Dan Underwood)
- Technical Specialist and Engineering – 5 Bar Engineering, LLC (Keith A. Turcot)
- Information Technology – Team Solutions Group (Rafael Santos)

MFPD reserves the right to share with any consultants of its choosing this ITB and all bids received in order to ensure the MFPD's goals are achieved. MFPD may also invite said consultant(s) to participate in the bid evaluation process.

## 1.4. Bid Preparation Costs

MFPD will not pay any costs associated with the preparation, submittal, or presentation of any bid response.

## 1.5. ITB Amendment and Cancellation

MFPD reserves the unilateral right to amend this ITB in writing at any time. The MFPD also reserves the right to cancel or reissue the ITB at its sole discretion. If an amendment is issued, it will be provided to all registered Bidders.

## 1.6. Intent to Bid

Each Bidder that plans to submit a bid should register by email with the ITB Project Manager and copied to the Project Administrator. The email should indicate the Bidder's intent to respond to this ITB, and include:

- Company name.
- Name and title of Bidder main contact.
- Bidder main contact address, telephone number, and email address.

The "Intent to Bid" email is **highly recommended** to ensure receipt of ITB amendments, responses to bidder questions, and other communications regarding the ITB. The Intent to Bid is not intended to bind Bidders to submit a bid.



**1.7. ITB Questions**

Specific questions concerning the ITB should be submitted via e-mail to the ITB Project Manager and copied to the Project Administrator by the date identified in ITB Section 2.2. Copies of all questions and MFPD’s responses will be emailed to all registered Bidders.

**2. ITB Schedule**

**2.1. Site Visit Prior to Bid**

Any prospective bidder may request a tour of the properties by contacting the ITB Project Manager and requesting a site tour. Prospective bidders shall not enter any of the sites without receiving prior permission. Depending on the number of bidders interested in visiting the sites the number of participants may be limited to as few as two individuals.

**2.2. ITB Schedule**

EVENT	DATE / TIME
ITB Issuance	April 27, 2024
Deadline for Exhibit A, Statement of Qualifications	May 10, 2024
Site visits	May 20, 2024
Intent to Bid submittal (recommended)	May 20, 2024
Deadline for Bidder questions	May 24, 2024
Deadline for MFPD response to Bidder questions	June 3, 2024
Deadline for bid submittal	June 17, 2:00 PM, 2024
Public bid opening	June 17, 2:15 PM, 2024

Bids will be reviewed and awarded at a Montecito Fire Protection District Board of Directors regular public meeting. Regular meetings are held on the fourth Monday of each month.

**3. Bid Submittal**

**3.1. General Instructions**

MFPD discourages lengthy and costly bids. Bids should be prepared simply and economically and provide a straightforward, concise description of the Bidder’s company, qualifications, proposed solution, the required submittals referenced in ITB Section 3.3, and the bidder's capabilities to satisfy the requirements of this ITB. Emphasis should be on completeness and clarity of content. Glossy sales and marketing brochures are not necessary or desired.

**3.2. Bid Package Submittal**

Bid packages must be submitted no later than the date and time identified in Section 2.2. Bidders assume the risk of the method of delivery chosen. MFPD assumes no responsibility for delays caused by any delivery service. A Bidder's failure to submit a bid before the deadline may cause the bid to be disqualified. Postmarks will not be accepted as proof of receipt.

Bidders must submit, in a sealed package, two (2) signed copies of the Bid Package and one electronic copy of the Bid Package. The electronic copy can be one single document or the bid and exhibits. Please submit in searchable .pdf format.

The bid package to be marked “MFPD Simulcast LMR System Upgrade - Contractor Bid” and should be mailed, couriered, or hand delivered as follows:

Montecito Fire Protection District  
 Attn: Travis Ederer, Division Chief Operations  
 595 San Ysidro Road  
 Santa Barbara, CA 93108

### 3.3. Bid Package Inclusions

The Bid Package submitted by Bidder shall include the following:

- Acknowledgement of receipt of each and all ITB documents.
- Preliminary schedule from commencement to completion with high-risk items noted and explained.
- Cost proposal, provided on the Bid Form attached as Exhibit E, for a Firm Fixed Price (FFP) Contract.
- Contractor’s Fee (profit, overhead, and insurance). This percentage will be applicable to the contract scope of work and all change orders, if necessary.
- Exclusions for any scope of work not included in the bid must be identified. Bidders are required to submit a complete bid for the work anticipated and are expected to resolve any missing or unclear issues during the bid process prior to the Deadline for Bidder Questions as shown in 2.2. If Bidder is unable to resolve any issue, then Bidder shall clearly note any exclusions in their bid.
- Test plan that shows the proposed tests to be completed by the Bidder confirming all the technical requirements of this ITB.
- Statement indicating the bid remains valid for at least 120 days.
- Statement that the Bidder, or any individual who will perform work for the Bidder, is free of any conflict of interest (e.g., employment by MFPD).
- Completed and signed Bidder’s Statement of Qualifications, Exhibit A (attached).
- Confirmation the Bidder understands and is in full compliance with the scope of work and specifications, as outlined in Exhibit B (Technical Requirements, Exhibit C (Statement of Work), Exhibit D (System Sketches), Exhibit F (Contract), and Exhibit G (Gibraltar Peak Tower).
  - Note: Exhibits B, C, D and G to be provided to confirmed interested bidders after receipt of Exhibit A, Statement of Qualifications.
  - Any deviation (not recommended) from the scope of work and specifications as described in these exhibits, must be specifically identified in the Bid Package. A Point-by-point response must be provided to Exhibit B.
- Signature of a company officer empowered to bind the Bidder to the provisions of this ITB and any contract awarded pursuant to it.
- At least three references for similar work done in the last five years.

- Evidence of insurance: General Liability (\$1,000,000/\$2,000,000), Automobile Liability (\$1,000,000), Workers Compensation (\$1,000,000).

### **3.4. Bid Errors**

Bidders are liable for all errors or omissions contained in their bids. Bidders will not be allowed to alter bid documents after the deadline for submitting a bid.

### **3.5. Collusion**

By submitting a response to the ITB, each Bidder represents and warrants that its response is genuine and made in the interest of or on behalf of any person not named therein; that the Bidder has not directly induced or solicited any other person to submit a sham response or any other person to refrain from submitting a response; and that the Bidder has not in any manner sought collusion to secure any improper advantage over any other person submitting a response.

### **3.6. Required Review and Waiver of Objections**

Comments concerning ITB objections must be made in writing and received by MFPD no later than the "Deadline for Bidder Questions" detailed in Section 2.2. Protests based on any objection will be considered waived and invalid if these faults have not been brought to the attention of MFPD, in writing, by the "Deadline for Bidder Questions".

### **3.7. Proprietary Information**

A copy of each bid will be retained for official files and will become public record after the award of a contract unless the bid, or specific parts of the bid, can be shown to be exempt by law (California Government Code section 6276). Each Bidder may clearly label part of a bid as "CONFIDENTIAL" if the Bidder thereby agrees to indemnify and defend MFPD for honoring such a designation. The failure to so label any information that is released by MFPD will constitute a complete waiver of all claims for damages caused by any release of the information.

### **3.8. Prevailing Wage**

Contractors and subcontractors must be registered with the Department of Industrial Relations (DIR) at the time of bid, or else the bid may be rejected as non-responsive. (See Labor Code sections 1725.5 and 1771.1.) Each bidder must submit proof of contractor registration with DIR, e.g. - a hard copy of the relevant page of the DIR's database found at: <https://efiling.dir.ca.gov/PWCR/Search>. This Contract is subject to monitoring and enforcement by the DIR pursuant to Labor Code Section 1771.4.

### **3.9. Licensed Contractors**

Bidders and their proposed subcontractors shall hold such licenses as may be required by the laws of the State of California for the performance of the work specified. The selected Bidder will also be required to ensure that all subcontractors working on the project are holding valid licenses suitable for their trade.

## 4. Evaluation and Award

### 4.1. Bid Package Evaluation

The contract will be awarded to the lowest responsible bidder in accordance with the competitive bid procedures set out in the Public Contract Code section 20813. Bids will be evaluated based on the following:

- Bidder understanding of the work required and completeness of the Bid.
- Responsiveness of the Bid to the ITB.
- Compliance with the scope of work and specifications (value engineering recommendations can be provided but will not be evaluated by MFPD and its consultants until the award has been made).
- Project cost as proposed on the Bid Form.
- Responses to Exhibit B, Technical Requirements.
- Recent relevant references.
- Ability to perform the work and respond to warranty requests.

### 4.2. Bid Clarifications

MFPD reserves the right, at its sole discretion, to request bid clarifications or conduct discussions for the purpose of clarification with any or all Bidders. The purpose of any such discussions shall be to ensure full understanding of the Bids.

### 4.3. Execution

If the selected Bidder does not execute a contract with MFPD within thirty (30) business days after notification of selection, MFPD may give notice to that Bidder of their intent to select from the remaining Bidders or to call for new bids, whichever MFPD deems appropriate.

### 4.4. Right of Rejection

MFPD reserves the right, at its sole discretion, to reject any and all bids or to cancel this ITB in its entirety. Any bid received which does not meet the requirements of this ITB may be considered to be nonresponsive and the bid may be rejected. Bidders must comply with all terms of this ITB and all applicable State laws and regulations.

### 4.5. Variances

MFPD reserves the right, at its sole discretion, to waive technical variances in bids provided such action is in the best interest of MFPD. Where MFPD waives minor variances in bids, such waivers do not modify the ITB requirements or excuse the Bidder from full compliance with the ITB. Notwithstanding any minor variance, the MFPD may hold any Bidder to strict compliance with the ITB.

### 4.6. Binding Agreement

All legal rights and obligations between the Apparent Successful Bidder and the Fire District will come into existence if and only if a contract is approved by the MFPD Board and the same is

fully executed by the parties. The legal rights and obligations of each party shall at that time be only those rights and obligations which are set forth in such fully executed agreement.

## **5. Rights of MFPD**

### **5.1. MFPD Rights**

MFPD reserves the right to:

- Make the selection based on its sole discretion and that it deems to be in the best interest of MFPD.
- Reject any and all bids.
- Issue subsequent Requests for Bids.
- Postpone opening bids, if necessary, for any reason.
- Remedy errors in the ITB process.
- Approve or disapprove the use of particular subcontractors.
- Negotiate with any, all, or none of the Bidders.
- Accept other than the lowest offer.
- Waive informalities and irregularities in the bids.
- Enter into an agreement with another Bidder in the event the originally selected Bidder defaults or fails to execute an agreement with MFPD.

## **6. Documents and Exhibits**

ITB Administrative (this document)

Exhibit A - Statement of Qualifications

Exhibit B – Technical Requirements

Exhibit C – Statement of Work

Exhibit D – System Sketches

Exhibit E – Bid Form

Exhibit F – Contract

Exhibit G – Gibraltar Peak Tower

## Exhibit A

### BIDDER'S STATEMENT OF QUALIFICATIONS

For ITB 2024-001 Montecito Fire Simulcast Land Mobile Radio System Upgrade

Name of Bidder:

Address of Principal Office:

1. Organization structure: individual , a partnership , a corporation , an LLC or a joint venture  (Check as applicable)

2. Are you registered as a contractor or subcontractor with the California Department of Industrial Relations? \_\_\_\_\_

Registration No.: \_\_\_\_\_ Registration Expiration Date: \_\_\_\_\_

**BIDDER MUST SUBMIT PROOF OF CONTRACTOR REGISTRATION WITH THE DIR IN THE FORM OF A HARD COPY OF THE RELEVANT PAGE OF THE DIR'S DATABASE FOUND AT:**

<https://efiling.dir.ca.gov/PWCR/Search>

3. How many years has your organization been in business as a Contractor under your present business name? \_\_\_\_\_

4. Organization years of experience with work similar to this project? \_\_\_\_\_. Experience with Public Agencies? \_\_\_\_\_

5. On a separate sheet, provide examples of three (3) projects of similar type, size, scope, and complexity. For each Project, briefly describe the following (each project and its description shall not exceed one page):

- A description of project and services provided by your firm
- Location
- Year completed
- Project cost
- Provide reference information, including contact information, for the Project owner, the owner's representative, and the Architect. Briefly describe each reference's role and responsibility and everyday interaction with your project team

6. Provide a statement about your firm and your team relative to the expertise and experience of the construction firm and key personnel that will likely be involved in the project. In addition, it would be helpful to know what tasks each key personnel will be responsible for as the project progresses.

7. Provide a description of the firm's past experience with, and protocols for, pre-construction plan review and value engineering.

8. Have you, your organization, or any officer or partner thereof, not completed a contract for any reason, including instances when your organization did not complete a contract due to termination or dispute between the parties? \_\_\_\_\_

If yes, please provide details (use additional sheets if necessary).

9. Is your organization involved in any dispute resolution processes, including claims or litigation pending against your organization or initiated by your organization? \_\_\_\_\_

If yes, please provide details (use additional sheets if necessary).

10. Has your organization been involved in any bankruptcy or insolvency proceedings in the last ten years? \_\_\_\_\_

If yes, please provide details (use additional sheets if necessary).

The undersigned bidder represents and warrants that the foregoing information is true and accurate.

\_\_\_\_\_  
Signature of Bidder

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name/Title

# EXHIBIT F

## MONTECITO FIRE PROTECTION DISTRICT CONSTRUCTION CONTRACT

Date of contract:  
Contract No:  
Name of Contractor:  
Address:

Project description:

This Construction Contract ("Contract") is made and entered into as of this \_\_\_\_ day of \_\_\_\_\_, by and between the Montecito Fire Protection District, a Fire Protection District ("District") and the above-named contractor ("Contractor"), for the construction of the project described herein.

NOW, THEREFORE, the Parties hereto agree as follows:

1. Type of Contract

This Contract is a firm-fixed price contract.

2. Contract Price

Contractor shall perform the work described in this Contract and the other Contract Documents, as described below (the "Work"), and the District shall pay the Contractor, in full payment for said Work, subject to any additions or deductions as provided in the Contract Documents, and including all applicable taxes and costs the sum of: \$\_\_\_\_\_.

3. Payment Schedule

All payments required to be made under the terms of this Contract shall be made as set forth in the contract documents attached hereto.

4. Scope of Services

The Contractor shall perform all the Work within the time stipulated in the Contract Documents, and shall provide all labor, materials, tools, equipment, apparatus, and facilities necessary to, and shall perform and complete in a good, safe and workmanlike manner, the Work set forth in the Contract Documents with regard to the project ("Project"). Should the scope of services be modified or changes made by the District, the Contractor shall provide a change order to the District identifying costs or credits as appropriate, including profit and overhead per the percentage identified in the "Contract Documents", with all related back up to support the change order amount.



# EXHIBIT F

## 5. Contract Documents

The full contract between the parties is set forth in the "Contract Documents," which consist of this Contract and the other documents identified in this Article 5 below. Together, these form the entire Contract between Owner and Contractor, and by this reference these Contract Documents are fully incorporated herein. Any previously existing contract or understanding concerning the Work contemplated by the Contract Documents is hereby revoked.

The complete Contract consists of all the following (collectively, the "Contract Documents"), which are specifically incorporated herein by reference:

- a. This Contract.
- b. Invitation to Bid.
- c. Contractor's Response to Invitation to Bid.
- d. Specifications.
- e. Plans.
- f. All applicable wage determinations, safety and health regulations, non-discrimination provisions, labor standards, and requirements.

In the event of any perceived conflict or inconsistency, the Contract Documents shall be interpreted in the order of priority set forth herein.

## 6. Indemnity

Contractor agrees to indemnify, hold harmless and defend District and every officer, employee, representative or agent of District, from any and all liability, claims, demands, actions, damages (whether in contract or tort, including personal injury, death at any time, or property damage), costs and financial loss, including all costs and expenses and fees of litigation or arbitration, that arise directly or indirectly from any acts or omissions related to this Contract performed by Contractor or its agents, employees, subcontractors and other persons acting on Contractor's behalf. This agreement to indemnify, hold harmless and defend shall apply whether such acts or omissions are the product of active negligence, passive negligence, willfulness or acts for which Contractor or its agents, subcontractors and other persons acting on Contractor's behalf would be held strictly liable.

## 7. Insurance

a. Before beginning the performance of the work, Contractor shall purchase and maintain insurance to protect Contractor and District from claims: (i) arising from Contractor's operations under the contract by the Contractor, a subcontractor or anyone employed by them, or anyone for whose acts any of them may be liable; (ii) under workers' compensation, disability benefits and other similar benefit acts; (iii) for damages because of bodily injury, occupational sickness, or disease, or death of the Contractor's employees, or persons other than the Contractor's employees; (iv) for

## EXHIBIT F

damages insured by usual personal injury liability coverage sustained by a person as a result of an offence related to employment of such person by the Contractor, or other persons; (v) for damages, other than the work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom; (vi) for damages because of bodily injury, death of a person or property damage arising from ownership, maintenance or use of a motor vehicle; (vii) involving contractual liability insurance applicable to the Contractor's obligations; and (viii) for damage to work in progress.

(b) The insurance required shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever is greater. The insurance shall be purchased from companies authorized to do business in the jurisdiction where the project is located. Coverages shall be written on an occurrence basis without interruption from the date of commencement of the work until date of final payment or until termination of coverage required to be maintained after final payment. District, its officers, agents and employees shall be named as additional insured.

(c) Certificates of insurance executed by the carrier(s) and acceptable to District and copies of the policy shall be filed with District prior to the commencement of the work. The Certificates and the insurance policies shall provide the policies will not be canceled or allowed to expire until at least thirty days prior written notice has been given to District. If the insurance coverages are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final application for payment. Information concerning reduction of coverage shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.

(d) Contractor shall require each subcontractor to maintain policies of insurance covering the hazardous, and under the conditions, mentioned above and having District, its officers, agents, volunteers and employees as additional insurers. Copies of the subcontractor's certificates of insurance and policies shall be filed with District.

### 8. Time for Performance

The time limit for the completion of the Work is set forth in the Contract Documents and shall begin upon District issuing a notice to proceed ("Notice to Proceed"), subject to extension as provided in the General Conditions.

Contractor will not perform any Work until the District issues the Notice to Proceed. Work will be completed within the time limit specified above and in the Notice to Proceed.

### 9. Compliance with Laws.

Contractor shall comply with all laws relating to the Work.

# EXHIBIT F

## 10. Headings and Titles

All headings and titles set forth in this Contract are intended for convenience only, and are not intended, and shall not be construed, to enlarge, restrict, limit or affect in any way the construction, meaning, or application of the provisions thereunder, or under any other heading or title.

## 11. Severability

The invalidity of any provision of this Contract shall not affect the validity of any other provision, and all other provisions shall remain in full force and effect.

## 12. Acknowledgement

The Contractor by signing hereunder acknowledges that it has reviewed all of the Contract Documents described herein and agrees with the requirements, conditions and covenants contained therein.

**MONTECITO FIRE PROTECTION  
DISTRICT**

\_\_\_\_\_

\_\_\_\_\_  
David Neels, Fire Chief

\_\_\_\_\_





**Proposal for Simulcast Land  
Mobile Radio System Upgrade  
ITB# 2024-001**

Proposed by

**COMMLine** inc.

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## Organization Information

### Mission and History

**Executive Management Team:**

James Jun – President/CEO  
Jeff Fukasawa – VP of Business Development  
Tim Jun – VP of Operations  
Victor Bowers – Director of Services

**Services Provided:**

New Product Sales  
System Consulting, Design &  
Implementation  
Field Service & Repairs  
Frequency Planning & Coordination  
Project Management

Commline, Inc. has been in business for over 40 years, specializing in RF (radio frequency) communications equipment. We provide sales and services to public safety agencies, as well as private sector enterprises & entities.

Although RF technology is the basis for our business, trends in IP/digital technologies have converged with RF in the past 10 years. It is this very fact that sets Commline apart from many of its competitors. Understanding IP and networking is as critical to designing a proper communications system as running coax cable and implementing a proper antenna design. We have developed and continue to cultivate relationships with leading technology suppliers and manufacturers to help implement best-in-class communications systems. We work and train with the world's premiere communications and value-added technology providers, such as L3Harris, Tait, Motorola Solutions, Kenwood/EF Johnson, Icom, Panasonic, InterTalk, Avtec, Telex, Zetron, Cambium, Ceragon, and many others.

Commline has designed, installed, and maintained systems for many public and private entities throughout California, providing installation, integration, management of critical infrastructure, dispatch positions, RF subscribers, microwave links, and alerting systems.

RF vendors partner will have many challenges in providing the proper design and implementation of a radio system. Working with a partner who understands your current needs and future goals is critical to ensuring a successful system. It is important to understand that the partner's role is not only to interact with operational personnel but also to bridge and work with IT professionals. It is in this capacity that Commline can exceed performance expectations and achieve the highest probability for implementation success in the most-timely and cost-effective manner.

Commline is excited to bid on this opportunity.

Thank you,

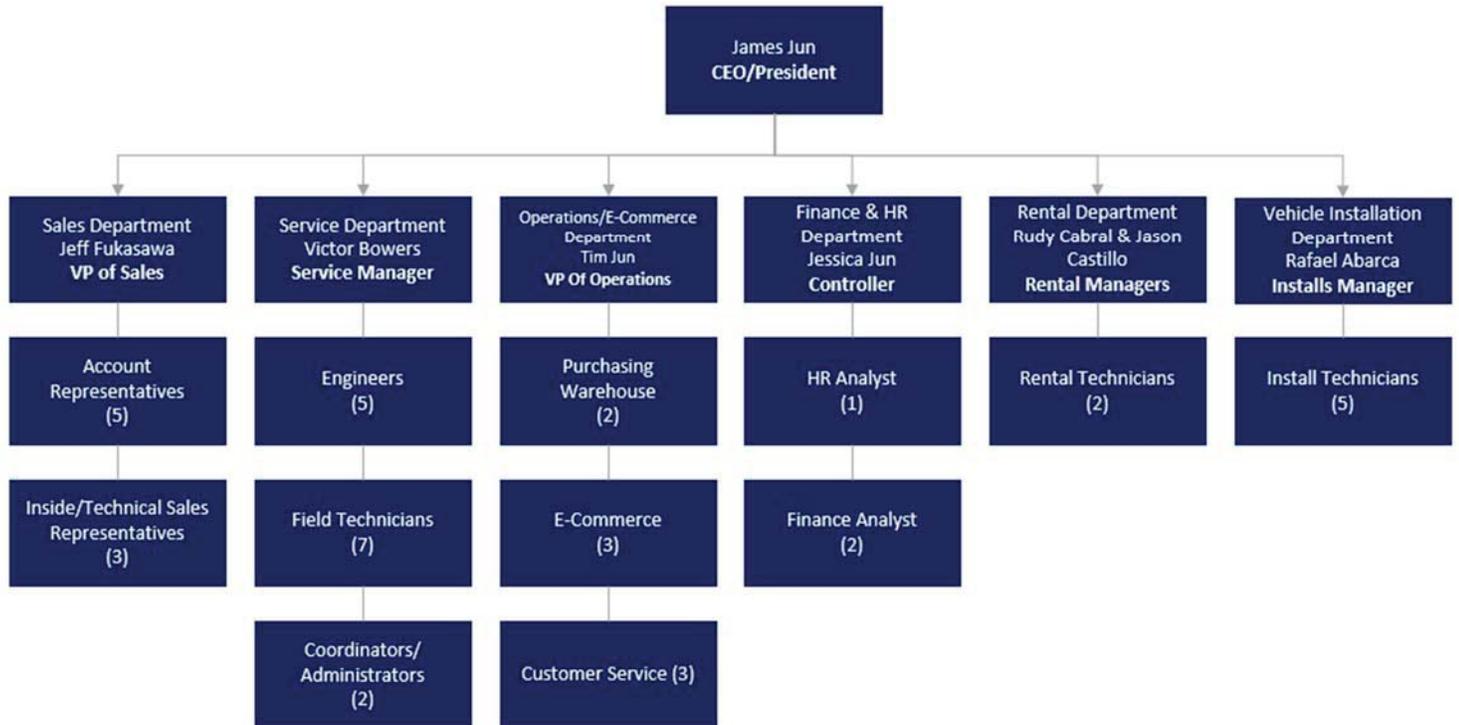
Jeff Fukasawa

COMMLine inc.

Montecito Fire Protection District



## Organizational Chart



## References & Experience

### City of Downey Public Safety

#### Scope of Work

- 6 RF Sites
- 36 Repeaters
- 700+ Subscriber Radios
- 10 Console Positions

#### Users

- City of Downey PD
- City of Downey FD
- City of Santa Fe Springs FD
- City of Compton FD



#### Commlineline's Role

Commlineline, Inc. was primary contractor, integrator and equipment installer, Commlineline now continues ongoing service, installation, and consultation.

#### Project Description

Commlineline was contracted to be a consultant in technology for the City of Downey.

As per the recommendation contained in the City (Telestrate Report), Commlineline performed all upgrades, and oversaw the transition plan, integration, and deployment of Communications for the City.

#### Microwave Project

(8) Site Cambium (10) PTP 820 Microwave Hub-and-Spoke Network

Assist Management of *Measure S* Funding for the project

Provided Public Safety Grade 99.999% Uptime

Provided Switching and Networking Equipment, and Battery Back up

Eliminated Functionally Obsolete Telco/Copper Lines and Channel Bank

#### Upgrade Legacy System

Upgrade/Install/Integrate (24) Tait TB 9400

Transmitters/Receivers at six Sites throughout LA County Operational Area E

Convert hardware-based AstroTAC Voting system to Tait IP-based Software Defined Voting

Provided services for FCC Licensing and Coordination of new sites and emissions

Completed a ground up installation of a 50' temporary tower at the temporary dispatch location at "Back 20 Lot", and subsequent successful removal

Completed installation of a new 80' Saber self-supporting tower at Fire Station 1

Completed successful transition from Analog Conventional to P25 Conventional. Successfully upgraded each site with -48 VDC battery backup plant.

### **Console Upgrade/Transition Plan**

Coordinated “Live System” transition plan for Cutover and ATP to Temporary Dispatch Site. System Cutover and ATPs were successful and not service affecting.

Provided an integration and cutover plan for both existing Centracom and new MCC7500 consoles to coexist during migration with minimal impact to operations.

Provided coordination and integration for a (5) Position MCC 7500 Consoles, from the temporary dispatch center to the permanent JPCC at Fire Station 1.

Provided coordination and integration of Downey Police (5) Position MCC 7500 Consoles.

Completed integration between MCC7500 console subsystem to the Motorola 7.18 Core at the ICI System Master Site and Local interface to Tait TB 9400.

### **Subscriber Programming**

Completed programming and coordination of subscriber units throughout area E.

Installation and Integration of all subscribers for Police and Fire. (L3 Harris Portables, Kenwood Mobiles, Motorola APX).



### **Regional Population Base**

City of Downey, Los Angeles County, California – Coverage Includes City of Santa Fe Springs and the City of Compton.

### **Contact Info**

*City of Downey Fire Department*

12222 Paramount Blvd

Downey, CA 90242

Dan Hurlock

(562) 904-7301

dhurlock@downeyca.org

## South Bay Regional Public Communications Authority

### Scope of Work

- 9 Site P25 Conventional System
- 14 link Microwave System
- 72 Repeaters
- 17 Console Positions

### Users

- El Segundo
- Gardena
- Hawthorne
- Hermosa Beach
- Manhattan Beach



### Commline's Role

Commline, Inc. functioned as consultant on multi-year project that included microwave upgrade, P25 RF IP Voting Upgrade, Avtec Scout Console Upgrade, and integration. Commline performed as the prime contractor, integrator, and equipment installer. Commline now continues ongoing service, installation, and consultation services to the Authority.

### Project Description

Commline worked closely with SBPRCA in consulting, design, grant funding, and implementation for SBPRCA infrastructure upgrade. The three-phase project was as follows:

#### Microwave Upgrade Project

14-link Site Cambium PTP 800 Microwave redundant Ring Network

Assist Authority in management of SHSGP 2012 Grant Funding for the project

Perform Asset Tagging, EHP submission, and other CalOES requirement for Grant

Provided Public Safety Grade 99.999% Uptime of both backhaul and RF network

Provided Switching, Networking Equipment, and Battery Back up

Eliminated almost all Telco/Copper lines (Savings of \$88k annually)

Eliminated obsolete Telco Channel Bank

#### TAIT IP Voting Project

Upgrade/Install/Integrate (110) Tait TB 9100

Transmitters/Receivers

Convert hardware-based AstroTAC Voting to IP based Software Defined Voting

Integrate New IP Base Stations, Collocated with Old Telco-connected Base Stations

Coordinated “Live System” transition plan for Cutover and Functional ATP  
Successfully completed integration with existing Console/Transition Plan to Avtec  
Eliminate the need for (3) Sites (Savings of \$200k annually)  
Coordinate and Add PCT Site/Microwave to increase coverage to the City of El Segundo

**Avtec Scout Avtec Upgrade**

Install 17-Position Avtec Scout Console  
Install two VP Gate Redundant Servers  
Integrate existing Stencil Voice Logging System & Upgrade to IP interface  
Integrate IP Voting, wireline interface to Tait TB 9100  
Integrate redundant control station interface  
Integrate/Project manage (2) APC Battery Backup system upgrades  
Install switch/networking between RCC Tower and Dispatch

**Culver City (Integration)**

Coordinate with both Culver City and SBRPCA for needs assessment and subsequent evaluation  
Assist with Technical Specifications for Dispatch Integration  
Provide Cost modeling, Timeline, Project management, and regular meeting coordination with all stakeholders  
Provided objective reviews of all stakeholder require  
Assist with the transition of Culver City Transit from stand-alone SmartNet to P25 Trunking system  
Provided STA operation and coordination with co-channel licensees for temporary SmartNet VOC system  
Determined need for replacement RF distribution hardware to be included as part of P25 upgrade, resulting in realization of economies of scale for cost savings to the Project.



**Regional Population Base**

South Bay Regional Includes- El Segundo, Gardena, Hawthorne, Hermosa Beach, Manhattan Beach, and Culver City.

**Contact Info**

South Bay Regional Communications Authority  
4440 W. Broadway  
Hawthorne, CA 90250  
John Krok  
(310) 973-1802  
jkrock@rcc911.org

## Interoperable Network of South Bay (INSB) and South Bay Public Regional Communications Authority (SBPRCA)

### Scope of Work

- 6 P25 Trunk Sites
- 18 Link Microwave System
- 72 Repeaters
- 17 Console Positions
- 3500+ Subscribers

### Users

- Torrance
- Redondo Beach
- Hawthorne
- Hermosa Beach
- Manhattan Beach
- Gardena



### Commline's Role

Commline acted as a consultant, prime contractor as well as integrator and equipment installer. Commline now continues ongoing service, installation, and consultation.

### Project Description

Commline worked with INSB/SBPRCA in consulting, design, and implementation for its transition to a P25 Digital Trunk Simulcast System, which included a new RF tower site (El Segundo Water Tower), FCC Licensing, as well as integration with the Avtec Dispatch Console (SBPRCA and City of Redondo Beach).

Assist RCC to secure \$5 million in UASI Grant funding through the ICI System (Ray Edey).

Created EHP Reports, CalOES, CEQA, and Sole Source Documentation.

Consult/Manage Technical Specifications for Regional Digital P25 Trunked Network.

Coordinate (12) UHF T-Band Channel/ FCC Licensing with CPRA and APCO.

Coordinate Selection of Six Site Simulcast System.

Coordinate/Manage Backhaul/Microwave Network.

Assist with Negotiations with Motorola Solutions on pricing and schedule for Infrastructure, Subscribers, and Warranty Services for the Region.

Integrate ISSI 8000 Gateway with Avtec Trunking Gateway  
Coordinated co-located Infrastructure at all (6) Sites, and mitigated co channel interference.

Attend Weekly Technical meeting with Motorola and Tech committee.

Coordinate installation of antenna and infrastructure.  
Manage site construction of "New" El Segundo Water Tower Site.

Provide Engineering/Architectural/Specifications for new site construction.

Implement Radio Management Software/Code Plug Creation for new subscriber.  
Assist with CFC 510 guidelines and licensing.  
Assist with transition and cutover plan to new P25 Digital Trunk Simulcast system.  
Assist Operations Committee with Channel plan and subscriber code plug development.  
Provide/Program/Manage 3500+ Subscribers.



**Regional Population Base**

South Bay Regional Includes – El Segundo, Gardena, Hawthorne, Hermosa Beach, Manhattan Beach, Redondo Beach, and Torrance.

**Contact Info**

*South Bay Regional Communications Authority*  
4440 W. Broadway  
Hawthorne, CA 90250  
John Krok  
(310) 973-1802  
jkrock@rcc911.org

*City of Torrance*

Communications and Information Technology  
20500 Madrona Avenue  
Torrance, CA 90503  
Dennis Faro  
(310) 781-8998  
dfaro@torranceca.gov

*City of Redondo Beach*

Redondo Beach Police Department  
401 Diamond Street  
Redondo Beach, CA 90277  
Roxanne Henry  
(310) 379-2477 +1 x2655  
Roxanne.Henry@redondo.org

## City of San Luis Obispo

### Scope of Work

- 6 P25 Conventional Simulcast Sites
- 60 Repeaters
- 9 Console Positions

### Users

- San Luis Obispo PD
- San Luis Obispo FD
- San Luis Obispo Public Works and Transit



### Commline's Role

Commline acted as prime contractor as well as integrator and equipment installer. Commline now continues ongoing service, installation, and consultation.

### Project Description

Commline was contracted to upgrade, install, and integrate Tait IP P25 Conventional and Analog Voted System. (6) Sites and over (60) Tait TB 9400 Transmitters/Receivers to Tait IP P25 Conventional and Analog Voted System. FCC Licensing and Coordination of new sites and emissions Coordinate "Live System" transition plan for Cut over and ATP, including the existing Avtec Console Dispatch. Integration existing Avtec Scout Console equipment (9) Dispatch positions. Installation of new temporary 40' pole, with installation of (2)VHF and (2)UHF antenna system. Transition system from Analog Conventional to P25 Conventional.

### Regional Population Base

City of San Luis Obispo, San Luis Obispo County, CA.

### Contact Info

*City of San Luis Obispo*  
900 Palm Street  
San Luis Obispo, CA 93401  
Josh Erquiaga  
(909) 864-5050  
jerquiag@slocity.com



## San Manuel Band of Indian Missions

### Scope of Work

- 6 RF Sites
- 54 Repeaters
- 3,800 Subscriber Radios
- 15 Console Positions

### Users

- Tribal Public Safety Dept.
- Tribal Fire Dept.
- Tribal Public Works Dept.
- Tribal Business Operations & Entities

### Commline's Role

Commline, Inc. was a complete solutions provider for radio and dispatch project. Initially acting as an integrator and equipment installer, Commline now continues ongoing service, installation, and consultation.

### Project Description

Commline was contracted to migrate disparate P25, LTR, and conventional systems to the Motorola Capacity Max solution. By doing so, San Manuel PD, Fire, PW and business operations were consolidated creating a single redundant multi-site system. Phase 1 of project included the installation of the Capacity Max radio server, primary and backup, along with three repeater sites with 8 repeaters at each site. Site installations included tower installation, inbuilding MDF, and a 3-bay climate controlled outdoor shelter.

Replaced San Manuel's Motorola's MCC5500 dispatch console with the Avtec Scout Console with primary and back up VPGate servers.

15 Console positions were installed with telephony interoperability and long-term recording using the Eventide Nexlog IP-based voice logger solution.

Implemented the Radio Management Server onboarding 2,200 portable and mobile radios. Legacy radios were replaced in over 100 vehicles with Capacity Max mobile radios.

Commline and San Manuel proceeded immediately into Phase 2 upon completion of Phase 1. Phase 2 adds 12 additional repeaters and 3 additional sites.

### Regional Population Base

Highland, San Bernadino County, California.

### Contact Info

San Manuel Band of Indian Missions  
26569 Community Center Dr.  
Highland CA, 92346  
David Burke  
(909) 864-5050  
dburke@sanmanuel.com



## California State University, Channel Island

### Scope of Work

- 5 RF Sites
- 6 Repeaters
- 60+ Subscriber Radios
- 2 InterTalk Console Positions

### Users

- CSUSI PD
- CSUCI

### Commline's Role

Commline, Inc. was primary contractor, integrator and equipment installer, Commline now continues ongoing service, installation, and consultation.

### Project Description

Commline was contracted to be a consultant in technology for the CSU Channel Islands.

The College's dispatch software serves as a bridge between existing radio, telephony, analog, digital, and data communications, ensuring dispatchers have the tools they need to maintain safety and keep operations running seamlessly.

### Console Upgrade/Transition Plan

Remove existing console hardware (MIT5000)  
Install and Integrate new InterTalk console – 2 Positions  
IP Radio Gateway (3)  
Workstation (2)  
Console Monitor Touchscreen (2)  
Headset Jackbox (2)  
Speaker Set (2)  
Desktop Microphone (2)  
Footswitch Pedal (2)

### College Population Base

6000+ Students  
500 Faculty

### Contact Info

CA State University Channel Islands PD  
1 University Drive  
Camarillo, CA 93012  
Lt. Chris Jetton  
(805) 437-8444  
christopher.jetton888@csuci.edu



## Equipment Requirements

Commline Inc. has reviewed the equipment requirements and certifies compliance with the requirements.

### Repeaters

- Operate in the 136 to 174 MHz VHF band and be certified for FCC part 90 Public Safety use.

**Comply.**

- Be APCO CAP certified for P25 operation.

**Comply.**

- APCO P25 Phase 1 operation shall be provided on both of the two channels in addition to analog traffic on a call-by-call basis. This feature should be verified and disabled at commissioning.

**Comply.**

- Be powered both from 120 VAC and 48 VDC.

**Comply.**

- The removal of one or the other power source shall not cause any interruption in operation.

**Comply.**

- The audio interface shall be 4-wire audio with a 1,950 Hz receive pilot tone.

**Comply.**

- DFSI inputs must be included for future use.

**Comply.**

- Other direct IP connections between the JPS voters and the repeaters may be considered, and the Contractor is encouraged to offer these as an alternative.

**Comply.**

- Have a linear (LSM) power amplifier adjustable up to a minimum of 100 Watts with 100% duty cycle.

**Comply.**

- Be one integrated rack mountable component containing the simulcast controller, receive voter, receiver, transmitter, and management system.

**Comply.**

- Be configurable and manageable via a generic http browser.

**Comply.**

- Repeater health alarms must be integrated into the site network management system. If the repeater has integral site monitoring capabilities these may be used for site management if they meet the requirements for site management.

**Comply.**

- The repeater must operate without any degradation in specifications between -30 and +60 degrees Celsius.

**Comply.**

- The hardware shall meet or exceed MIL-STD-810G.

**Comply.**

## GPS Receivers

- One GPS receiver shall be provided for each simulcast RF site and one spare receiver for the system.

**Comply.**

- The receiver shall provide an alarm output to the network management system in case of failure.

**Comply.**

## Shepard Mesa Antenna Filter Combiner Network

- All Filters and their related system must be engineered for low passive intermodulation distortion.

**Comply.**

- All indoor connectors shall be type N, all outdoor connectors shall be 7/16 DIN type.

**Comply.**

- All filters shall be engineered to withstand the repeaters operating at full power, with 100% duty cycle and P25 LSM modulation.

**Comply.**

- Receive multi-couplers shall operate from the site 48 VDC power system.

**Comply.**

- An enclosed, securable, NEMA 3R rack shall be provided.

**Comply.**

- Rack interconnecting pipe and wiring harness shall be provided.

**Comply.**

- The site is in a shaded location with mostly unobstructed ocean air. The temperatures average between 47°F and 87°F, record temperatures are between 28°F and 103°F. Any heating and cooling necessary to keep the system operating within their specified parameters shall be included and powered from the 120 VAC site power source.

**Comply.**

- Every effort to optimize receive sensitivity and transmit power output should be made.

**Comply.**

- Alternative designs that further this goal are encouraged and should be offered as an option.

**Comply.**

## Gibraltar VHF Antennas & Filter Combiner Network

- The antenna shall be folded dipole antenna with 90° reflectors.

**Comply.**

- Each antenna shall have a gain of 5.5 dBd or more.

**Comply.**

- Each antenna shall have a PIM of -150 dBc or better.

**Comply.**

- Each antenna shall have a front-to-back ratio of 20 dB or better.

**Comply.**

- The antenna should be Sinclair SD210R-SF2P90LDF(S) or its equivalent.

**Comply.**

- The receive antenna shall be mounted with a center line at 31' above ground.

**Comply.**

- The transmit antenna shall be mounted with a center line at 17' above ground.

**Comply.**

- The antenna should be mounted with an azimuth of 125° TN and 3° down tilt.

**Comply.**

- The transmission line shall be ½" foam dielectric type LDF4-50A or its equivalent.

**Comply.**

- All indoor connectors shall be type N, all outdoor connectors shall be 7/16 DIN type.

**Comply.**

- There shall be no adapters or splices in the antenna system.

**Comply.**

- All Filters and their related system must be engineered for low passive intermodulation distortion.

**Comply.**

- All indoor connectors shall be type N, all outdoor connectors shall be 7/16 DIN type.

**Comply.**

- All filters shall be engineered to withstand the repeaters operating at full power, with 100% duty cycle and P25 LSM modulation.

**Comply.**

- Receive multi-couplers shall operate from the site 48 VDC power system.

**Comply.**

- Filter design shall take into consideration other operators on the site transmitting in the

**Comply.**

- FM broadcast band and on 151.9850, 152.3300, 152.3450, 152.3900, and 152.4200 MHz.

**Comply.**

- Transmit combiner and receive filters shall be mounted on the wall just below the ceiling in front of the equipment rack, (see Exhibit D for detail).

**Comply.**

- Every effort to optimize receive sensitivity and transmit power output should be made.

**Comply.**

- Alternative designs that further this goal are encouraged and should be offered as an option.

**Comply.**

## RF Site DC Power

- The system shall utilize 100 AH, 12 VDC batteries.
- Heavy duty rack battery shelves.
- Battery charger.
- Racks mounted power distribution with circuit breakers, and appropriate gauge wiring.
- The DC power system should provide alarm outputs to the site administration system to
- notify users of failure and or depleted batteries.

**Comply.**

## Gibraltar to Shepard Mesa Microwave Link

The microwave radios and link shall:

- Use antenna not larger than three feet in diameter.

**Comply.**

- Provide 99.999% end-to-end annual availability at a BER of 10<sup>-6</sup> at the bandwidth required for the simulcast and management system.

**Comply.**

- Include Adaptive Coding and Modulation to allow the radios to automatically adjust the modulation during path fading. Switching shall not introduce errors in the IP traffic.

**Comply.**

- Use outdoor antenna mounted radios. The radios may be PoE or separately powered.

**Comply.**

- Transient suppression devices shall be provided at the antenna and inside the shelter.

**Comply.**

- Systems shall use licensed frequencies.

**Comply.**

- Operate from 48 VDC.

**Comply.**

- The Contractor shall be responsible for finding channels and obtaining FCC licenses.

**Comply.**



- The Contractor shall insure the solution provided supports the VHF simulcast and administration system.

**Comply.**

- The solution provided must be field proven with three years or more of service in the Public Safety market.

**Comply.**

- Support http-based configuration, health monitoring, and SNMP (v2c and v3) for alarms.

**Comply.**

### Fire Station 91 to Gibraltar Microwave Link

The microwave radios and link shall:

- Use antenna not larger than two feet in diameter.

**Comply.**

- Provide 99.999% end-to-end annual availability at a BER of 10<sup>-6</sup> at the bandwidth required for the simulcast and management system.

**Comply.**

- Include Adaptive Coding and Modulation to allow the radios to automatically adjust the modulation during path fading. Switching shall not introduce errors in the IP traffic.

**Comply.**

- Use outdoor antenna mounted radios. The radios may be PoE or separately powered.

**Comply.**

- Transient suppression devices shall be provided at the antenna and inside the shelter.

**Comply.**

- Systems shall use existing licensed frequencies.

**Comply.**

- Operate from 48 VDC.

**Comply.**

- The Contractor shall be responsible for updating FCC licenses as needed.

**Comply.**

- The Contractor shall insure the solution provided supports the VHF simulcast and administration system.

**Comply.**

- The solution provided must be field proven with three years or more of service in the Public Safety market.

**Comply.**

- Support http-based configuration, health monitoring and SNMP (v2c and v3) for alarms.

**Comply.**

## Site Administration and Monitoring Systems

At the RF sites:

- The system, at a minimum, is to control and reset fallback modes, monitor the AC and DC power systems, antenna health, and environmental condition of the site. If any out-of-tolerance conditions occur the system shall electronically notify support staff.

**Comply.**

- The ability to notify system administrators of out of tolerance conditions via SNMP V3 messages, eMail, and SMS messages. This capability must be coordinated with MFPD's IT service provider.

**Comply.**

- A power outage from 120 VAC shore power of more than 30 seconds shall generate an alarm.

**Comply.**

- It's desirable that all 120 VAC shore power outages and restorations are logged.

**Comply.**

- It's desirable that total 120 VAC power consumption on a month-to-month basis is logged.

**Comply.**

- A low 48 V battery voltage shall generate an alarm.

**Comply.**

- An out of tolerance temperature or humidity reading, with the sensor(s) mounted three to six inches above the repeater top, shall generate an alarm.

**Comply.**

- It's desirable temperature and humidity reading will be logged.

**Comply.**

- It shall be possible to re-boot all equipment at the site remotely within the MFPD secure network.

**Comply.**

- It's desirable that re-booting is on a device by device basis such that a technician can reboot only the systems required.

**Comply.**

- The network management system shall have at least two levels of security. Level 1 allows for read only access and Level 2 provides control.

**Comply.**

- It's desirable that there are three levels of security. Level 1 is read only, Level 2 is limited control including fallback recovery, and Level 3 is root access.

**Comply.**

- Other alarms shall be provided as they are available including but not limited to VSWR, GPS receiver status, microwave link status, etc.

**Comply.**

At FS91:

- The system, at a minimum, is to monitor the AC and DC power systems, voter and circuit alarms at the site. If any out-of-tolerance conditions occur the system shall electronically notify support staff.

**Comply.**

- The ability to notify system administrators of out of tolerance conditions via SNMP V3 messages, eMail, and SMS messages. This capability must be coordinated with MFPD's IT service provider.

**Comply.**

- A power outage from 120 VAC shore power of more than 30 seconds shall generate an alarm.

**Comply.**

- It's desirable that all 120 VAC shore power outages and restorations are logged.

**Comply.**

- A out of tolerance temperature or humidity reading, with the sensor(s) mounted three to six inches above the voters, shall generate an alarm.

**Comply.**

- It's desirable that temperature and humidity readings are logged.

**Comply.**

- It shall be possible to re-boot the voters at the site remotely within the MFPD secure network.

**Comply.**

- It's desirable that re-booting is on a device-by-device basis such that a technician can reboot only the systems required.

**Comply.**

- The network management system shall have at least two levels of security. Level 1 allows for read only access and Level 2 provides control.

**Comply.**

## Statement of Work

Commline Inc. has reviewed the statement of work and certifies compliance with the project scope.

### Fire Station 91

- Provide and install a JPS SVM-3 site card in the Command 12 voter.

**Comply.**

- Work with the IT partner to integrate the Command 12 voter SVM-3 and CPM-3 into the MFPD network.

**Comply.**

- Provide a Remote Terminal Unit, wire and configure it to monitor and alarm all circuits in the Command 11 and 12 voters.

**Comply.**

### Gibraltar Peak

- Provide and install an antenna mounting pole to the side of the block building per the structural specifications and standards and weld it to the site ground system.

**Comply.**

- Provide and install two new VHF antenna, coax, and grounding kits.

**Comply.**

- Provide and install a JPS QMT-1B and integrate it into the MFPD network communicating with the Command 12 voter.

**Comply.**

- Provide and install two new repeaters, wire and integrate them.

**Comply.**

- Provide and install a GPS simulcast receiver and antenna for simulcast timing.

**Comply.**

- Provide and install a DC power system.

**Comply.**

- Provide and install a combiner, duplexer, multicoupler. The filters are to be mounted on the concrete block wall in front of the existing rack above eye level.

**Comply.**

- Provide and install the needed components to enable site control and health monitoring.

**Comply.**

- Ensure all components and properly attached to the ground system.

**Comply.**

- Provide license and install the GIB to SHEP microwave antenna, outdoor unit, and indoor power supply. Integrate the link with the IT partner into the MFPD network.

**Comply.**

- Provide and install the GIB to FS91 microwave antenna, outdoor unit, and indoor power supply. Integrate the link with the IT partner into the MFPD network.

**Comply.**

## Shepard Mesa Water Tower

- Provide and install two new repeaters, wire and integrate them.

**Comply.**

- Provide and install a GPS simulcast receiver and antenna for simulcast timing.

**Comply.**

- Provide and install a DC power system.

**Comply.**

- Provide and install the needed components to enable site control and health monitoring.

**Comply.**

- Provide and install the microwave antenna, outdoor unit, and indoor power supply Integrate the link with the IT partner into the MFPD network.

**Comply.**

- Install a router provided by the IT partner.

**Comply.**

- Provide and install a new enclosed rack with a two-channel combiner duplexer.

**Comply.**

## Exceptions

Commline Inc. will not be responsible for coverage based on provided design, interference on existing frequencies, structural integrity of sites, and system design flaws.



## System Design

Commline Inc has followed the system design provided by MFPD to upgrade the Public Safety analog VHF radio system currently in use by Montecito Fire Protection District. This design includes replacement of two repeaters with an upgrade to four, simulcasting capabilities for Channels 11-12, interfacing with existing JPS and Avtec consoles, and consideration of the microwave links. Commline has also included information on warranty, testing and cutover, and a 5-year maintenance contract with annual preventative maintenance.

This bid will produce several viable options. Although there will be similarities, Commline believes the solutions provided by the vendors will all be significantly different. These are the factors we believe will matter most to the MFPD:

**The best return on investment.** The idea of buying the cheapest is not the strategy to propose or advocate. As an independent integrator, Commline can assess the different options in the market and partner to drive economic value based on the reliability of the hardware and services represented. Proposing vendors may not seek options based on this idea. As a result, the economic models of the proposing vendors will differ and should be looked at in detail.

**Service is the difference.** Certain vendors may have longer resumes, but Commline's technical capabilities are market-proven, and most importantly, the most flexible to work with. It is this flexibility that will allow the MFPD to work out all the challenges that inevitably arise in projects of this complexity and magnitude. From attentiveness to the personnel deployed, Commline has proven success in the local market versus many of its competitors based on the simple fact that Commline is accountable helped by the fact the company's ownership is local to the Los Angeles area.

Commline's proposal brings together a customized team for LMR, networking, microwave, and civil portions of the program, which gives the MFPD a single program manager to manage the overall goal without having to perform the coordination between all of the disciplines separately. Commline provides one point of contact, the single program manager, through whom all communications travel between the MFPD.

### Site Parameters

The figure below (pulled from Exhibit D of RFP) shows the current system with existing site locations marked.



TX	RX	PL	Label
154.3550	150.7750	100.0	MFPD Cmd 11
151.3775	156.0450	100.0	MFPD Cmd 12
151.4900	155.2575	123.0	MFPD Cmd 13

Site ID	Name	Latitude	Longitude
FS61	Carpinteria Fire Station 1	34°23'49.02"N	119°31'3.24"W
GIB	Gibraltar Peak	34°27'56.39"N	119°40'41.13"W
RMA	Monte Alegre	34°25'15.24"N	119°31'45.79"W
FS91	Montecito Fire Station 1	34°26'23.48"N	119°37'58.70"W
CEM	Santa Barbara Cemetery	34°25'5.27"N	119°39'10.95"W
SHEP	Shepard Mesa Water Tower	34°24'4.50"N	119°28'10.50"W
VPI	Valley Peak	33°59'56.15"N	119°41'1.00"W
WEST	Westmont Library	34°27'1.06"N	119°39'45.09"W

## RF Infrastructure

MFPD currently utilizes two repeaters while this RFP looks to upgrade the system to four. Repeaters are located at the Gibraltar Peak site (GIB) and Shepard Mesa (SHEP) sites. The system is also supported with four additional receive sites which are located at Fire Station 91 (FS91).

Commline Inc. is proposing switching the two existing repeaters to Tait TP9400's.

### TAIT TB9400



The TB9400 is designed for the future and changing needs and operations. TB9400 allows for a single station to be migrated to a wide range of Simulcast systems in Analog, P25 and DMR.

The TB9400 supports multiple RF technologies:

- Analog 12.5/25 kHz bandwidths
- P25 Phase 1 Conventional
- P25 Phase 1 Trunking
- P25 Phase 2 Trunking
- P25 Packet Data
- Linear Simulcast Modulation (LSM) to increase P25 coverage efficiency
- ETSI DMR Tier II
- ETSI DMR Tier III

The TB9400 also incorporates many features that makes it the leader in future proofing for customer needs.

- Built-in redundant Channel Group Control. This eliminates external devices needed for handling Voting, Simulcast, and Console Interfaces.
- Multi-DFS support with full control or audio connectivity, this provides true interoperability regardless of interface manufacturer.
- Remote network management utilizing built-in secure https web server and SNMPV3 support
- Built-in basic spectrum analyzer provides on-site diagnostics.
- Modular structure offers variety of build options to satisfy serviceability.
- One TB9400 is needed per transmit channel at each site. For receive only sites, each TB9400 can have 4 receivers in 1 chassis.

Combining Equipment

EMR CORPORATION SITE DESIGN

1.0 SYSTEM TECHNICAL SPECIFICATIONS

**1.1 Two Channel VHF Band Transmitter Combiner Model W64522/4C,4SN3**

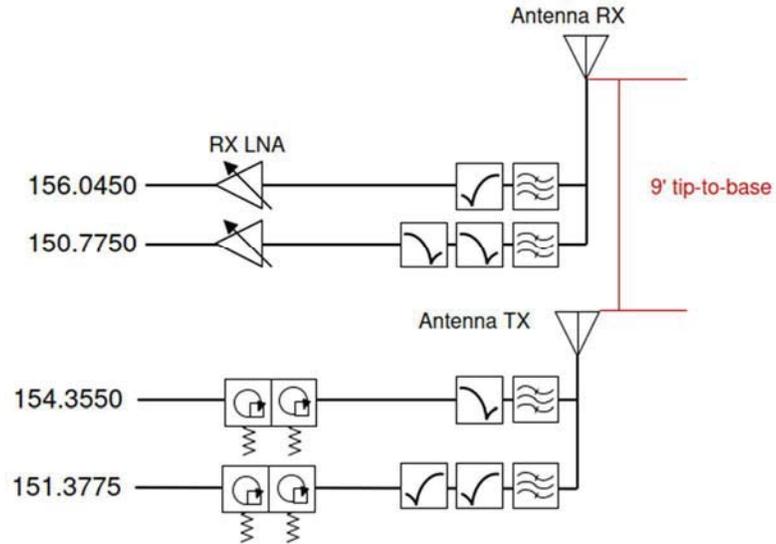
1.11	Frequencies	151.3775, 154.3550
1.12	Transmit Input Power Per Channel	100 W
1.13	Number of Transmit Channels	2
1.14	Insertion Loss Estimate	3.5 dB
1.15	Decoupling Between TX and RX antennas	33 dB (9' collinear tip-to-base)
1.16	TX-RX Isolation	151.3775 154.3550
		150.7750 62 dB 32 dB
		156.0450 27 dB 52 dB
1.17	ANT-TX Isolation	60 dB, min.
1.18	TX-TX Isolation	70 dB, min.
1.19	VSWR Input / Output	1.2:1 / 1.25:1, nom.
1.110	Connectors	N Female
1.111	Rack Mounting	19" EIA
1.112	Rack Height	19 RU max
1.113	Depth	10"
1.114	Rack or Cabinet	Not supplied but available as an upgrade

**1.2 Two Port Receiver Multicoupler 24102-1/4C,4SN2(AT2)**

1.21	Frequencies	150.7750, 156.0450
1.22	Number of Receiver Ports	2
1.23	Port-to-Port Isolation	23 dB, min.
1.24	Preselector	See Flow Diagram
1.25	RX-TX Isolation	See 1.16
1.26	Amplifier	Bipolar
	▪ Gain	30 dB, nom.
	▪ 1 dB Comp	+22 dBm
	▪ NF	2.8 dB
	▪ VDC	13.6 VDC nom.
1.27	System Noise Figure	6 dB, nom.
1.28	System Gain	0-30 dB
	▪ Adjustable	Factory Set 3 dB > Unity
1.29	Operating Voltage	115 VAC
1.210	VSWR	1.25:1, nom
1.212	Connectors	N Female Antenna / BNC Female Output
1.213	Rack Mounting	19" EIA
1.214	Rack Height	19 RU max
1.215	Depth	12"
1.216	Rack or Cabinet	Not supplied but available as an upgrade

## SYSTEM BLOCK DIAGRAM

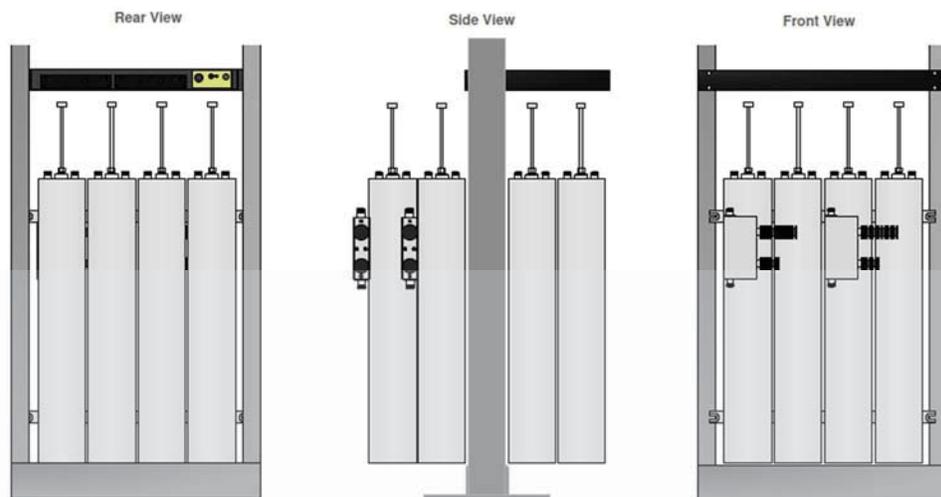
### 2 Channel TX Combiner, 2 Port RX Multicoupler



## SYSTEM FORMAT AND MOUNTING

### 3.1 Standard Rack/Cabinet Mounting

- 3.11 Jumper coax and misc. components not shown for clarity.
- 3.12 Provide adequate space above combiner for air flow to dissipate heat.
- 3.13 Rack is not provided with this system but available as an upgrade.



## Equipment List by Site

### Fire Station 91

QTY	Model/Part #	Description
1	JPS 5952-200000	SVM-3 Site Voter Module
1	JPS 5200-402000	QMT-1B RM Remote with 2 recv modules w/ 48Vdc input.
2	TN9275-002B-J400-10	P25 Console Gateway 2 Channel ACDC12/12 US
1	GMSCHM	MW Mount, FS91

### Gibraltar Peak

QTY	Model/Part #	Description
1	MON030HW	Monopole 30' Gibraltar Peak
2	GMSCHM	MW Mount, Gibraltar
2	SINSD210R-SF2P90LDF-S	138-174 MHz Rugged Exposed Dipole Antenna
200	LDF4-50A	1/2 inch, HELIAX® low density foam coaxial cable, corrugated copper, 50 Ohm per ft
4	L4TNM-PSA	Positive Stop N-Male for 1/2" LDF4, AL4RPV, HL4RPV
2	VHF50HD-MA	100-512 MHz Protector DIN Female to DIN Male Connector
2	221213	Weatherproofing Kit
2	UGBKIT-0210	1/4"x 2"x 10" Universal Copper Ground Buss Bar, 2 x 10 Holes, with Hardware
1	JPS 5200-402000	QMT-1B RM Remote with 2 recv modules w/ 48Vdc input.
2	TB9435S-100T	TB9435 Single 100Watts Chassis Assembly
2	T01-01103-BAAA	TB94 Rctr 136-174MHz S2
2	T01-01121-BBBA	TB94 Linear PA 136-174M 100W
2	TBA30A4-4400	TB8000/9000 Power Management Unit ACDC48 aux48
2	219-01561-00	CBL cord 2m USA IEC blk
2	TBAS060	SFE Key - Digital Fixed Station Interface (91/94)
2	TBAS062	SFE Key - Simulcast Enable Phase I (91/94)
2	TBAS061	SFE Key - Central Voter (91/94)
2	TBAS073	SFE Key - TaskBuilder
1	2402-613	SecureSync Model 2402-613
1	2400-HS-A1	SecureSync Hot Swap AC Power Supply module

**Gibraltar Peak Cont.**

QTY	Model/Part #	Description
1	2400-HS-D2	SecureSync Hot Swap 24/48 VDC Power Supply module
1	8230	GNSS Outdoor Antenna
1	8226	GPS Antenna Surge Protector
1	CA06R-1513-0001	Power Cord, AC, North America Plug
1	NCPS4810	Power System - 48 VDC, 100 Amp input
1	W64522/4C,4SN3	COMBINER FF VHF 2CH DL 125W
1	24102-1/4C4SN2AT2	MULTICOUPLER VHF 2B CUSTOM
1	CIP20SRW01	Cambium PTP 11 GHz All Outdoor with 3' ant Cambium PTP 18 GHz All Outdoor with 2' antenna
2	CKIT0530	Cable Kit - Cat 6 up to 300'
1	MWSOM35	Materials - Ground, Stand-offs, Misc
1	JPS 5952-200000	SVM-3 Site Voter Module

**Shepard Mesa**

QTY	Model/Part #	Description
2	TB9435S-100T	TB9435 Single 100Watts Chassis Assembly
2	T01-01103-BAAA	TB94 Rctr 136-174MHz S2
2	T01-01121-BBBA	TB94 Linear PA 136-174M 100W
2	TBA30A4-4400	TB8000/9000 Power Management Unit ACDC48 aux48
2	219-01561-00	CBL cord 2m USA IEC blk
2	TBAS060	SFE Key - Digital Fixed Station Interface (91/94)
2	TBAS062	SFE Key - Simulcast Enable Phase I (91/94)
2	TBAS061	SFE Key - Central Voter (91/94)
2	TBAS073	SFE Key - TaskBuilder
1	2402-613	SecureSync Model 2402-613
1	2400-HS-A1	SecureSync Hot Swap AC Power Supply module
1	2400-HS-D2	SecureSync Hot Swap 24/48 VDC Power Supply module
1	8230	GNSS Outdoor Antenna
1	8226	GPS Antenna Surge Protector
1	CA06R-1513-0001	Power Cord, AC, North America Plug
1	NCPS4810	Power System - 48 VDC, 100 Amp input
1	GMLAB	MW Mount, Shepard Mesa
1	JPS5200-402000	QMT-1B RM Remote with 2 recv modules w/ 48Vdc input.

**Shepard Mesa Cont.**

<b>QTY</b>	<b>Model/Part #</b>	<b>Description</b>
1	JPS5952-200000	SVM-3 Site Voter Module
2	CKIT0530	Cable Kit - Cat 6 up to 300'
1	W64522/4C,4SN3	COMBINER FF VHF 2CH DL 125W
1	24102-1/4C4SN2AT2	MULTICOUPLER VHF 2B CUSTOM
1	Enclosed Rack	Enclosed Rack with AC

**Spare Parts**

<b>QTY</b>	<b>Model/Part #</b>	<b>Description</b>
1	24102-1/4C4SN2AT2	MULTICOUPLER VHF 2B CUSTOM
1	2402-613	SecureSync Model 2402-613
1	2400-HS-A1	SecureSync Hot Swap AC Power Supply module
1	2400-HS-D2	SecureSync Hot Swap 24/48 VDC Power Supply module
1	8230	GNSS Outdoor Antenna
1	NCPS4810	Power System - 48 VDC, 100 Amp input



### Preliminary Project Plan

Commline Inc. has included this Gantt chart as an example of how an expected timeline would flow from intent to award to final installation. *These dates are all tentative.*

Upon award of contract Commline Inc. will provide an updated project timeline.

## Montecito Fire Protection District ITB#2024-001

Task Name	Start	Finish	Q3			Q4			Q1			
			Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
Intent to Award	07/01/24	07/01/24										
<b>Detail Design Review</b>	07/01/24	07/26/24										
Schedule Design Meetings	07/01/24	07/05/24										
Conduct Design Meetings w/ MFPD	07/08/24	07/26/24										
Detailed Design Review (Live Review)	07/08/24	07/26/24										
<b>Detailed Design Approved by MFPD</b>	07/08/24	08/01/24										
Design Complete & Approved	07/08/24	08/01/24										
<b>Site Improvement Planning</b>	08/02/24	09/19/24										
Administrative Items related to Site Improvements and Invoicing	08/02/24	09/19/24										
Site Improvement Plans Complete	08/02/24	09/19/24										
<b>Equipment Procurement &amp; Delivery</b>	07/01/24	10/23/24										
RF Equipment	07/01/24	08/01/24										
Antenna Equipment	07/01/24	08/01/24										
RF Distribution/Filters/Duplexers	07/01/24	08/01/24										
Equipment Inventory and Asset Tagging	08/01/24	10/23/24										
Equipment Procurement Complete	08/01/24	10/23/24										
Racking & Staging of Equipment	08/01/24	10/23/24										
Invoice Delivered to MFPD (Hardware Only)	08/01/24	10/23/24										
<b>Site Activities</b>	10/24/24	01/03/25										
Fire Station 91	10/24/24	01/03/25										
Gibraltar Peak	10/24/24	01/03/25										
Shepard Mesa Water Tower	10/24/24	01/03/25										
<b>Customer Site Walk Audits</b>	01/03/25	02/13/25										
Fire Station 91	01/03/25	02/13/25										
Gibraltar Peak	01/03/25	02/13/25										
Shepard Mesa Water Tower	01/03/25	02/13/25										
Punch List Resolution	02/01/25	02/20/25										
Documentation Delivery to the City	03/01/25	03/20/25										
Closeout and Final Billing	03/01/25	03/20/25										

## Deliverables

Upon award and execution of approved Agreement, Commline will work with MFPD to create acceptable list of deliverables and timelines. Deliverables and process deliverables include project timelines and submittals for following:

- Bill of materials
- Site and specialized surveys
- RF system design
- Frequency plan development
- Coverage design
- Console design
- Microwave design
- FCC licensing
- Site pre install preparation schedule
- Installation schedule
- Installation
- Deployment and testing plan
- Acceptance testing
- As-built documentation

## Quality Assurance Plan

Comline policy dictates that all its products and services will be provided at the pinnacle of quality. Utilizing a dedicated quality assurance (QA) plan, Comline aims to surpass the expectations and needs of its customers.

All work will be performed using end-to-end top-tier methodology. A comprehensive quality control plan (QCP) has been designed to specifically acknowledge, address, and assuage each project’s ongoing needs:

Category	Operation	Action
<b>Engineering</b>	Review of design System scope Design approval	Compliance Matrix Responsibility Matrix Approval of Scope of Work
<b>Project Management</b>	Project Initiation Factory Staging Status Meetings Milestone Tracking	Equipment Ordering Equipment/Service Fulfillment Auditing Inspection and Review
<b>Installation</b>	Documentation Procedural Design Implementation	As-built drawings Compliance of Design
<b>Acceptance</b>	Verification Testing Migration Training	Review of SOW 30-day burn-in System Acceptance Test Plan Completion of project

It is of strict policy for Comline to produce and provide products and services of the highest quality that meet or exceed the needs of its customers.

Comline’s quality methods for projects begin with the QCP, quality monitoring, and monthly quality reports and reviews to determine the effectiveness of the quality plan. Once feedback has been reviewed, changes may be made to the plan, including the processes to respond to the dynamic nature of the project. Reporting, monitoring, and correcting according to the QCP enables Comline to tailor the project’s processes to meet the needs of the Customer.

Since Comline’s QCP is an end-to-end quality management system, the entire span of the project will be monitored vigilantly and continuously in order to ensure quality deliverables. The QCP for the project will identify processes and activities that are monitored and actively managed in order to ensure compliance with quality metrics, from proposal through final acceptance.

## Change Order Plan

Any changes to the agreed Statement of Work that alters one or more aspects of the Project and creates a change in scope will require a formal change order. Either party may request changes within the general scope of the project. Modifications to project scope, schedule, deliverables, or cost, may require an amendment of the applicable SOW Agreement. While such changes may typically incur additional costs and possible delays relative to the Project schedule, some changes may result in less cost to the MFPD or less effort on the part of Commline. Change orders will be developed jointly and every effort will be made to adhere to the project management plan. The Project Manager for the MFPD and the Project Manager for Commline will decide whether a formal request for a change (“Change Request”), is necessary. If a Change Request is necessary, the Project Manager for requesting party will prepare a Change Request in a form acceptable to both parties detailing the effort involved in implementing the change, the total cost or associated savings to the MFPD of implementing the change, and the effect, if any, of implementing the change on the Project schedule. Neither Party is obligated to perform requested change unless both parties agree to the written and signed executed Change Order.

Once completed, the Change Request will be submitted to the non-requesting party for review. The non-requesting party will make its best efforts to either approve or deny the Change Request in writing within ten (10) business days.

Change order requests will require following information: change order number, date of request, change description, justification, and impact. Impact factors include effect on scope, risk, schedule, resources, and financial impact. Copy of Commline’s change order request is included below.

Change Order Plan

**COMMLine inc.**

13700 Cimarron Ave, Gardena, CA 90249  
 (Main) 310.390.8003 (Fax) 310.390.439  
 www.Commlineinc.com

**Change Order Form**

**THIS CHANGE ORDER # \_\_\_\_\_**, dated as of \_\_\_\_\_ (the "Change Order Effective Date") amends the Statement of Work for Project \_\_\_\_\_ the effective date of \_\_\_\_\_ by and between Commline, Inc. ("Commline") and \_\_\_\_\_ ("Customer") (the "SOW"). Terms outlined in this Change Order shall take precedence over any conflicting terms outlined in the existing SOW.

Change Requested By (Name/ Title/ Company): \_\_\_\_\_ Project

Manager \_\_\_\_\_

**Change Description**

**Change Justification**

**Change Impact**

(In the table below, indicate what area(s) are impacted by the proposed change. Provide a detailed description of the impact.)

Area of Impact	Yes/ No	Detailed Description of Impact
Scope		
Risk		
Schedule		
Resources		
Financial Impact*		
Other		

## Change Order Plan

### COMMLine inc.

13700 Cimarron Ave, Gardena, CA 90249  
(Main) 310.390.8003 (Fax) 310.390.439  
www.Commlineinc.com

If there is a financial impact, please provide additional information below:

Additional Cost: \_\_\_\_\_

Revised Total Cost of Project: \_\_\_\_\_

Party Responsible for Cost (CUSTOMER / COMMLINE): Customer

**IN WITNESS WHEREOF**, a duly authorized representative of each party has executed this Change Order as of the Change Order Effective Date.

**City of Simi Valley**

**Commline, Inc.**

\_\_\_\_\_  
Full name

\_\_\_\_\_  
Full name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

## Preliminary Cutover Plan

The preliminary cut-over plan incorporates performing all site RF antenna work, microwave buildout, and new console backroom equipment while maintaining full operation of the current system. The goal will be to have the 2 systems standing and capable of operation. This will result in minimal down time or system interruptions during any transition.

Post Detailed Design phase, further development of the cut-over plan will occur utilizing input from the MFPD.

## System Staging Plan

Staging is a critical part of the QA and validation of system deployment. During staging Commline powers up and tests all major indoor system components, validating the following:

- No damage or dead-on-arrival issues from delivery of equipment.
- Equipment is designed as planned with no component changes.
- Functionality is as desired.
- Interoperability between manufactures is as promised.

Commline will also perform the following:

- Unpack all major indoor components.
- Perform inventory audits of all major components.
- Arrange all major components in a manner allowing QA audits.
- Power up all major indoor components and test per industry standards.
- Test interconnectivity between major components.
- Configure devices as per the Detailed Design and SATP for testing.
- Coordinate SATP with the MFPD.

Staging is planned to occur at the Commline facility in Gardena California.

During the Detailed Design stage this will be detailed further based on this process. Final Staging Plan will be delivered as part of the agreed upon timeline.

### **Site Visits**

Commline will attend any pre-requisite site visits at the site prior to any construction. The Commline Scheduler will coordinate these site visits with the MFPD early in the project deployment.

### **Drawings & Site Information**

Commline will furnish preliminary construction drawings, bills of material, and site information to the MFPD. Commline will work with their construction subcontractor to mark up of these documents with both recommended and necessary changes, and provide additional drawings, bills of material, and site information, as necessary, to fully define their scope of work and deliverables. Commline will provide ongoing 'redline' updates, and corrections, to any construction drawings, as required by MFPD, throughout the life of the contract, to adequately describe the work, and deliverables.

If Commline is requested by the City to perform work that is outside the defined scope of work, or unforeseen/differing site conditions are encountered during execution of the contracted work, the MFPD's program manager must approve all extra costs through the Change Order process.

The same approval requirement shall apply to any installation process inadvertently not covered by that documentation. Any changes to the drawings shall be submitted to the site manager immediately upon change. Any variance between the supplied drawings and the actual implementation constitutes a change which must be submitted to the site manager. Any lack of detail on the supplied drawings shall be brought to the attention of the site manager.

### **Permits**

It is the MFPD's responsibility to obtain any site construction permits in relation to this project.



## **FCC Licensing**

Commline can provide expertise in licensing LMR systems for VHF, UHF, T-Band, and 7/800 systems for Public Safety clients.

*A description of the frequency coordination and FCC licensing procedures that the Respondent will follow to comply with the spectrum and licensing requirements.*

Pursuant to FCC Act of 1934 under Title 47 chapter I, subpart D, part 90 regulations for Private Land Mobile Radio Services Commline will perform the necessary research of any or all presently licensed co-channel licensees for those RF channel(s) to be applied for. Inclusive of any-and-all engineering studies that may be required; such as various contour maps and RF propagation evaluations and interference studies that may be necessary. In addition, it may be necessary to prepare and submit letter of concurrences to those co-channel users and the required follow up to ensure applicable responses are obtained.

*Evidence that the design meets tower height restrictions, as well as output and Effective Radiated Power (ERP) levels permitted by the Regional Planning Committee and FCC rules and regulations.*

Commline will ensure that supporting tower structure(s) are compliant with current FAA tower lighting and airport proximity requirements and filing of any necessary forms, FCC antenna site regulations ensure compliance with TIA 222. TIA 222 is a structural standard that defines requirements for antenna supporting structures to ensure they meet the needs of modern communications systems in various environmental conditions like wind, snow, and ice.

*A description of the procedures that the Respondent will follow to meet the interference mitigation requirements and FCC Maximum Permissible Exposure (MPE) standards.*

Depending upon the initial engineering evaluation, an extensive MPE study may be required in accordance with IEEE standards and FCC order 19-12; proposed changes in the Commission's Rules regarding human exposure to radio frequency electromagnetic fields. As a practice of long-established engineering guidelines, it may also be necessary for Commline to perform an intermodulation study for the proposed locations to ensure harmful interference will not be encountered because of any additions of new RF signals at a given location.

## **Acceptance of the Work**

The following items must be provided by Commline to the MFPD for Acceptance of the Work, and final payment of construction work. In addition, Commline will be responsible, during the warranty period, for all rework required to correct problems deemed Commline to be caused by the below work.

## **Photographic Record**

Commline shall submit photographic record of construction/installation activity based on the scope of work being performed.

- Completed site after clean-up (wide angle shots are preferred).
- Commline shall take photographs of all installations and submit them to the MFPD as a record of completion.

## **Close-Out Documentation**

Commline will provide a final set of redline as-built construction drawings, identifying any changes that depart or deviate from the supplied drawings. Commline will use these to create a final formal set of as-builts drawings for the customer.

## **Punch List**

Commline shall make their own inspections of installed components, assemblies, and finished construction for compliance with MFPD's specifications, engineering specifications, and drawings, prior to any inspections by MFPD.

Commline shall create a punch list of work to be repaired/corrected, work the punch list to completion, and provide the completed punch list to MFPD prior to final inspections.

Commline, and the customer will inspect the site when the completed punch list has been submitted.

Commline will submit any final punch list one-time to the subcontractor for correcting of the work.

Commline will deem the punch list complete when each punch list item has been completed and approved by the MFPD.

## Warranty, Maintenance, & Support

### Warranty & Maintenance

Commline will be contracted to provide general technical and sales support of the City's new communications system, which includes radio hardware and supporting infrastructure.

Infrastructure warranty period will be five (5) years.

- Repair, replace, or exchange parts to repair/replace any item provided by Commline for this project due to defect or poor workmanship.
- Spare units and modules will be purchased by the City and made available to Commline for Warranty or Maintenance repair activity.
- Commline will be responsible for packaging, shipping, and tracking items shipped to and from the City or 3rd Party Vendor Depot facilities.

The following procedures shall be followed during the warranty period:

Commline and the Customer's representative shall attempt to resolve Critical Service issues over the phone or via remote network management.

Critical System Issues requiring Commline support are defined as any one or more of the following events that results in a loss of voice traffic on the system:

- Any failure which causes a loss of 15% or more in capacity or coverage in any cell.
- Any failure which causes a loss of the primary system control (assuming a primary/secondary architecture).
- Any system failure that causes the loss of two or more console positions.
- The failure of two or more repeaters.

## Technical Support

Support will include general repair and maintenance of the equipment identified in the bid. General repairs will be defined as repairs of radios that include the following:

- Intermittent or no transmit/receive.
- Intermittent or no power; unresponsive equipment programming.

Technical support will cover critical equipment purchased from Commline. Certain technical support and repairs will be not covered under this agreement, such as, radio problems caused by excessive physical abuse/accidents or misuse; force majeure; fire; liquid damage; lack of performance due to the current repeater setup and location will also not be included.

Response time for on-site troubleshooting and repairs of infrastructure is as follows:

- Critical system issues defined in the Statement of Work requires a 30-minute call-back response, a 4-hour on-site response if needed, and a 12-hour target for service restoration.
- Non-critical issues are resolved the next business day.

Provide first-echelon support for the following third-party systems during warranty and escalate issues to the OEM. Commline will maintain vendor support agreements for the following:

- Microwave System
- Console Systems

Provide first-echelon support for the following third-party systems during warranty and escalate issues to the OEM. Commline will maintain vendor support agreements for the following:

- Perform software update installation as needed.
- To include the ongoing manufactures software/firmware support contracts maintained by Commline for turnkey solution.

## Service Calls

If Commline support is required, the following repair response time and repair-completed time criteria shall be in effect:

- Commline shall contact Customer within 30 minutes of telephone notification for a Critical Service issue.
- If Commline and the Customer's representative cannot resolve the issue remotely or over the phone, then Customer shall determine the criticality of the service issue.
- If determined to be critical, Commline shall dispatch qualified personnel to the site experiencing the service issue.
- Commline personnel shall be physically present at the site that requires service within 4 hours of Customer's decision to escalate the call to on-site service.
- Commline will provide support within 4 hours of a call or email. Non-critical calls generated on Saturday, Sunday and bank holidays will be serviced the following business day.

When MFPD needs to generate a request during Commline operational hours please contact our Service Coordinator. Commline Service Coordinator can be reached at (310) 390-8003 x.127, or via email at [svc@commlineinc.com](mailto:svc@commlineinc.com).

For any afterhours support (beyond 4:00 pm) please contact our 24/7 call center, (716) 559-1704.

## Mobile & Portable Radio Repair Service

When MFPD needs to generate a repair request for hardware, please contact our Repair Coordinator. Commline Repair Coordinator can be reached at (310) 390-8003 ext. 119, or via email at [repairs@commlineinc.com](mailto:repairs@commlineinc.com).

## Response Matrix

Response Severity	Description	Phone Response Time	On-Site Time
Critical	24x7 response to catastrophic failures that detrimentally impede operations or jeopardize safety of personnel	30 mins	4 hours
Impactful	Mon-Fri, 8:00am - 4:00pm response to failures that degrade business operations, but do not impact safety of personnel	2 hours (calls taken after 2:00pm will be addressed by 8:00am next business day)	4 hours (work performed during business hours; if not, will be addressed next business day)
Routine	Mon-Fri, 8:00am - 4:00pm response to degraded communications that do not significantly impact business operations or safety of personnel	4 hours (calls taken after 12:00pm will be addressed by 8:00am next business day)	Next Business Day

- Critical Infrastructure will be covered 24/7, including holidays.
- Repair requests will be picked up by a Commline representative/courier service or by UPS label provided by Commline, within 48 hours of request. When sending in repair requests, please send the radio only. Please do not include antenna and battery, unless the battery is part of the repair request.
- Radio repairs, if repairable, will be completed no longer than 4 weeks from receipt of equipment. If repairs are to take longer than 4 weeks, notice will be submitted to inform of a revised return date.
- *Beyond Economic Repair* – Radio repair costs that exceed the market value of the radio can be deemed ‘Beyond Economic Repair or BER’. Common reasons to be considered as BER include: damage to PC boards, unavailability of parts due to discontinuation of radio/parts, etc.
- Repaired radios will have a 90-day warranty.

## Post-Warranty Maintenance & Support

Commline can service and support the MFPDs infrastructure through a tailored multi-year service agreement (up to 15 years) that will offer the following services post-warranty. Any added hardware will be included in the agreement at time of installation and pricing adjusted accordingly. Pricing and information for a post-warranty support contract is available upon request.

### Remote Response and Technical Support

- 24 x 7 on-call (including holidays) to generate a support ticket and assess level of severity.
- Critical – 24 x 7 response and technical support for Critical failures that impede operations or jeopardize safety of personnel; including holidays.
- Impactful - A maximum of 2 hours for remote response and support for failures that degrade business operations but do not impact safety of personnel.
- Routine - Maximum of 4 hours for technical response Calls taken after 12:00 pm will be addressed by 8:00am next business day.

### Onsite Support and Repair

Onsite support and repair will also be categorized into 3 tiers:

- Critical - Onsite response will be within 4 hours.
- Impactful - Onsite response if required will be within 4 hours of business day or addressed next business day.
- Routine - Onsite response if required will be next business day or scheduled with the City.

### Software Support and Upgrades

- Commline will manage and ensure that all software maintenance agreements (SMA) are up to date with all hardware and software; manufacturers to deliver the latest firmware and software updates.
- Commline will provide firmware and software upgrade services up to twice yearly for RF infrastructure.

### Hardware Refresh

- Commline will consult with and advise MFPD on recommendations for hardware life-cycle road map and hardware refresh on infrastructure and offer separate quotes.

## Pricing

Commline Inc. has included *Exhibit E-Bid Form* which breaks down pricing as requested by MFPD. Pricing is valid for 120 days.

### Exhibit E

Line	Description	Cost	COMMENTS
A.1	Equipment and materials needed to provide the system described in the ITB delivered to FS91 with warrantee.	\$ 323,022.96	Includes Sales Tax
A.2	Services to aquire FCC licenses, prepair the sites, install and configure the equipment, test and commission the system.	\$ 231,914.54	
A.3	Additional equipment, materials, and licenses to replace the only RX site receivers and central voters.	\$ 94,818.86	This item is optional; Receivers <u>only</u> (Does not include antenna installation or Backhaul), includes Tax
A.4	Additional services to prepair the RX only sites, install and configure the equipment, test and commission the system with this option.	\$ 49,443.96	This item is optional
B.1	Equipment and materials needed to provide the system described in the ITB delivered to FS91 with Warrantee. Excluding all material related to the FS91 to GIB microwave link.	\$ 318,401.08	Includes Sales Tax
B.2	Services to aquire FCC licenses, prepair the sites, install and configure the equipment, test and commission the system. Excluding all services related to the FS91 to GIB microwave link.	\$ 189,869.92	
C.1	Support for five years of total system	\$ 264,797.00	
C.2	Support for five years of the system less the new FS91/GIB mcirowave, but including the	\$ 239,797.00	
<b>Base system and support bundled, (A1+A2+C1)</b>		<b>\$ 819,734.50</b>	
<b>Base with receivers and support bundled, (A1+A2+A3+C1)</b>		<b>\$ 914,553.36</b>	
<b>Total system and support without microwave bundled, (B + C2)</b>		<b>\$ 748,068.00</b>	
<b>Total system and support without microwave bundled, (B + A3 + C2)</b>		<b>\$ 842,886.87</b>	

## Contractors Fee

Commline Inc. charges a 10% contractors fee to account for sow, insurance, and any change orders.



## Exhibit A – Statement of Qualifications

# Exhibit A

## BIDDER'S STATEMENT OF QUALIFICATIONS

For ITB 2024-001 Montecito Fire Simulcast Land Mobile Radio System Upgrade

Name of Bidder: Commline, Inc.

Address of Principal Office: 13700 Cimarron Ave.,  
Gardena, CA 90249

1. Organization structure: individual , a partnership , a corporation , an LLC or a joint venture  (Check as applicable)

2. Are you registered as a contractor or subcontractor with the California Department of Industrial Relations? Yes

Registration No.: 1000042736 Registration Expiration Date: 6/30/26

**BIDDER MUST SUBMIT PROOF OF CONTRACTOR REGISTRATION WITH THE DIR IN THE FORM OF A HARD COPY OF THE RELEVANT PAGE OF THE DIR'S DATABASE FOUND AT:**

<https://efiling.dir.ca.gov/PWCR/Search>

3. How many years has your organization been in business as a Contractor under your present business name? 40

4. Organization years of experience with work similar to this project? 35. Experience with Public Agencies? 35

5. On a separate sheet, provide examples of three (3) projects of similar type, size, scope, and complexity. For each Project, briefly describe the following (each project and its description shall not exceed one page):

- A description of project and services provided by your firm
- Location
- Year completed
- Project cost
- Provide reference information, including contact information, for the Project owner, the owner's representative, and the Architect. Briefly describe each reference's role and responsibility and everyday interaction with your project team

6. Provide a statement about your firm and your team relative to the expertise and experience of the construction firm and key personnel that will likely be involved in the project. In addition, it would be helpful to know what tasks each key personnel will be responsible for as the project progresses.

Commline has designed, installed, and maintained systems for public and private entities throughout California. Its team consists of experienced and knowledgeable individuals who come from a variety of backgrounds and expertise. Jeff Fukasawa to act as Project Manager and primary contact point as he manages and oversees all aspects of the project, and will be the final arbiter on decision-making required by the team. Victor Bowers to act as Director of Services and technical lead, and he will be responsible for reviewing any technical specifications or adjustments and report requested changes to Project Manager. He will ensure everything is being done according to scope and specifications.

7. Provide a description of the firm’s past experience with, and protocols for, pre-construction plan review and value engineering.

Throughout all of its projects, Commline maintains and tracks all stages of the project, which includes pre-construction and value-engineering review. Commline maintains its own risk management, WBS, and system staging plan, which are live documents that provide the project manager with information on all tasks to monitor critical path and near critical path activities that affect project execution and delivery. Pre-construction plan also utilizes team's ability and commitment to complete work in accordance with department guidelines, which can include initial development zoning and construction drawings related to geotechnical reports and studies. Commline will also furnish preliminary construction drawings, bills of material, and site information to Montecito FD.

8. Have you, your organization, or any officer or partner thereof, not completed a contract for any reason, including instances when your organization did not complete a contract due to termination or dispute between the parties? No

If yes, please provide details (use additional sheets if necessary).

9. Is your organization involved in any dispute resolution processes, including claims or litigation pending against your organization or initiated by your organization? No

If yes, please provide details (use additional sheets if necessary).

10. Has your organization been involved in any bankruptcy or insolvency proceedings in the last ten years? No

If yes, please provide details (use additional sheets if necessary).

The undersigned bidder represents and warrants that the foregoing information is true and accurate.

  
\_\_\_\_\_  
Signature of Bidder

5/01/24  
Date

Jeff Fukasawa, Vice President  
Name/Title

## Exhibit A: Commline Project History, Montecito Fire Simulcast Land Mobile Radio System Upgrade

**City of Downey Public Safety****Commline's Role**

Commline acted as prime contractor as well as integrator and equipment installer. Commline now continues ongoing service, installation, and consultation.

**Project Description**

Commline was contracted to be a consultant in technology for the City of Downey.

As per the recommendation contained in the City (Telestate Report), Commline performed all upgrades, and oversaw the transition plan, integration, and deployment of Communications for the City.

**Upgrade Legacy System**

Upgrade/Install/Integrate (24) Tait TB 9400.

Transmitters/Receivers at six Sites throughout LA County Operational Area E.

Completed a ground up installation of a 50' temporary tower at the temporary dispatch location at "Back 20 Lot", and subsequent successful removal.

Completed installation of a new 80' Saber self-supporting tower at Fire Station 1.

Completed successful transition from Analog Conventional to P25 Conventional.

Successfully upgraded each site with -48 VDC battery backup plant

Completed programming and coordination of subscriber units throughout area E.

Installation and Integration of all subscribers for Police and Fire. (L3 Harris Portables, Kenwood Mobiles, Motorola APX).

**Location:** City of Downey Fire Department, 12222 Paramount Blvd, Downey, CA 90242

**Year Completed:** 2019

**Project Cost:** \$3,500,000.00

**Reference Information:**

**City Representative:** Dan Hurlock, City of Downey

(562) 904-7301

[dhurlock@downeyca.org](mailto:dhurlock@downeyca.org)

**Project Manager:** Jeff Fukasawa, Commline, Inc.

(310) 390-8003 Ext. 112

[Jeff.fukasawa@commlineinc.com](mailto:Jeff.fukasawa@commlineinc.com)

**Director of Services:** Victor Bowers, Commline, Inc.

(310) 390-8003 Ext. 125

[Victor.bowers@commlineinc.com](mailto:Victor.bowers@commlineinc.com)



## Exhibit A: Commline Project History, Montecito Fire Simulcast Land Mobile Radio System Upgrade

**South Bay Regional Public Communications Authority (SBRPCA)****Commline's Role**

Commline, Inc. functioned as consultant on multi-year project that included microwave upgrade, P25 RF IP Voting Upgrade, Avtec Scout Console Upgrade, and integration. Commline performed as the prime contractor, integrator, and equipment installer. Commline now continues ongoing service, installation, and consultation services to the Authority.

**Project Description**

Commline worked closely with SBRPCA in consulting, design, grant funding, and implementation for SBRPCA infrastructure upgrade. The three-phase project was as follows:

**TAIT IP Voting Project**

Upgrade/Install/Integrate (110) Tait TB 9100 Transmitters/Receivers

Convert hardware-based AstroTAC Voting to IP based Software Defined Voting

Integrate New IP Base Stations, Collocated with Old Telco-connected Base Stations

Coordinated "Live System" transition plan for Cutover and Functional ATP

Successfully completed integration with existing Console/Transition Plan to Avtec

Eliminate the need for (3) Sites (Savings of \$200k annually)

Coordinate and Add PCT Site/Microwave to increase coverage to the City of El Segundo

Determined need for replacement RF distribution hardware to be included as part of P25 upgrade, resulting in realization of economies of scale for cost savings to the Project.

**Location:** South Bay Regional Communications Authority, 4440 W. Broadway, Hawthorne, CA 90250

**Year Completed:** 2018

**Project Cost:** \$7,000,000.00

**Reference Information:**

**City Representative: John Krok, SBRPCA**

(310) 973-1802

[jkrok@rcc911.org](mailto:jkrok@rcc911.org)

**Project Manager: Jeff Fukasawa, Commline, Inc.**

(310) 390-8003 Ext. 112

[Jeff.fukasawa@commlineinc.com](mailto:Jeff.fukasawa@commlineinc.com)

**Director of Services: Victor Bowers, Commline, Inc.**

(310) 390-8003 Ext. 125

[Victor.bowers@commlineinc.com](mailto:Victor.bowers@commlineinc.com)



Exhibit A: Commline Project History, Montecito Fire Simulcast Land Mobile Radio System Upgrade

**City of San Luis Obispo**

**Commline’s Role**

Commline, Inc. was primary contractor, integrator and equipment installer, Commline now continues ongoing service, installation, and consultation.

**Project Description**

Commline was contracted to upgrade, install, and integrate Tait IP P25 Conventional and Analog Voted System.

(6) Sites and over (60) Tait TB 9400 Transmitters/Receivers to Tait IP P25 Conventional and Analog Voted System.

FCC Licensing and Coordination of new sites and emissions

Coordinate “Live System” transition plan for Cut over and ATP, including the existing Avtec Console Dispatch.

Integration existing Avtec Scout Console equipment (9) Dispatch positions.

Installation of new temporary 40’ pole, with installation of (2) VHF and (2) UHF antenna system.

Transition system from Analog Conventional to P25 Conventional.

**Location:** City of San Luis Obispo, 900 Palm St., San Luis Obispo, CA 93401

**Year Completed:** 2022

**Project Cost:** \$800,000.00

**Reference Information:**

**City Representative:** Josh Erquiaga, City of San Luis Obispo

(909) 864-5050

[Jerquiag@slocity.com](mailto:Jerquiag@slocity.com)

**Project Manager:** Jeff Fukasawa, Commline, Inc.

(310) 390-8003 Ext. 112

[Jeff.fukasawa@commlineinc.com](mailto:Jeff.fukasawa@commlineinc.com)

**Director of Services:** Victor Bowers, Commline, Inc.

(310) 390-8003 Ext. 125

[Victor.bowers@commlineinc.com](mailto:Victor.bowers@commlineinc.com)



### Contractor Information

**Legal Entity Name**

COMMLINE, INC.

**Legal Entity Type**

Corporation

**Status**

Active

**Registration Number**

1000042736

**Registration effective date**

07/01/23

**Registration expiration date**

06/30/26

**Mailing Address**

13700 CIMARRON AVE. GARDENA 90249 CA Unite...

**Physical Address**

13700 CIMARRON AVE. GARDENA 90249 CA Unite...

**Email Address**

james.jun@commlineinc.com

**Trade Name/DBA**

**License Number (s)**

CSLB:1053086

### Registration History

Effective Date	Expiration Date
08/30/17	06/30/18
09/19/16	06/30/17
05/20/19	06/30/19
09/20/19	06/30/21
07/01/21	06/30/23
07/01/23	06/30/26

### Legal Entity Information

**Corporation Entity Number:**

C2139987

**President Name:**

James Jun

**Vice President Name:**

**Treasurer Name:**

**Secretary Name:**

**CEO Name:**

Agency for Service:

**Agent of Service Name:**

James Jun

**Agent of Service Mailing Address:**

13700 Cimarron Ave Gardena 90249 CA

### Worker's Compensation

**Do you lease employees through Professional Employer Organization (PEO)?:**

No

**Please provide your current worker's compensation insurance information below:**

PEO InformationName	PEO	Paychex	PEO	PEO
			Phone	Email

Insured by Carrier

**Policy Holder Name:**

**Insurance Carrier:**

**Policy Number:**

**Inception date:**

**Expiration Date:**

July 22, 2024 - Regular Pg. 80  
Compline

Falls Lake

FLA01835

02/01/23

02/01/24



## Attachment A – Specification Sheets

# High performing, multi-mode base stations for mission critical networks.

The Tait TB9400 "High level" base station is a multi-mode platform for analog conventional, MPT, DMR and P25 systems.

It provides both digital frequency and time division multiple access for FDMA and TDMA operations.

The TB9400 offers a spectrally efficient solution, enabling migration path between modes, with greater capacity and thus future proof your investment. It delivers operational efficiency through features such as internal voter capability, Linear Simulcast Modulation (LSM) and remote network management.



## KEY FEATURES

- Multi-mode platform supporting Analog Conventional, AS-IP (Analog Simulcast over IP), MPT, DMR Conventional and Trunking, P25 Conventional and P25 Trunking modes
- Simple change of mode through the web interface, or program complex operations with TaskBuilder
- Dual mode automatic switching between Analog and P25 conventional
- Dual mode automatic switching between Analog and DMR Tier 2 (single repeater)
- P25 and analog conventional simplex and DFSI support for ease of migration
- Adherence to P25 standards Phase1 and Phase2 (ultra-narrowband 6.25 kHz) for interoperability
- Tait DMR Access and Express solution compatible
- Simulcast and Voting in AS-IP, DMR and P25 networks
- DMR fallback into single site operation
- Linear Simulcast Modulation (LSM) to increase P25 coverage efficiency
- Migration capability from Tait AS-IP to P25 Conventional network, with dual mode, simplex and DFSI capabilities or to Tait DMR simulcast
- Analog line (supporting 4 wire E&M) in analog mode for RF linking connection and local console support
- Efficient system infrastructure scalability based on IP network connectivity
- Extensive range of remote management and monitoring capabilities with a security focus
- Built-in basic spectrum analyzer provides on-site diagnostics
- Modular structure offers variety of build options to satisfy serviceability or space constraints
- Designed to military standard MIL-STD-810G

# TB9400

## SPECIFICATIONS

### FEATURES AND BENEFITS

#### Delivering on operational needs

- Flexible network design through IP connectivity and linking
- TB9100 channel group compatibility mode
- Transfer data and voice across a packet-switched infrastructure using standard IP communications
- Robust design provides mission-critical voice communications
- P25/DMR Voice over IP (VoIP) support
- Cornerstone of a Tait P25 software-upgradable system
- Quality of Service (QoS) assignments for voice and signalling to allow optimal network packet routing
- Simulcast and Voting solutions for analog conventional, DMR Tier 2 and Tier 3, P25 conventional and trunking systems
- Built-in optional central voting facility selects the best quality signal for transmission
- LSM support means digital P25 simulcast networks require fewer sites
- C4FM simulcast operation
- Multi-DFS support with full control or audio connectivity only in P25 and analog conventional modes
- Simplex support with antenna relay management in P25 and analog conventional modes
- Analog line support in analog conventional mode for console and system connectivity as well as relay and RF linking configurations
- Built-in Continuous Wave Identification (CWID) generation meets FCC call-sign requirements
- Remote software downloads with no impact to operations
- Built-in basic spectrum analyzer provides on-site diagnostics, by way of plotting signal level
- Control, customize, and enhance base station operations with TaskBuilder, by creating rules that extend the functionality of the base station. Rules can control channel changes, digital outputs, timers, and alarms, based on events and external signals

#### Resiliency to manage risk and enhance safety in challenging environments

- Dual software image support for fast rollback
- Dual diversity not required due to Simulcast and automatic macro diversity
- Integrated Web https secured application to remotely monitor, diagnose and configure
- Tait smart power supply with auto change from AC to DC for easy battery back-up
- Rated for continuous full output power at 60°C ambient
- Rugged construction with efficient heatsinks and front-to-rear fan-forced cooling
- Meets relevant MIL-STD-810G test methods

#### Designed to support effective deployment

- Compact modular design to minimize rack space and improve serviceability
- Migration paths between analog/ P25 conventional/ P25 trunked networks with extensive re-use
- Migration paths from analog/ MPT networks to DMR with extensive re-use
- Front panel user interface to set device IP address, where required

#### Delivers on Public Safety

- Benefit from the spectral efficiency, multi-vendor interoperability, security, migration and data capability demanded by P25 standards
- Designed and tested with the DMR Tier 2 Conventional and Tier 3 Trunking standards to provide customers with choice of vendor and equipment
- 6.25 kHz equivalent 2-slot TDMA for both voice and data offers spectral efficiency operation
- Ongoing communications during an outage with failsoft
- Tested using the CAP certification program, providing confidence of multi-vendor interoperability

#### Efficient management with a focus on security

- Remote network management utilizing built-in secure https web server and SNMP V3 support
- Detailed alarm monitoring and reporting of critical base station/repeater parameters
- 12 digital inputs to monitor external equipment
- Inbuilt diagnostics to allow technicians to remotely confirm optimal operation and identify network faults
- Enhanced security through password protection and access level control on web server
- Multiple user accounts
- System logs to provide audit records
- Ability to configure 4,000 channels to allow single configuration across sites

#### Future-proofed to protect your investment

- Software configurable, including mode and feature upgrades through software licenses as required
- Software upgradeable to add new features and functionality to ensure that your analog, DMR, or P25 solution is maintained and updated with the ever-changing needs of your market and environment

#### Wide range of configuration options available

- Configurable as a single channel 100W or 50W unit, or a dual channel 50W unit, with a range of DC and AC power supply options

*This document refers to the TB9400 range, including the TB9415, TB9435, TB9444, TB9460, and TB9465.*

*For more details on these products, please see the TB9400 Catalog.*

# TB9400

## SPECIFICATIONS



### FREQUENCY BANDS

Frequency	Range	Tait Band	Configuration
VHF	136-174MHz	B1	50W & 100W
UHF	378-420MHz	HH	50W & 100W
	400-440MHz	H1	50W & 100W
	440-480MHz	H2	50W & 100W
	470-520MHz	H3	50W & 100W
700/800MHz	Tx: 762-870MHz <sup>1</sup> , Rx: 794-824MHz	K4	50W & 100W

\* The actual Tx frequency coverage in this band is 762-776MHz, and 850-870MHz

### REGULATORY

USA (CFR 47)	<b>P25, Analog FM</b> B1, HH, H1, H2, H3, K4
Canada (RSS-119)	B1, HH, H1, H2, K4
Europe (EN300-113, EN300-086, EN301-489)	B1 <sup>1,2</sup> , H1, H2 <sup>1</sup> , H3
Australia/New Zealand (AS/NZS4768)	B1 <sup>1,2</sup> , H1, H2 <sup>1</sup> , H3

#### P25, Analog FM

B1, HH, H1, H2, H3, K4  
B1, HH, H1, H2, K4  
B1<sup>1,2</sup>, H1, H2<sup>1</sup>, H3  
B1<sup>1,2</sup>, H1, H2<sup>1</sup>, H3

#### DMR

B1, H1, H2, H3, K4  
B1, H1, H2, K4  
B1<sup>1,2</sup>, H1, H2<sup>1</sup>, H3  
B1<sup>1,2</sup>, H1, H2<sup>1</sup>, H3

### INTERFACE STANDARDS

Digital Protocol (DMR)	ETSI TS 102 361-1 V2.6.1, ETSI TS 102 361-2 V2.5.1, ETSI TS 102 361-3 V1.3.1, ETSI TS 102 361-4 V1.12.1
General System Design	ETSI TR102 398 V1.5.1

<sup>1</sup> CE EN300086 Wideband Approved

<sup>2</sup> EN301929 Marine Wideband Approved on 100W B1 model

### GENERAL

#### Radio specifications

Frequency stability	±0.5 ppm
Channels	4,000
Channel spacing	12.5 kHz and 25kHz** in analog Phase 1 - FDMA channel is 12.5kHz, and Phase 2 - 2 TDMA voice channels is 6.25 kHz equivalent in P25
Frequency increment/channel step	VHF 2.5kHz/3.125kHz, UHF 5kHz/6.25kHz, 700/800MHz 5kHz/6.25kHz
External frequency reference	10 MHz/12.8 MHz (auto detect)

#### Physical specifications

Dimensions (HxWxD)	7 x 19 x 15.8 in (177 x 483 x 400 mm) 4U rack space
Weight	Single 100 W: 46.5 lb (21.1 kg) Dual 50W : 54.7lb (24.8kg) Single 50W 43.2lb (19.6kg)
Operating temperature	-22°F to +140°F (-30°C to +60°C)

#### Power specifications

Power Supply	
DC	12V, 24V, 48V, PMU (+ve or -ve earth)
AC	88-264V (with Power Factor Correction)

#### Power consumption\* (UHF)

	120VAC	230VAC	12VDC	24VDC	48VDC
Standby (Single 50 and 100 W)	0.370A, 30W	0.510A, 31W	2A, 24W	0.975A, 23W	0.480A, 23W
Tx @ 50W Single	1.9A, 235W	1.1A, 220W	18A, 216W	9A, 216W	4.2A, 202W
Tx @ 100W	3.3A, 395W	1.7A, 375W	32A, 385W	15.5A, 370W	7.4A, 355W

\* Note Transmitter: These figures are specific to UHF, for other bands consult the product specification manual.

\*\* When P25/AS-IP capable firmware is loaded (not available with DMR/Analog firmware)

### MILITARY STANDARDS 810G

Applicable MIL-STD	Method	Procedure
Low pressure (Altitude 15,000ft (4,572m))	500.5	2
Humidity	507.5	2
Vibration	514.6	1
Shock	516.6	1

### ANALOG LINE

	Input	Output
Audio interfaces	600Ω Balanced	600Ω Balanced
Audio interface level	-30dBm to 0dBm nominal (300Hz to 2,550Hz)	-30dBm to 0dBm nominal (300Hz to 2,550Hz)
Frequency response	+0.5/-2.0dB re. 1kHz (300Hz to 3,000Hz)	
Passband ripple	-3 ~ +1dB	-3 ~ +1dB
Audio distortion	<3% typical (line to RF)	<3% typical (RF to line)

# TB9400

## SPECIFICATIONS

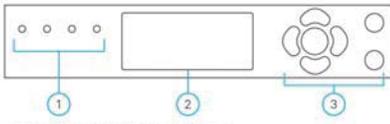
### TRANSMITTER

Modulation types	FM, C4FM, LSM, H-DQPSK, FFSK, 4FSK
P25 Modulation fidelity (TIA-102)	<2%
Adjacent channel power	-60dBc (ETSD) and -67dBc (TIA-102)
<b>Conducted spurious emissions</b>	
VHF	<-36dBm 9kHz to 1GHz and <-30dBm 1GHz to 4GHz
UHF	<-36dBm 30MHz to 1GHz and <-30dBm 1GHz to 4GHz/12.75GHz
700/800/900MHz	<-20dBm to 9GHz
<b>Output power</b>	
50W	Programmable 5-50W
100W	Programmable 10-100W
Duty cycle	100%

### RECEIVER

Modulation types	C4FM, H-CPM, Analog FM, FFSK, 4FSK
Radiated spurious emissions	<-57dBm EIRP to 1GHz
Conducted spurious emissions	<-90 dBm to 1GHz
<b>P25 (TIA102)</b>	
Sensitivity	0.22µV (-120 dBm) @ 5% BER
Intermodulation response attenuation	85dB
Adjacent channel rejection	60dB
Co-channel rejection	9dB
<b>DMR</b>	
Unfaded sensitivity ETS 300 113	
Typical	-119dBm (0.25µV) @ 1% BER
Selectivity ETS 300 113	
@ 1% BER	≥82dB (VHF), ≥79dB (UHF)
Intermodulation response attenuation	≥78dB @ 1% BER unfaded
Blocking rejection	
> 1MHz	100dB @ 1% BER
<b>Analog</b>	
Sensitivity	-120dBm @ 12dB SINAD (0.22µV)
Selectivity (EIA-603)	85dB (VHF & UHF), 79dB (700/800MHz)
Intermodulation	80dB
Spurious response attenuation	≥100dB (ANSI/TIA) and ≥90dB (ETSD)
FM hum and noise	
VHF/UHF	45dB (ANSI/TIA), 50dB (ETSD)
700/800/900MHz	43dB (ANSI/TIA)

### FRONT PANEL



1. Status LEDs
2. 20-character 4-row LCD Display
3. Keypad
4. Flow through ventilation fans x 3 (not pictured)

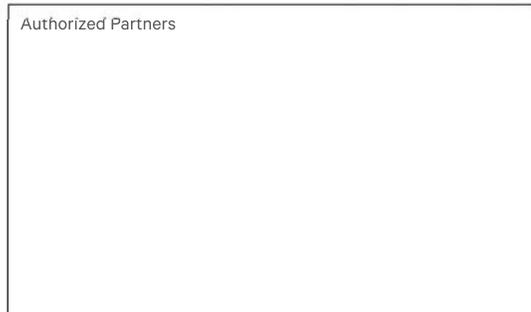
#### TAIT NETWORK SOLUTIONS

Backed up by our proven radio network expertise, the TB9400 is part of our larger network offering. The Tait network solution consists of radio units, infrastructure, applications, services and integration with third party interfaces to ensure that your organization can reap all the benefits of the DMR or P25 standard in a mission critical environment.

Tait has taken every care in compiling this specification sheet, but we're always innovating and therefore changes to our models, designs, technical specification, visuals and other information included in this specification sheet could occur. For the most up-to-date information and for a copy of our terms and conditions please visit our website [www.taitcommunications.com](http://www.taitcommunications.com).

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Tait International Limited offices and facilities are certified for ISO 9001:2015 (Quality Management System), ISO 14001:2015 (Environmental Management System) and ISO 45001:2018 (Occupational Health and Safety Management System) for aspects associated with the design, manufacture and distribution of radio communications and control equipment, systems and services. Tait Managed Services are certified for ISO 27001:2013 (Information Security Management System).



# SNV-12™

## SIGNAL-AND-NOISE VOTER COMPARATOR



### OVERVIEW

The SNV-12 modular receiver voting system, long the industry leader due to capability and reliability, now can accept voting receiver audio backhauled via IP. Our SVM-3 modules, along with the QMT remotes at the receiver sites, reliably handle the challenges that network delays and jitter add to the voting process. SVM-3 modules can be plugged into existing SNV-12 chassis alongside current SVM-2 modules for flexible, low cost incremental upgrades. The SNV-12 uses Digital Signal Processing to continuously monitor multiple remote receiver sites and select the receiver with the best signal quality.

A typical application is an LMR system in which mobiles and portables can hear a repeater but the repeater can't hear them, due to their lower transmit power and/or the antenna size or placement. Remote receivers can be positioned in the communications dead spots, with audio from each receiver linked to the voter via IP network, T1 microwave, IP Fiber, landline, twisted pair, RF link, or fiber optics. The voter will select the best quality signal from all unsquelched remote receivers and forward this signal to the repeater for rebroadcast or monitor by a dispatcher, thus providing greater talk back range for the radios.

### SVM-2 ANALOG

The SNV-12 uses a spectral approach to monitor the audio signals from each voting site. These algorithms continuously calculate a 31-discrete step Signal Quality Number for each voting receiver. The SNV-12 monitors all SVMs and votes the site with the best Signal Quality Number. This thorough voting process ensures the best site is voted even if the received signal is transmitted by a vehicle currently moving behind buildings or between remote receiver sites.

SVM-2 modules are used to connect to non-IP legacy backhaul (RT line or phone line, RF link, T1 telco, microwave). One SVM-2 module connects to one receiver site (up to 12 per chassis).

### SVM-3 IP BACKHAUL

The SNV-12 IP Backhaul capability is backwards compatible with SNV-12 analog voters already deployed. The SVM-3 module, along with a QMT-1B unit (for Quality Measurement & Transport), allows the use of IP networks for transport of receive and transmit audio.

SVM-3 modules can coexist in an SNV-12 chassis along with SVM-2 modules. The SVM-3 also allows front panel force vote and force disable, just like the SVM-2.

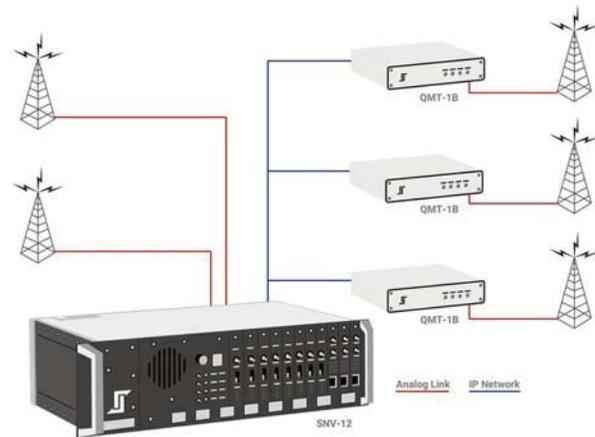
SVM-3 modules can connect to up to three receiver sites, each co-located with a QMT, for a total of 36 sites in a fully-IP chassis. More commonly, SVM-2s and SVM-3s reside together in an SNV-12 chassis.

### KEY BENEFITS

- + Enables the creation of extremely flexible cost-effective radio voting networks
- + If leased lines are no longer available, allows existing SNV-12 voters to be upgraded to use existing private networks
- + Brings audio to/from your remote sites using your IP network, IP microwave, or conventional analog backhaul
- + Automatically synchronizes all incoming audio
- + Accurately captures receiver's audio and noise qualities at remote site prior to encoding into RoIP
- + Expandable to 60 sites
- + Continuously monitors IP Links, loss triggers a fault and removes site features from voting consideration until link is restored
- + System statistics and ability to monitor voted audio available via IP

## APPLICATIONS

The SNV-12 voting criteria may be easily optimized to suit individual systems. DSP voice detection capability allows automatic faulting of receivers with inappropriately open squelches. The voting process is initiated whenever any receiver is unsquelched, signaled either by a loss of idle tone or by a hardwired COR output or multiplexer E-lead; individually configurable on each SVM-2.



## THE ROLE OF THE QMT-1B

Network delays and jitter create challenges to traditional analog voting which requires time-synchronized signals from multiple voting receivers. These challenges are capably handled by the combination of the QMT-1B and the SVM-3, in conjunction with updated software in the CPM-3 Control Processor Module.

When an unsquelch condition occurs, the QMT-1B measures signal quality and converts the analog audio to IP for transfer to the SVM-3. The SVM-3 works in conjunction with the CPM-3 to monitor arrival timing of incoming audio. This allows the voted signals to be resynchronized for accurate voting and switching between sites during a voting sequence. The QMT-1B is available in single-channel or a rackmount multicircuit version.



## SPECIFICATIONS

### Size

5.25"H x 19" W x 11" D (13.3 x 48.3 x 28 cm)

### Voting

SVM-2 implements both Lowest Noise (FM) and Highest Signal-to-Noise (AM or HF) voting. SVM-3 implements Lowest Noise (FM) voting.

### Input Power

115 or 230 VAC +/- 15%, 47-63 Hz, 130 VA maximum for 'fully loaded' chassis; +11 to +15 VDC @5A nominal

### Network Interface

RJ-45 Connector; 10/100 Base-T Ethernet, Web Configuration, Telnet



Antennas  
 Low Band, Aviation, and VHF Antennas  
 SD210R-L - PIM Certified Series

SD210R-SF2P90LDF(S) Low PIM VHF reflector, 90° beamwidth, 138-174MHz

- 90 degrees horizontal beamwidth for VHF simulcast applications
- Single dipoles with 5.5 dB of gain
- Broadband operation, covering 138-174 MHz full band
- Unique design for low passive intermodulation

The SD210R-L series antenna is a rugged exposed dipole antenna with corner reflector which covers the entire 138-174 MHz range. Because of its broadband operation, it is an excellent antenna for multicoupling several systems or for use with widely spaced duplex frequencies. 60, 90 or 120 degrees horizontal beamwidth available for different sectorized coverages.

One, two or four bay stacked dipoles are available for different gains. The reflectors are two separate flat screens which can be disassembled for shipping and assembled on site conveniently.

This antenna is to be side mounted only. Please order the antenna with proper beamwidth and gain for your system using model numbers given in the following application notes.

**Application Notes**

- Model number SD210R-SF2PALDF-One dipole, beamwidth:  
 A=60, 60 degrees  
 A=90, 90 degrees  
 A=120, 120 degrees



www.sinctech.com

Region	United States	Europe, Middle East and Africa	Caribbean and Latin America	Canada and rest of the world
Telephone	USA: 1 800 263 3275	International: +44 (0) 1487 84 28 19	International: +1 905 726 7676	Canada: 1 800 263 3275 International: +1 905 727 0165
E-mail	salesusa@sinctech.com	salesuk@sinctech.com	salesla@sinctech.com	salescan@sinctech.com



## Low Band, Aviation, and VHF Antennas SD210R-L - PIM Certified Series

### Electrical Specifications

Frequency Range	MHz	138 to 174
Connector		7/16 DIN-Female
Gain (nominal)	dBd (dBi)	5.5 (7.6)
VSWR (max)		1.5:1
Polarization		vertical
Impedance	$\Omega$	50
Pattern		Directional
Horizontal beamwidth (typ)	degrees	90
Vertical beamwidth (typ)	degrees	72
Average Power Input (max)	W	300
Passive intermod. (2x20W, 3rd ord.)	dBc	-150
Lightning protection		DC ground
Front-to-back ratio (typ)	dB	20

### Notes

- \*1 : Qty 2 Required.
- \*2 : Shipped in two boxes.

### Mechanical Specifications

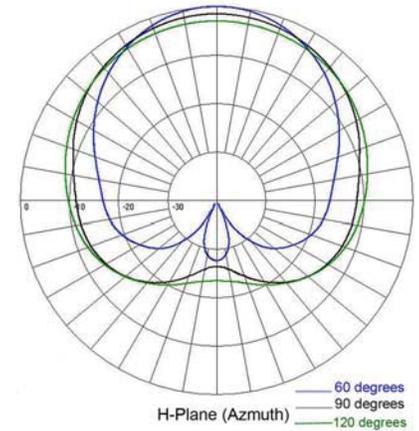
Width	in (mm)	54 (1372)	
Depth	in (mm)	28 (711)	
Length/ Height	in (mm)	60 (1524)	
Base pipe diameter	in (mm)	1.9 (48)	
Weight	lbs (kg)	38 (17.25)	
Weight iced (1/2" ice)	lbs (kg)	91 (41.31)	
Mounting Hardware (Optional)		Clamp006A or Clamp130	*1
Estimated Shipping Weight	lbs (kg)	71 (32.23)	
Shipping dimensions	in (mm)	66x6x38 (1676x152x965)	*2
Mounting configurations		side mount	

### Environmental Specifications

Temperature range	$^{\circ}\text{F}$ ( $^{\circ}\text{C}$ )	-40 to +140 (-40 to +60)
Wind Loading Area (Flat Plate Equivalent)	ft <sup>2</sup> (m <sup>2</sup> )	3.72 (0.35)
Wind Loading Area (1/2" ice)	ft <sup>2</sup> (m <sup>2</sup> )	6.95 (0.65)
Rated wind velocity (no ice)	mph (km/h)	170 (274)
Rated wind velocity (1/2" radial ice)	mph (km/h)	125 (201)
Lateral thrust (100 mph No Ice)	lbs (N)	135 (600.5)
Torsional moment (100 mph No Ice)	ft-lbs (Nm)	129 (174.2)

### Ordering Information

Please contact Sinclair CSR to order mounting clamps.



Region	United States	Europe, Middle East and Africa	Caribbean and Latin America	Canada and rest of the world
Telephone	USA: 1 800 263 3275	International: +44 (0) 1487 84 28 19	International: +1 905 726 7676	Canada: 1 800 263 3275 International: +1 905 727 0165
E-mail	salesusa@sinctech.com	salesuk@sinctech.com	salesla@sinctech.com	salescan@sinctech.com

# Filter Ferrite Transmitter Combiner

## Electrical Specifications

Frequency Band	148-174 MHz
Freq. Spacing (Min.)	200 kHz
Number of Channels	2
Power Per Channel (Max.)	125 W
Insertion Loss Tx (Max. / Typ.)	2.3 / 1.9 dB
Isolation Ant-Tx (Min. / Typ.)	60 / 70 dB
Isolation Tx-Tx (Min. / Typ.)	70 / 80 dB
Impedance (Nom.)	50 $\Omega$
VSWR I/O (Max.)	1.1:1 / 1.25:1
Isolator Stage	Dual
RF Connectors	N Female

## Mechanical Specifications

Finish	Gray Paint
Rack Mount	19" EIA
Cavity Body Dimensions (WxD)	4" x 4" (102 x 102 mm)
Overall Size (HxWxD)	36.5" x 19" x 6" (927 x 483 x 152 mm)
Ship Weight	30 lbs (13.6 kg)

## Environmental Specifications

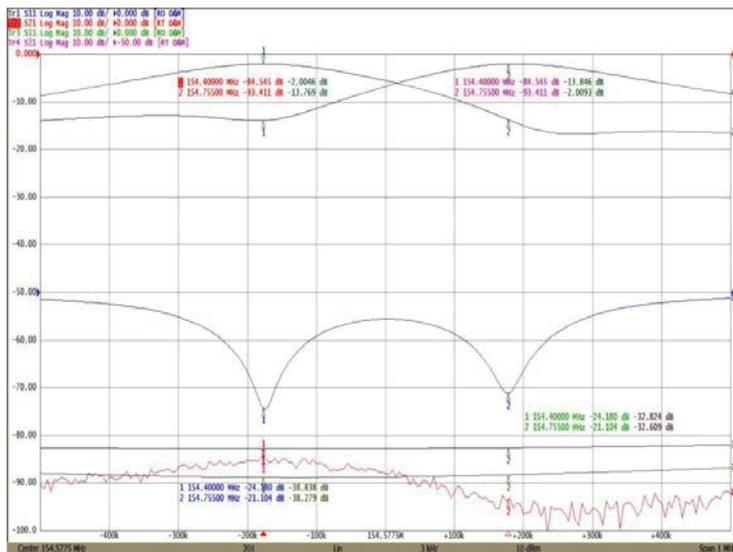
Operating Temp. Range	-22 to 140 °F (-30 to +60 °C)
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EMR Filter-Ferrite Transmitter Combiners use space saving, High-Q square cavity resonators, and wideband isolators providing lower insertion loss than hybrid designs. Standard units are mounted to a 19 inch EIA rack. Multiple mounting and free standing configurations available.

## Product Features

- High-Q Square Cavities
- Low Insertion Loss
- 5 Year Warranty



# PTP 820C Licensed Microwave Radio

## QUICK LOOK:

**PTP 820C, an all Outdoor dual-core radio capable of 1024 QAM with ACM**

- Support 6-38 GHz
- Support 1+0 to 4+0, 1+1/2+2, 2 x 1+0 East-West configuration
- Support Multi Band(With PTP 850E or PTP 820E)



### Radio

6-38 GHz

1+0 to 4+0, 1+1/2+2, 2 x 1+0 East-West

Multi Band(With PTP 850E or PTP 820E)

### Radio Features

Multi-Carrier Adaptive Bandwidth Control (up to 2+0)

Protection: 1+1/2+2 HSB, 1+1 HSB-SD

QPSK to 2048 QAM w/ACM

XPIC

2x2 / 4x4 MIMO

Advanced Space Diversity (ASD)

Advanced Frequency Reuse (AFR)

### Ethernet

#### Ethernet Interfaces

Traffic Interfaces – 1 x 10/100/1000Base-T (RJ-45) and 1x1000base-X (SFP) or 10/100/1000 Base-T (electrical SFP)

Management Interface - 1 x 10/100 Base-T (RJ-45)

Optical SFP Types - Optical 1000Base-LX (1310 nm) or SX (850nm)

Note: SFP devices must be of industrial grade (-40°C to +85°C)

#### Ethernet Features

MTU – 9600 Bytes

Quality of Service

Multiple Classification criteria (VLAN ID, p-bits, IPv4, DSCP, IPv6 TC, MPLS EXP)

8 priority queues

Deep buffering (configurable up to 64 Mbit per queue)

WRED

P-bit marking/remarking

4K VLANs

VLAN add/remove/translate

Frame Cut Through – controlled latency and PDV for delay sensitive applications

Header De-Duplication – Capacity boosting by eliminating inefficiency in all layers (L2, MPLS, L3, L4, Tunneling – GTP for LTE, GRE)

Y.1731 Ethernet OAM Y.1731 Ethernet Bandwidth Notification (ETH-BN)

Adaptive Bandwidth Notification (ABN)

## PTP 820C Licensed Microwave Radio

### Management Protocols

SNMP

REST

SDN Support: NETCONF/YANG

### Synchronization

Synchronization Distribution

Sync Distribution over any traffic interface (GE/FE)

Sync-E (ITU-T G.8261, G.8262)

SSM/ESMC Support for ring/mesh applications (ITU-T G.8264)

Sync-E Regenerator mode, providing PRC grade (ITU-T G.811) performance for smart pipe applications.

IEEE-1588

Optimized Transport for reduced PDV

IEEE-1588 TC

### Security

AES 256-bit Encryption

Secured protocols (HTTPS, SNMPV3, SSH, SFTP)

Radius authentication and authorization

TACACS+ authentication and authorization (session-based)

### Standard

#### MEF

Carrier Ethernet 2.0 (CE 2.0)

Supported Ethernet Standards

10/100/1000base-T/X (IEEE 802.3)

Ethernet VLANs (IEEE 802.3ac)

Virtual LAN (VLAN, IEEE 802.1Q)

Class of service (IEEE 802.1p)

Provider bridges (Q-in-Q – IEEE 802.1ad)

Link aggregation (IEEE 802.3ad)

Auto MDI/MDIX for 1000baseT

RFC 1349: IPv4 TOS

RFC 2474: IPv4 DSCP

RFC 2460: IPv6 Traffic Classes

### Standards Compliance

EMC: EN 301 489-1, EN 301 489-4, Class B (Europe), FCC 47 CFR, part 15, class B (US), ICES-003, Class B (Canada), TEC/EMI/TEL-001/01, Class B (India)

Surge: EN61000-4-5, Class 4 (for PWR and ETH1/PoE ports)

Safety: EN 60950-1, IEC 60950-1, UL 60950-1, CSA-C22.2 No.60950-1, EN 60950-22, UL 60950-22, CSAC22.2.60950-22

Ingress Protection: IP66-compliant

Storage: ETSI EN 300 019-1-1 Class 1.2

Transportation: ETSI EN 300 019-1-2 Class 2.3

### Technical

#### Mechanical Specifications

Dimensions: 230mm(H), 233mm(W), 98mm(D), 6kg;

9.05”(H), 9.07”(W), 3.86”(D), 12lbs.

#### Pole Diameter Range (for Remote Mount Installation):

8.89 cm – 11.43 cm; 3.5” – 4.5”

#### Environmental Specifications

-33°C to +55°C (-45°C to +60°C extended); -27°F to +131°F (-49°F to +140°F extended)

#### Power Input Specifications

Standard Input: -48 VDC

IDU DC Input range: -40 to -60 VDC

#### Power Consumption Specifications

Maximum Power Consumption (2+0 Operation) 6 GHz: 65W; 7/8 GHz: 75W; 11 GHz: 65W; 13-15 GHz: 55W; 18-24 GHz: 48W; 26-38 GHz: 55W

Maximum Power Consumption (1+0 Operation) –5.7-6 GHz: 40W; 7-8 GHz: 50W; 11 GHz: 53W; 13-15 GHz: 41W; 18-24 GHz: 39W; 26-38 GHz: 41W

#### PoE Injector Mechanical Specifications

Dimensions – 134mm(H), 190mm(W), 62mm(D), 1 kg; 5.28”(H), 7.48”(W), 2.44”(D), 2.2 lbs.

#### PoE Injector Environmental Specifications

33°C to +55°C (-45°C to +60°C extended); -27°F to +131°F (-49°F to +140°F extended)

#### PoE Injector Power Input Specifications

Standard Input: -48 or +24 VDC (Optional)

DC Input range: ±(18/40.5 to 60) VDC (+18VDC extended range is supported as part of the nominal +24VDC support)

#### PoE Injector Interfaces

GbE Data Port supporting 10/100/1000Base-T

Power-Over-Ethernet (PoE) Port

DC Power Port –40V to -60V (a PoE supporting two redundant DC feeds each supporting ±(18-60)V is available)

## PTP 820C Licensed Microwave Radio

Transmit Power (dBm)										
Transmit Power	6 GHz	7 GHz	8 GHz	10-11 GHz	13-15 GHz	18 GHz	23 GHz	24 GHz UL HP	26 GHz	28-38 GHz
<b>QPSK</b>	28	28	28	26	24	22	20	-17	21	18
<b>8 PSK</b>	28	28	28	26	24	22	20	-17	21	18
<b>16 QAM</b>	28	27	27	26	23	21	20	-17	20	17
<b>32 QAM</b>	27	26	26	25	22	20	20	-17	19	16
<b>64 QAM</b>	27	26	26	25	22	20	20	-17	19	16
<b>128 QAM</b>	27	26	26	25	22	20	20	-17	19	16
<b>256 QAM</b>	27	26	24	25	20	20	18	-17	17	14
<b>512 QAM</b>	25	24	24	24	20	18	18	-17	17	14
<b>1024 QAM</b>	25	24	24	23	20	18	17	-17	16	13
<b>2048 QAM</b>	23	22	22	21	18	16	16	-17	15	12

Receive Sensitivity (dBm @BER=10 <sup>-6</sup> )														
3.5 & 5 MHz	6 GHz	7 GHz	8 GHz	10 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	24 GHz	26 GHz	28-31 GHz	32 GHz	38 GHz
<b>QPSK</b>	-96.5	-96.0	-96.0	-95.5	-96.5	-95.5	-94.5	-96.0	-95.0	-94.5	-94.5	-94.5	-94.0	-94.0
<b>16 QAM</b>	-90.0	-89.0	-89.0	-89.0	-89.5	-88.5	-88.0	-89.0	-88.0	-87.5	-88.0	-87.5	-87.5	-87.0
<b>32 QAM</b>	-86.5	-85.5	-85.5	-85.5	-86.0	-85.0	-84.5	-85.5	-84.5	-84.0	-84.5	-84.0	-84.0	-83.5
<b>64 QAM</b>	-83.0	-82.5	-82.5	-82.0	-83.0	-82.0	-81.0	-82.5	-81.5	-81.0	-81.0	-81.0	-80.5	-80.5
<b>128 QAM</b>	-79.5	-79.0	-79.0	-78.5	-79.5	-78.5	-77.5	-79.0	-78.0	-77.5	-77.5	-77.5	-77.0	-77.0
<b>256 QAM</b>	-76.5	-75.5	-75.5	-75.5	-76.5	-75.0	-74.5	-75.5	-75.0	-74.5	-74.5	-74.0	-74.0	-73.5
7 MHz	6 GHz	7 GHz	8 GHz	10 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	24 GHz	26 GHz	28-31 GHz	32 GHz	38 GHz
<b>QPSK</b>	-93.5	-93.0	-93.0	-92.5	-93.5	-92.5	-91.5	-93.0	-92.0	-91.5	-91.5	-91.5	-91.0	-91.0
<b>8 PSK</b>	-87.5	-87.0	-87.0	-86.5	-87.5	-86.5	-85.5	-87.0	-86.0	-85.5	-85.5	-85.5	-85.0	-85.0
<b>16 QAM</b>	-87.0	-86.5	-86.5	-86.0	-87.0	-86.0	-85.0	-86.5	-85.5	-85.0	-85.0	-85.0	-84.5	-84.5
<b>32 QAM</b>	-83.5	-83.0	-83.0	-82.5	-83.5	-82.5	-81.5	-83.0	-82.0	-81.5	-81.5	-81.5	-81.0	-81.0
<b>64 QAM</b>	-80.5	-80.0	-80.0	-79.5	-80.5	-79.5	-78.5	-80.0	-79.0	-78.5	-78.5	-78.5	-78.0	-78.0
<b>128 QAM</b>	-77.5	-76.5	-76.5	-76.5	-77.5	-76.0	-75.5	-76.5	-76.0	-75.5	-75.5	-75.0	-75.0	-74.5
<b>256 QAM</b>	-74.0	-73.5	-73.5	-73.0	-74.0	-73.0	-72.0	-73.5	-72.5	-72.0	-72.0	-72.0	-71.5	-71.5
<b>512 QAM</b>	-72.0	-71.5	-71.5	-71.0	-72.0	-71.0	-70.0	-71.5	-70.5	-70.0	-70.0	-70.0	-69.5	-69.5
<b>1024 QAM (strong FEC)</b>	-68.5	-68.0	-68.0	-67.5	-68.5	-67.5	-66.5	-68.0	-67.0	-66.5	-66.5	-66.5	-66.0	-66.0
<b>1024 QAM (light FEC)</b>	-68.0	-67.0	-67.0	-67.0	-67.5	-66.5	-66.0	-67.0	-66.0	-65.5	-66.0	-65.5	-65.5	-65.0

## PTP 820C Licensed Microwave Radio

Receive Sensitivity (dBm @BER=10-6) - continued															
	10 MHz	6 GHz	7 GHz	8 GHz	10 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	24 GHz	26 GHz	28-31 GHz	32 GHz	38 GHz
<b>QPSK</b>	-92.0	-91.5	-91.5	-91.5	-91.0	-92.0	-91.0	-90.0	-91.5	-90.5	-87.0	-90.0	-90.0	-89.5	-89.0
<b>8 PSK</b>	-87.0	-86.0	-86.0	-86.0	-86.0	-87.0	-85.5	-85.0	-86.0	-85.5	-81.5	-85.0	-84.5	-84.5	-84.0
<b>16 QAM</b>	-85.5	-85.0	-85.0	-85.0	-84.5	-85.5	-84.5	-83.5	-85.0	-84.0	-80.5	-83.5	-83.5	-83.0	-82.5
<b>32 QAM</b>	-82.0	-81.5	-81.5	-81.5	-81.0	-82.0	-81.0	-80.0	-81.5	-80.5	-77.0	-80.0	-80.0	-79.5	-79.0
<b>64 QAM</b>	-79.0	-78.5	-78.5	-78.5	-78.0	-79.0	-77.5	-77.0	-78.5	-77.5	-74.0	-77.0	-77.0	-76.5	-76.0
<b>128 QAM</b>	-75.5	-75.0	-75.0	-75.0	-74.5	-75.5	-74.5	-73.5	-75.0	-74.0	-70.5	-73.5	-73.5	-73.0	-72.5
<b>256 QAM</b>	-72.5	-72.0	-72.0	-72.0	-71.5	-72.5	-71.5	-70.5	-72.0	-71.0	-67.5	-70.5	-70.5	-70.0	-69.5
<b>512 QAM</b>	-70.0	-69.5	-69.5	-69.5	-69.0	-70.0	-68.5	-68.0	-69.5	-68.5	-65.0	-68.0	-68.0	-67.5	-67.0
<b>1024 QAM (strong FEC)</b>	-67.0	-66.5	-66.5	-66.5	-66.0	-67.0	-66.0	-65.0	-66.5	-65.5	-62.0	-65.0	-65.0	-64.5	-64.0
<b>1024 QAM (light FEC)</b>	-66.5	-65.5	-65.5	-65.5	-65.5	-66.5	-65.0	-64.5	-65.5	-65.0	-61.0	-64.5	-64.0	-64.0	-63.5
	14 MHz	6 GHz	7 GHz	8 GHz	10 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	24 GHz	26 GHz	28-31 GHz	32 GHz	38 GHz
<b>QPSK</b>	-90.5	-90.0	-90.0	-90.0	-89.5	-90.5	-89.5	-88.5	-90.0	-89.0	-88.5	-88.5	-88.5	-88.0	-88.0
<b>8 PSK</b>	-84.5	-84.0	-84.0	-84.0	-83.5	-85.5	-83.5	-82.5	-84.0	-83.0	-82.5	-82.5	-82.5	-82.0	-82.0
<b>16 QAM</b>	-83.5	-83.0	-83.0	-83.0	-82.5	-83.5	-82.5	-81.5	-83.0	-82.0	-81.5	-81.5	-81.5	-81.0	-81.0
<b>32 QAM</b>	-80.5	-79.5	-79.5	-79.5	-79.5	-80.5	-79.0	-78.5	-79.5	-79.0	-78.5	-78.5	-78.0	-78.0	-77.5
<b>64 QAM</b>	-77.5	-76.5	-76.5	-76.5	-76.5	-77.0	-76.0	-75.5	-76.5	-76.0	-75.5	-75.5	-75.0	-75.0	-74.5
<b>128 QAM</b>	-74.0	-73.5	-73.5	-73.5	-73.0	-74.0	-73.0	-72.0	-73.5	-72.5	-72.0	-72.0	-72.0	-71.5	-71.5
<b>256 QAM</b>	-71.5	-70.5	-70.5	-70.5	-70.5	-71.0	-70.0	-69.5	-70.5	-69.5	-69.0	-69.5	-69.0	-69.0	-68.5
<b>512 QAM</b>	-68.5	-68.0	-68.0	-68.0	-67.5	-68.5	-67.5	-66.5	-68.0	-67.0	-66.5	-66.5	-66.5	-66.0	-66.0
<b>1024 QAM (strong FEC)</b>	-65.5	-65.0	-65.0	-65.0	-64.5	-65.5	-64.5	-63.5	-65.0	-64.0	-63.5	-63.5	-63.5	-63.0	-63.0
<b>1024 QAM (light FEC)</b>	-65.0	-64.0	-64.0	-64.0	-64.0	-64.5	-63.5	-63.0	-64.0	-63.5	-63.0	-63.0	-62.5	-62.5	-62.0
	20 MHz	6 GHz	7 GHz	8 GHz	10 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	24 GHz	26 GHz	28-31 GHz	32 GHz	38 GHz
<b>QPSK</b>	-89.0	-88.5	-88.5	-88.5	-88.0	-89.0	-88.0	-87.0	-88.5	-87.5	-84.0	-87.0	-87.0	-86.5	-86.0
<b>8 PSK</b>	-84.0	-83.5	-83.5	-83.5	-83.0	-84.0	-83.0	-82.0	-83.5	-82.5	-79.0	-82.0	-82.0	-81.5	-81.0
<b>16 QAM</b>	-82.5	-82.0	-82.0	-82.0	-81.5	-82.5	-81.0	-80.5	-82.0	-81.0	-77.5	-80.5	-80.5	-80.0	-79.5
<b>32 QAM</b>	-79.0	-78.5	-78.5	-78.5	-78.0	-79.0	-77.5	-77.0	-78.5	-77.5	-74.0	-77.0	-77.0	-76.5	-76.0
<b>64 QAM</b>	-76.0	-75.0	-75.0	-75.0	-75.0	-76.0	-74.5	-74.0	-75.0	-74.5	-70.5	-74.0	-73.5	-73.5	-73.0
<b>128 QAM</b>	-73.0	-72.0	-72.0	-72.0	-72.0	-73.0	-71.5	-71.0	-72.0	-71.5	-67.5	-71.0	-70.5	-70.5	-70.0
<b>256 QAM</b>	-70.0	-69.5	-69.5	-69.5	-69.0	-70.0	-68.5	-68.0	-69.5	-68.5	-65.0	-68.0	-68.0	-67.5	-67.0
<b>512 QAM</b>	-67.5	-66.5	-66.5	-66.5	-66.5	-67.5	-66.0	-65.5	-66.5	-66.0	-62.0	-65.5	-65.0	-65.0	-64.5
<b>1024 QAM (strong FEC)</b>	-64.5	-63.5	-63.5	-63.5	-63.5	-64.5	-63.0	-62.5	-63.5	-63.0	-59.0	-62.5	-62.0	-62.0	-61.5
<b>1024 QAM (light FEC)</b>	-63.5	-63.0	-63.0	-63.0	-62.5	-63.5	-62.5	-61.5	-63.0	-62.0	-58.5	-61.5	-61.5	-61.0	-60.5
<b>2048 QAM</b>	-60.0	-59.5	-59.5	-59.5	-59.0	-60.0	-59.0	-58.0	-59.5	-58.5	-55.0	-58.0	-58.0	-57.5	-57.0

### PTP 820C Licensed Microwave Radio

Receive Sensitivity (dBm @BER=10-6) - continued

	25 MHz	6 GHz	7 GHz	8 GHz	10 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	24 GHz	26 GHz	28-31 GHz	32 GHz	38 GHz
<b>QPSK</b>	-87.5	-86.5	-86.5	-86.5	-86.5	-87.0	-86.0	-85.5	-86.5	-85.5	-82.0	-85.5	-85.0	-85.0	-84.0
<b>8 PSK</b>	-82.5	-82.0	-82.0	-82.0	-81.5	-82.5	-81.5	-80.5	-82.0	-81.0	-77.5	-80.5	-80.5	-80.0	-79.5
<b>16 QAM</b>	-80.5	-80.0	-80.0	-80.0	-79.5	-80.5	-79.5	-78.5	-80.0	-79.0	-75.5	-78.5	-78.5	-78.0	-77.5
<b>32 QAM</b>	-77.5	-77.0	-77.0	-77.0	-76.5	-77.5	-76.0	-75.5	-77.0	-76.0	-72.5	-75.5	-75.5	-75.0	-74.5
<b>64 QAM</b>	-74.5	-74.0	-74.0	-74.0	-73.5	-74.5	-73.5	-72.5	-74.0	-73.0	-69.5	-72.5	-72.5	-72.0	-71.5
<b>128 QAM</b>	-71.5	-71.0	-71.0	-71.0	-70.5	-71.5	-70.5	-69.5	-71.0	-70.0	-66.5	-69.5	-69.5	-69.0	-68.5
<b>256 QAM</b>	-68.5	-67.5	-67.5	-67.5	-67.5	-68.5	-67.0	-66.5	-67.5	-67.0	-63.0	-66.5	-66.0	-66.0	-65.5
<b>512 QAM</b>	-66.0	-65.0	-65.0	-65.0	-65.0	-66.0	-64.5	-64.0	-65.0	-64.5	-60.5	-64.0	-63.5	-63.5	-63.0
<b>1024 QAM (strong FEC)</b>	-63.0	-62.5	-62.5	-62.0	-62.0	-63.0	-61.5	-61.0	-62.5	-61.5	-58.0	-61.0	-61.0	-60.5	-60.0
<b>1024 QAM (light FEC)</b>	-62.5	-61.5	-61.5	-61.5	-61.5	-62.5	-61.0	-60.5	-61.5	-61.0	-57.0	-60.5	-60.0	-60.0	-59.5
<b>2048 QAM</b>	-58.5	-58.0	-58.0	-57.5	-58.5	-57.0	-56.5	-56.5	-58.0	-57.0	-53.5	-56.5	-56.5	-56.0	-55.5
	28 MHz	6 GHz	7 GHz	8 GHz	10 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	24 GHz	26 GHz	28-31 GHz	32 GHz	38 GHz
<b>QPSK</b>	-87.5	-87.0	-87.0	-87.0	-86.5	-87.5	-86.5	-85.5	-87.0	-86.0	-85.5	-85.5	-85.5	-85.0	-85.0
<b>8 PSK</b>	-83.0	-82.5	-82.5	-82.5	-82.0	-83.0	-82.0	-81.0	-82.5	-81.5	-81.0	-81.0	-81.0	-80.5	-80.5
<b>16 QAM</b>	-81.0	-80.5	-80.5	-80.5	-80.0	-81.0	-79.5	-79.0	-80.5	-79.5	-79.0	-79.0	-79.0	-78.5	-78.0
<b>32 QAM</b>	-77.5	-77.0	-77.0	-77.0	-76.5	-77.5	-76.0	-75.5	-77.0	-76.0	-75.5	-75.5	-75.5	-75.0	-74.5
<b>64 QAM</b>	-74.5	-74.0	-74.0	-74.0	-73.5	-74.5	-73.0	-72.5	-74.0	-73.0	-72.5	-72.5	-72.5	-72.0	-71.5
<b>128 QAM</b>	-71.5	-70.5	-70.5	-70.5	-70.5	-71.0	-70.0	-69.5	-70.5	-69.5	-69.0	-69.5	-69.0	-69.0	-68.5
<b>256 QAM</b>	-68.5	-67.5	-67.5	-67.5	-67.5	-68.0	-67.0	-66.5	-67.5	-66.5	-66.0	-66.5	-66.0	-66.0	-65.5
<b>512 QAM</b>	-66.0	-65.0	-65.0	-65.0	-65.0	-66.0	-64.5	-64.0	-65.0	-64.5	-64.0	-64.0	-63.5	-63.5	-63.0
<b>1024 QAM (strong FEC)</b>	-63.0	-62.5	-62.5	-62.0	-62.0	-63.0	-61.5	-61.0	-62.5	-61.5	-61.0	-61.0	-61.0	-60.5	-60.0
<b>1024 QAM (light FEC)</b>	-62.0	-61.5	-61.5	-61.0	-61.0	-62.0	-60.5	-60.0	-61.5	-60.5	-60.0	-60.0	-60.0	-59.5	-59.0
<b>2048 QAM</b>	-58.5	-58.0	-58.0	-57.5	-58.5	-57.0	-56.5	-56.5	-58.0	-57.0	-56.5	-56.5	-56.5	-56.0	-55.5
	30 MHz	6 GHz	7 GHz	8 GHz	10 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	24 GHz	26 GHz	28-31 GHz	32 GHz	38 GHz
<b>QPSK</b>	-87.5	-87.0	-87.0	-87.0	-86.5	-87.5	-86.0	-85.5	-87.0	-86.0	-85.5	-85.5	-85.5	-85.0	-84.5
<b>8 PSK</b>	-82.5	-81.5	-81.5	-81.5	-81.5	-82.5	-81.0	-80.5	-81.5	-81.0	-80.5	-80.5	-80.0	-80.0	-79.0
<b>16 QAM</b>	-81.0	-80.0	-80.0	-80.0	-80.0	-80.5	-79.5	-79.0	-80.0	-79.0	-78.5	-79.0	-78.5	-78.5	-77.5
<b>32 QAM</b>	-77.0	-76.5	-76.5	-76.5	-76.0	-77.0	-76.0	-75.0	-76.5	-75.5	-75.0	-75.0	-75.0	-74.5	-74.0
<b>64 QAM</b>	-74.5	-73.5	-73.5	-73.5	-73.5	-74.0	-73.0	-72.5	-73.5	-72.5	-72.0	-72.5	-72.0	-72.0	-71.0
<b>128 QAM</b>	-71.0	-70.5	-70.5	-70.5	-70.0	-71.0	-70.0	-69.0	-70.5	-69.5	-69.0	-69.0	-69.0	-68.5	-68.0
<b>256 QAM</b>	-68.0	-67.5	-67.5	-67.5	-67.0	-68.0	-67.0	-66.0	-67.5	-66.5	-66.0	-66.0	-66.0	-65.5	-65.0
<b>512 QAM</b>	-66.0	-65.5	-65.5	-65.5	-65.0	-66.0	-64.5	-64.0	-65.5	-64.5	-64.0	-64.0	-64.0	-63.5	-63.0
<b>1024 QAM (strong FEC)</b>	-63.0	-62.0	-62.0	-62.0	-62.0	-62.5	-61.5	-61.0	-62.0	-61.0	-60.5	-61.0	-60.5	-60.5	-59.5
<b>1024 QAM (light FEC)</b>	-62.0	-61.0	-61.0	-61.0	-61.0	-62.0	-60.5	-60.0	-61.0	-60.5	-60.0	-60.0	-59.5	-59.5	-58.5
<b>2048 QAM</b>	-58.0	-57.5	-57.5	-57.5	-57.0	-58.0	-56.5	-56.0	-57.5	-56.5	-56.0	-56.0	-56.0	-55.5	-55.0

## PTP 820C Licensed Microwave Radio

Receive Sensitivity (dBm @BER=10-6) - continued															
	40 MHz	6 GHz	7 GHz	8 GHz	10 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	24 GHz	26 GHz	28-31 GHz	32 GHz	38 GHz
<b>QPSK</b>	-86.0	-85.5	-85.5	-85.5	-85.0	-86.0	-85.0	-84.0	-85.5	-84.5	-84.0	-84.0	-84.0	-83.5	-83.5
<b>8 PSK</b>	-81.0	-80.5	-80.5	-80.5	-80.0	-81.0	-79.5	-79.0	-80.5	-79.5	-79.0	-79.0	-79.0	-78.5	-78.0
<b>16 QAM</b>	-79.5	-79.0	-79.0	-79.0	-78.5	-79.5	-78.0	-77.5	-79.0	-78.0	-77.5	-77.5	-77.5	-77.0	-76.5
<b>32 QAM</b>	-76.0	-75.0	-75.0	-75.0	-75.5	-74.5	-74.0	-75.0	-74.0	-74.0	-73.5	-74.0	-73.5	-73.5	-73.0
<b>64 QAM</b>	-73.0	-72.0	-72.0	-72.0	-73.0	-71.5	-71.0	-72.0	-71.5	-71.0	-71.0	-71.0	-70.5	-70.5	-70.0
<b>128 QAM</b>	-70.0	-69.0	-69.0	-69.0	-70.0	-68.5	-68.0	-69.0	-68.5	-68.0	-68.0	-68.0	-67.5	-67.5	-67.0
<b>256 QAM</b>	-67.0	-66.0	-66.0	-66.0	-66.5	-65.5	-65.0	-66.0	-65.0	-65.0	-64.5	-65.0	-64.5	-64.5	-64.0
<b>512 QAM</b>	-64.0	-63.5	-63.5	-63.0	-64.0	-62.5	-62.0	-63.5	-62.5	-62.0	-62.0	-62.0	-62.0	-61.5	-61.0
<b>1024 QAM (strong FEC)</b>	-61.5	-61.0	-61.0	-60.5	-61.5	-60.0	-59.5	-61.0	-60.0	-59.5	-59.5	-59.5	-59.5	-59.0	-58.5
<b>1024 QAM (light FEC)</b>	-60.5	-60.0	-60.0	-59.5	-60.5	-59.5	-58.5	-60.0	-59.0	-58.5	-58.5	-58.5	-58.5	-58.0	-58.0
<b>2048 QAM -58.0</b>	-57.0	-57.0	-57.0	-58.0	-56.5	-56.0	-57.0	-56.5	-56.0	-56.0	-56.0	-55.5	-55.5	-55.0	-55.5
	50 MHz	6 GHz	7 GHz	8 GHz	10 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	24 GHz	26 GHz	28-31 GHz	32 GHz	38 GHz
<b>QPSK</b>	-85.5	-84.5	-84.5	-84.5	-84.5	-85.0	-84.0	-83.5	-84.5	-83.5	-80.0	-83.5	-83.0	-83.0	-82.5
<b>8 PSK</b>	-80.0	-79.5	-79.5	-79.5	-79.0	-80.0	-79.0	-78.0	-79.5	-78.5	-75.0	-78.0	-78.0	-78.0	-77.5
<b>16 QAM</b>	-78.5	-77.5	-77.5	-77.5	-77.5	-78.0	-77.0	-76.5	-77.5	-76.5	-73.0	-76.5	-76.0	-76.0	-75.5
<b>32 QAM</b>	-74.5	-74.0	-74.0	-74.0	-73.5	-74.5	-73.5	-72.5	-74.0	-73.0	-69.5	-72.5	-72.5	-72.5	-72.0
<b>64 QAM</b>	-71.5	-70.5	-70.5	-70.5	-71.5	-70.0	-69.5	-70.5	-70.5	-70.0	-66.0	-69.5	-69.0	-69.0	-68.5
<b>128 QAM</b>	-68.5	-68.0	-68.0	-68.0	-67.5	-68.5	-67.5	-66.5	-68.0	-67.0	-63.5	-66.5	-66.5	-66.5	-66.0
<b>256 QAM</b>	-66.0	-65.0	-65.0	-65.0	-66.0	-64.5	-64.0	-65.0	-64.5	-64.5	-60.5	-64.0	-63.5	-63.5	-63.0
<b>512 QAM</b>	-63.5	-63.0	-63.0	-63.0	-62.5	-63.5	-62.0	-61.5	-63.0	-62.0	-58.5	-61.5	-61.5	-61.5	-61.0
<b>1024 QAM (strong FEC)</b>	-60.0	-59.5	-59.5	-59.0	-60.0	-58.5	-58.0	-59.5	-58.5	-55.0	-58.0	-58.0	-58.0	-58.0	-57.5
<b>1024 QAM (light FEC)</b>	-59.0	-58.0	-58.0	-58.0	-59.0	-57.5	-57.0	-58.0	-57.5	-53.5	-57.0	-56.5	-56.5	-56.5	-56.0
<b>2048 QAM</b>	-57.0	-56.0	-56.0	-56.0	-56.5	-55.5	-55.0	-56.0	-55.0	-51.5	-55.0	-54.5	-54.5	-54.5	-54.0
	56 MHz	6 GHz	7 GHz	8 GHz	10 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	24 GHz	26 GHz	28-31 GHz	32 GHz	38 GHz
<b>QPSK</b>	-84.0	-83.5	-83.5	-83.5	-83.0	-84.0	-83.0	-82.0	-83.5	-82.5	-82.0	-82.0	-82.0	-81.5	-81.5
<b>8 PSK</b>	-80.0	-79.5	-79.5	-79.5	-79.0	-80.0	-79.0	-78.0	-79.5	-78.5	-78.0	-78.0	-78.0	-77.5	-77.5
<b>16 QAM</b>	-77.5	-77.0	-77.0	-77.0	-76.5	-77.5	-76.5	-75.5	-77.0	-76.0	-75.5	-75.5	-75.5	-75.0	-75.0
<b>32 QAM</b>	-74.5	-73.5	-73.5	-73.5	-73.5	-74.0	-73.0	-72.5	-73.5	-72.5	-72.0	-72.5	-72.0	-72.0	-71.5
<b>64 QAM</b>	-71.0	-70.5	-70.5	-70.5	-70.0	-71.0	-70.0	-69.0	-70.5	-69.5	-69.0	-69.0	-69.0	-68.5	-68.5
<b>128 QAM</b>	-68.5	-67.5	-67.5	-67.5	-68.0	-67.0	-66.5	-66.5	-67.5	-66.5	-66.0	-66.5	-66.0	-66.0	-65.5
<b>256 QAM</b>	-65.0	-64.5	-64.5	-64.5	-64.0	-65.0	-64.0	-63.0	-64.5	-63.5	-63.0	-63.0	-63.0	-62.5	-62.5
<b>512 QAM</b>	-63.0	-62.5	-62.5	-62.5	-62.0	-63.0	-61.5	-61.0	-62.5	-61.5	-61.0	-61.0	-61.0	-60.5	-60.0
<b>1024 QAM (strong FEC)</b>	-59.5	-59.0	-59.0	-58.5	-59.5	-58.5	-58.5	-57.5	-59.0	-58.0	-57.5	-57.5	-57.5	-57.0	-57.0
<b>1024 QAM (light FEC)</b>	-58.5	-58.0	-58.0	-57.5	-58.5	-57.5	-56.5	-58.0	-57.0	-56.5	-56.5	-56.5	-56.5	-56.0	-56.0
<b>2048 QAM</b>	-54.0	-53.5	-53.5	-53.0	-54.0	-53.0	-52.0	-53.5	-52.5	-52.0	-52.0	-52.0	-52.0	-51.5	-51.5



## PTP 820C Licensed Microwave Radio

Receive Sensitivity (dBm @BER=10-6) - continued															
	60 MHz	6 GHz	7 GHz	8 GHz	10 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	24 GHz	26 GHz	28-31 GHz	32 GHz	38 GHz
<b>QPSK</b>	-84.5	-84.0	-84.0	-84.0	-83.5	-84.5	-83.0	-82.5	-84.0	-83.0	-82.5	-82.5	-82.5	-82.0	-81.5
<b>8 PSK</b>	-80.0	-79.0	-79.0	-79.0	-79.0	-79.5	-78.5	-78.0	-79.0	-78.0	-77.5	-78.0	-77.5	-77.5	-77.0
<b>16 QAM</b>	-77.5	-77.0	-77.0	-77.0	-76.5	-77.5	-76.0	-75.5	-77.0	-76.0	-75.5	-75.5	-75.5	-75.0	-74.5
<b>32 QAM</b>	-74.0	-73.0	-73.0	-73.0	-73.0	-73.5	-72.5	-72.0	-73.0	-72.0	-71.5	-72.0	-71.5	-71.5	-71.0
<b>64 QAM</b>	-70.5	-70.0	-70.0	-70.0	-69.5	-70.5	-69.5	-68.5	-70.0	-69.0	-68.5	-68.5	-68.5	-68.0	-68.0
<b>128 QAM</b>	-68.0	-67.0	-67.0	-67.0	-67.0	-67.5	-66.5	-66.0	-67.0	-66.0	-65.5	-66.0	-65.5	-65.5	-65.0
<b>256 QAM</b>	-64.5	-64.0	-64.0	-64.0	-63.5	-64.5	-63.5	-62.5	-64.0	-63.0	-62.5	-62.5	-62.5	-62.0	-62.0
<b>512 QAM</b>	-62.5	-62.0	-62.0	-62.0	-61.5	-62.5	-61.5	-60.5	-62.0	-61.0	-60.5	-60.5	-60.5	-60.0	-60.0
<b>1024 QAM (strong FEC)</b>	-59.0	-58.5	-58.5	-58.0	-59.0	-58.0	-57.0	-58.5	-57.5	-57.0	-57.0	-57.0	-57.0	-56.5	-56.5
<b>1024 QAM (light FEC)</b>	-58.0	-57.5	-57.5	-57.0	-58.0	-57.0	-56.0	-57.5	-56.5	-56.0	-56.0	-56.0	-56.0	-55.5	-55.5
<b>2048 QAM</b>	-55.5	-54.5	-54.5	-54.5	-55.0	-54.0	-53.5	-54.5	-53.5	-53.0	-53.5	-53.0	-53.0	-53.0	-52.5
	80 MHz	6 GHz	7 GHz	8 GHz	10 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	24 GHz	26 GHz	28-31 GHz	32 GHz	38 GHz
<b>QPSK</b>	-82.5	-82.0	-82.0	-82.0	-81.5	-82.5	-81.5	-80.5	-82.0	-81.0	-80.5	-80.5	-80.5	-80.0	-80.0
<b>8 PSK</b>	-78.5	-78.0	-78.0	-78.0	-77.5	-78.5	-77.5	-76.5	-78.0	-77.0	-76.5	-76.5	-76.5	-76.0	-76.0
<b>16 QAM</b>	-76.0	-75.5	-75.5	-75.5	-75.0	-76.0	-75.0	-74.0	-75.5	-74.5	-74.0	-74.0	-74.0	-73.5	-73.5
<b>32 QAM</b>	-73.0	-72.0	-72.0	-72.0	-72.0	-72.5	-71.5	-71.0	-72.0	-71.0	-70.5	-71.0	-70.5	-70.5	-70.0
<b>64 QAM</b>	-69.5	-69.0	-69.0	-69.0	-68.5	-69.5	-68.5	-67.5	-69.0	-68.0	-67.5	-67.5	-67.5	-67.0	-67.0
<b>128 QAM</b>	-67.0	-66.0	-66.0	-66.0	-66.0	-66.5	-65.5	-65.0	-66.0	-65.0	-64.5	-65.0	-64.5	-64.5	-64.0
<b>256 QAM</b>	-63.5	-63.0	-63.0	-63.0	-62.5	-63.5	-62.5	-61.5	-63.0	-62.0	-61.5	-61.5	-61.5	-61.0	-61.0
<b>512 QAM</b>	-61.5	-61.0	-61.0	-61.0	-60.5	-61.5	-60.0	-59.5	-61.0	-60.0	-59.5	-59.5	-59.5	-59.0	-58.5
<b>1024 QAM Strong</b>	-58.0	-57.5	-57.5	-57.0	-58.0	-57.0	-56.0	-57.5	-56.5	-56.0	-56.0	-56.0	-56.0	-55.5	-55.5
<b>1024 QAM Light</b>	-57.0	-56.5	-56.5	-56.0	-57.0	-56.0	-55.0	-56.5	-55.5	-55.0	-55.0	-55.0	-55.0	-54.5	-54.5
<b>2048 QAM</b>	-54.0	-53.5	-53.5	-53.0	-54.0	-53.0	-52.0	-53.5	-52.5	-52.0	-52.0	-52.0	-52.0	-51.5	-51.5

Ethernet Throughput (Mbps)						
Modulation	Channel Size	No Compression		L2 Compression		
<b>QPSK</b>	5 MHz	3-4	4-13	10 MHz	13-15	13-48
<b>8 PSK</b>		-	-		19-23	20-73
<b>16 QAM</b>		8-10	9-32		26-32	28-100
<b>32 QAM</b>		11-14	12-43		35-43	37-133
<b>64 QAM</b>		14-17	15-54		43-53	45-164
<b>128 QAM</b>		17-21	18-65		52-63	54-196
<b>256 QAM</b>		19-24	20-74		59-72	62-225
<b>512 QAM</b>		-	-		65-79	68-247
<b>1024 QAM Strong</b>		-	-		68-83	72-260
<b>1024 QAM Light</b>		-	-		73-89	76-276

## PTP 820C Licensed Microwave Radio

Ethernet Throughput (Mbps) - continued						
Modulation	Channel Size	No Compression	L2 Compression	Channel Size	No Compression	L2 Compression
<b>QPSK</b>	14 MHz	19-24	20-74	20 MHz	28-34	29-105
<b>8 PSK</b>		29-36	31-112		42-51	44-158
<b>16 QAM</b>		40-49	42-153		57-70	60-217
<b>32 QAM</b>		53-65	56-203		75-92	79-286
<b>64 QAM</b>		66-80	69-249		92-113	97-352
<b>128 QAM</b>		79-97	83-301		112-136	117-424
<b>256 QAM</b>		90-110	95-344		126-155	133-481
<b>512 QAM</b>		100-122	105-380		138-169	145-526
<b>1024 QAM Strong</b>		106-129	111-402		147-180	154-559
<b>1024 QAM Light</b>		112-137	118-426		156-191	164-593
<b>2048 QAM</b>		-	-		166-203	175-633
<b>QPSK</b>	25 MHz	35-43	37-135	28 MHz	43-52	45-162
<b>8 PSK</b>		53-65	56-202		62-76	65-236
<b>16 QAM</b>		72-88	76-275		87-107	92-332
<b>32 QAM</b>		95-117	100-363		115-140	121-437
<b>64 QAM</b>		117-143	123-446		141-173	149-538
<b>128 QAM</b>		141-173	148-538		170-208	179-648
<b>256 QAM</b>		161-197	169-613		196-239	206-745
<b>512 QAM</b>		178-217	187-677		209-255	219-794
<b>1024 QAM Strong</b>		189-231	198-719		228-278	239-866
<b>1024 QAM Light</b>		201-245	211-763		241-295	253-917
<b>2048 QAM</b>		215-263	226-819		263-321	276-1000
<b>QPSK</b>	30 MHz	43-52	45-162	40 MHz	58-71	61-220
<b>8 PSK</b>		62-76	65-236		86-105	90-328
<b>16 QAM</b>		87-107	92-332		117-143	123-446
<b>32 QAM</b>		115-140	121-437		154-189	162-588
<b>64 QAM</b>		141-173	149-538		190-232	199-722
<b>128 QAM</b>		170-208	179-648		229-280	241-873
<b>256 QAM</b>		196-239	206-745		247-302	259-939
<b>512 QAM</b>		209-255	219-794		270-330	284-1000
<b>1024 QAM Strong</b>		228-278	239-866		306-375	322-1000
<b>1024 QAM Light</b>		241-295	253-917		325-398	342-1000
<b>2048 QAM</b>		263-321	276-1000		352-430	370-1000

## PTP 820C Licensed Microwave Radio

Ethernet Throughput (Mbps) - continued							
Modulation	Channel Size	No Compression	L2 Compression	Channel Size	No Compression	L2 Compression	
<b>QPSK</b>	50 MHz	70-86	74-267	56 MHz	87-106	91-331	
<b>8 PSK</b>		109-133	114-415		127-155	133-482	
<b>16 QAM</b>		148-181	155-563		176-215	185-670	
<b>32 QAM</b>		186-227	195-707		232-283	243-881	
<b>64 QAM</b>		240-293	252-913		284-348	299-1000	
<b>128 QAM</b>		280-342	294-1000		344-420	361-1000	
<b>256 QAM</b>		332-406	348-1000		397-485	416-1000	
<b>512 QAM</b>		360-440	378-1000		426-521	448-1000	
<b>1024 QAM</b>		392-479	411-1000		464-567	487-1000	
<b>Strong</b>							
<b>1024 QAM Light</b>		416-509	437-1000		493-602	517-1000	
<b>2048 QAM</b>		449-548	471-1000		534-653	561-1000	
<b>QPSK</b>	60 MHz	87-106	91-331	80 MHz	114-140	120-435	
<b>8 PSK</b>		127-155	133-482		162-198	170-618	
<b>16 QAM</b>		176-215	185-670		231-283	243-880	
<b>32 QAM</b>		232-283	243-881		304-371	319-1000	
<b>64 QAM</b>		284-348	299-1000		371-454	390-1000	
<b>128 QAM</b>		344-420	361-1000		439-536	461-1000	
<b>256 QAM</b>		397-485	416-1000		505-618	531-1000	
<b>512 QAM</b>		427-521	448-1000		555-679	583-1000	
<b>1024 QAM</b>		464-567	487-1000		604-738	634-1000	
<b>Strong</b>							
<b>1024 QAM Light</b>		493-602	517-1000		641-784	673-1000	
<b>2048 QAM</b>		534-653	561-1000		679-829	713-1000	

### ABOUT CAMBIUM NETWORKS

Cambium Networks empowers millions of people with wireless connectivity worldwide. Its wireless portfolio is used by commercial and government network operators as well as broadband service providers to connect people, places and things. With a single network architecture spanning fixed wireless and Wi-Fi, Cambium Networks enables operators to achieve maximum performance with minimal spectrum. End-to-end cloud management transforms networks into dynamic environments that evolve to meet changing needs with minimal physical human intervention. Cambium Networks empowers a growing ecosystem of partners who design and deliver gigabit wireless solutions that just work.

## Attachment B- Commline Inc. COI

Commline Inc. has included a Certificate of Liability Insurance as proof we are able to meet all insurance requirements. Upon award of contract Commline Inc. will furnish MFPD with an updated COI.



# CERTIFICATE OF LIABILITY INSURANCE

DATE

6/17/2024

July 22, 2024 Information Pg 101

PRODUCER Christian Charles Insurance Services Inc 3750 E. Anaheim St., Suite 201 Long Beach, CA 90804 (562) 264-1453		THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.	
INSURED Commline, Inc. 13700 Cimarron Ave. Gardena, CA 90249		INSURERS AFFORDING COVERAGE	NAIC #
		INSURER A: Falls Lake National Insurance Company	39462
		INSURER B: AmGUARD Insurance Company	42390
		INSURER C: Falls Lake National Insurance Company	39462
		INSURER D: Endurance Assurance Corporation	11551
		INSURER E: AmTrust Group	
		Insurer F: Lloyd's of London	
COVERAGES			

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR		POLICY NUMBER	POLICY EFFECTIVE DATE (MM / DD / YY)	POLICY EXPIRATION DATE (MM / DD / YY)	LIMITS	
A	GENERAL LIABILITY	PPC000022200	10/01/2023	10/01/2024	EACH OCCURRENCE	\$ 1,000,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY				FIRE DAMAGE( Any one fire )	\$ 100,000
	<input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR				MED EXP( Any one person )	\$ EXCL
	<input checked="" type="checkbox"/> Integrated Garage Liability				PERSONAL && ADV INJURY	\$ 1,000,000
					GENERAL AGGREGATE	\$ 2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:				PRODUCTS - COMP / OP AGG	\$ 2,000,000
	<input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO - JECT <input type="checkbox"/> LOC					
B	AUTOMOBILE LIABILITY	ABAU457022	12/05/2023	12/05/2024	COMBINED SINGLE LIMIT ( Ea accident )	\$ 1,000,000
	<input checked="" type="checkbox"/> ANY AUTO				BODILY INJURY ( Per person )	\$
	<input checked="" type="checkbox"/> ALL OWNED AUTOS				BODILY INJURY ( Per accident )	\$
	<input checked="" type="checkbox"/> SCHEDULED AUTOS				PROPERTY DAMAGE ( Per accident )	\$
	<input checked="" type="checkbox"/> HIRED AUTOS					
<input checked="" type="checkbox"/> NON - OWNED AUTOS						
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT	\$
	<input type="checkbox"/> ANY AUTO				OTHER THAN EA ACC	\$
					AUTO ONLY : AGG	\$
C	EXCESS LIABILITY	PSC000009300	10/01/2023	10/01/2024	EACH OCCURRENCE	\$ 5,000,000
	<input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE				AGGREGATE	\$ 5,000,000
						\$
						\$
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	EAW00000396-00	02/01/2024	02/01/2025	<input checked="" type="checkbox"/> WC STATU - TORY LIMITS <input type="checkbox"/> OTH - ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED?				E. L. EACH ACCIDENT	\$ 1,000,000
	If yes, describe under SPECIAL PROVISIONS below				E. L. DISEASE - EA EMPLOYEE	\$ 1,000,000
					E. L. DISEASE - POLICY LIMIT	\$ 1,000,000
E	OTHER Cyber Liability	TCL1733540 01	06/08/2024	06/08/2025	Limit of Liability	\$ 1,000,000
F	Errors and Omissions	ESM0039779439	09/21/2023	09/21/2024	Limit of Liability	\$ 1,000,000
						\$

DESCRIPTION OF OPERATIONS	LOCATIONS	VEHICLE EXCLUSIONS	COVERED BY ENDORSEMENT	/	SPECIAL PROVISIONS
CERTIFICATE HOLDER	<input checked="" type="checkbox"/>	ADDITIONAL INSURED ; INSURER LETTER : _____	CANCELLATION		

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 10 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.



## Exhibit E

Commline Inc. has included options for the Montecito Fire Radio Upgrade.

- Option 1 includes pricing with Telco.
- Option 2 includes pricing with AS-IP.

**Exhibit E**

**Version: 5.0**

**7/10/2024**

Line	Description	Cost		COMMENTS
A.1	Equipment and materials needed to provide the system described in the ITB delivered to FS91 with warranty.	\$	245,441.75	Includes Sales Tax
A.2	Services to acquire FCC licenses, prepare the sites, install and configure the equipment, test and commission the system.	\$	182,969.51	
A.3	Additional equipment, materials, and licenses to replace the only RX site receivers and central voters.	\$	8,667.66	This item is optional; Receivers <u>only</u> (Does not include antenna installation or Backhaul), includes Tax
A.4	Additional services to prepare the RX only sites, install and configure the equipment, test and commission the system with this option.	\$	10,714.94	
<b>Base system and support bundled, (A1+A2)</b>		\$	428,411.26	
<b>Base system and support bundled, (A1+A2 +A3 + A4)</b>		\$	447,793.85	

Notes: Includes 7% Contractor Fee



**REQUEST FOR QUOTE**

<b>DATE:</b>	7/10/2024	<b>SALES REP:</b>	Ryan Narimatsu <small>ryan.narimatsu@commlineinc.com</small>
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<b>BILL TO:</b>		<b>SHIP TO:</b>	
<b>COMPANY:</b>	Montecito Fire	<b>COMPANY:</b>	Same
<b>ATTENTION:</b>	Keith Turcot	<b>ATTENTION:</b>	
<b>ADDRESS:</b>	595 San Ysidro Road	<b>ADDRESS:</b>	
<b>CITY/ST/ZIP:</b>	Santa Barbara, CA 93108	<b>CITY/ST/ZIP:</b>	
<b>PHONE:</b>	(805) 699-0714	<b>PHONE:</b>	
<b>EMAIL:</b>	<a href="mailto:kturcot@5barengineering.com">kturcot@5barengineering.com</a>	<b>EMAIL:</b>	

<b>RE: Montecito Fire A.1 - Equipment and materials</b>				
<b>QTY</b>	<b>MODEL/PART #</b>	<b>DESCRIPTION</b>	<b>NASPO COST</b>	<b>EXT COST</b>
	<b>NASPO CONTRACT#00318</b>			
	<b>Hardware</b>			
	<b>Fire Station 91</b>			
1	JPS 5952-200000	SVM-3 Site Voter Module	\$ 2,172.60	\$ 2,172.60
	<b>Gibraltar Peak</b>			
1	MON030HW	Monopole 30' Gibraltar Peak	\$ 15,000.00	\$ 15,000.00
1	GMSCHM	MW Mount, Gibraltar	\$ 1,800.00	\$ 1,800.00
2	SINSD210R-SF2P90LDF-S	138-174 MHz Rugged Exposed Dipole Antenna	\$ 3,349.50	\$ 6,699.00
200	LDF4-50A	1/2 inch, HELIAX® low density foam coaxial cable, corrugated copper, 50 Ohm per ft	\$ 3.50	\$ 700.00
4	L4TNM-PSA	Positive Stop N-Male for 1/2" LDF4, AL4RPV, HL4RPV	\$ 22.73	\$ 90.91
2	VHF50HD-MA	100-512 MHz Protector DIN Female to DIN Male Connector	\$ 152.36	\$ 304.73
2	221213	Weatherproofing Kit	\$ 19.99	\$ 39.98
2	UGBKIT-0210	1/4"x 2"x 10" Universal Copper Ground Buss Bar, 2 x 10 Holes, with Hardware	\$ 56.34	\$ 112.68
2	TB9435S-100T	TB9435 Single 100Watts Chassis Assembly	\$ 1,158.84	\$ 2,317.68
2	T01-01103-BAAA	TB94 Rctr 136-174MHz S2	\$ 2,339.14	\$ 4,678.28
2	T01-01121-BBBA	TB94 Linear PA 136-174M 100W	\$ 1,847.78	\$ 3,695.56
2	TBA30A4-4400	TB8000/9000 Power Management Unit ACDC48 aux48	\$ 2,266.62	\$ 4,533.24
2	219-01561-00	CBL cord 2m USA IEC blk	\$ 11.84	\$ 23.68
2	TBAS062	SFE Key - Simulcast Enable Phase I (91/94)	\$ 4,286.08	\$ 8,572.16
2	TBAS061	SFE Key - Central Voter (91/94)	\$ 4,373.40	\$ 8,746.80
2	TBAS073	SFE Key - TaskBuilder	\$ 170.94	\$ 341.88
1	2402-613	SecureSync Model 2402-613	\$ 5,599.00	\$ 5,599.00
1	2400-HS-A1	SecureSync Hot Swap AC Power Supply module	\$ 671.00	\$ 671.00
1	2400-HS-D2	SecureSync Hot Swap 24/48 VDC Power Supply module	\$ 979.00	\$ 979.00
1	8230	GNSS Outdoor Antenna	\$ 363.00	\$ 363.00
1	8226	GPS Antenna Surge Protector	\$ 374.00	\$ 374.00
1	CA06R-1513-0001	Power Cord, AC, North America Plug	\$ -	\$ -
1	NCPS4810	Power System - 48 VDC, 100 Amp input	\$ 13,796.78	\$ 13,796.78
1	W64522/4C,4SN3	COMBINER FF VHF 2CH DL 125W	\$ 7,980.00	\$ 7,980.00
1	24102-1/4C4SN2AT2	MULTICOUPLER VHF 2B CUSTOM	\$ 6,851.25	\$ 6,851.25
1	CIP20SRW01	Cambium PTP 11 GHz All Outdoor with 3' ant	\$ 23,368.60	\$ 23,368.60
1	CKIT0530	Cable Kit - Cat 6 up to 300'	\$ 1,065.00	\$ 1,065.00
1	MWSOM35	Materials - Ground, Stand-offs, Misc	\$ 975.00	\$ 975.00
	<b>Shepard Mesa</b>			
2	TB9435S-100T	TB9435 Single 100Watts Chassis Assembly	\$ 1,158.84	\$ 2,317.68
2	T01-01103-BAAA	TB94 Rctr 136-174MHz S2	\$ 2,339.14	\$ 4,678.28
2	T01-01121-BBBA	TB94 Linear PA 136-174M 100W	\$ 1,847.78	\$ 3,695.56
2	TBA30A4-4400	TB8000/9000 Power Management Unit ACDC48 aux48	\$ 2,266.62	\$ 4,533.24
2	219-01561-00	CBL cord 2m USA IEC blk	\$ 11.84	\$ 23.68
2	TBAS062	SFE Key - Simulcast Enable Phase I (91/94)	\$ 4,286.08	\$ 8,572.16
2	TBAS073	SFE Key - TaskBuilder	\$ 170.94	\$ 341.88
1	2402-613	SecureSync Model 2402-613	\$ 5,599.00	\$ 5,599.00
1	2400-HS-A1	SecureSync Hot Swap AC Power Supply module	\$ 671.00	\$ 671.00
1	2400-HS-D2	SecureSync Hot Swap 24/48 VDC Power Supply module	\$ 979.00	\$ 979.00
1	8230	GNSS Outdoor Antenna	\$ 363.00	\$ 363.00

1	8226	GPS Antenna Surge Protector	\$ 374.00	\$ 374.00
1	CA06R-1513-0001	Power Cord, AC, North America Plug	\$ -	\$ -
1	NCPS4810	Power System - 48 VDC, 100 Amp input	\$ 13,796.78	\$ 13,796.78
1	GMLAB	MW Mount, Shepard Mesa	\$ 1,800.00	\$ 1,800.00
1	JPS5200-402000	QMT-1B RM Remote with 2 recv modules w/ 48Vdc input.	\$ 2,780.00	\$ 2,780.00
1	CKIT0530	Cable Kit - Cat 6 up to 300'	\$ 1,065.00	\$ 1,065.00
1	W64522/4C,4SN3	COMBINER FF VHF 2CH DL 125W	\$ 7,980.00	\$ 7,980.00
1	DUPLEXER	Duplexer Combiner	\$ 2,500.00	\$ 2,500.00
1	24102-1/4C4SN2AT2	MULTICOUPLER VHF 2B CUSTOM	\$ 6,851.25	\$ 6,851.25
1	Enclosed Rack	Enclosed Rack	\$ 5,000.00	\$ 5,000.00
	<b>Spares</b>			
1	24102-1/4C4SN2AT2	MULTICOUPLER VHF 2B CUSTOM	\$ 6,851.25	\$ 6,851.25
1	2402-613	SecureSync Model 2402-613	\$ 6,108.00	\$ 6,108.00
1	2400-HS-A1	SecureSync Hot Swap AC Power Supply module	\$ 732.00	\$ 732.00
1	2400-HS-D2	SecureSync Hot Swap 24/48 VDC Power Supply module	\$ 1,068.00	\$ 1,068.00
1	8230	GNSS Outdoor Antenna	\$ 396.00	\$ 396.00
		<b>Hardware Sub-Total:</b>		<b>\$ 210,928.56</b>

<b>Special Notes:</b> Removed microwave link from Fire Station 1 to Gibraltar	<b>Hardware</b>	\$ 210,928.56
	<b>Sales Tax (8.75%)</b>	\$ 18,456.25
	<b>Subtotal</b>	\$ 229,384.81
	<b>Contractor Fee 7%</b>	\$ 16,056.94
	<b>GRAND TOTAL</b>	<b>\$ 245,441.75</b>
<b>Customer Approval Signature</b>	<b>PO #</b>	<b>Date</b>

I agree to the terms and conditions set forth in this proposal. A 20% cancellation charge will apply to canceled orders.

**REQUEST FOR QUOTE**

**DATE:** 7/10/2024 **SALES REP:** Ryan Narimatsu  
ryan.narimatsu@commlineinc.com

<b>BILL TO:</b>		<b>SHIP TO:</b>	
<b>COMPANY:</b>	Montecito Fire	<b>COMPANY:</b>	Same
<b>ATTENTION:</b>	Keith Turcot	<b>ATTENTION:</b>	
<b>ADDRESS:</b>	595 San Ysidro Road	<b>ADDRESS:</b>	
<b>CITY/ST/ZIP:</b>	Santa Barbara, CA 93108	<b>CITY/ST/ZIP:</b>	
<b>PHONE:</b>	(805) 699-0714	<b>PHONE:</b>	
<b>EMAIL:</b>	<a href="mailto:kturcot@sbarengineering.com">kturcot@sbarengineering.com</a>	<b>EMAIL:</b>	

<b>RE: Montecito Fire A.2 - Services</b>				
<b>QTY</b>	<b>MODEL/PART #</b>	<b>DESCRIPTION</b>	<b>NASPO COST</b>	<b>EXT COST</b>
	<b>NASPO CONTRACT#00318</b>			
	<b>Labor</b>			
1	INCCBL	VHF Antenna install x2 Gib, GPS Antenna at Gib and Shepard Mesa	\$ 23,805.00	\$ 23,805.00
1	IATP3B4	Install, Align, Test Microwave Assemble and install 3' antenna mounts Includes cable installation	\$ 31,104.00	\$ 31,104.00
1	LAB0202	Monopole installation incl. Crane	\$ 15,735.00	\$ 15,735.00
2	LAB0101	Cat 6 install, 50'	\$ 324.00	\$ 648.00
1	FCC11	FCC licensing	\$ 2,775.00	\$ 2,775.00
1	LABOR SD	Project Management	\$ 25,000.00	\$ 25,000.00
1	LABOR SD	Installation of Base Stations	\$ 30,000.00	\$ 30,000.00
1	LABOR SD	Documentation	\$ 5,000.00	\$ 5,000.00
		<b>Labor Sub-Total:</b>		<b>\$ 134,067.00</b>
	<b>Extended Warranty &amp; Support</b>			
1	EPW-INF-TAM-1	Extended Warranty TAM Infrastructure Yr#1	\$ -	\$ -
1	EPW-INF-TAM-2	Extended Warranty TAM Infrastructure Yr#2	\$ -	\$ -
1	EPW-INF-TAM-3	Extended Warranty TAM Infrastructure Yr#3	\$ 1,028.14	\$ 1,028.14
1	EPW-INF-TAM-4	Extended Warranty TAM Infrastructure Yr#4	\$ 1,028.14	\$ 1,028.14
1	EPW-INF-TAM-5	Extended Warranty TAM Infrastructure Yr#5	\$ 1,028.14	\$ 1,028.14
1	SRVADV-INW-TAM-1	Tait Advantage TAM Yr#1 Infra No Warrant	\$ 5,140.70	\$ 5,140.70
1	SRVADV-INW-TAM-2	Tait Advantage TAM Yr#2 Infra No Warrant	\$ 5,140.70	\$ 5,140.70
1	SRVADV-INW-TAM-3	Tait Advantage TAM Yr#3 Infra No Warrant	\$ 5,140.70	\$ 5,140.70
1	SRVADV-INW-TAM-4	Tait Advantage TAM Yr#4 Infra No Warrant	\$ 5,140.70	\$ 5,140.70
1	SRVADV-INW-TAM-5	Tait Advantage TAM Yr#5 Infra No Warrant	\$ 5,140.70	\$ 5,140.70
		<b>Ext. Warranty &amp; Support Sub-Total:</b>		<b>\$ 28,787.92</b>
	<b>Freight</b>			
1	FRT	Freight	\$ 8,144.62	\$ 8,144.62
		<b>Freight Sub-Total:</b>		<b>\$ 8,144.62</b>
		Note: Quote good for 30 days		

<b>Special Notes:</b> Removed microwave link from Fire Station 1 to Gibraltar	<b>Labor</b>	\$ 134,067.00
	<b>Ext. Warranty</b>	\$ 28,787.92
	<b>Freight</b>	\$ 8,144.62
	<b>Subtotal</b>	\$ 170,999.54
	<b>Contractor Fee 7%</b>	\$ 11,969.97
	<b>GRAND TOTAL</b>	<b>\$ 182,969.51</b>
<b>Customer Approval Signature</b>	<b>PO #</b>	<b>Date</b>

I agree to the terms and conditions set forth in this proposal. A 20% cancellation charge will apply to canceled orders.

**REQUEST FOR QUOTE**

**DATE:** 7/10/2024 **SALES REP:** Ryan Narimatsu

[ryan.narimatsu@commlineinc.com](mailto:ryan.narimatsu@commlineinc.com)

<b>BILL TO:</b>		<b>SHIP TO:</b>	
<b>COMPANY:</b>	Montecito Fire	<b>COMPANY:</b>	Same
<b>ATTENTION:</b>	Keith Turcot	<b>ATTENTION:</b>	
<b>ADDRESS:</b>	595 San Ysidro Road	<b>ADDRESS:</b>	
<b>CITY/ST/ZIP:</b>	Santa Barbara, CA 93108	<b>CITY/ST/ZIP:</b>	
<b>PHONE:</b>	(805) 699-0714	<b>PHONE:</b>	
<b>EMAIL:</b>	<a href="mailto:kturcot@5barengineering.com">kturcot@5barengineering.com</a>	<b>EMAIL:</b>	

**RE: Montecito Fire A.3**

QTY	MODEL/PART #	DESCRIPTION	NASPO COST	EXT COST
<b>NASPO CONTRACT#00318</b>				
<b>Rx only Sites</b>				
1	TB9444-RX2T	TB9444 Multi Receiverx2 Chassis Assy	\$ 1,016.02	\$ 1,016.02
2	T01-01104-DAAA	TB94 RxOnly 148-174MHz S2	\$ 1,559.92	\$ 3,119.84
1	TBA30A1-1100	TB8000/9000 Power Management Unit ACDC12 aux12	\$ 2,266.62	\$ 2,266.62
1	219-01561-00	CBL cord 2m USA IEC blk	\$ 11.84	\$ 11.84
2	TBAS073	SFE Key - TaskBuilder	\$ 170.94	\$ 341.88
2	TBAS071-R0	SFE Key - IP Networking Satellite Rx Only	\$ 346.32	\$ 692.64
<b>Hardware Sub-Total:</b>				<b>\$ 7,448.84</b>

<b>Special Notes:</b> Receivers only (Does not include antenna installation or Backhaul)	<b>Hardware</b>	\$ 7,448.84
	<b>Sales Tax (8.75%)</b>	\$ 651.77
	<b>Subtotal</b>	<b>\$ 8,100.61</b>
	<b>Contractor Fee 7%</b>	<b>\$ 567.04</b>
	<b>GRAND TOTAL</b>	<b>\$ 8,667.66</b>
<b>Customer Approval Signature</b>	<b>PO #</b>	<b>Date</b>

I agree to the terms and conditions set forth in this proposal. A 20% cancellation charge will apply to canceled orders.

**REQUEST FOR QUOTE**

<b>DATE:</b>	7/10/2024	<b>SALES REP:</b>	Ryan Narimatsu <small>ryan.narimatsu@commlineinc.com</small>
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<b>BILL TO:</b>		<b>SHIP TO:</b>	
<b>COMPANY:</b>	Montecito Fire	<b>COMPANY:</b>	Same
<b>ATTENTION:</b>	Keith Turcot	<b>ATTENTION:</b>	
<b>ADDRESS:</b>	595 San Ysidro Road	<b>ADDRESS:</b>	
<b>CITY/ST/ZIP:</b>	Santa Barbara, CA 93108	<b>CITY/ST/ZIP:</b>	
<b>PHONE:</b>	(805) 699-0714	<b>PHONE:</b>	
<b>EMAIL:</b>	<a href="mailto:kturcot@5barengineering.com">kturcot@5barengineering.com</a>	<b>EMAIL:</b>	

**RE: Montecito Fire A.4**

QTY	MODEL/PART #	DESCRIPTION	NASPO COST	EXT COST
<b>NASPO CONTRACT#00318</b>				
<b>Labor</b>				
1	LABOR SD	Installation of RX Base Station - <b>Does not include antenna installation or Backhaul</b>	\$ 5,000.00	\$ 5,000.00
1	LABOR SD	Documentation	\$ 1,000.00	\$ 1,000.00
			<b>Labor Sub-Total:</b>	<b>\$ 6,000.00</b>
<b>Extended Warranty &amp; Support</b>				
1	EPW-INF-TAM-1	Extended Warranty TAM Infrastructure Yr#1	\$ -	\$ -
1	EPW-INF-TAM-2	Extended Warranty TAM Infrastructure Yr#2	\$ -	\$ -
1	EPW-INF-TAM-3	Extended Warranty TAM Infrastructure Yr#3	\$ 254.07	\$ 254.07
1	EPW-INF-TAM-4	Extended Warranty TAM Infrastructure Yr#4	\$ 254.07	\$ 254.07
1	EPW-INF-TAM-5	Extended Warranty TAM Infrastructure Yr#5	\$ 254.07	\$ 254.07
			<b>Ext. Warranty &amp; Support Sub-Total:</b>	<b>\$ 3,513.96</b>
<b>Freight</b>				
1	FRT	Freight	\$ 500.00	\$ 500.00
			<b>Freight Sub-Total:</b>	<b>\$ 500.00</b>
Note: Quote good for 30 days				

<b>Special Notes:</b>	<b>Labor</b>	\$ 6,000.00
	<b>Ext. Warranty</b>	\$ 3,513.96
	<b>Freight</b>	\$ 500.00
	<b>Subtotal</b>	\$ 10,013.96
	<b>Contractor Fee 7%</b>	\$ 700.98
<b>GRAND TOTAL</b>		<b>\$ 10,714.94</b>
<b>Customer Approval Signature</b>	<b>PO #</b>	<b>Date</b>

I agree to the terms and conditions set forth in this proposal. A 20% cancellation charge will apply to canceled orders.

**Exhibit E**

**Version: 5.1**

**7/10/2024**

Line	Description	Cost		COMMENTS
A.1	Equipment and materials needed to provide the system described in the ITB delivered to FS91 with warranty.	\$	269,327.57	Includes Sales Tax
A.2	Services to acquire FCC licenses, prepare the sites, install and configure the equipment, test and commission the system.	\$	182,969.51	
A.3	Additional equipment, materials, and licenses to replace the only RX site receivers and central voters.	\$	34,670.63	This item is optional; Receivers <u>only</u> (Does not include antenna installation or Backhaul), includes Tax
A.4	Additional services to prepare the RX only sites, install and configure the equipment, test and commission the system with this option.	\$	38,941.54	
<b>Base system and support bundled, (A1+A2)</b>		\$	<b>452,297.08</b>	
<b>Base system and support bundled, (A1+A2 +A3 + A4)</b>		\$	<b>525,909.24</b>	

**Notes: Includes 7% Contractor Fee**

**REQUEST FOR QUOTE**

<b>DATE:</b>	7/10/2024	<b>SALES REP:</b>	Ryan Narimatsu ryan.narimatsu@commlineinc.com
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<b>BILL TO:</b>		<b>SHIP TO:</b>	
<b>COMPANY:</b>	Montecito Fire	<b>COMPANY:</b>	Same
<b>ATTENTION:</b>	Keith Turcot	<b>ATTENTION:</b>	
<b>ADDRESS:</b>	595 San Ysidro Road	<b>ADDRESS:</b>	
<b>CITY/ST/ZIP:</b>	Santa Barbara, CA 93108	<b>CITY/ST/ZIP:</b>	
<b>PHONE:</b>	(805) 699-0714	<b>PHONE:</b>	
<b>EMAIL:</b>	kturcot@Sbarengineering.com	<b>EMAIL:</b>	

**RE: Montecito Fire A.1 - Equipment and materials**

QTY	MODEL/PART #	DESCRIPTION	NASPO COST	EXT COST
	<b>NASPO CONTRACT#00318</b>			
	<b>Hardware</b>			
	<b>Fire Station 91</b>			
2	TN9275-002B-J400-10	P25 Console Gateway 2 Channel ACDC12/12 US	\$ 8,366.44	\$ 16,732.88
	<b>Gibraltar Peak</b>			
1	MON030HW	Monopole 30' Gibraltar Peak	\$ 15,000.00	\$ 15,000.00
1	GMSCHM	MW Mount, Gibraltar	\$ 1,800.00	\$ 1,800.00
2	SINSD210R-SF2P90LDF-S	138-174 MHz Rugged Exposed Dipole Antenna	\$ 3,349.50	\$ 6,699.00
200	LDF4-50A	1/2 inch, HELIAX® low density foam coaxial cable, corrugated copper, 50 Ohm per ft	\$ 3.50	\$ 700.00
4	L4TNM-PSA	Positive Stop N-Male for 1/2" LDF4, AL4RPV, HL4RPV	\$ 22.73	\$ 90.91
2	VHF50HD-MA	100-512 MHz Protector DIN Female to DIN Male Connector	\$ 152.36	\$ 304.73
2	221213	Weatherproofing Kit	\$ 19.99	\$ 39.98
2	UGBKIT-0210	1/4"x 2"x 10" Universal Copper Ground Buss Bar, 2 x 10 Holes, with Hardware	\$ 56.34	\$ 112.68
2	TB9435S-100T	TB9435 Single 100Watts Chassis Assembly	\$ 1,158.84	\$ 2,317.68
2	T01-011103-BAAA	TB94 Rctr 136-174MHz S2	\$ 2,339.14	\$ 4,678.28
2	T01-011121-BBBA	TB94 Linear PA 136-174M 100W	\$ 1,847.78	\$ 3,695.56
2	TBA30A4-4400	TB8000/9000 Power Management Unit ACDC48 aux48	\$ 2,266.62	\$ 4,533.24
2	219-01561-00	CBL cord 2m USA IEC blk	\$ 11.84	\$ 23.68
2	TBAS062	SFE Key - Simulcast Enable Phase I (91/94)	\$ 4,286.08	\$ 8,572.16
2	TBAS061	SFE Key - Central Voter (91/94)	\$ 4,373.40	\$ 8,746.80
2	TBAS073	SFE Key - TaskBuilder	\$ 170.94	\$ 341.88
1	2402-613	SecureSync Model 2402-613	\$ 5,599.00	\$ 5,599.00
1	2400-HS-A1	SecureSync Hot Swap AC Power Supply module	\$ 671.00	\$ 671.00
1	2400-HS-D2	SecureSync Hot Swap 24/48 VDC Power Supply module	\$ 979.00	\$ 979.00
1	8230	GNSS Outdoor Antenna	\$ 363.00	\$ 363.00
1	8226	GPS Antenna Surge Protector	\$ 374.00	\$ 374.00
1	CA06R-1513-0001	Power Cord, AC, North America Plug	\$ -	\$ -
1	NCPS4810	Power System - 48 VDC, 100 Amp input	\$ 13,796.78	\$ 13,796.78
1	W64522/4C,4SN3	COMBINER FF VHF 2CH DL 125W	\$ 7,980.00	\$ 7,980.00
1	24102-1/4C4SN2AT2	MULTICOUPLER VHF 2B CUSTOM	\$ 6,851.25	\$ 6,851.25
1	CIP20SRW01	Cambium PTP 11 GHz All Outdoor with 3' ant	\$ 23,368.60	\$ 23,368.60
1	CKIT0530	Cable Kit - Cat 6 up to 300'	\$ 1,065.00	\$ 1,065.00
1	MWSOM35	Materials - Ground, Stand-offs, Misc	\$ 975.00	\$ 975.00
	<b>Shepard Mesa</b>			
2	TB9435S-100T	TB9435 Single 100Watts Chassis Assembly	\$ 1,158.84	\$ 2,317.68
2	T01-011103-BAAA	TB94 Rctr 136-174MHz S2	\$ 2,339.14	\$ 4,678.28
2	T01-011121-BBBA	TB94 Linear PA 136-174M 100W	\$ 1,847.78	\$ 3,695.56
2	TBA30A4-4400	TB8000/9000 Power Management Unit ACDC48 aux48	\$ 2,266.62	\$ 4,533.24
2	219-01561-00	CBL cord 2m USA IEC blk	\$ 11.84	\$ 23.68
2	TBAS062	SFE Key - Simulcast Enable Phase I (91/94)	\$ 4,286.08	\$ 8,572.16
2	TBAS061	SFE Key - Central Voter (91/94)	\$ 4,373.40	\$ 8,746.80
2	TBAS073	SFE Key - TaskBuilder	\$ 170.94	\$ 341.88
1	2402-613	SecureSync Model 2402-613	\$ 5,599.00	\$ 5,599.00
1	2400-HS-A1	SecureSync Hot Swap AC Power Supply module	\$ 671.00	\$ 671.00

1	2400-HS-D2	SecureSync Hot Swap 24/48 VDC Power Supply module	\$ 979.00	\$ 979.00
1	8230	GNSS Outdoor Antenna	\$ 363.00	\$ 363.00
1	8226	GPS Antenna Surge Protector	\$ 374.00	\$ 374.00
1	CA06R-1513-0001	Power Cord, AC, North America Plug	\$ -	\$ -
1	NCPS4810	Power System - 48 VDC, 100 Amp input	\$ 13,796.78	\$ 13,796.78
1	GMLAB	MW Mount, Shepard Mesa	\$ 1,800.00	\$ 1,800.00
1	CKIT0530	Cable Kit - Cat 6 up to 300'	\$ 1,065.00	\$ 1,065.00
1	W64522/4C,4SN3	COMBINER FF VHF 2CH DL 125W	\$ 7,980.00	\$ 7,980.00
1	DUPLEXER	Duplexer Combiner	\$ 2,500.00	\$ 2,500.00
1	24102-1/4C4SN2AT2	MULTICOUPLER VHF 2B CUSTOM	\$ 6,851.25	\$ 6,851.25
1	Enclosed Rack	Enclosed Rack	\$ 5,000.00	\$ 5,000.00
	<b>Spares</b>			
1	24102-1/4C4SN2AT2	MULTICOUPLER VHF 2B CUSTOM	\$ 6,851.25	\$ 6,851.25
1	2402-613	SecureSync Model 2402-613	\$ 6,108.00	\$ 6,108.00
1	2400-HS-A1	SecureSync Hot Swap AC Power Supply module	\$ 732.00	\$ 732.00
1	2400-HS-D2	SecureSync Hot Swap 24/48 VDC Power Supply module	\$ 1,068.00	\$ 1,068.00
1	8230	GNSS Outdoor Antenna	\$ 396.00	\$ 396.00
		<b>Hardware Sub-Total:</b>		<b>\$ 231,455.64</b>

<b>Special Notes:</b> Removed microwave link from Fire Station 1 to Gibraltar	<b>Hardware</b>	\$ 231,455.64
	<b>Sales Tax (8.75%)</b>	\$ 20,252.37
	<b>Subtotal</b>	<b>\$ 251,708.01</b>
	<b>Contractor Fee 7%</b>	\$ 17,619.56
	<b>GRAND TOTAL</b>	<b>\$ 269,327.57</b>
<b>Customer Approval Signature</b>	<b>PO #</b>	<b>Date</b>

I agree to the terms and conditions set forth in this proposal. A 20% cancellation charge will apply to canceled orders.





13700 Cimarron Ave., Gardena, CA 90249  
 P: (310) 390 – 8003 F: (310) 390 - 4393



**REQUEST FOR QUOTE**

**DATE:** 7/10/2024 **SALES REP:** Ryan Narimatsu

[ryan.narimatsu@commlineinc.com](mailto:ryan.narimatsu@commlineinc.com)

<b>BILL TO:</b>		<b>SHIP TO:</b>	
<b>COMPANY:</b>	Montecito Fire	<b>COMPANY:</b>	Same
<b>ATTENTION:</b>	Keith Turcot	<b>ATTENTION:</b>	
<b>ADDRESS:</b>	595 San Ysidro Road	<b>ADDRESS:</b>	
<b>CITY/ST/ZIP:</b>	Santa Barbara, CA 93108	<b>CITY/ST/ZIP:</b>	
<b>PHONE:</b>	(805) 699-0714	<b>PHONE:</b>	
<b>EMAIL:</b>	<a href="mailto:kturcot@5barengineering.com">kturcot@5barengineering.com</a>	<b>EMAIL:</b>	

<b>RE: Montecito Fire A.3 Rx-Only</b>				
<b>QTY</b>	<b>MODEL/PART #</b>	<b>DESCRIPTION</b>	<b>NASPO COST</b>	<b>EXT COST</b>
	<b>NASPO CONTRACT#00318</b>			
	<b>Rx only Sites</b>			
4	TB9444-RX2T	TB9444 Multi Receiverx2 Chassis Assy	\$ 1,016.02	\$ 4,064.08
8	T01-01104-DAAA	TB94 RxOnly 148-174MHz S2	\$ 1,559.92	\$ 12,479.36
4	TBA30A1-1100	TB8000/9000 Power Management Unit ACDC12 aux12	\$ 2,266.62	\$ 9,066.48
4	219-01561-00	CBL cord 2m USA IEC blk	\$ 11.84	\$ 47.36
8	TBAS073	SFE Key - TaskBuilder	\$ 170.94	\$ 1,367.52
8	TBAS071-R0	SFE Key - IP Networking Satellite Rx Only	\$ 346.32	\$ 2,770.56
		<b>Hardware Sub-Total:</b>		<b>\$ 29,795.36</b>

<b>Special Notes:</b> Receivers only (Does not include antenna installation or Backhaul)	<b>Hardware</b>	\$ 29,795.36
	<b>Sales Tax (8.75%)</b>	\$ 2,607.09
	<b>Subtotal</b>	\$ 32,402.45
	<b>Contractor Fee 7%</b>	\$ 2,268.17
	<b>GRAND TOTAL</b>	\$ 34,670.63
<b>Customer Approval Signature</b>	<b>PO #</b>	<b>Date</b>

I agree to the terms and conditions set forth in this proposal. A 20% cancellation charge will apply to canceled orders.

**REQUEST FOR QUOTE**

**DATE:** 7/10/2024 **SALES REP:** Ryan Narimatsu  
ryan.narimatsu@commlineinc.com

<b>BILL TO:</b>		<b>SHIP TO:</b>	
<b>COMPANY:</b>	Montecito Fire	<b>COMPANY:</b>	Same
<b>ATTENTION:</b>	Keith Turcot	<b>ATTENTION:</b>	
<b>ADDRESS:</b>	595 San Ysidro Road	<b>ADDRESS:</b>	
<b>CITY/ST/ZIP:</b>	Santa Barbara, CA 93108	<b>CITY/ST/ZIP:</b>	
<b>PHONE:</b>	(805) 699-0714	<b>PHONE:</b>	
<b>EMAIL:</b>	<a href="mailto:kturcot@5barengineering.com">kturcot@5barengineering.com</a>	<b>EMAIL:</b>	

**RE: Montecito Fire A.4**

QTY	MODEL/PART #	DESCRIPTION	NASPO COST	EXT COST
<b>NASPO CONTRACT#00318</b>				
<b>Labor</b>				
1	LABOR SD	Installation of RX Base Station x4 - <b>Does not include antenna installation or Backhaul</b>	\$ 20,000.00	\$ 20,000.00
1	LABOR SD	Documentation	\$ 1,000.00	\$ 1,000.00
<b>Labor Sub-Total:</b>				<b>\$ 21,000.00</b>
<b>Extended Warranty &amp; Support</b>				
1	EPW-INF-TAM-1	Extended Warranty TAM Infrastructure Yr#1	\$ -	\$ -
1	EPW-INF-TAM-2	Extended Warranty TAM Infrastructure Yr#2	\$ -	\$ -
1	EPW-INF-TAM-3	Extended Warranty TAM Infrastructure Yr#3	\$ 514.07	\$ 514.07
1	EPW-INF-TAM-4	Extended Warranty TAM Infrastructure Yr#4	\$ 514.07	\$ 514.07
1	EPW-INF-TAM-5	Extended Warranty TAM Infrastructure Yr#5	\$ 514.07	\$ 514.07
1	SRVADV-INW-TAM-1	Tait Advantage TAM Yr#1 Infra No Warrant	\$ 2,570.35	\$ 2,570.35
1	SRVADV-INW-TAM-2	Tait Advantage TAM Yr#2 Infra No Warrant	\$ 2,570.35	\$ 2,570.35
1	SRVADV-INW-TAM-3	Tait Advantage TAM Yr#3 Infra No Warrant	\$ 2,570.35	\$ 2,570.35
1	SRVADV-INW-TAM-4	Tait Advantage TAM Yr#4 Infra No Warrant	\$ 2,570.35	\$ 2,570.35
1	SRVADV-INW-TAM-5	Tait Advantage TAM Yr#5 Infra No Warrant	\$ 2,570.35	\$ 2,570.35
<b>Ext. Warranty &amp; Support Sub-Total:</b>				<b>\$ 14,393.96</b>
<b>Freight</b>				
1	FRT	Freight	\$ 1,000.00	\$ 1,000.00
<b>Freight Sub-Total:</b>				<b>\$ 1,000.00</b>
Note: Quote good for 30 days				

<b>Special Notes:</b>	<b>Labor</b>	\$ 21,000.00
	<b>Ext. Warranty</b>	\$ 14,393.96
	<b>Freight</b>	\$ 1,000.00
	<b>Subtotal</b>	\$ 36,393.96
	<b>Contractor Fee 7%</b>	\$ 2,547.58
<b>GRAND TOTAL</b>		<b>\$ 38,941.54</b>
<b>Customer Approval Signature</b>	<b>PO #</b>	<b>Date</b>

I agree to the terms and conditions set forth in this proposal. A 20% cancellation charge will apply to canceled orders.

# PROPOSAL



<b>Date</b>	07/03/2024
<b>Bid #</b>	Bid-00817

**Keith Turcot**  
5 Bar Engineering

**Notes:**

**SOW:**  
Install new 30' pole on the side of a CMU wall.

**Exclusions:**

**Assumptions:**

- Quote assumes site accessible in standard 4WD work vehicle. Road improvements not included.
- Quote assumes non-winter access conditions.
- Quote assumes 24/7 site access.
- Quote assumes one mobilization by TEP. Additional mobilizations at no fault of TEP may result in a change order request.

Thank you for allowing TEP Design Build the opportunity to work for you. If you are in agreement, please provide a purchase order.

Line Number	Bid Line Item	Site Name	Site Number	Unit Price	Unit	Quantity	Total
1	Mobilization	Gibraltar Peak	N/A	\$1,500.00	Each	1.00	\$1,500.00
2	Equipment Rentals	Gibraltar Peak	N/A	\$1,950.00	Each	1.00	\$1,950.00
3	Labor	Gibraltar Peak	N/A	\$6,000.00	Each	1.00	\$6,000.00
4	Materials	Gibraltar Peak	N/A	\$12,500.00	Each	1.00	\$12,500.00
5	PMI	Gibraltar Peak	N/A	\$2,500.00	Each	1.00	\$2,500.00
6	Antenna Install	Gibraltar Peak	N/A	\$1,500.00	Each	1.00	\$1,500.00
<b>Total:</b>							\$25,950.00

Best Regards,

**TEPDB OPCO**  
Jordan Mould

Tower Engineering Professionals is a family of companies licensed to provide different services in different jurisdictions. Depending on the jurisdiction, professional engineering and land surveying services are provided by TEP OpCo LLC, a Delaware limited liability company, TEP Engineering, PLLC, a North Carolina professional limited liability company, M&H Engineering, PLLC, a New York professional limited liability company, or TEP Engineering Canada, ULC., a British Columbia unlimited liability company. General contractor services are provided by TEPDB OpCo LLC, a Delaware limited liability company or or TEP Engineering Canada, ULC., a British Columbia unlimited liability company. We acquire the requisite licenses in each state or province. Additional information can be obtained from the company.

Billing Address: 326 Tryon Road, Raleigh, NC 27603  
Email:TEPDBAP@tepgroup.net

# Agenda

## Item #3






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## STAFF REPORT

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**To:** Montecito Fire Protection District Board of Directors  
**From:** David Neels, Fire Chief  
**Prepared by:** Travis Ederer, Division Chief  
**Date:** July 22, 2024  
**Topic:** Retention of Keith Turcot, 5 Bar Engineering, LLC

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### Summary

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Keith Turcot, principal for 5 Bar Engineering, LLC, continues to provide consulting on the District's VHF public safety radio system upgrade that has been evolving, and has approval in the budget for Fiscal Year 2024-2025. Due to the complexity of the project, Staff anticipates that Mr. Turcot's consulting services on the project will exceed \$20,000, therefore it is necessary to enter into a Professional Services Agreement with 5 Bar Engineering.

### Discussion

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The District currently supports VHF communications from a land mobile public safety radio system. This critical communication platform is how our firefighters communicate to dispatch and other resources over portable and fire engine radios. The transition to the Regional Fire Communications Center will coordinate the closest resource response model, however the department will still be dependent on the VHF radio network for years to come, making upgrades imperative to the reliability of the system.

The scope of work includes design and project oversight to convert Command 11 and Command 12 to a two-site, two-channel simulcast system to provide greater reliability. The upgrade process will include additions and enhancements to the voter and backhaul network, repeaters, antenna systems, enclosures and supporting structures, as well as power systems. Consultant will oversee design, engineering, selection of upgrades, implementation, and technical services.

Consultant services to enhance the VHF land mobile public radio system will not exceed \$45,000, and these funds are available within the project budget.

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Staff recommends that the Board authorize the Fire Chief to enter into a Professional Services Agreement with 5 Bar Engineering, LLC.

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### Attachments

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1. 5 Bar Engineering, LLC Professional Services Agreement

### Strategic Plan Reference

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Strategic Plan Goal #5: Strengthen our Infrastructure.

## AGREEMENT FOR CONSULTING SERVICES

This Agreement for Consulting Services (“Agreement”) is made and entered into in the County of Santa Barbara, State of California, the 1st day of May 2024, by and between the Montecito Fire Protection District (“District”) and Keith Turcot, 5 Bar Engineering, LLC (“Consultant”).

WHEREAS, District desires to hire Consultant to perform certain consulting services specified herein; and

WHEREAS, Consultant represents that Consultant has the qualifications and experience to properly perform such services.

NOW, THEREFORE, District and Consultant hereby agree as follows:

1. Scope of Services

Consultant shall furnish District with professional consulting services as more particularly set forth in Exhibit A attached hereto and incorporated by this reference in full herein.

2. Method of Performing Services

Subject to the terms and conditions of this Agreement, Consultant may determine the method, details, and means of performing the services described herein.

3. Standard of Performance

Consultant agrees to undertake and complete these services to conclusion, using that standard of care, skill, and diligence normally provided by a professional person in performance of similar consulting services.

4. Nonexclusive Services

This Agreement shall not be interpreted to prevent or preclude Consultant from rendering any services for Consultant’s own account or to any other person or entity as Consultant in its sole discretion shall determine. Consultant agrees that performing such services will not materially interfere with services to be performed for the District.

5. Coordination of Services

All services are to be coordinated with the Fire Chief or designee (“Fire Chief”) and shall be performed under the general direction of the Fire Chief.



6. Principal in Charge

Consultant hereby designates Division Chief - Operations, as its principal-in-charge and person responsible for necessary coordination with Fire Chief.

7. Time for Performance

All services performed under this Agreement shall be completed in a timely manner as specified by District.

8. District's Responsibility

District shall cooperate with Consultant as may be reasonably necessary for Consultant to perform its services. Fire Chief agrees to provide direction to Consultant as requested by Consultant.

9. Term of Agreement

Unless otherwise terminated as provided for herein, this Agreement shall begin on May 1, 2024, and shall expire on June 30, 2026. This Agreement may be extended by mutual agreement of the Parties.

10. Termination

a. This Agreement may be terminated by District if Fire Chief notifies Consultant, in writing, of Fire Chief's desire to terminate the Agreement. Such termination shall be effective ten calendar days from the date of delivery or mailing of such notice. District agrees to pay Consultant in full for all amounts due Consultant as of the effective date of termination, including any expenditures incurred on District's behalf.

b. This Agreement may be terminated by Consultant if Consultant notifies Fire Chief, in writing, of Consultant's desire to terminate the Agreement. Such termination shall be effective ten calendar days from the date of delivery or mailing of such notice and only if all assignments accepted by Consultant have been completed prior to the date of termination.

11. Compensation

a. District agrees to pay Consultant \$300.00 per hour plus expenses for services provided under this Agreement. For the work described in Exhibit A.

b. The acceptance by Consultant of the final payment made under this Agreement shall constitute a release of District from all claims and liabilities for compensation to Consultant for anything completed, finished or relating to Consultant's services.

c. Consultant shall provide District with a monthly invoice delineating the time and services provided by Consultant to District.

## 12. Non-Appropriation of Funds.

Payments to be made to Consultant by District for services performed within the current fiscal year are within the current fiscal budget and within an available, unexhausted and unencumbered appropriation of District. In the event District does not appropriate sufficient funds for payment of Consultant's services beyond the current fiscal year, this Agreement shall cover payment for Consultant's services only up to the conclusion of the last fiscal year in which District appropriates sufficient funds and shall automatically terminate at the conclusion of such fiscal year.

## 13. Records

a. Consultant agrees that all final computations, exhibits, files, plans, correspondence, reports, drawings, designs, data and photographs expressly required to be prepared by Consultant as part of the scope of services ("documents and materials") shall be the property of District and shall, upon completion of the services or termination of this Agreement, be delivered to Fire Chief.

b. At District's request, District shall be entitled to immediate possession of, and Consultant shall furnish to Fire Chief within ten days, all of the documents and materials. Consultant may retain copies of these documents and materials.

c. Any substantive modification of the documents and materials by District staff or any use of the completed documents and materials for other District projects, or any use of uncompleted documents and materials, without the written consent of Consultant, shall be at District's sole risk and without liability or legal exposure to Consultant. District agrees to hold Consultant harmless from all damages, claims, expenses and losses arising out of any reuse of the documents and materials for purposes other than those described in this Agreement, unless Consultant consents in writing to such reuse.

## 14. Confidentiality of Information

Any documents and materials given to or prepared or assembled by Consultant under this Agreement shall be confidential and shall not be made available to any third person or organization by Consultant without prior written approval of the Fire Chief.

## 15. Indemnity

Consultant agrees to indemnify, hold harmless and defend District, its District Council, and each member thereof, and every officer, employee, representative or agent of District, from any and all liability, claims, demands, actions, damages (whether in contract or tort, including personal injury, death at any time, or property damage), costs and financial loss, including all costs and expenses and fees of litigation or arbitration, that arise directly or indirectly from any acts or omissions related to this Agreement performed by Consultant or its agents, employees, subconsultants, subcontractors, consultants and other persons acting on Consultant's behalf. This agreement to indemnify, hold harmless and defend shall apply whether such acts or omissions are the product of active negligence, passive negligence, or acts for which

Consultant or its agents, employees, subconsultants, subcontractors, consultants and other persons acting on Consultant's behalf would be held strictly liable.

16. Insurance

Consultant shall maintain prior to the beginning of and for the duration of this Agreement, insurance coverage as specified in Exhibit B attached hereto and incorporated by this reference in full herein.

17. Independent Contractor

a. District and Consultant agree that in the performance of the services, Consultant shall be, and is an independent contractor, and that Consultant and its employees are not employees of District. Consultant has and shall retain the right to exercise full control over the employment, direction, compensation and discharge of all persons assisting Consultant.

b. Consultant shall be solely responsible for, and shall save District harmless from, all matters relating to the payment of Consultant's employees, agents, subcontractors and subconsultants, including compliance with social security requirements, federal and State income tax withholding and all other regulations governing employer-employee relations.

c. Consultant acknowledges that Consultant and Consultant's employees are not entitled to receive from District any of the benefits or rights afforded employees of District, including but not limited to reserve leave, sick leave, vacation leave, holiday leave, compensatory leave, Public Employees Retirement System benefits, or health, life, dental, long-term disability and workers' compensation insurance benefits.

18. Consultant Not Agent

Except as Fire Chief may specify in writing, Consultant, and its agents, employees, subcontractors and subconsultants shall have no authority, expressed or implied, to act on behalf of District in any capacity, as agents or otherwise, or to bind District to any obligation.

19. Conflict of Interest

Consultant shall promptly inform Fire Chief of any contract, agreement, arrangement, or interest that Consultant may enter into or have during the performance of this Agreement that may conflict with District's interests. This requirement includes contracts, agreements and arrangements with manufacturers, suppliers, contractors or other clients whose interests might be served by the services performed under this Agreement and Consultant's or Consultant's clients' interest in land that might be affected by the services. Consultant shall take such measures as are necessary in the performance of this Agreement to prevent actual or appearances of conflicts of interest.

20. Assignability of Agreement

Consultant agrees that this Agreement contemplates personal performance by Consultant and is based upon a determination of Consultant's personnel's unique competence,

experience and specialized personal knowledge. Assignments of any or all rights, duties, or obligations of Consultant under this Agreement will be permitted only with the express written consent of Fire Chief, which consent may be withheld for any reason.

21. Successors and Assigns

Consultant and District agree that this Agreement shall be binding upon and inure to the benefit of the heirs, executors, administrators, successors and assigns of Consultant and District.

22. Force Majeure

Consultant and District agree that neither District nor Consultant shall be responsible for delays or failures in performance resulting from acts beyond the control of either party. Such acts shall include, but not be limited to acts of God, strikes, lockouts, riots, acts of war, epidemics, governmental regulations imposed after this Agreement was executed, fire, communication line failures, earthquakes, or other disasters.

23. Time of Essence

Consultant and District agree that time is of the essence in regard to performance of any of the terms and conditions of this Agreement.

24. Governing Law

District and Consultant agree that the construction and interpretation of this Agreement and the rights and duties of District and Consultant hereunder shall be governed by the laws of the State of California.

25. Covenants and Conditions

Consultant and District agree that each term and each provision of this Agreement to be performed by Consultant shall be construed to be both a covenant and a condition.

26. Compliance with Laws

Consultant agrees to comply with all local, State, and federal laws, rules, and regulations, now or hereafter in force, pertaining to the services performed by Consultant pursuant to this Agreement.

27. Severability

District and Consultant agree that the invalidity in whole or in part of any provision of this Agreement shall not void or affect the validity of any other provision.

28. Waiver

District and Consultant agree that no waiver of a breach of any provision of this Agreement by either Consultant or District shall constitute a waiver of any other breach of the same provision or any other provision of this Agreement. Failure of either District or Consultant to enforce at any time, or from time to time, any provision of this Agreement, shall not be construed as a waiver of such provision or breach.

29. Counterparts

District and Consultant agree that this Agreement may be executed in two or more counterparts, each of which shall be deemed an original.

30. Expenses of Enforcement

Consultant and District agree that the prevailing party's reasonable costs, attorneys' fees and expenses, including investigation fees and expert witness fees, shall be paid by the non-prevailing party in any dispute involving the terms and conditions of this Agreement.

31. Authority to Execute

District and Consultant acknowledges that the person executing this Agreement have been duly authorized by the District and Consultant to do so on behalf of District and Consultant.

32. Notices

a. Any notices to Consultant may be delivered personally or by mail addressed to Keith Turcot, 5 Bar Engineering, LLC 810 Calle Malaga, Santa Barbara, CA 93109.

b. Any notices to District may be delivered personally or by mail addressed to Montecito Fire Protection District, 595 San Ysidro Road, Santa Barbara, CA 93108, Attention: Fire Chief.

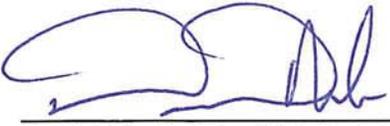
33. Amendment

District and Consultant agree that the terms and conditions of the Agreement may be reviewed or modified at any time. Any modifications to this Agreement, however, shall be effective only when agreed to in writing by both Fire Chief and Consultant.

34. Entire Agreement

District and Consultant agree that this Agreement constitutes the entire agreement of the parties regarding the subject matter described herein and supersedes all prior communications, agreements, and promises, either oral or written.

**MONTECITO FIRE PROTECTION  
DISTRICT**

 5/1/2024  
\_\_\_\_\_  
David Neels, Fire Chief /Date

**5 Bar Engineering, LLC**

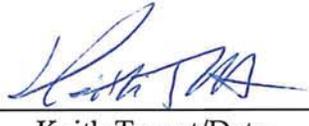
 5/1/2024  
\_\_\_\_\_  
Keith Turcot/Date

EXHIBIT A  
SCOPE OF SERVICES

- I. Consultant shall provide services at the direction of the Fire Chief and the Division Chief - Operations.
- II. Consultant shall provide services that are anticipated but not limited to the District land mobile Public Safety radio system including the following:
  - 1) Evaluation, engineering, recommendations, and procurement support to improve the overall systems reliability and performance. The scope of work includes additions to, moves, and changes to the voter system, backhaul network, data network, repeaters and antenna systems, enclosures and support structures, power systems, and control and support tools, and limited functional testing. Consultant will oversee the acquisition of any needed materials, construction, and testing as required. Also, Consultant will review and augment related documentation as needed to facilitate proper operations and support of the system.
  - 2) Provide technical consulting services related to converting Command 11 and Command 12 channels to a two- site two-channel simulcast system.
  - 3) Provide technical consulting services related to connecting the District land mobile radio system to and transitioning system features to the County Regional Fire Communications Center.
- III. Additionally, the District may request Consultant to assist in providing emergency service as requested.

EXHIBIT B  
INSURANCE

1. Consultant shall obtain and maintain during the performance of any services under this Agreement the following insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of services hereunder by Consultant, its agents, representatives, employees or subconsultants.

a. Commercial general liability insurance, including a contractual liability endorsement, in an amount not less than \$1,000,000 combined single limit for bodily injury and property damage for each claimant for general liability with coverage equivalent to Insurance Services Office commercial general liability coverage (Occurrence Form CG0001ED, November 1988). If a general aggregate limit is used, that limit shall apply separately to the project or shall be twice the occurrence amount;

b. Business automobile liability insurance in an amount not less than \$1,000,000 combined single limit for bodily injury and property damage for each claimant for automobile liability with coverage equivalent to Insurance Services Office automobile liability coverage (Occurrence Form CA000T, ED June 1992) covering Code No. 1, "any auto";

c. Workers' compensation insurance in compliance with the laws of the State of California, and employer's liability insurance in an amount not less than \$1,000,000 per claimant.

2. Consultant shall, prior to performance of any services, file with the Fire Chief certificates of insurance with original endorsements affecting coverage required by this Exhibit C. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements are to be on the attached forms or on other forms approved by the Fire Chief. All certificates and endorsements are to be received and approved by the Fire Chief before work commences. District reserves the right to require complete certified copies of all required insurance policies at any time.

3. Consultant agrees that all insurance coverages shall be provided by a California admitted insurance carrier with an A.M. Best rating of A:VII or better and shall be endorsed to state that coverage may not be suspended, voided, canceled by either party, or reduced in coverage or limits without 30 days' prior written notice to the Fire Chief. The Fire Chief shall not approve or accept any endorsement if the endorsement contains "best effort" modifiers or if the insurer is relieved from the responsibility to give such notice.

4. Consultant agrees that the commercial general liability and business automobile liability insurance policies shall be endorsed to name District, its Governing Board officers, employees and volunteers as additional insureds as respects: liability arising out of activities performed by or on behalf of Consultant; products and completed operations of Consultant; premises owned, occupied or used by Consultant; or automobiles owned, leased, hired or borrowed by Consultant. The coverage shall contain no special limitations on the scope of protection afforded to District, its Governing Board, officers, employees and volunteers.



**The General liability Special Endorsement Form and Automobile Liability Special Endorsement Form attached to this Exhibit C or substitute forms containing the same information and acceptable to the Fire Chief shall be used to provide the endorsements.**

5. The coverages provided to District shall be primary and not contributing to or in excess of any existing District insurance coverages. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to District, its Governing Board, officers, employees and volunteers. The insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

6. Any deductibles or self-insured retentions must be declared to and approved by the Fire Chief. At the option of the Fire Chief, either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects District, its Governing Board, officers, employees and volunteers, or the contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

7. All insurance standards applicable to Consultant shall also be applicable to Consultant's subconsultants. Consultant agrees to maintain appropriate agreements with subconsultants and to provide proper evidence of coverage upon receipt of a written request from the Fire Chief.



# Agenda

## Item #4



## MONTECITO FIRE PROTECTION DISTRICT

### Minutes for the Regular Meeting of the Board of Directors

Held at Montecito Fire Protection District, 595 San Ysidro Road, Santa Barbara, CA 93108 on June 24, 2024 at 2:00 p.m.

Director van Duinwyk called the meeting to order at 2:00 p.m.

**Present:** Director van Duinwyk, Director Lee, Director Easton, Director Dougherty. Chief Neels and District Counsel Mark Manion were also present.

**Absent:** Director Powell

- 1. Public comment: Any person may address the Board at this time on any non-agenda matter that is within the subject matter jurisdiction of the Montecito Fire Protection District. (30 minutes total time allotted for this discussion.)**

There were no public comments at this meeting.

- 2. Consider declaring vehicle 1304944 (2011 Chevy Silverado) as surplus and authorize the Fire Chief to sell, donate, or dispose of the vehicle as specified in the Surplus Property policy. (Strategic Plan Goal 5)**

- a. Staff report presented by Fire Chief Neels.**

Chief Neels provided a staff report regarding the 2011 Chevy Silverado. Motion to authorize the Fire Chief to sell, donate or dispose of the vehicle as specified in the Surplus Property policy made by Director Lee, seconded by Director Easton, and unanimously passed.

- 3. Consider approval to close Fund 3651 – Montecito Fire Pension Obligation Bond. (Strategic Plan Goal 8)**

- a. Staff report presented by Accountant Nahas.**

Accountant Nahas provided a staff report regarding the closing of Fund 3651-Montecito Fire Pension Obligation Bond. Motion to approve the closing of Fund 3651 made by Director Easton, seconded by Director Dougherty, and unanimously passed.

- 4. Consider recommendation to approve Resolution 2024-05, Adoption of the Preliminary Budget for FY 2024-25. (Strategic Plan Goal 8)**

**a. Staff report presented by Accountant Nahas.**

Accountant Nahas provided a staff report regarding Resolution 2024-05, Adoption of the Preliminary Budget for FY 2024-25. Motion to approve Resolution 2024-05, Adoption of the Preliminary Budget for FY 2024-25 made by Director Lee, seconded by Director Easton. The roll call vote was as follows:

Ayes: S. Dougherty, P. van Duinwyk, M. Lee, S. Easton

Nays: None

Abstain: None

Absent: J. A. Powell

**5. Approval of Minutes of the May 29, 2024 Special Meeting.**

Motion to approve the minutes of the May 29, 2024 Special meeting made by Director Dougherty, seconded by Director Easton, and unanimously passed.

**6. Fire Chief's report.**

Chief Neels highlighted the Academy graduation held on June 8<sup>th</sup>. The Chief stated the County Board of Supervisors have held closed session meetings regarding the Ambulance transport permit. He noted that a letter highlighting the changes and failures of the current ambulance model was signed by Director van Duinwyk and sent to the Chair of the Board. Chief Neels provided an update regarding the new website scheduled to be released in mid-July. The Chief provided an update regarding Hot Springs Road. Chief Neels highlighted the AED project stating that fourteen have been distributed throughout the community. The Chief mentioned the upcoming July 4 pancake breakfast.

**7. Board of Director's report.**

There were no items to report at this meeting.

**8. Suggestions from Directors for items other than regular agenda items to be included for the July 22, 2024 Regular Board meeting.**

There were no additional suggestions from the Directors.

**9. CLOSED SESSION: PUBLIC EMPLOYEE PERFORMANCE EVALUATION (Government Code section 54957) Title: Fire Chief**

The Board reported out of closed session at 3:13 p.m. with no reportable action.

Meeting Adjourned at 3:14 p.m.

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President Peter van Duinwyk

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Secretary Sylvia Easton





# Agenda

## Item #5



# MONTECITO FIRE PROTECTION DISTRICT

## Q2 OPERATIONS REPORT

Board of Directors Meeting

July 22, 2024



# OPERATIONS REPORT

## RESPONSE DATA FOR Q1 OF 2024

Montecito Fire utilizes the following National Fire Incident Reporting System's (NFIRS) incident typing categories to organize response data:

**FIRE**  
Structure fire, vehicle fire, vegetation fire, other fire categories

**RESCUE & EMERGENCY MEDICAL SERVICE**  
EMS, medical assist, lock-in, search for lost person, extrication, water and ice-related rescue, standby

**HAZARDOUS CONDITION**  
Combustible/flamable spills and leaks, chemical release, electrical wiring/equipment problem, vehicle accident debris removal, attempted burning, overpressure rupture, explosion, overheating (no fire)

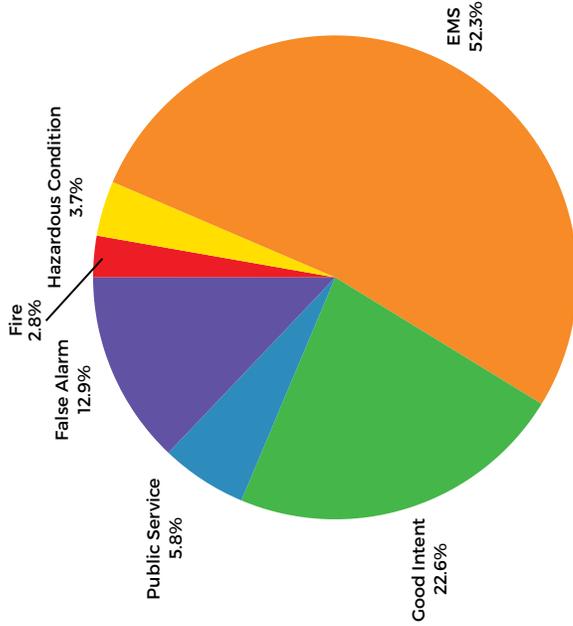
**SERVICE CALL**  
Person in distress, water problem, smoke/odor problem, animal rescue, public service assist, unauthorized burning, cover assignment, severe weather and natural disaster, special incident type

**GOOD INTENT CALL**  
Dispatched and cancelled enroute, no emergency found, controlled burning, steam mistaken for smoke, EMS call where party has been transported

**FALSE ALARM**  
System or detector malfunction, unintentional system activation, sprinkler activation

RESPONSES BY CATEGORY	Count
Fire	12
Hazardous Condition	16
EMS	227
Good Intent	98
Public Service	25
False Alarm	56

### RESPONSES BY PERCENTAGE



**TOTAL CALLS FOR SERVICE**

# 424

# OPERATIONS REPORT

EMERGENCY RESPONSE IN 7 MINUTES OR LESS

**Board Policy: Total Response Time of 7:00 minutes, 90% of the time**

Total Response Time = Call Processing + Turnout Time + Drive Time  
(1:00) (2:00) (4:00)

## TOTAL EMERGENCY CALLS IN MTO DISTRICT = 140

Total Response Time > 7:00 = 13 Calls = 9%

Total Response Time < 7:00 = 127 Calls = 91%

**7:00 minutes or less, 91% of the time for Emergency Response in Q2**

# OPERATIONS REPORT

## 7-MINUTE RESPONSE MAP

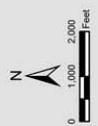


**MONTECITO FIRE DISTRICT**  
 Emergency Response - Under 7 Minutes  
 to Arrival on Scene (Q2 2024)  
 20240716  
 Compiled by zWORLD GIS.



**Emergency Response Time:**  
 Under 7 Minutes (127)  
 Over 7 Minutes (13)

**MFD Boundary**  
 Streets  
 Creeks & Rivers



# OPERATIONS REPORT

## TRAINING

### EMS UPDATE

On April 23, we hosted the annual EMS updates at Fire Station 91 for local paramedics to reinforce their skills. This training brings together paramedics from across the county to practice their skills and review the latest updates to medical policies and procedures.

This training is in collaboration with the Santa Barbara County Emergency Medical Services Agency (EMSA). Paramedics from Santa Barbara County Fire, Carpinteria-Summerland Fire and Montecito Fire participated in this year's training.

Practicing advanced lifesaving skills with our partners is critical to ensuring we can always provide our community with the highest level of care.



# OPERATIONS REPORT

## TRAINING

### RT130 WILDLAND FIRE SAFETY REFRESHER TRAINING

During April and May, all Montecito firefighters completed Wildland Fire Refresher Training (RT130).

The annual training includes a review of last year's fire season, projections for the upcoming fire year, analysis of fatality fires and physical testing to ensure firefighters are prepared for the rigors of wildland firefighting.

We are fortunate to use our local trail network as our training ground. Firefighters hiked stretches of the McMenemy and Girard Trails and practiced deploying fire shelters and progressive hose lays.



Firefighters deploy practice fire shelters to prepare for burn-over scenarios.



# OPERATIONS REPORT

## NOTEWORTHY INCIDENTS

### TRAIL INCIDENTS

Our local trails have been exceedingly popular during the spring and summer months. The additional traffic on the trails has led to numerous trail rescues.

A total of five trail rescues occurred in the quarter. While all are strenuous for the patient and the rescue crews, on April 29, a female hiker was bitten by a rattlesnake bite and flown to the hospital for further treatment.

In addition, crews have responded to multiple reports of illegal campfires and use of fire on the Hot Springs Trail leading to response with our law enforcement partners. We appreciate our community members who have vigilantly reported these hazards on our trails.



# OPERATIONS REPORT

## NOTEWORTHY INCIDENTS

### VEHICLE FIRE

On May 18, Montecito firefighters responded to reports of a vehicle on fire at the intersection of Coyote Road and Mountain Drive. Firefighters found a Dodge Ram 3500 well-involved in fire. The driver safely evacuated and was not injured.

The fire started in the truck's engine compartment. Flames spread to nearby brush and burned a 10x10 spot. Firefighters knocked down the fire within 10 minutes.



# OPERATIONS REPORT

## NOTEWORTHY INCIDENTS

### **GARAGE FIRE**

At 4:20 p.m. June 3, Montecito firefighters were called to the 200 block of Olive Mill Road for a reported structure fire. Firefighters found light smoke coming from the garage. The residence's sprinkler system greatly helped with limiting the fire's spread. Firefighters knocked down the flames within 15 minutes. Damage was contained to the garage.



# OPERATIONS REPORT

## NOTEWORTHY INCIDENTS

### **MULTI-VEHICLE COLLISION HIGHWAY 101**

Around 5 a.m. on June 7, Montecito and Carpinteria firefighters responded with AMR to a multiple vehicle accident on Highway 101.

Due to traffic and closures, Medic Engine 91 accessed the incident from Coast Village circle.

Medic Engine 62 arrived at scene finding seven vehicles involved. AMR treated one patient with minor injuries.

The engine companies stabilized the vehicles and remained at scene until cleared by law enforcement.



# OPERATIONS REPORT

## NOTEWORTHY INCIDENTS

### **DAWLISH PLACE STRUCTURE FIRE**

Just after 6 p.m. on June 27, Montecito firefighters were dispatched to a structure fire on the 200 block of Dawlish Place. Firefighters reported smoke showing from the residence. They completed an interior search and confirmed no one was trapped inside. After ventilating the roof, the fire was knocked down within 20 minutes. The residents were not home at the time of the fire, however, firefighters unfortunately found the family's cat which had succumbed to the exposure to smoke and heat.

Preliminary investigation into the cause of the fire determined it to be an electrical issue. The entire home suffered damage by fire, heat and smoke.

We are grateful to the neighbors in the area who noticed the smoke and called 911 immediately.

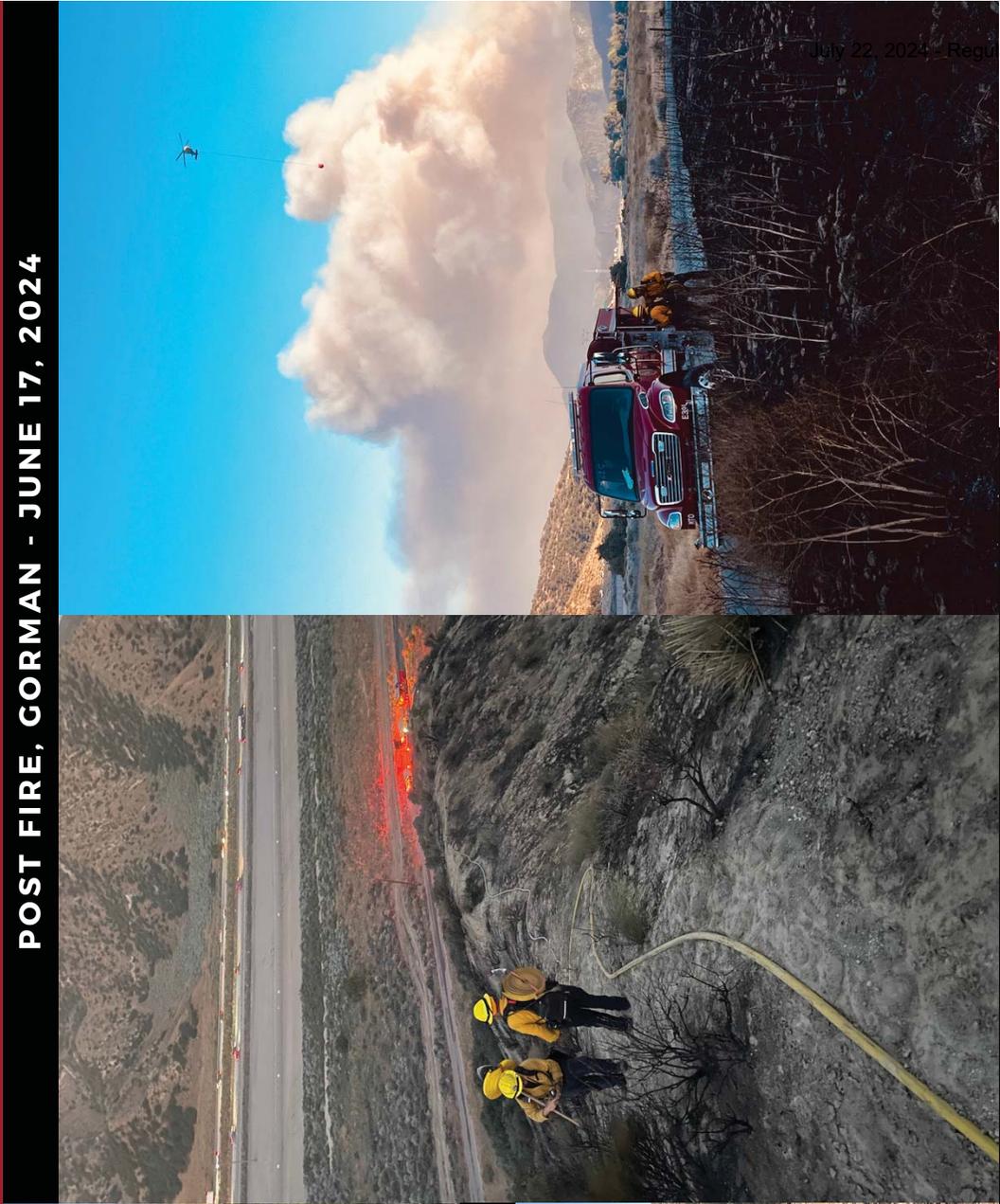


# OPERATIONS REPORT

## MUTUAL AID RESPONSES



HILL FIRE, CUYAMA - MAY 28, 2024



POST FIRE, GORMAN - JUNE 17, 2024

# OPERATIONS REPORT

## PERSONNEL UPDATES

### DISPATCH APPRECIATION

During the week of April 15, we recognized the vital role our dispatchers play in emergency response for National Public Safety Telecommunicators Week.

We recognized the exceptional actions of South Coast dispatcher Kirsten Kruse. She fielded more than 250 calls for service and information during an unpredicted storm event that impacted Montecito on the evening of March 30, 2024. She effectively dispatched more than 70 calls for service that night and into the early morning hours the next day.

Chief Neels presented her with a Certificate of Commendation out of gratitude for her service to the community that night and the service our dispatchers provide to both Montecito Fire Department and Carpinteria-Summerland Fire Protection District.



# OPERATIONS REPORT

## PERSONNEL UPDATES

### ACADEMY 125 GRADUATION

We are pleased to welcome four firefighters to our organization following their successful completion of a 10-week fire academy. Our recruits trained alongside Carpinteria-Summerland Fire's three recruits in a joint fire academy. These seven firefighters comprise Class 125 and graduated June 8, 2024.



Firefighter/Paramedic Braden Macy, Firefighter/Paramedic Trevor Oakley, Firefighter Ethan Reeves, Firefighter/Paramedic Carlos Luna



# OPERATIONS REPORT

## COMMUNITY OUTREACH - ENGINE 92 PUSH IN EVENT



# OPERATIONS REPORT

## STATION 91 DEFENSIBLE SPACE





# Q2 OPERATIONS REPORT 2024 MONTECITO FIRE PROTECTION DISTRICT





# M e m o r a n d u m

**Date:** June 20, 2024  
**To:** Lt. Arnoldi  
**From:** Sgt. Cintron  
**Subject:** Montecito Fire  
**CC:**



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Lt. Arnoldi, I am authoring this memorandum to highlight the assistance me and my Deputies received from the Montecito Fire Department on 6-19-2024, during a train accident at Fernald Point involving a juvenile. The Firefighters assigned to this incident not only attempted to conduct life saving measures on the juvenile, but also stayed and assisted in all aspects of the incident. Firefighters assisted with scene security and recovery of the of the juvenile. Additionally, they went above and beyond and conducted scene control of family, friends, juveniles, and neighbors. This incident drew many people and emotions were extremely high. Firefighters were able to comfort and calm all individuals with the assistance of Sheriff's Chaplains. Their actions relieved deputies of these duties so the investigation could be conducted.

This incident was very emotional for all involved, and without the outstanding service from the Montecito Firefighters, it would have been extremely difficult to complete this investigation. Their professionalism, empathy, and teamwork with deputies, made this horrific accident manageable.

I would like to commend them for their teamwork and assistance on this incident and I believe it speaks volumes of their organization. I look forward to our continuing partnership in serving the residents of the County of Santa Barbara and Montecito.

Respectfully

Sgt. Cintron 3831



## City of Santa Barbara

Fire Department

[SantaBarbaraCA.gov](http://SantaBarbaraCA.gov)

July 8, 2024

Fire Chief David Neels  
Montecito Fire Department  
595 San Ysidro Road  
Santa Barbara, CA 93108

Dear Chief Neels,

As Strike Team Leader Trainee during the recent deployment of XSB-1521C to the Thompson Fire in Butte County, I would like to take a moment to express my sincere thanks for your department's support, as well as the work of your members.

Engine 391 led by Billy Wrenn and crew comprised of Jered Walberg, Ethan Reeves and Justin Pickens, worked extremely hard each day demonstrating a positive attitude and an exceptional work ethic. Your MFD crew worked collaboratively with the other resources on the strike team and I was easily assured that their efforts would be completed diligently and safely. The crews were always prepared, on time, knowledgeable, and safe. This level of professionalism and work ethic afforded me the opportunity to remain focused on the big picture and support the crews and division resources.

While I am sure these comments come as no surprise, you can continue to be proud that your firefighters represented the community of Montecito and your agency with true professionalism. It was a pleasure to work with them and I look forward to the next opportunity.

Respectfully,

Cory Cloud  
Battalion Chief  
Santa Barbara City Fire Department