

**Cumberland County REQUEST FOR PROPOSALS**  
**RFP AMENDMENT # 1**

<b>RFP TITLE:</b>	RFP Packet for Communications upgrades Cumberland County Regional Communications Center
<b>RFP ISSUED BY:</b>	Compliance and Audit Manager
<b>AMENDMENT DATE:</b>	06/02/2023
<b>PROPOSALS DUE DATE:</b>	N/A
<b>PROPOSALS DUE TO:</b>	<a href="mailto:akimball@cumberlandcounty.org">akimball@cumberlandcounty.org</a>
<b>DESCRIPTION OF CHANGES IN RFR (if any):</b> <ol style="list-style-type: none"><li>1. Changed pre bid meeting date</li><li>2. Added Pricing Sheet to the RFP packet</li><li>3. Revised language in RFP on pages 49 &amp; Page 5.</li><li>4. Added Subscriber equipment specification to RFP packet</li></ol>	
<b>REVISED LANGUAGE IN RFR (if any):</b> <ol style="list-style-type: none"><li>1. Mandatory Pre Bid meeting will be Held on June 23,2023</li><li>2. Pg 49 changed to requiring pricing sheet be completed and submitted with proposal.</li><li>3. Pg5 revised pre bid meeting date and fixed typo for due date to read July 21, 2023</li></ol>	
<b>PROPOSAL Deadline</b>	<b><u>Proposal Deadline:</u></b> July 21,2023, no later than 4:00 p.m., local time <i>Proposals must be submitted to Alex Kimball</i>
<b>All other provisions and clauses of the RFP remain unchanged.</b>	

# Cumberland County Regional Communications Center

Request for Proposal  
for

## Regional Public Safety Communications System Upgrade

The purpose of this document is to provide interested parties with information to enable them to prepare and submit a proposal for upgrade of a regionwide Public Safety transmitter simulcast radio network.

May 27, 2023

Mandatory Pre-Proposal Conference	9:30AM- June 23, 2023
Proposal Due Date	4:30 PM – July 21, 2023

**Deliver Proposal to:**

Alex Kimbal, Deputy Manager of Finance & Administration, 142 Federal Street, Portland, ME 04101

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**1 PUBLIC NOTICE**

The Cumberland County Regional Communications Center  
Request for Proposal for Regional Public Safety Communications Systems Upgrade

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Cumberland County Government is seeking request for proposals for the upgrade of the Cumberland County Regional Public Safety radio equipment as well as installation and maintenance services. RFP documents are available at Cumberland County Finance & Administrative office located at 142 Federal Street, Portland Maine 04101 between the hours of 8am-4pm, Monday –Friday, and can be obtain electronically via the County's RFP Page of our website or by sending a request to Melinda Fairbrother-Dyer [mjdyer@cumberlandcounty.org](mailto:mjdyer@cumberlandcounty.org).

Questions regarding this RFP shall be made in writing only and be sent to Melinda Fairbrother-Dyer, [mjdyer@cumberlandcounty.org](mailto:mjdyer@cumberlandcounty.org), and will be received until end of business day on July 10, 2023. Mandatory Pre-Proposal conference will be held on June 23, 2023 at 9:30am and will be held at 22 High Street, Windham, ME 04062.

Proposals may be hand-delivered or mailed to Alex Kimball at 142 Federal Street, Portland Maine 04101 but must be in a sealed envelope clearly marked "CUMBERLAND COUNTY REGIONAL COMMUNICATIONS UPGRADE." Late, unsigned proposals or proposals submitted electronically shall not be accepted. Please submit one [1] original and three [3] copies of the proposal by 4:00pm on July 21, 2023. RFPs will be publicly opened and read aloud.

NOTE: American Rescue Plan is funding this project. Federal Provisions apply to the project, please take notice to these provisions attached to the bid documents.

Cumberland County reserves the right to waive all informalities in RFP, to accept any RFP or any portion thereof, or to reject any or all RFPs, should it be deemed in its best interest to do so. Except as otherwise required by law or as specifically provided to the contrary herein, the award of this bid shall be governed by the County's purchasing ordinance.

Date of Notice: May 27, 2023

**Cumberland Regional Communications Center**  
**Public Safety Radio Communication System Upgrade**

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## **2 INVITATION TO SUBMIT PROPOSAL**

You are invited to submit a proposal as described by this Request for Proposal [RFP] for the upgrade of the Cumberland County Regional Public Safety radio equipment as well as installation and maintenance services.

This RFP represents an effort undertaken by Cumberland County and its user groups to provide a comprehensive specification with the goal of upgrading regional VHF simulcast radio system to support its Fire, EMS, and Law Enforcement operations. When completed, the system will increase reliable communications coverage throughout Cumberland County.

The successful proposer will assume complete responsibility for all equipment, and system acceptance tests of systems equipment provided under this specification. All RFP responses shall address the entire system, to ensure a complete system, and that nothing remains to be purchased by Cumberland County.

The Vendor must provide a detailed response to all items listed in these documents. The vendor must understand that all documents submitted will become part of the contract between Cumberland County and the Vendor.

### **2.1 Current State**

The Cumberland County radio system is comprised of three [3] separate VHF systems; one for the Sheriff's Office, one for Law Enforcement, and one for the Fire Services.

Today, the system is comprised of five [5] transmitter simulcast sites and four [4] receive-only sites. The sites are integrated with the dispatch center using 11 GHz microwave. The prime site is located in Gray.

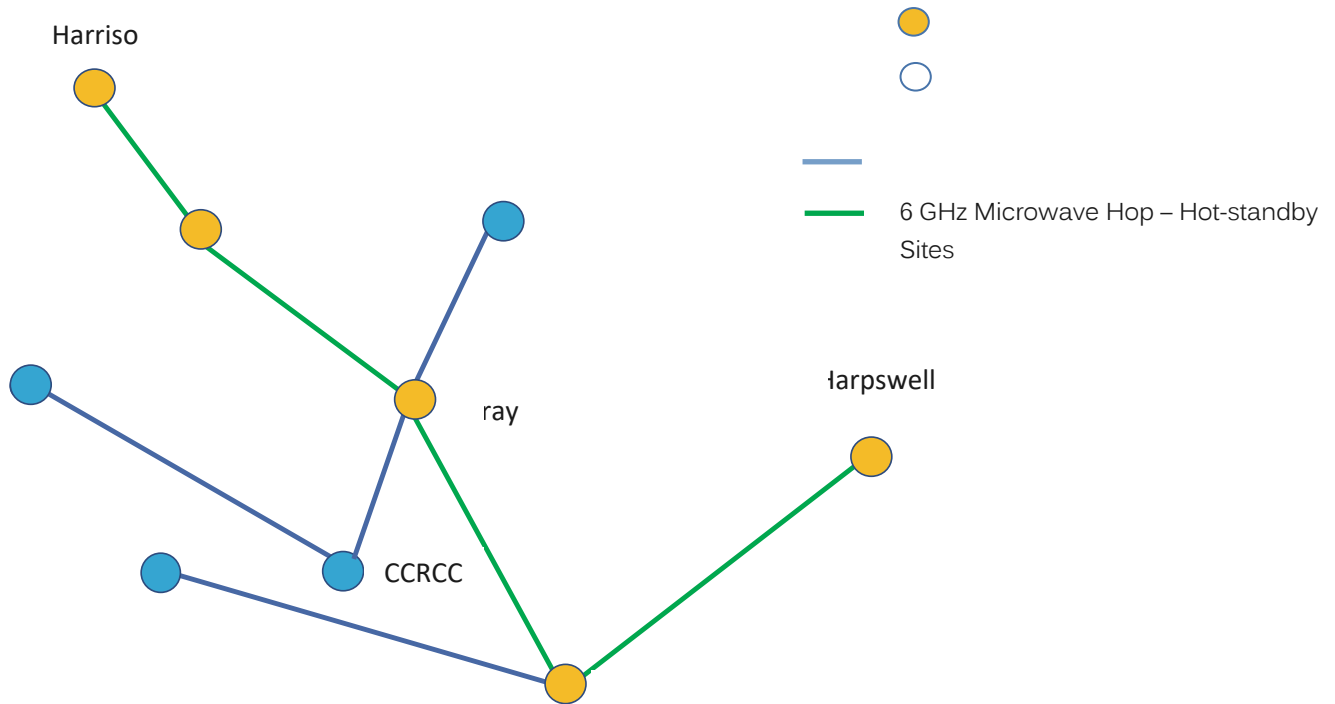
All repeaters and receivers are end-of-life and need to be replaced. There are some DC power issues at a couple of sites, and the system needs to be expanded to provide more reliable coverage for portable radios.

This project is divided into two phases based on funding sources:

- |          |   |
|----------|---|
| Phase-1: | Replacement of repeater, receiver, and DC power systems of the existing system  |
| Phase-2: | Expand the system by converting the receive-only sites to transmitter simulcast; and, add two new transmit simulcast sites and related microwave links. |

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## 2.2 Existing System Diagram, Frequencies, and FCC Information



**System Site Parameters Table**

SITE	FUNCTION	LAT	LON		FCC ASR		
aldwin WCSH	Receive-only	43 50 44.4	70 45 42.3	1550	1045602	r500	No Tx
asco	Transmit & Receive	43 58 03.6	70 31 36.7	199'	1275336	r150 / t130	80
CRCC	Receive-only	43 43 30.3	70 25 08.2	110	None	r180	No Tx
ray WPXT	Transmit & Receive	43-51-06.3	70-19-38.2	734	1022679	t308 / r288	80
arpswell	Transmit & Receive	43 48 51.0	69 56 27.6	325	1028394	r220 / t200	200
arrison	Transmit & Receive	44 05 49.2	70 39 19.4	250	1021389	r250 / t230	50
lew Gloucester	Receive-only	43 57 01.1	70 17 43.6	180	None	tr120	No Tx
ortland Back Bay Towers	Transmit & Receive	43 39 24.6	70 15 50.2	190	None	tr 190	40
tandish	Receive-only	43 44 37.2	70 32 23.8	200	None	tr120	No Tx
SO: T151.1075 / R155.8650							
FIRE: T155.6250 / R160.4550							
LAW: T154.8750 / R160.5450							



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**Public Safety Radio Communication System Upgrade**

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## **2.3 Project Overview**

The equipment and services to be supplied under this procurement include:

### **Phase-1**

- Update Zetron MAX Communications Dispatch Console if upgrade requires
- Complete System Design for Cumberland County countywide system
- Replace VHF Transmitter Simulcast Repeaters for three [3] channels
- Replace Receiver Voting System
- Antennas and Feeder Systems [transmission lines, duplexers, lightning protection, etc.]
- IP Gateways
- GPS Synchronization Equipment
- IP Microwave Network
- Microwave Antenna and Feeder Systems
- Alarms / System Monitoring
- Site Facilities Grounding
- Upgrades Installation and System Provisioning
- Optimization of Simulcast Timing
- Project Management
- System Testing and Acceptance
- Documentation Including As-Built Drawings
- Sign-off by County

## **2.4 RFP Issuing Office, Inquiries, and Point of Contact**

Questions regarding this bid shall be made in writing only and be sent to the contact provided below on the date identified in the RFP schedule.

Please email all questions to Melinda Fairbrother-Dyer at [mjdye@cumberlandcounty.org](mailto:mjdye@cumberlandcounty.org)

Questions and the resulting answers to the specifications will be in the form of a written addendum and sent to all bid holders registered in the County.

All inquiries concerning any commercial or technical aspect of the project should be directed to:

Melinda Fairbrother-Dyer, Director  
Regional Communications  
22 High Street  
Windham, ME 04062  
Office: 207-894-3734  
[mjdye@cumberlandcounty.org](mailto:mjdye@cumberlandcounty.org)

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**2.4.1 RFP Schedule and Key Dates**

EVENT	DATE
RFP Issued to Proposers	May 27, 2023
MANDATORY - Pre-RFP Conference & Site Tour	9:30 AM – June 23, 2023
Deadline for additional written questions/email	COB – July 17, 2023
Answers to final questions by email to proposers	COB – July 12, 2023
Proposal Due Date:	4:00 PM – July 21, 2023
Expected award date	On or about September 30, 2023

**3 Pre-Proposal Conference**

A Pre-Proposal conference will be held on the date shown above to discuss items of this RFP. The Conference will be held at the CCRCC at 22 High Street, Windham, ME 04062.

**NOTE: IT IS MANDATORY TO BE PRESENT AT THE PRE-PROPOSAL CONFERENCE**

**3.1 RFP Conference Process**

**Step-1:**

Questions, request for interpretation or clarification, petition for changes, additions or deletions to technical or commercial items in this RFP, shall be submitted in writing [via email] prior to the Pre-Bid Conference. Questions are due by the date listed in the RFP Schedule.

**Step-2:**

All Proposers will convene jointly on the date and time specified to receive answers to the vendor questions submitted in advance; to submit additional questions or requests; and, to receive any updated information regarding the project.

Responses to questions or changes in an official, written set of responses and/or clarifications will be provided to all bidders in the form of an Addenda and will be sent via email within 5-business days after the Pre-Bid Conference.

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### **Site Survey and Inspection**

At the completion of the Pre-Bid conference, Bidders will have the opportunity to tour the communications center [Cumberland County] and equipment room located at the Dispatch Center.

Instead of conducting site visits, the CCRCC will furnish a Site Information Book containing all necessary site data for submitting a comprehensive proposal during the preproposal conference. However, if a Proposer wishes to personally visit any or all of the transmitter sites, they should coordinate with the CCRCC Director to arrange a suitable day and time.

**Upon contract execution** - the required initial task of the selected Contractor will be to conduct detailed site review and inspections, to identify existing conditions to include available space, electrical [AC and DC], grounding conditions, lightning protection devices, and other site facilities to determine if suitable for the proposed equipment.

The Contractor shall also confirm site parameters such as tower and antenna heights, shelter condition, and identification of facility discrepancies.

Evaluation of electrical service at each site to supply AC power to the proposed equipment, or any electrical modifications required, should also be considered. This would include environmental controls [HVAC] to determine their ability to maintain the proposed equipment within its specified operating parameters as needed by the vendor's proposed equipment.

Upon completion of site inspections, the contractor will submit to the County a written summary report identifying site discrepancies or issues, updated incorrect or missing site information, and provide resolution. Cost associated with any newly identified requirement will also be provided in this summary report.

## **4 RFP INSTRUCTIONS**

The County will accept sealed proposals identified in the bid schedule where they will be publicly opened.

Proposals should be delivered to:

Mr. Alex Kimbal  
Deputy Manager of Finance & Administration  
142 Federal Street  
Portland, ME 04101

Proposals may be hand-delivered or mailed to the County at the address identified above but must be in a sealed envelope clearly marked "CUMBERLAND COUNTY REGIONAL COMMUNICATIONS UPGRADE." Late, unsigned proposals or proposals submitted electronically shall not be accepted.

Please submit one [1] original and three [3] copies of the proposal on the due date.

Proposal shall also be submitted in a Flash Drive on the date identified in the schedule table. Note that the file must mirror the paper versions exactly and shall be a single PDF file and can be emailed if deemed appropriate. Note that the PDF file may be emailed instead providing of Flash Drive.

### **4.1 Termination for Unavailability of Funds**

In the event that Cumberland County grants or funds for the contract become unavailable, Cumberland County shall have the right to terminate the contract immediately in writing to the contractor without penalty. Availability of funds will be determined at the sole discretion of Cumberland County. The contractor shall be entitled to receive and shall

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be limited to, just and equitable compensation for any satisfactory authorized work performed as of the termination date.

#### **4.2 RFP Information & Work Conditions**

This RFP establishes the requirements for this Project, and it is believed that all information necessary to complete a response is included in this RFP.

All Vendors are expected to carefully examine the RFP documents. Any ambiguities or inconsistencies should be brought to the attention of Cumberland County via email, as appropriate. It is the responsibility of the Vendor to clarify any information, which is contained in this RFP and not fully understood.

The Vendor, by and through the submission of a response, agrees to be held responsible for:

- having become familiar with the existing radio system and microwave routing
- having become familiar with the existing site facilities
- having completely understood the nature and scope of the work, and
- any local conditions that may affect the materials, parts, labor and work to be done.

Nothing in this RFP shall relieve the Vendor from supplying a totally turn-key system package, including, but not limited to all materials, hardware, cabling and labor FOB Destination to be furnished under this contract. The Vendor shall, in all cases, be solely responsible for the delivered system, and for furnishing complete system documentation for each and every part of the provided system.

#### **4.3 Termination for Unavailability of Funds**

In the event that Cumberland County grants or funds for the contract become unavailable, Cumberland County shall have the right to terminate the contract immediately in writing to the contractor without penalty. Availability of funds will be determined at the sole discretion of Cumberland County. The contractor shall be entitled to receive and shall be limited to, just and equitable compensation for any satisfactory authorized work performed as of the termination date.

#### **4.4 Rights of Cumberland County**

Cumberland County reserves the right, for any reason, to accept or reject in part or in its entirety any or all proposals; to postpone or cancel this RFP; to waive technical errors or any informalities in bids, or to negotiate with qualified Vendors if it is determined to be in the best interest of Cumberland County to do so.

It is the discretion of Cumberland County to accept the lowest and most compliant response, which may or may not necessarily be the lowest cost response.

Cumberland County is not liable for any costs incurred in the preparation of proposals or for any work performed. Late proposals will not be considered for evaluation. All submitted materials become the property of Cumberland County. All proposals received will be evaluated by the County's Project Team, who reserve the right to award or not to award a contract.

Cumberland County reserves the right to substantiate any or all bidder qualifications, assertions, capability to perform, availability, including past performance record.

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#### **4.5 Insurance Requirements**

- a.) Contractor shall maintain, at his own expense, insurance in the amount set below. Certificates of insurance, evidencing this coverage is required at bid. Certificates naming the County as additional insured' shall be furnished to the County Finance Director within ten days of notification of the receipt of this award.
- b.) Workers Compensation in accordance with the laws of the State of Maine.
- c.) Liability Insurance: Comprehensive General Liability Insurance including contractual insurance in the amount of \$1,000,000 each occurrence and Automobile liability insurance in the amount of \$ 1,000,000 each occurrence and property damage insurance of \$3,000,000 each occurrence.

#### **4.6 Contractor Project Manager**

The proposer shall identify an individual who will serve as the contractor's Project Manager [PM] if awarded a contract. This individual shall serve as the single point of contact between the successful contractor, its sub-contractors, and Cumberland County PM.

The identified PM shall be an employee of the proposer at the time of the response submission. The PM shall have a proven record of experience in projects of similar scope. Cumberland County reserves the right to accept or reject the identified PM. If, during the term of the contract, it is necessary to replace the PM, Cumberland County reserves the right to accept or reject the newly identified PM.

The response shall include the following information on the identified PM:

- Name
- Employment history with proposer
- Home base of operations
- Relevant experience for each listed project, provide name, title and telephone number of a reference.
- Contact possessing a technical background
- Education & training

#### **4.7 Standards & Codes**

In all instances, offered and delivered goods shall be new, unused, in current production and meeting or exceeding all applicable standards and codes of:

All facilities constructions, labor, equipment and cabling installations shall comply with the following applicable codes:

##### **General**

ADA - American with Disabilities Act  
OSHA - Occupational Safety and Health Administration  
EIA - Electronic Industry Association  
TIA - Telecommunications Industry Association  
FAA – Federal Aviation Administration  
IEEE - Institute of Electronic and Electrical Engineers

##### **Electrical**

Installation of all electrical equipment, power distribution, lighting and outlet assemblies, alarm and grounding systems, including associated wire ways, and wiring, shall comply with the most recent edition of:  
NEC - National Electrical Code

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NFPA - National Fire Protection Association  
UL - Certified by Underwriters Laboratories  
NEMA - National Electrical Manufacturers Association

**Radio**

FCC - Federal Communications Commission  
TSB-88 - Performance in Noise and Interference-Limited Situations - Recommended Methods for Technology-Independent Modeling, Simulation, and Verification  
NFPA 1221 – Standards for the Installation/Maintenance and Use of Emergency Services Communications Systems  
EIA/TIA 603 - Land Mobile FM Communications Equipment Measurement and Performance Standards  
EIA/TIA 329B - Minimum Standards for Communications Antennas

**Towers/Shelters**

R-56 - Standards and Guidelines for Communications Sites  
TIA/EIA 222-H – Structural Standards for Steel Antenna Towers and Antenna Supporting

**Microwave Radio**

RS-252-A – Standard Microwave Transmissions Systems  
TSB-10-F – Interference Criteria for Microwave systems  
EIA-195 (latest revision) – Electrical and Mechanical Characteristics for Terrestrial Microwave Relay System Antennas and Passive Reflectors  
EIA- 210 – Terminating and Signaling Equipment for Microwave Communications Systems

## **4.8 Exceptions and Clarifications**

Vendors taking exception to or clarifying the requirements, or offering substitutions, shall state so in their response. All exceptions and clarifications shall be submitted in a separate section of the response. Cumberland County is the final judge that determines what is a clarification or an exception.

The absence of exceptions, clarifications and/or substitutions shall indicate that the Vendor has accepted all the requirements of the RFP in the manner described and shall hold the Vendor responsible to perform in strict accordance with the requirements of the RFP. Cumberland County reserves the right to accept or reject any or all of the exceptions, clarifications and/or substitutions, in whole or in part, if it is deemed to be in the best interest of Cumberland County.

## **4.9 Delivery, Storage and Risk of Loss**

The contractor shall be responsible for coordinating, unloading, inspecting, accepting and storing all material deliveries. Cumberland County personnel shall be excluded from performing any of these activities.

All claims necessary as a result of damage or loss during shipment shall be the responsibility of the contractor. The contractor shall assume all risk of loss or damage to the equipment while it is at the vendor's storage or service facilities; while it is shipped to the installation locations; and, until the completed system is accepted by Cumberland County.

All stored materials shall remain the responsibility of the successful contractor until accepted by Cumberland County. The PM or contractor's designate shall be the only individuals authorized to accept materials delivered to Cumberland County. The contractor shall present to Cumberland County's PM a receipt of items being delivered. Cumberland County's PM signature on the receipt shall constitute acceptance of the materials.

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Proposers shall list in their response the facilities where they plan to deliver the major system items prior to installation.

The contractor assumes full responsibility for the acts and omissions of all its employees and all sub-contractors, their agents and employees, and all other persons performing any of the work under the contract.

#### **4.10 Detailed Equipment List by Site**

Proposals must contain detailed equipment list [model numbers, description, etc.] as required by the RFP. The detailed equipment list must be cross-referenced to the vendor's itemized pricing sheets required in the submittal.

Where applicable, detailed equipment lists must be provided by location and include details of requirements needed for the installation and operation of their equipment as deemed necessary.

The equipment list will be an appendix to the Contract Agreement.

Furthermore, upon completion of installation and a condition for acceptance, the vendor shall provide Cumberland County an updated "as-built" equipment list by site showing location, quantities, model number and description, and serial numbers.

#### **4.11 Software Licensing**

Vendors responding to this RFP shall provide detailed information on all software licensing, use or access to computer programs that will be part of the vendor's offering. All costs, terms and conditions of use and access must be defined and clearly indicated as part of the vendor's offering.

Vendors proposing software to support the network, either by leasing, renting, or selling, shall clearly define the ownership or associated costs. Vendors are to provide definitions of software upgrades, enhancements and the costs, terms, leasing arrangements, use, etc. must be clearly defined as part of the vendor's proposal.

### **5 BASIS OF EVALUATION AND AWARD**

This section will outline the evaluation criteria to be used by the Cumberland Evaluation Committee in the selection of the submitted proposals. After review of the written proposals, the Evaluation Committee may request some or all Proposers to provide oral presentations. After any oral presentations, the technical proposals will be ranked based on the criteria set forth in this RFP. The cost proposals will then be opened and evaluated by Cumberland County. The contract will ultimately be awarded to that Proposer whose proposal, conforming to the RFP, that best meets the needs of Cumberland County, as reflected by the requirements of this RFP, technical and cost factors considered.

#### **5.1 Criteria for Proposal Acceptance**

The contract resulting from the RFP process will be awarded only to responsible proposers. In order to qualify as responsible, a Proposer must be able to demonstrate that they can meet the following criteria in providing the services contemplated:

- Have the adequate technical resources for performance or have the ability to obtain such resources as required.
- Have the necessary experience, organization and technical skill to provide required services proposed to be supplied in the proposal.
- Provide three [3] project references of similar systems to be implemented in Cumberland County.

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## 5.2 Evaluation Process

Technical proposals will be reviewed first. The Evaluation Committee will independently evaluate and score the technical proposals received by using the evaluation factors defined below. The factors may not all be given the same weight in the evaluation process. The Technical Evaluation Committee will then use each committee member's evaluation to rank the technical proposals that meet the criteria of this RFP and are deemed capable of fulfilling this RFP.

The scores and ranks will be submitted to the Cumberland County Project Manager.

Cumberland County will then open the Cost Proposals and transmit them to the Evaluation Committee for review and comment. Cumberland County shall then use each committee member's information to numerically rank the Cost Proposals. Cumberland County will then combine the Technical and Cost Scores and will determine the total score for each Proposer.

Cumberland County may enter contract negotiations with the Proposer with the highest total score. If Cumberland County and a Proposer are unable to enter into a contract for any reason, Cumberland County may begin contract negotiations with the next lowest ranked Proposer.

## 5.3 Technical Scoring Criteria

The technical proposal will be given more weight than the cost proposal as follows:

<b>70%</b>	<b>Technical</b>
25%	Technical satisfaction of meeting Cumberland County's requirements
25%	Overall responsiveness to the RFP
20%	Experience/Qualifications/Past performance on similar projects
<b>30%</b>	<b>Cost</b>
	Total cost for material and services

Evaluation criteria will be as follows:

**System Architecture and Features:** Extent to which Proposer's proposal achieves the objective of a state of the art Analog/Project-25/DMR voice radio system.

**Radio Coverage:** The coverage performance goal is to provide 95% DAQ-3.0 in-street portable coverage. Proposers shall discuss in their coverage narrative and maps areas where this is not achievable. NOTE: The proposed system shall provide, at minimum, 100% of coverage that the current system provides.

**Migration Capability:** Extent to which the Proposer's system design can accommodate alternate manufacturer subscriber radios without losing existing functionality.

**System Reliability:** Extent to which the Proposer's proposal achieves objectives of enhanced system availability/reliability to minimize system failures.

**Redundancy:** Extent to which the Proposer's proposal has no single points of failure, especially the proposed microwave system design and routing

**System Expansion Capability:** Extent to which Proposer's proposal facilitates shared use and provides additional features, and functions in the future without the replacement of infrastructure.



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**System Integration:** Extent to which and the ease with which Proposer's proposed System can be integrated with existing equipment and sub-systems.

**System Interoperability:** Extent to which and the ease with which internal (e.g., Cumberland County departments) and external users [e.g., state, local] can interoperate.

**Overall Compliance:** Extent to which proposal is compliant with the RFP and capable of completing the proposed SOW.

**Experience and Qualifications:** Evaluation of the experience and qualifications of the Successful Proposer and proposed project team, including demonstrated successful performance on systems similar in size and scope specified by this RFP.

**Local Support Performance:** Evaluates the availability and qualifications of local service and maintenance facilities, and availability, location, and quality of training for maintenance and user group personnel.

**Implementation Plan:** Evaluates the proposal's feasibility and engineering competence of phase plan and schedules.

**Optional:** Proposer oral presentation, graded as extra points, for technical clarity, understanding of Cumberland County's needs and concerns, willingness to work with Cumberland County, and overall SOW implementation.

## **5.4 Best and Final Offers**

After Cumberland County computes the Proposer's final scores, discussions may be conducted with potential Proposer whose proposals have been determined by the Evaluation Committee to be eligible for award. Discussions may be held for purposes of clarification to assure full understanding of and responsiveness to the RFP requirements. Proposer shall be accorded fair and equal treatment with respect to any opportunity for discussion and revisions of proposals, and revisions may be permitted after submissions and before award for the purpose of obtaining best and final offers. In conducting discussions, there shall be no disclosure of any information derived from proposals submitted by competing Proposers.

Cumberland County shall notify each qualified Proposer of the scope of the requested best and final offer. Cumberland County shall establish a date and time for the submission of best and final offers and discussions. If more than one submission of best and final offers is requested, a Proposer's immediate previous offer shall be construed as its best and final offer unless the Proposer submits a timely notice of withdrawal or another best and final offer. Cumberland County may consult with and seek the recommendation of the Evaluation Committees during the best and final offer process.

## **5.5 Award and Contract**

Cumberland County will award a contract to the most qualified Proposer based upon evaluation criteria used and other considerations deemed appropriate by Cumberland County. Cumberland County reserves the right, in its discretion to accept the lowest and most compliant response, which may or may not necessarily be the lowest cost response. The right is reserved to reject any or all responses, accept all or any portion of a response, and to waive technical errors, discrepancies or information if, to do so, is deemed to best serve the interest of Cumberland County.

Any personnel or subcontractors assigned to this project may not be substituted with other personnel or subcontractors unless approved by Cumberland County in writing. Any proposal to substitute shall be in writing and include the substitute's qualifications. Cumberland County reserves the right to reject any substitute.

The contract shall consist of the following:

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1. General Terms & Conditions
2. Actual Contract Document with Exhibits
3. Exhibit-1 Request for Proposal
4. Exhibit-2 Vendor Response
5. Exhibit-3 Issued Addenda, Correspondence, etc.
6. Exhibit-4 Equipment list

No oral statement of any person shall modify, otherwise change or affect the terms, conditions or requirements stated in the resulting contract. All changes will be made in writing and incorporated in the contract by amendment executed by the appropriate parties.

If Contractor and Cumberland County are unable to arrive promptly at a completed agreement within an acceptable period of time as determined by Cumberland County in its sole discretion after the initial offer to Contractor, Cumberland County reserves the right to rescind the offer at any time.

#### **Purchase Order**

Upon the approval of Cumberland County, a purchase order will be generated by Cumberland County to the successful vendor. The purchase order number must appear on all itemized invoices and packing slips. Cumberland County will not be held responsible for any orders placed, delivered, or installed without a valid, current purchase order number.

#### **Change Orders**

No oral statement of any person shall modify, otherwise change or affect the terms, conditions or requirements stated in the resulting contract. All changes will be made in writing and incorporated in the contract by amendment executed by the appropriate parties.

### **5.6 Contract Design Review [CDR] Process**

During contract negotiations, and before a contract is signed between Cumberland County and the selected Proposer, a CDR session will be held by Cumberland County. The CDR is to ensure in more detail that equipment and services proposed by the contractor meets the requirements of the specification; to clear any misinterpretation of equipment and services to be provided; and to ensure that all items have been considered thoroughly.

Furthermore, during negotiations, Cumberland County may suggest that tasks be added, deleted, expanded or reduced, thereby modifying the total maximum. Cumberland County may desire to contract for some, but not all tasks at this time, depending on time constraints and/or budgetary limitations.

In addition, Cumberland County may also authorize in writing additional work to be performed, which was not specifically called for in the RFP. Once the agreed upon work is discussed and accepted, the successful contractor submit a cost proposal to Cumberland County to be included in the final contract.

### **5.7 Detailed Design Review [DDR] Process**

Once the contract has been executed, Cumberland County requires that the initial project task to be undertaken by the Contractor is detailed site inspection and reviews to obtain the necessary data and information for a DDR process, where Cumberland County and Contractor perform a comprehensive final design review prior to equipment ordering, to ensure that the correct material and equipment are supplied.

Cumberland County shall actively participate in the DDR of the entire system with the Vendor. The Vendor shall note, however, that Cumberland County's participation in the DDR shall in no way relieve the Vendor from full responsibility for system performance.

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Completion of the DDR process shall take place in accordance with the overall project schedule requirements. DDR documents shall be supplied to Cumberland County in both electronic (original file format) and paper format. The Vendor shall supply three (3) copies of the DDR document in both electronic (Flash Drive) format and paper format. The DDR shall include, at a minimum, the following items to finalize all system elements and the system design, as applicable:

- Project Management Plan
- Radio coverage maps
- Microwave path certifications and path surveys
- Detailed Statement of Work [SOW]
- Detailed implementation plan
- Project schedule
- Frequency plan
- Structural Analysis
- Network and Subsystem Block Drawings
- Line Item Equipment Lists
- Infrastructure and Network Element Programming Parameters
- Microwave Configuration and Site Connectivity Requirements
- Rack Drawings
- Floor Plans Showing New Equipment at Each Site
- Power and HVAC Requirements
- Antenna Configurations by Site
- IP Network Addressing Scheme
- Interference Analysis (IM & TNRD)
- Plan for a Phased Cutover
- Training plans for staff
- Acceptance Test plans
- Recommended critical spares
- Final acceptance by the County

## **5.8 RFP PROPOSAL FORMAT AND CONTENTS**

Proposals shall contain the following information in the format and order set forth below; and in two [2] volume

Volume-1	RFP contents as outlined below
Volume-2	Equipment information, specification sheets and brochures

### **VOLUME-1**

#### **COVER LETTER**

Respondents must include a cover letter transmitting the proposal to Cumberland County, signed by an official authorized to contract for the firm. The letter must contain the name, title, address, telephone number and email of the firm's contact person for the Proposal. The letter shall contain a statement that the respondent understands and agrees with the scope of work and accepts all other requirements and terms and conditions of the RFP.

Immediately following the cover letter shall include any forms required by Cumberland County.

Note that the original signature of the above listed documents is required in the response copy marked as 'ORIGINAL'.

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## TABLE OF CONTENTS

### SECTION 1 – SYSTEM OVERVIEW, REFERENCES, AND WARRANTY

- **System Overview** - Submit an executive summary of your proposed system and/or equipment provided, covering the main features and benefits that distinguish it, in non-technical terms.
- Do not exceed two [2] pages.
- **Prime Proposer** - Introduction of the prime Proposers company including history, qualifications, experience, main line of business, how business is organized (corporation, partnership, public, private, etc.).
- Do not exceed two [2] pages.
- **Sub-contractors** - Introduction of the Sub-contractors including history, qualifications, experience, main line of business, how business is organized (corporation, partnership, public, private, etc.). Identify all Sub-contractors by listing name, address, phone and contact person. State whether the prime Proposer has worked with the Sub-contractors in the past. If so, provide brief descriptions on the projects - no more than 3; the system elements; the Scope of each Sub-contractors responsibility; the approximate start date and duration of the project.
- No greater than one [1] page.
- **List of References** - For both Prime and Sub-contractors. Provide a list of three (3) references with radio systems having similar requirements of this solicitation. The systems identified shall have been accepted no less than six (6) months and no greater than two (2) years from the due date of this response. Include a brief description of the system, approximate date of acceptance, contact name and telephone number.
- **Warranty** - This sub-section shall also contain all the information requested in the 'WARRANTY' & 'PREVENTIVE MAINTENANCE' sections of the procurement specification.

### SECTION 2 – COMPLIANCE SECTION

- If there are any exceptions, clarification, or other notes of concern, please list in detail all exceptions and related discussion to the specification. In addition, discussion regarding any clarification points shall also be provided in this section. Use as many pages as necessary to describe each exception or clarification. Please provide clear references to the Specification document where needed.
- Note that Cumberland County will have final interpretation of what is a clarification or an exception. In no instance shall the Proposer deemed an exception as a clarification.
- Please identify the anticipated responsibilities of Cumberland County in this section.
- Any item of clarification or exception that is not included in this section will be deemed to have been accepted and agreed to by the Proposer.
- For clarifications or substitutions, provide an explanation of the difference between what the specification requested and what the Proposer will supply. Proposer shall explain why they believe their method of accomplishing the requested functionality will be equal or better.
- It is the Proposer's choice to submit a point-by-point response to the specifications.

### SECTION 3 – STATEMENT OF WORK AND SCHEDULE

- Provide a Project Schedule
- Provide a proposed project organizational chart.
- Describe the work to be performed in detail by the prime Proposer by identifying all major project tasks and milestones.

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- Describe the work to be performed by each Sub-contractor by identifying all major project tasks and milestones. Group all project tasks by their associated sub-contractors.

**SECTION 4 - TECHNICAL SYSTEM INFORMATION**

- Include block system diagrams, network configuration, equipment interfaces, plan views and diagrams that clearly depict the proposed system, its equipment, and components. These diagrams shall be provided on a per site basis.
- Description of the system or equipment being offered.
- Description of specification items requesting a detailed response
- Other diagrams as required.
- Include a detailed itemized list and quantities, in matrix form, of all equipment supplied and their intended installed location. Matrix should have equipment items on the vertical scale [rows], and site locations on the horizontal scale [columns]. Do not include costs.

**SECTION 5 – COVERAGE RESPONSE**

- This section shall contain all detailed discussion regarding signal propagation and shall include coverage maps required, and other items as specified in this document.

**SECTION 6 – MICROWAVE SYSTEM RESPONSE**

- This section shall contain all detailed discussion regarding the microwave system and shall include routing maps, point to point path profiles, antenna/path calculation sheets, and other items as specified in this document.

**SECTION 7 - PRICING**

- Vendors shall submit their cost proposals based upon their best offer price at the time of the initial RFP submission, including any special discounts. The equipment proposed by the Vendors shall be a complete turnkey system, with firm pricing for all equipment and services described by the specifications. Cumberland County shall not pay for any additions, omissions, or errors in the cost proposals.
- Final pricing submitted must be valid for twelve [12] months from the date of system final acceptance.
- A fixed price for all individual equipment and installation provided under this specification shall be held for additional twelve [12] months to allow for procurement and installation of additional equipment as required, such as Phase-2 equipment and services.
- Cost for major services such as installation, licensing, systems engineering, program management, coverage testing, training, etc., shall be clearly identified as separate line items. Costs for these services shall not be lumped.
- Prices are not subject to increase during the term of the contract. Cumberland County is not liable for escalation resulting from project delays caused by the Vendor. All pricing shall be FOB destination.
- Cost shall be submitted on the Summary Pricing Sheet found in the Attachment.
- Detailed cost sheets shall be in matrix form to the greatest extent possible. Intended locations of items shall appear as columns on the matrix.
- Identify all cost sheet items as line items, at a minimum and in the following order: item number, manufacturer, model number, descriptor, quantity and intended location, total quantity, unit cost and extended cost.
- Any costs for optional items or offerings shall be presented on a separate cost sheet.

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**VOLUME-2**

**SECTION 1 – Specification Sheets**

Include equipment catalog, cut sheets, brochures or specification sheets in this section.

**SECTION 2 – Appendices**

Appendices are optional. This section is for Proposers who wish to submit additional material that they believe will clarify or enhance their Proposal. Cross-references in the main RFP to the appendices are required.

A detailed cost spreadsheet itemizing pricing of all equipment, sub-assemblies, and labor services per site shall be provided to allow deletion or addition of items following budgetary constraints or changes in plans concerning the distribution of equipment. All material and installation costs shall be itemized.

Upon execution of the contract, the Vendor shall submit a Schedule of Values identifying labor and material costs.

Cumberland County is exempt from payment of excise, transportation and sales taxes imposed by the Federal Government and the State of Maine. Such taxes must not be included in proposal prices. Exemption certificates will be provided upon request.

Respondents should know that Cumberland County will not make any advance payments under this Agreement. Cumberland County will only accept Invoices upon completion of the tasks receipt of deliverables.

**6 COMMUNICATIONS DISPATCH CONSOLE**

Cumberland County currently operates a ten [10] position Zetron MAX dispatch console that was implemented in 2018. There is an 11<sup>th</sup> position located at the Gorham EOC.

The Dispatch Console may require modification to accommodate the new Cumberland County communications system, which may include the number of sites, the number of external radio system interfaces, and the modification of operator screens.

The three [3] RF control stations interfaced to the Zetron console shall be replaced.

The proposer shall identify hardware or software upgrades needed, and the cost to provision, install, and test in a manner that provides no loss of system functionality during the console upgrade, and that the communications system continues uninterrupted operations during system cutover.

**7 RADIO INFRASTRUCTURE REQUIREMENTS**

This section addresses the technical requirements of the radio portion of the project. The Proposer shall provide the most cost-effective solution to Cumberland County for the upgrade of the VHF radio network.

Proposed equipment specifications should comply with the stated requirements. However, if there is any disparity, the Proposer shall explain how the equipment satisfies the intent of the particular requirement and how the end objective will be met. In all cases, Cumberland County reserves the right to enforce the stated requirements. In addition, the Proposer may be required to demonstrate compliance with any requirement.

Proposers are required to provide in their proposal system diagrams based on equipment provided as well as their interconnections.

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## 7.1 Analog / Digital Modulation

The County is interested in obtaining equipment capable of being provisioned for analog, Project-25, and DMR modulation platforms.

The County plans to initially operate in the analog mode as there isn't sufficient subscriber base for migrating to full time digital operations. Converting to digital will be a multi-year transition once the proposed system is purchased.

## 7.2 System Infrastructure Upgrade and Expansion Overview for Phase-1 and Phase-2

Phase-1 is for the replacement of existing end-of-life equipment with provisions identified elsewhere in the RFP.

Phase-2 is to convert the existing receive-only sites for transmitter simulcast and to add two [2] new transmitter sites.

### 7.2.1 Critical Information Regarding Phase-1

**Table-1 Phase-1 Tasks**

SITE	FUNCTION	PHASE-1 Equipment Replacement							
		Repeater	Receiver	Antenna & T-line	Tx Combiner	Rx Multicoupler	DC Power & Batteries	GPS Sync	Voting Equipment
Baldwin WCSH	Receive-only	note-1		note-2	X	X	note-4	note-5	
Casco	Transmit & Receive	X		X	note-3	X		X	
CCRCC	Receive-only	note-1		note-2	X	X	note-4	note-5	note-6
Gray WPXT	Transmit & Receive	X		X	note-3	X		X	note-6
Harpwell	Transmit & Receive	X		X	note-3	X		X	
Harrison	Transmit & Receive	X		X	note-3	X		X	
New Gloucester	Receive-only	note-1		note-2	X	X	note-4	note-5	
Portland Back Bay Towers	Transmit & Receive	X		X	note-3	X		X	
Standish	Receive-only	note-1		note-2	X	X	note-4	note-5	

**Notes:**

1. Phase-1 receivers to be replaced with repeaters; repeaters provisioned for receive only until Phase-2 when combining equipment is implemented.
2. Second transmission line to be installed and antenna combining system to be implemented in Phase-2
3. Existing Tx combiners to remain but tested
4. DC power plant to be designed for simulcast transmitter
5. To be provided in Phase-2
6. Existing voter located at the Gray site. Redundant voter to be added at the CCRCC in Phase-2

The existing receivers at the receive-only sites will be replaced with repeaters. The repeater will not be activated until an antenna combiner, GPS unit, and an additional antenna and transmission line are implement in Phase-2.

A key requirement of the proposed radio system infrastructure is that it shall be capable of operating Analog, DMR digital, or P25 digital, particularly with respect to the capability of supporting user equipment from a variety of vendors/manufacturers.

It is the intent that the system be deployed for analog for the CCSO, Law, and Fire Services, with digital transition in the future, as the current subscriber base is principally analog. However, the contractor shall be ready to provision digital channels if the County desires to convert to digital operation during system implementation.

The upgraded equipment will be installed while the current systems equipment are still in place and operating. This provides the ability for both the current and the new systems to work together during the implementation phase. Alternative solutions can be discussed during CDR.

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7.2.2 Critical Information Regarding Phase-2

Phase-2 New Sites

PHASE-2 New Sites							
SITE	FUNCTION	LAT	LON	TOWER AGL [ft]	FCC ASR	ANT Hts [ft] t=xmit; r=rcv	ERP [watts]
Freeport	Transmit & Receive	43 52 29.3	70 07 36.2	180		t145 / r180**	80
Scarborough	Transmit & Receive	45 35 22.2	70 20 23.1	198	1311362	t150 / r170**	80
NOTE: SITES NOT SECURED						**not confirmed	

Table-2 Phase-2 Tasks

SITE	FUNCTION	New Transmitter Simulcast Site	PHASE-2 SYSTEM EXPANSION								
			Repeater	Structural Analysis	Antenna & T-line	Tx Combiner	Rx Multicoupler	DC Power & Batteries	GPS Sync	Voting Equipment	Microwave Radio
Baldwin WCSH	Transmit & Receive			X	note-1	X	X		X		note-4
Casco	Transmit & Receive								X		
CCRCC	Transmit & Receive			X	note-1	X	X		X	note-3	note-4
Gray WPXT	Transmit & Receive								X		
Harpswell	Transmit & Receive								X		
Harrison	Transmit & Receive								X		
New Gloucester	Transmit & Receive			X	note-1	X	X		X		note-4
Portland Back Bay Towers	Transmit & Receive								X		
Standish	Transmit & Receive			X	note-1	X	X		X		note-4
Scarborough	Transmit & Receive	X	X	X	note-2	X	X	X	X		note-5
Freeport	Transmit & Receive	X	X	X	note-2	X	X	X	X		note-5

Notes:

1. Add second antenna and transmission line
2. Transmit & receive antenna and transmission lines
3. Redundant Voter; main voter implemented in Phase-1
4. Convert existing Aviat microwave for hot standby
5. New 11 GHz microwave hop





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## **7.4 Equipment Racks**

All radio, microwave, and combining equipment shall be installed in a standard 2-post EIA 19-inch rack.

Racks shall be designed and installed to provide easy access to equipment controls and connection points. Racks shall meet the requirements of EIA-310-D.

All equipment racks shall be securely mounted to the floor. If necessary, racks shall be bolted together or braced from the ceiling to prevent swaying or being dislodged. Racks shall be isolated from floors and ceilings using suitable insulators, insulating plates, washers and sleeves.

Equipment racks shall be placed to allow a minimum of 30-inches access front and back [or 36 inches if egress row] unless all connection and maintenance points are in the front. Under no conditions shall an equipment rack need to be moved for maintenance after installation.

The radio, or the microwave rack, shall be supplied with a heavy duty sliding laptop tray at the appropriate height for ease of use servicing both racks.

## **7.5 IP Simulcast Repeater**

Each repeater station shall be of modular construction, and designed and constructed as a compact, highly reliable unit.

All repeaters shall be capable of being provisioned for analog, P25 digital, or DMR digital.

The simulcast transmitter shall be capable of interfacing with an external GPS high-stability frequency reference source. When simulcasting, the frequency difference between multiple co-channel transmitters shall not exceed 1-Hz.

All necessary interfaces with repeaters, peripheral computer hardware or the radio interconnect system shall be provided by the Vendor. Interfaces shall include cabling, switches and/or routers, gateways, all of which shall be identified by the Vendor's functional diagrams and description of the system.

The equipment shall be capable of remote monitoring of its status and shall provide alarms for key operational parameters, and shall provide for remote inquiry, display, disablement and diagnostic functions via LAN connections. Alarms shall be displayed at the communications console.

Each station shall be equipped with a RF sensor to remotely monitor forward and reflected power of each transmitter. This sensor shall be installed in series with the station transmit output.

Service personnel shall have access to the radio for metering, alignment, programming and diagnostics by remote access through a network connection via the proposed network management and alarm systems or microwave network. Proposers shall describe their capability to monitor and control a repeater through an access port via a laptop PC.

## **7.6 Receiver Voting System**

The receiver voting system is to be configured as part of the radio communications systems upgrade. The VHF radio system shall employ receiver voting function. Multiple IP voting receivers shall be connected to a processor with voting algorithm evaluating signal strength, signal-to-noise ratio, and latency to determine the highest quality audio stream being received. Voting process shall be continuous and constantly being selected, providing automatic switchover of audio, without interruption, for re-broadcast over the transmitter simulcast system. Voting equipment shall be geo-redundant.

## 7.7 TX Combiner and RX Multicoupler

**TX Combiner:** The County intends to continue use of the existing transmitter combiners at the existing sites. The contractor shall verify that all components of the transmitter combiner system are installed correctly and securely, and that all cables and connectors are properly terminated and grounded. Furthermore, verify that the combiner is properly tuned for the desired frequency range and power levels; test and measure the combiner for insertion loss, return loss, as well as Tx to Rx isolation.

**RX Multicoupler:** The receiver multicoupler shall be replaced.

## 7.8 Antenna and Transmission Line

### 7.8.1 Antennas

The antenna system shall include compatible antenna, circulator, isolator and filter to reduce the potential for intermodulation or receiver desensitization, and to provide the required coverage within the restraints of the FCC ERP authorizations.

All antennas to be provided shall be PIM rated.

The antenna systems shall be furnished and installed with all necessary lightning and power surge protection devices to be compatible with the R-56 Standards and Guidelines for Communications Sites as appropriate for use with existing towers and equipment shelters.

Proposers shall state in their response to this RFP, the manufacturer, model number, mounting height/azimuth, electrical and mechanical characteristics of the antenna systems being proposed at each site, including sidearm brackets.

It is anticipated that VHF 5.25 [22-ft] whip antennas will be utilized; however, due to tower space limitations on some towers, the maximum whip length may be 10-feet.

The Proposer is encouraged to utilize, where needed, low gain, directional and/or downtilt antennas to maximize coverage performance or minimize interference in their coverage design.

### 7.8.2 Transmission Lines

The Vendor shall furnish and install coaxial antenna transmission lines from the LDF series of transmission cable. Vendors shall state the size and type of transmission line being proposed at each site. RF sensors to indicate VSWR and power level shall be furnished and installed for each transmission line provided and monitored by the alarm system.

All connectors used shall be "DIN" type, as appropriate, and must be fully compatible with directly associated equipment or jumpers in the system. Connectors must be of non-ferrous construction. No splices or adapters shall be used under any circumstance. However, it is permissible to utilize different connectors on opposite ends of a cable to avoid the use of adapters. When transforming from one diameter cable to another, it is acceptable to use flange reducers, so long as the cable VSWR is not affected.

## 7.9 Transmitter Simulcast

This section outlines the technical parameters that need to be followed to achieve accurate time alignment and synchronization between simulcast transmitters.

The GPS receiver shall have the capability to receive signals from multiple GPS satellites to provide accurate time reference and to track GPS signals even in adverse weather conditions. The algorithm shall ensure that the transmitters remain synchronized even if there are temporary disruptions in the GPS signal.

The primary precision frequency source shall be a GPS frequency locked stable source, with automated audio delay capabilities for initial simulcast launch settings for each transmitter and to compensate for signal propagation delay and synchronization issues.

The system shall automatically readjust timing to maintain proper simulcast timing in the event a transport path reroutes and changes the transport delay.

The system shall provide amplitude and phase delay equalization to minimize simulcast overlap distortion. Equipment shall be provided for each transmit channel, and shall have sufficient adjustment range to provide "over" and "under" adjustment of at least ten percent of the range.

GPS antennas shall be mounted on a stable structure that provides a clear line of sight to the GPS satellites.

The simulcast system shall also include audio delay capabilities to compensate for signal propagation delay and synchronization issues.

The delay shall be adjustable to optimize the synchronization between different transmitters in the simulcast system.

## 7.10 AC and DC Power

**AC Power** - the contractor is responsible to provide connection to the existing site power and emergency generators, where applicable.

The County's goal to reduce possible system damage and failure due lightning, power surge strikes, or induced currents. The Contractor shall adhere to current industry practices in providing protection to sensitive electronic equipment.

The Contractor shall assess the current AC surge and lightning protection at the site. If inadequate, the Contractor will provide recommendations for installing AC surge suppression devices used for telecommunications equipment.

The Proposer shall submit in their proposal their calculations in determining both AC and DC loads, battery loads [electrical and floor loads], including equipment duty cycles used and BTU calculations.

AC electrical panels at the transmitter site should have sufficient capacity to add additional circuit breakers for the new equipment. However, it is the Contractor's responsibility to confirm capacity and requirements. Where applicable, each electronic equipment shall have a dedicated circuit and breaker [R56]. This may be accomplished by using/installing new breakers in the panel, or providing a rack mounted power/breaker distribution panel with surge protection, fed by two [2] separate circuits.

### **DC Power**

All remote RF site equipment will operate at -48v DC for primary power.

Each electronic equipment shall have a dedicated circuit power/breaker distribution panel with surge protection.

The system shall include inverters, batteries, battery mounting or racking facilities, float-type battery chargers, low voltage disconnect, and DC load center with:

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- Rectifier Modules (N+1)
- Monitoring and Control Unit
- Power Distribution Unit
- Battery Modules
- Equipment Racks

The DC power system shall be sized for the proposed equipment with a 10% reserve capacity for future equipment. Modular stationary batteries shall be the sealed maintenance-free type with sufficient ampere-hour capacity to provide a minimum four [4] hour operating period for the Vendor-furnished equipment following the loss of primary station power. This shall be based on a 25% transmit duty cycle for the fire and police systems operating simultaneously.

The ampere-hour rating of the batteries shall be based on an eight-hour discharge rate. Battery life expectancy shall be at least 10 years in normal float-type service. No venting facilities or special battery rooms shall be required for normal operating conditions. Secure mounting facilities shall be incorporated in the design of the battery bank including protection from ruptured battery cells. Battery chargers shall provide sufficient current output to supply station load requirements and simultaneous charging of a discharged battery bank to full capacity in 48 hours.

Battery chargers shall be capable of battery eliminator operation. The chargers' rectifier modules shall be provided on a redundant N+1 basis. The charger shall operate in ambient temperatures of 0 C to +50 C without degradation in performance. The battery chargers shall be rack-mounted in an EIA 19-inch rack. The battery chargers shall be provided with an AC circuit breaker, DC circuit breaker, minimum two-percent accuracy DC voltmeter and DC amp meter, current limiting and high voltage shutdown circuitry, continuous float and equalizing voltage adjustment, and 24-hour equalizing timer. These features may be integral to the chargers or provided in separate rack mount assemblies.

The charger shall have the following minimum alarm points:

- Battery charger low voltage
- Battery charger high voltage
- Battery charger no charge

A rack-mounted DC load center with breakers shall be provided with the battery power system to provide a protected DC distribution to all -48 volt DC-powered equipment. Additionally, the Vendor shall furnish and install a minimum of two (2) spare DC circuit breakers of the same type supplied on the panel for future use. To protect the battery supply, an automatic low-voltage disconnect shall be provided to remove the load from the battery bank at the point when the battery voltage reaches a preset dropout voltage level. All DC power equipment shall be included in one rack.

## **7.11 Physical and Functional Interface Requirements**

The contractor is responsible for the physical interface [connectors, terminal strips, punchblocks, etc.] for network, audio and control between the new equipment, proposed simulcast repeaters, and the communications console.

The successful contractor shall be responsible for the functional interface between the equipment and the proposed simulcast repeaters. It is the contractor's responsibility to confirm interface compatibility between equipment types.

The functional interface is expected to include, at a minimum, the following:

- Provisioning of Radio and Microwave radio equipment
- Provisioning of IP/Ethernet/LAN equipment
- Adjustments of the input signal level to/from the voting/audio network
- Adjustments of the output signal level from the repeater/base stations

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- Precise modulation level adjustment for simulcast
- Adjustments of the input/output levels and to /from the console
- Adjustment of simulcast audio launch delays/timing

## **7.12 Electromagnetic Interference**

Shielding and filtering shall be provided to prevent interference from, or to, other radio frequency equipment installed near or in the vicinity of the proposed equipment. The equipment shall meet or exceed spurious frequency emissions, conducted or radiated, as outlined in Part-15 of the FCC Rules and Regulations, Subpart J, Class B Computing Devices. Equipment shall be operationally compatible with the following types of equipment located at the site:

- IP/Ethernet gateway equipment
- Ethernet switches & routers
- VHF Base Transmitters & Receivers
- DC Power System

## **7.13 Frequency Expansion and FCC Licensing**

The CCSO, Law, and Fire frequencies, currently licensed for the existing transmitter sites, will require expansion to the proposed new transmitter sites. The Contractor shall determine the expansion requirements to include successful frequency coordination and licensing. Any change in system parameters, such as the use of directional antennas, lower RPPs, antenna heights, etc. shall be reflected in updated coverage maps to be submitted to the County.

## **8 SYSTEM COVERAGE PERFORMANCE REQUIREMENTS**

Coverage is defined as providing the minimum design signal level while delivering the specified audio quality. The coverage design and performance testing shall comply, at a minimum, with the current version of TIA/EIA-TSB-88.

References to coverage reliability in this document refer to area reliability. For example, 95% coverage is defined as the total service area of Cumberland County segmented into test tiles, a minimum of 95% of the test tiles will yield a DAQ of at least a 3.0 for analog and DAQ-3.4 for digital per TSB-88.

The hand-held portable radio configuration for coverage design is a portable worn at the hip, with a swivel case and the use of a standard lapel speaker/microphone.

### **8.1 Defined Coverage Area**

The defined service area is the bounded area comprised of Cumberland County jurisdictional boundary.

For each coverage map provided, coverage prediction shall not stop at these borders. An understanding of the extent of coverage outside this boundary is required for mutual aid purposes. Note that the radio coverage that extends outside of the defined boundaries will not be included in the Radio Coverage Acceptance testing.

Note that based on the transmitter sites selected and available, Cumberland County borders may not meet the 95% reliability specification. Coverage locations where coverage does not meet the design coverage criteria should be clearly marked on the maps.

The coverage design goal for the system are:

- 95% reliability for mobile talkout/talkback throughout the defined service area
- 95% reliability for portable in-street talkout/talkback coverage throughout the defined service area
- 95% reliability for in-street alert paging

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## 8.2 RF Coverage Method

The Proposer shall provide radio system coverage predictions in its response to this specification with a radio wave propagation model that has been developed from theoretical and empirical data, and shall consider terrain irregularity, foliage, urban clutter, building penetration losses, noise, and long and short-term signal variations.

The Proposer is required to design the antenna system to provide the required coverage and maintain the FCC filing parameters. The Proposer shall describe their approach to meeting this requirement as defined in TSB-88A.

The Proposer shall provide the parameters used such as, but not limited to, propagation model used, simulcast parameters, effective radiated power, antenna model, antenna gain, antenna height, directional/downtilt, system gains, system losses, portable antenna losses at belt and receive level assumptions. Proposers are required to provide a detailed explanation of their calculations relative to TSB-88.

Cumberland County reserves the right to have the Proposer revise coverage predictions as required.

## 8.3 RF Coverage Prediction Submittals

**Parameters Table:** Proposer shall provide a complete listing in its response to this specification of all sites, component, and system parameters used to calculate and generate the predicted RF coverage. Proposer shall also state the RF coverage prediction model(s) utilized. If multiple models are used to generate a composite prediction, then a detailed explanation shall also be included. Proposer shall utilize 30-meter resolution digitized terrain database used for the predictions. The Proposer shall supply the parameters used to predict coverage in the format of the FCC Form 601 for each site/frequency.

**Prediction Maps:** Proposer shall provide in its response to this specification prediction maps indicating a signal reliability of 95% coverage/DAQ-3.0 for analog and DAQ-3.4 for digital. Prediction maps shall indicate RF site locations, and areas of non-coverage.

Composite coverage maps shall be provided for Cumberland County regional system as follows:

- Map-1 Mobile coverage for fire and police using a 40 W ERP mobile with a unity gain antenna – analog and digital [P25 & DMR]
- Map-2 Portable in-street coverage for fire and police – analog and digital [P25 & DMR]
- Map-3 Portable coverage inside Residential Buildings for fire and police – analog and digital [P25 & DMR]
- Map-4 Portable coverage inside Industrial Buildings for fire and police – analog and digital [P25 & DMR]

The Proposer shall include interstate, state, local roads as well as lakes and rivers. In addition, the RF coverage prediction maps shall be developed using a topographic base map scale for optimum information on an 8.5" x 11" page.

## 9 IP MICROWAVE NETWORK

This section defines the requirements for IP backhaul microwave links and connections between designated transmitter sites and the Cumberland County communications center.

The current microwave system was implemented in 2021 and is comprised of Eclipse ODU-600 11 GHz IP radios. Bandwidth is 150 Mbps for 6GHz hops and 50 Mbps on 11 GHz hops.

The County desires the same models for expansion in order to support the entire system with one set of equipment spares.

There is no microwave tasks for Phase-1.

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Phase-2 requires that the receive-only sites converted to transmitter simulcast will require the existing non-standby radios to be upgraded for hot standby. See Table-2 found in a previous section.

The County has developed a proposed microwave route map found on PAGE-22 based on enhancing radio coverage, microwave line-of-site [LOS] requirements, and the availability of towers in the area. Physical path surveys are required to confirm LOS and antenna centerlines.

The Contractor shall provide the County with link verifications based on line-of-sight projections taking into consideration the terrain and obstructions detailing their effect on Fresnel interference as part of the proposal submission.

**Tree Growth:** The Proposer shall include a tree growth factor to be added to measured tree heights at critical points along all microwave paths. This tree growth factor shall be a minimum of 10-ft. Path profile data sheets included with final path engineering documents shall clearly denote the tree growth factor used at each critical point.

**Path Outage:** All paths in the system, including rings and spurs, shall be designed for a minimum two-way path reliability of 99.999% EFS (error free seconds) per year.

**Fade Margin:** minimum composite Fade Margin of 35dB.

**Scalable QAM Reliability:** All paths shall include calculations providing percent reliability based on throughput of higher and lower order QAMs.

**Rain Outage Model:** The Crane model shall be used to predict rain outage in all paths in the 11GHz band, or other bands where rain outage is a significant factor.

## **9.1 General Microwave Requirements**

The equipment shall be designed and manufactured for continuous duty operation in a fixed station application and have an expected operational service life of at least 15 years with proper maintenance and service.

The microwave radios shall utilize modulation schemes necessary to maintain overall system bandwidth performance and reliability.

The equipment proposed should be a split unit.

The contractor shall furnish and install all pipe mountings, as required, for support of the microwave antenna/radiohead. Stiff arms are required of every antenna.

Microwave antennas shall be selected by the Proposer to meet the system reliability requirements defined within this specification. All antennas shall be single polarized, low VSWR, standard type antennas, unless path designs dictate otherwise.

All microwave antennas, including standard, high performance, and maximum or ultra-high performance types, shall be provided with protective radomes. Radomes shall be colored to minimize visual impact of the antenna system installation.

Furthermore, when applicable, the microwave antenna design should be taken into consideration to minimize tower loading conditions.

Compatibility with Simulcast. Microwave radios, gateways, multiplexers, switches and routers provided shall reliably maintain the relative simulcast delays at each site under normal conditions.

### **9.1.1 Path Design**

- The Proposer shall provide in their proposal response the following microwave information and data:



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- Path design calculations showing path reliability and fade margins
- Path profiles with trees/obstructions
- Path profile characteristics
- ✓ K-factor(s) used
- ✓ Path clearances at critical points along the path
- ✓ Potential reflection points and natural/manmade shielding along the paths shall be identified /noted and discussed in detail
- Dish sizes, types, sizes, and tower loading requirements for each site
- Equipment rack profiles and floor space requirements for each site

**9.1.2 Contractor Requirement**

- Physical path surveys shall be performed upon contract execution.
- The Proposer shall provide pricing for microwave field surveys for the hops proposed.
- The Contractor shall be responsible to provide all personnel, maps, proper instrumentation and any other equipment or material necessary to perform the physical path surveys based on a final statement of work. In executing the path surveys, the Contractor shall search for existing construction plans, permits, etc. for proposed structures along the projected path. If a particular location along the path is already developed with existing structures not likely to be re-built or extended/expanded, the Contractor shall state the pre-existence of these objects. If the new structure(s) are proposed, the contractor shall take the new construction into account in the microwave path calculations.
- The Contractor shall be required to provide a report of the field path surveys on every site and path. These submittals shall provide, as a minimum, the following information and material:
- Certified geodetic coordinates
- Verified site ground elevations
- Microwave system schematic drawings
- Sites plotted on maps
- Final path profiles
- Obstruction heights along microwave paths
- Reflection Analysis for all obstructions on all paths
- Path antenna calculation sheets
- Path profile characteristics, path clearances at critical points along the path, potential reflection points and natural/manmade shielding along the paths shall be identified /noted and discussed in detail.

**9.1.3 Technical Requirements**

- The unit shall be suitable for mounting on antenna tower structures, water tanks or building roof.
- The unit shall be comprised of either a self-contained integral antenna or a separate antenna meeting these specifications.
- - Specified path reliability specifications
- - Operating Temperatures: -35°C to 60°C / -31°F to 140°F Humidity 95% non-condensing.
- - Shock and Vibration Standard: EN 300 019-2-4 IEC 60068-2 Class 4M5
- Microwave Radio Technical Requirements

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- Frequency Band: 6 / 11 / 18 / 23 GHz FCC Licensed bands selected by the Contractor
- Radio transmission must comply with FCC-47CFR Part 101
- Modulation: OFDM (BPSK)/QPSK: 16QAM/ 64QAM/ 128QAM/ 256QAM/ 512QAM/ 1024QAM/ 2048QAM/4096QAM
- Capacity: No less than 50 Mbps data rate (bi-directional) – software upgrade capable for future bandwidth increase
- Channel Bandwidth: As required for the proposed capacity
- Max TX Power: to meet FCC rules and provide the required availability specification
- Sensitivity: to meet FCC rules and provide the required availability specification
- Network interface is to be a 10/100/1000 Base-T Ethernet port(s)
- Ethernet POE switch
- 100% encrypted [AES128]

## **9.2 Network Management**

Proposers shall provide capability to monitor and control a system access port of selected contiguously linked radios via a laptop PC. The user shall have access to the far end radio as well as each of the radios in the selected chain. This feature shall be totally independent of other network management and alarm systems.

Proposers shall describe their offering and provide detailed information on remote monitoring functions, remote control functions software, laptop/desktop PC requirements, and method/medium of accessing this information.

Proposers shall describe the local and remote programming parameters and options are performed. A description of this feature and the details associated with its operational use shall be included as part of the Proposer's response. The description shall contain a list of programmable items, software options, computer access requirements, and manner of access to the microwave radios.

## **9.3 IP/Ethernet Switches and Routers**

Repeaters at each site shall be linked via IP/Ethernet to form a local area network utilizing routers/switches for connectivity to the microwave backbone. The Proposer shall provide LAN Switches and Routers [core & edge] as deemed necessary. Units shall be capable of both AC and DC power.

Network WAN/LAN components in the field shall have monitoring function with management capabilities to manage, configure and provision the switch remotely through a web-based interface. Router/Switches shall have sufficient Ethernet ports for future network connections. Equipment shall provide all end user feature set and end user licenses to support specified products.

## **9.4 Microwave Licensing**

The contractor will be responsible for all FCC licensing and frequency coordination activities.

Frequency availability shall be determined by the contractor as part of any plan for new microwave links. The contractor shall be responsible for preparing any coordination and licensing documentation for Cumberland County signature.

## **10 IP PERFORMANCE CONSIDERATIONS**

This Section provides information regarding IP connectivity to all sites including the dispatch center.

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The proposed transmitter simulcast radio system design as specified elsewhere in this specification shall utilize IP gateways. The contractor is required to provide connectivity to these devices as well as LAN switches and routers to be interfaced with the microwave system.

**Latency:** The IP performance for round-trip delay of packets across paths between redundant sub-site link pairs shall be measured and recorded; [Latency or IP Packet Transfer Delay is defined pursuant to RFC 2681].

Latency link budgets for IP voting and IP transmitter simulcast shall be designed to be fully functional for less than 10-ms to the remote RF sites.

**Jitter:** In an IP network system, the jitter shall be based upon 99th percentile (Y.1541), end-to-end jitter specifications shall be measured and recorded during peak activity daytime periods for the five longest anticipated routes and shall be demonstrated to be below the contractor's maximum jitter guarantee.

Jitter for IP voting and IP transmitter simulcast shall be designed to be fully functional for less than 10-ms.

**Packet Loss:** Packet loss can result from exceeding jitter budgets or actual packet loss in the network as "Type-P-One-Way-Packet-Loss" as defined pursuant to RFC 2680. Any packet loss will have an immediately effect on audio; end-to-end packet loss shall be tested and documented.

Packet Loss for IP voting and IP transmitter simulcast shall be designed to be fully functional for less than .01% packet loss.

**Packet Reordering.** Packet reordering manifests itself as lost packets. The contractor shall design and implement the IP communications network to ensure that access times and audio quality will be acceptable.

## **11 EQUIPMENT STATUS MONITORING SYSTEM**

The system shall provide the capability of automatically monitoring in real-time the status of key infrastructure components, and to provide an alarm and visual display of operational status and/or failures.

The monitoring system shall provide a complete alert call management system for all remote sites. When an alarm occurs, the monitoring system will send an alert message to a workstation monitor at the communications center with audible alarm conditions. Moreover, it is also desirable to send either a SMS text message or email the alarm conditions to selected individuals. Final solution to be determined at the CDR.

The Vendor shall identify and discuss in their proposal a cost effective solution of proposed equipment and software resources needed to accomplish this function, as well as functionality it can provide, or not provide.

The desirable features for the status monitoring system shall include reports indicating the equipment that generated the alarm, time stamp, when it occurred and how long before the alarm was cleared.

Real time status of all equipment by indicating either in the active or alarm state, including:

- Transmitter power output monitoring/VSWR
- Voting comparator/voter
- Equipment alarms
- Microwave hop failure
- LAN switches, routers failures
- Site alarms, such as site environmental sensors, door open, temperature, etc.
- Primary power and generator status
- Other equipment functionality to be identified by the contractor

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## **12 EXISTING SITE FACILITIES**

The contractor will be required to assess site conditions prior to installation of any equipment or site facilities and make recommendations to Cumberland County on upgrades the facility may require such as cable management and grounding.

The following provides guidance for improving site facilities.

### **12.1 Grounding System**

The primary grounding system at each site is the responsibility of the existing site owner and is presumed to be in good order, although this may not be the case .

The contractor shall measure ground resistance per R56 to determine existing conditions. The goal is for a 5-ohm ground resistance.

The contractor shall inspect the grounding system, which includes the master ground bar, internal ground ring, external ground rod system, cable entry port, and tower grounding. If deficiencies are noted, the contractor shall provide a written report delineating the deficiencies and recommendation for remedies on a site-by-site basis.

An assessment will be made by Cumberland County if it should continue to use existing grounding facilities or install an independent ground system for its equipment only.

The contractor shall furnish and install any additional required grounding and bonding conductors, connections, ground bars, etc. and make connections to the proposed communications equipment specified in this RFP, including the communications centers. The conductors shall be No. 2 AWG solid copper wire or larger. Bonding conductors shall be used to bond the various pieces of equipment, conduit, trays, etc. together.

All connections to equipment room or shelter ground halos shall be made as straight as possible with a minimum number of bends. The minimum bending radius of any ground wire shall be one foot.

Grounding of Radio Equipment Cabinets, Racks, and associated Cable Trays shall conform to the latest version of the Lightning Protection Institute LPI-175 and LPI-176 codes.

### **12.2 Telecommunications Circuits**

If applicable, any leased circuits or other twisted pair cable which may enter an electronic equipment room or shelter shall be equipped for electrical transient protection utilizing a device which will protect up to 150V, with a clamping voltage of 200Vpk and a response time of less than 5 nanoseconds similar to the Northern Technologies TMC-50, or equivalent. These arrestors shall be intrinsic to the punch blocks being used, and shall be grounded to the equipment shelter/room ground ring.

## **13 EQUIPMENT INSTALLATION REQUIREMENTS**

The Contractor shall perform a pre-installation visit to survey the locations for all equipment to be installed. If conditions not under the control of the Contractor require a change in the items and/or services proposed, a revised proposal shall be supplied to the County. No equipment shall be delivered, or work started until approval has been received from the County's Project Manager. Installation shall include all necessary wire/cables.

All existing radio communications systems shall remain fully operational during installation of the new equipment and until Cumberland County provides final acceptance. Because existing systems support public safety operations, interruptions in service due to contractor or contractor activities are not acceptable. If interruptions in service are

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deemed necessary by the contractor to be unavoidable, then written notification detailing the nature and duration of such interruptions shall be provided to Cumberland County for review and approval.

All installation work performed shall be in accordance with laws and regulations of the U.S. Dept. of Labor, State of Maine, and Cumberland County policies. Technicians shall have a valid Federal Communications Commission General Radiotelephone Operators License or its approved equivalent to work on RF equipment.

The Contractor shall provide all the necessary personnel, tools, equipment and transportation for the successful delivery and installation of all equipment provided.

### **13.1 General Requirements**

The Contractor will be required to begin installation according to the approved schedule for material delivery to the installing Contractor location. The installation Contractor shall be prepared at this time. The Contractor shall ensure that all material and components are delivered to the proposed sites and according to the approved schedule.

The Contractor is responsible, and shall provide all the hardware and supplies necessary for the proper and complete installation of the radio and microwave equipment, this includes bolts, clamps, wire wraps and other hardware, as required.

Provisioning, optimization, troubleshooting, and adjustment of each subsystem shall be the Contractor's responsibility. Any equipment or parts required to provide a complete and operational system, and not specifically mentioned herein, shall be provided by the Contractor without any claim for additional payment. It shall be understood that the proposed contract and agreement contemplates and requires a 'turnkey' construction and installation of a completely operational communications system that meets the standards of Cumberland County.

Notwithstanding the details presented in these specifications, it is the responsibility of the Contractor's Project Manager to verify the correctness of the material lists and suitability of devices proposed to meet the intent of the specifications. The Contractor shall be responsible for providing or arranging for all parts necessary for the equipment and its installation up to and including final system acceptance.

The Contractor shall disconnect legacy equipment after the network has been accepted and after Cumberland County has authorized the Vendor in writing to do so. The Contractor shall remove all legacy radio and control equipment to include antennas and transmission lines, and ensure that the area is clean. All equipment shall be transported to a location within the Windham area for disposal by Cumberland County.

### **13.2 Personnel Safety**

The contractor shall be required to provide a Certificate of Insurance indicating the coverage limits as outlined by Cumberland County. The contractor shall bear responsibility for the safety of its workers and all others during the installation phase.

All employees of the Contractor who work for Cumberland County shall be instructed in and be familiar with safety rules and regulations applicable to the nature of the work being performed under this contract. The Contractor shall have sole responsibility to see that its employees are so informed and that they follow requisite safety practices.

All applicable OSHA rules and requirements shall be rigorously complied with, as well as applicable FCC and FAA requirements including RF exposure guidelines. For antenna installations, under no circumstances shall an individual be allowed to work alone. It is crucial and imperative that all current OSHA fall protection rules are followed. This includes but is not limited to "full body harness" and 100% "TIE OFF". Contractor employees found not following all OSHA rules and directives will be ordered from the job site by Cumberland County.

### 13.3 Repeater / RF Base Stations

For RF equipment installed at fixed sites, and upon completion of staging the equipment, the contractor shall deliver and install the equipment at the sites.

Equipment and physical facilities shall be installed in a neat and professional manner, employing the highest standard of workmanship and in compliance with applicable standards.

All sites shall be left in a neat, presentable condition throughout the installation phase of the project. All rubbish, temporary structures, and equipment generated or used by the contractor shall be removed after completion of the work, and prior to acceptance.

### 13.4 Simulcast Alignment

Parameters for simulcast alignment shall be determined by the contractor in order to minimize simulcast delay distortion.

Simulcast system alignment procedures shall be straightforward and logical. After the system is initially aligned and accepted, there shall be procedures and alignment test facilities in place to allow routine verification of system alignment and equalization. There shall further be procedures and alignment equipment and facilities in place to allow realignment and re-equalization of the system under extraordinary situations such as replacement or repair of system components.

Routine verification of system alignment shall be possible using a single maintenance technician, preferably at a single location. Contractor shall describe equipment capabilities in their response.

A simulcast system shall be designed so that, once aligned, it shall remain aligned and shall not need routine realignment.

#### 13.4.1 Simulcast Re-Alignment

After the system has been aligned, optimized and accepted, the vendor shall, during the warranty period, assist Cumberland County in corrective actions and make recommendations of potential remedies of simulcast problems that may develop as users on the system identify potential simulcast distortion areas.

The Proposer shall provide pricing for a second round of simulcast optimization once the system has been accepted and utilized. This is to ensure that any simulcast problem be corrected based on user input.

The contractor shall be prepared to perform re-alignments during the first year, and once per year over for the remainder of the warranty period. If additional equipment is needed, or antenna work is required, the contractor and Cumberland County shall negotiate pricing to perform this additional work.

### 13.5 Microwave Radio

The installation of the microwave equipment will be provided by the Contractor at the designated location within the equipment shelters at the sites. The contractor shall supply and install all required equipment, accessories, punchblocks, terminal strips or cables needed to interface to new or existing facilities.

Inspection of the completed microwave network equipment installation shall be performed to ensure compliance with standards set forth in final contract and the specifications.

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**13.5.1 Microwave Parabolic Antenna**

Adjustments on horizontal and vertical azimuths shall be capable of a minimum extension of +/- 5-degrees. After completion of antenna panning, the side struts and stiff arms shall be cut to a suitable length past their mounting, not to exceed 3-feet.

Transmission line [t-line] shall not exceed its bending radius or twisted. At antenna level, the t-line shall be terminated to the antenna via short jumper that will allow the antenna to be panned through +/- 2-degrees without creating any stress on the waveguide or its connector. Appropriate seals shall be used at the cable entry port of the shelter.

The antenna shall be capable of being panned +/- 2-degrees, and panned by noting the 3dB and 15dB points on both sides of the antenna pattern in both the horizontal and vertical planes.

All microwave antennas, regardless of size and frequency band, shall be provided with stiff arms for mounting.

Ice shields shall be provided, where required, with all mounting hardware for each size of microwave antenna. Stiff-arms and ice shield mounts shall be attached to the tower in accordance with the requirements of the tower and microwave antenna manufacturers.

**13.6 Transmission Line Grounding and Lightning Protection**

Where shelters use a single point ground system, RF and ancillary equipment supplied shall be grounded to the single point ground system. All grounding interconnections shall be made by using #2 AWG solid copper wires.

The ground points shall be made by using copper ground straps from the same manufacturer as that supplying the transmission line and in accordance with the manufacturer's installation practices.

No grounding to tower cross braces is allowed only direct conductor to ground. Braided ground straps are not acceptable.

Cuts made in the outer jacket of the transmission line to install the ground straps shall be thoroughly sealed with a water-resistant tape (no vinyl tape) or compound. Ground connections to galvanized tower legs shall be made with transition clamps thereby reducing the oxidation effect of dissimilar metals.

Each transmit or receive transmission line shall be protected by coaxial surge/lightning protectors, Polyphaser, or equivalent, between the transmitter combiner output and the antenna. Lightning arrestors shall be grounded to the bulkhead panel.

Control stations with outdoor antennas shall be equipped with a coaxial lightning arrestor, Polyphaser IS-50NX-C2, or equivalent. These lightning arrestors shall be grounded to a 5/8" X 8 foot driven ground rod by a #2 AWG tinned solid copper wire attached to the rod using exothermic welding. It is preferred that the grounding system used for the control station lightning arrestor shall be connected back to the building ground system at the power service entrance.

Each coaxial transmission line shall be grounded at a point above the bend required to exit the tower mounted cable ladder to the ice bridge leading to the radio equipment shelter or room. These grounds shall be installed in accordance with the manufacturer's specifications, and shall be sealed against entry of moisture at any location where the outer sheath of the transmission line has been cut or removed.

Transmission line identification – each transmission line shall be color coded with colored tape at three locations: at the cable entry inside the shelter; at the base of the tower at approximately 10-ft level; and at the top near the antenna.

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### 13.7 GPS Receivers

The proposed GPS receivers used in the simulcast system shall have the antenna line equipped with a gas tube surge arrestor Polyphaser IS-MR50LNZ+6 or +15, or equivalent.

GPS antennas shall be installed outside the shelter in an elevated and unobstructed location, typically near the waveguide bridge.

### 13.8 Equipment and System Acceptance Testing

Prior to installation at the sites, the contractor shall stage the equipment in Cumberland County area to ensure all equipment is properly connected, provisioned, and operational prior to delivery at the sites.

The Acceptance Testing for all systems shall consist of a series of tests, inspections, and verifications that are defined in this section. The ATP shall cover all field testing procedures and which inspections shall be made in order to show Contractor compliance to the specifications as well as define each and every required sub-system interface. Cumberland County's representative and the Contractor's representative shall conduct these tests and inspections as defined.

Test Methods are defined as follows:

- **Test:** Verification based upon measurements (e.g., RSL, RFC-2544 and Y1564 tests, transmitter output, sensitivity, signal levels, etc.)
- **Inspection:** Verification based upon visual review or physical measurement status lamps, (e.g., equipment racks, grounding, antenna mounting, frequency selection, etc.)
- **Demonstration:** Non-instrumented verification of a response given a stimulus (e.g., a, battery chargers, proper receiver voting, etc.)

At minimum, the tests and inspections listed below shall be performed. Final Acceptance of each individual transmitter shall include, but not be limited to, the following list of tests and inspections. The results of the tests and the associated punch list of outstanding items to be compiled or re-tested shall be signed by both parties and forwarded to Cumberland County for review and acceptance.

#### Radio System

- Transmit frequency and deviation
- Transmit output and reflected power
- Receiver threshold sensitivity
- Effective receiver sensitivity
- Receiver frequency
- Alarm function
- Adjustment of control line levels to proper levels
- Simulcast optimization
- Proper setting of audio phase delays
- Proper setting of audio amplitude levels
- Proper operation of frequency standard

#### Microwave, Multiplexers, Switches & Routers

The following tests, in addition to other standard manufacturer's test procedures, shall be performed. Complete documentation of Field Acceptance Test results shall be provided to Cumberland County upon completion of testing.



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Perform/Verify Complete Terminal Provisioning. Provision microwave terminal and IP devices in accordance with Cumberland County requirements.

Provide screen shots of provisioning parameters.

Path Alignment

- The Vendor shall be responsible to perform microwave dish alignments for all microwave paths.
- Dishes shall be aligned for maximum RSL
- The Vendor shall provide all material, equipment, and personnel required to perform path alignments

IP/Ethernet Testing

RFC-2544 and Y1564 tests for all hops is required.

Audio Quality

- Audio quality measurements shall be performed following integration of microwave and RF radio systems per the RF radio manufacturer
- Mutually agreed upon procedure to be developed and implemented for microwave and RF radio system test

Ground Resistance Testing

A component of the system acceptance test plan to be completed by the successful contractor will be the testing of all existing grounding systems and any grounding systems installed, or utilized, for equipment associated with this procurement. This includes grounding at all base stations, dispatch centers, control stations and microwave terminal/repeater sites associated with this RFP.

All grounding systems shall be tested using an AEMC, or equivalent, clamp-on ground resistance tester or Biddle 500V Null Megger or equal (3-terminal fall-of-potential method). The resistance to ground shall measure 5 ohms or less.

Ground tests shall be conducted in the presence of a Cumberland County installation representative and results shall be recorded on a form approved by Cumberland County Project Manager. These forms shall be included as a part of the acceptance test documentation and are a component of final acceptance of the radio communications system.

## **13.9 Coverage Testing and Verification**

It is important that the new system provide 100% of coverage currently provided by the existing system.

Cumberland County and the contractor shall initiate audio performance testing to ensure that the simulcast system is operating as specified. Cumberland County and the contractor will jointly develop a subjective test plan and method to evaluate simulcast audio.

### **13.9.1 Simulcast Proof of Performance**

**Acceptance Testing** - The contractor shall demonstrate to Cumberland County's Project representative that all requirements stated in this document have been provided and are operating in accordance with Cumberland County and manufacturer specifications.

Because the coverage performance requirement cannot be guaranteed without a proper testing methodology, acceptance testing shall include coverage performance testing to verify the proposed coverage design.

Since Cumberland County is specifying all of the fixed sites to be used, the contractor is not required to meet a bounded area coverage requirement [Cumberland political boundaries]. However, the contractor is required to

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provide minimum delivered audio quality [DAQ-3.0-3.4 / 95%] when a minimum mean signal level is present in the absence of external interference within the proposed coverage area shown on contractor coverage prediction maps [painted areas].

The purpose of the coverage requirement and associated coverage testing is to ensure all other elements of the network, including but not limited to site transmitters and receivers, antennas, microwave backhaul, voting system and subscriber receiver are performing properly.

Of primary concern is audio quality and simulcast delay settings, and the associated delay spread from multipath and from simulcast interference in the simulcast overlap areas.

The system shall operate for 30 days without failure before the warranty period commences. Any failure occurring within the 30-day period shall reset the 30-day clock. The contractor must obtain written acceptance from Cumberland County's Project Representative to initiate the warranty period.

### **13.10 Installation Documentation**

Prior to Final System Acceptance, three [3] complete sets of Maintenance and Service Manuals shall be submitted outlining all systems and equipment provided under this contract, including all software user documentation and licenses.

Each site shall be equipped with appropriate manuals that pertain to the equipment on the site.

Documentation shall consist of equipment test data, software documentation (which describes system and equipment software), "as-built" drawings and diagrams in both electronic (PDF) and paper formats. Detailed equipment maintenance, setup and alignment manuals shall also be provided. Cumberland County prefers this information on flash drive media.

Where applicable, paper documentation shall be inserted and organized in appropriately labeled three ring binders – no loose papers allowed.

The manuals shall include complete maintenance instructions, wiring diagrams, as-built diagrams, and troubleshooting instructions and a complete collection of manufacturers' product and catalog literature for equipment and systems installed.

System service instructions for work that the manufacturer recommends being performed by the users and complete parts lists for each major item of equipment and/or system shall be supplied.

Procedures for the administration of user identifications, passwords, remote access controls and confidentiality of information consistent with Cumberland County security standards and procedures shall be included.

**System Diagrams** - showing "as-built" configuration for all parts of the RF systems. The contractor shall develop detailed schematic drawings showing the various equipment components in the system, the interconnections, and the identifying circuit numbers, etc.

**Screen Shots** - for each site and associated equipment, the contractor shall provide provisioning data; that is, readable copies of screenshots of equipment configuration screens, copies of line sweeps, screenshots of key system provisioning data, printout of RFC-2544/Y1564 tests, and microwave hop performance information such as RSL levels and fade margins.

**Maintenance Drawings** - Each item that is capable of replacement for maintenance purposes shall be shown in an appropriate drawing that clearly indicates its position and relationship to the communications system. Exact names, part, and identification numbers shall be shown with instructions and information for future procurement.

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**Equipment List** - Upon completion of installation and a condition for acceptance, shall provide the County an updated "as-built" equipment list by site showing: location, quantity, model number, description, and serial number.

**Cabling, Conduit and Terminal Plans.** All interconnecting cables shall have permanent identification markings to indicate cable function, origination and destination. Cable identification (tag, label, etc.) shall be accomplished in a manner that will allow visual cable identification after complete installation. The cable identification shall be uniform and consistent throughout the system. It is essential that this information be stored in a computer database for future reference and update, if required.

**Wiring Diagrams and Circuit Identification** - The Proposer shall develop drawings indicating the specific method of wiring used on each item of equipment, and interconnection wiring between items of equipment clearly indicating the relationship to the rest of the communications system.

The above documentation shall also be provided on Flash Drives in PDF format.

**IP Addresses** – Prior to final acceptance, the Contractor shall provide the County with IP addressing schemes and configuration parameters including passwords.

Wherever possible, the above documentation shall also be provided on Flash/Thumb Drives as PDF files.

### **13.11 System Cutover**

The Vendor is to describe in their RFP response a cutover plan. This plan shall include a chronological chart with the tasks to be accomplished and the time for achievement of each task shown. A smooth operational transition from the existing systems to the replacement system is the goal. Key elements will be how active dispatching and fire alerting will be supported throughout implementation.

The detailed cutover plan shall include a narrative description of the sequential cutover steps and a clear delineation of which tasks are the responsibility of the Vendor and which tasks is the responsibility of Cumberland County. Please describe any additional or temporary equipment that may be required to accomplish the transition.

## **14 WARRANTY, MAINTENANCE AND TRAINING**

The Contractor shall provide manufacturer warranty and extended maintenance support during the life of the contract including all option periods exercised by Cumberland County.

The Contractor shall warrant that all goods and services supplied, systems, equipment, designs and work shall be satisfactory for its intended purpose, shall conform to and perform as called for in the Contract and shall be free from all defects and faulty materials and workmanship.

Defects related to faulty workmanship, including all damages to surrounding work caused by such defects, shall be without delay, repaired to Cumberland County's satisfaction at the Contractor 's expense.

During subsequent maintenance periods the Contractor may use Cumberland County's inventory of spare equipment or parts, or a Proposer maintained depot.

Any services supplied, systems, equipment, designs, or work found to be defective within the time specified elsewhere in this section shall be repaired, remedied, or replaced, by the Contractor, free of all charges including, without limitation, transportation.

The Contractor shall provide a copy of the formal signed equipment and software warranties as part of the Maintenance and Procedures Plan Manual upon final acceptance of the system.

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Failed equipment may be brought to the selected Contractor's service facilities for repair and return to Cumberland County's spare parts inventory.

In cases where the manufacturer, Contractor, or Cumberland County discovers a defective product or component, the Contractor shall have sole responsibility for new replacements at no cost to Cumberland County.

**IMPORTANT:** Should any specific equipment item [such as a repeater station, station circuit board, power amplifier, etc.] fail three times during the warranty period, the Contractor shall replace that equipment item and warranty the replacement for one additional year from the time of replacement.

#### **14.1 Duration of Warranty**

The Proposer shall warrant for a period of ONE [1] year from the date of Final System Acceptance all defects or damages due to faulty materials or workmanship.

In addition, pricing for years TWO [2] through FIVE [5] for maintenance shall be submitted in the proposal.

The additional year's contract maintenance period shall begin on the date that the warranty period maintenance expires or the date that Cumberland County exercises the option for that year of maintenance services.

Batteries, including UPS batteries, shall have warranties greater than one-year as specified in the DC Power section of the RFP.

#### **14.2 Maintenance Plan**

The Contractor shall prepare and submit for Cumberland County's approval, a comprehensive Maintenance Plan to follow during the Warranty and Maintenance periods.

The Plan shall include descriptions of the Proposer's warranty/maintenance management system and detailed procedures for all corrective/repair and preventive work.

Once approved, the Plan shall be used by both Cumberland County and the Contractor to guide the management of all maintenance work.

The Plan shall be a living controlled document, updated as necessary by the Contractor and Cumberland County.

Within the Maintenance Plan, the Contractor shall describe procedures and activities to be performed as part of the preventive maintenance program, including the frequency of each activity.

The Plan shall include all procedures recommended by the equipment manufacturers. This includes performing regularly scheduled operational tests and alignments on the system and sub-systems as recommended by the manufacturer; including third party equipment. Tests and alignments results shall be recorded and included as part of the plan for future reference.

The Maintenance Plan shall also include inspection and maintenance of all field equipment, racks, and all electronic equipment including the inspection and replacement of filters; ensure that equipment is clear from material and clutter; cleaning of equipment and accessories when in for repair; and checks that all hardware and software is working properly.

Inspection of the Communication Console equipment such as servers, software, and computer equipment, such as keyboards, monitors, mice, storage drives, etc., shall be discussed.

The Plan shall also include inspection of microwave system equipment, including routers and switches, and performing manufacturer's diagnostic tests.

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Physical inspection of the infrastructure equipment to include equipment racks, local alarm indicators, cables, connections, emergency generator, UPS/battery maintenance, and HVAC.

Visual inspection of the compound, including the shelter, tower, antennas, and transmission lines.

The classification of the hardware, software, and/or system/subsystem failure as documented in the Maintenance Plan shall govern repair time requirements.

This includes all equipment, hardware or software failure that renders Radio System or any subsystem ineffective. If the failure affects multiple devices, this also shall constitute a Hardware/Software Critical Failure. Examples include: malfunctioning LAN, controllers, Control Center or damage to the radios and/or any supporting equipment provided by the Proposer.

It also includes a failure of the microwave system that renders the entire system or any subsystem ineffective.

Also, non-critical failure of any individual equipment, hardware or software that does not affect the overall operation of the system. Examples include: malfunctioning radio control stations, microphones and speakers, or any radio accessory, dispatcher keyboards, mice, etc., or any item that could reasonably be replaced by Cumberland County personnel under telephone direction of qualified maintenance personnel.

### **14.3 Maintenance Service Levels and Response Times**

Throughout the warranty and extended maintenance period, the Contractor shall provide the initial response to all trouble calls in order to maintain high system availability.

Normal, non-critical warranty maintenance shall be performed during normal business hours of 7:00 am-5:00 pm M-F. Some equipment and subsystems deemed critical by Cumberland County shall be protected by warranty and extended maintenance that provides guaranteed response and restoration times on a 365-day by 24-hour basis. The following lists identify response and maintenance performance level required for the various subsystems:

- **24 x 7-day**
  - 30-minute phone response
  - 2-Hour On-Site Response/4-Hour repair with spares
    1. Dispatch Console
    2. Radio System Infrastructure
    3. Microwave Network
  
- **10 x 5-day**
  - 8-Hour On-Site Response/8-Hour repair:
    1. Tower/Shelter Subsystems
    2. Alternative Support Systems and Specialized Equipment.

Repair time shall be measured from the time the Contractor's representative receives notification that a failure exists until the time corrective work is complete in a manner satisfactory to Cumberland County and the equipment is returned to normal service.

The Contractor shall provide yearly Preventative Maintenance services, which include operational tests and alignments on the system and sub-systems as required by manufacturer.

#### **14.4 End-of-Life of Proposed Equipment**

Proposers should fully disclose the end-of-life status of each major equipment component in their Proposal. End-of-production dates should be provided, minimally, for communications dispatch console, base stations, microwave radios, network controllers, etc. It is the intent, to the maximum extent possible, for Cumberland County to avoid the purchase of any network equipment that is nearing the end of its production cycle.

#### **14.5 Service Facilities and Maintenance Personnel**

The contractor shall have qualified technicians available to meet the required response times.

The Proposer shall be certified by the system manufacturer as an authorized service provider for the system being proposed.

The Proposer shall maintain one or more properly stocked, equipped, and staffed service facilities to maintain the equipment supplied under this contract.

The Proposer shall provide experienced personnel to execute the required maintenance tasks during the warranty and any subsequent exercised service period options.

All maintenance personnel who perform maintenance on the system shall have completed all required manufacturer-approved training for that equipment and evidence thereof shall be provided to Cumberland County.

The Proposer shall provide a brief bio of key maintenance personnel in their proposal along with certifications.

#### **14.6 Hardware Maintenance Services**

The Contractor shall be responsible for maintenance and support of all hardware from the time of installation through expiration of the warranty period and any subsequent optional extended maintenance periods exercised by Cumberland County.

Maintenance services shall be performed in accordance with the Maintenance Plan and include all preventive maintenance services as specified.

These requirements apply during both warranty and purchase support periods, if enacted.

Cumberland County shall have the option of purchasing directly from the appropriate Original Equipment Manufacturer [OEM] of computers and associated peripheral equipment on-call maintenance services in accordance with the various levels of service offered by such OEM.

No later than 30 days prior to the expiration of the warranty, and any subsequent maintenance period exercised by Cumberland County under this contract, the Proposer shall have the equipment certified as being acceptable by the OEMs maintenance services, and shall request the OEM to provide written quotation to Cumberland County for the provision of such services.

The Contractor shall work with Cumberland County and its authorized contractors to resolve problems on the communications backbone network that may affect the overall operation of the new communications system.

#### **14.7 Software Maintenance Services**

The Contractor shall be responsible for all aspects of system software maintenance and system/database administration during the warranty and extended maintenance periods agreed to in the contract.

This work shall include, without limitation, monitoring and tuning of all operating systems, network software, databases, and support of all other Proposer provided system software components.

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The Contractor shall also be responsible for installation of third party software patches and revisions at no additional charge to Cumberland County.

A software-licensing fee should be included to ensure the latest software release is current at Final System Acceptance.

The Contractor shall notify Cumberland County when any software updates are released following system acceptance for any licensed software associated with the system. Updates should be one per year with annual software refresh included.

Bug fixes are not considered a software refresh.

The refresh under the contract must be full implementation including installation, engineering, and project management.

Software updates shall include enhancements or corrections to existing features for all supplied system components, new features implemented in existing system components, software for product migrations, where a new generation of software is developed for a designated system component, rather than an update of the older generation of software.

Software refresh must be a coordinated "system-centric" event, mitigating the risk of disparate software versions causing problems.

Cumberland County shall be informed of updates for all software changes provided upon its release, including documentation and solution of software problems, improvements, updates, and new releases that could be made to the system provided to Cumberland County.

This service shall commence at the time of Final Acceptance, and shall continue through the maintenance period or five years, whichever is longer.

The Contractor shall grant to or obtain in the name of Cumberland County a perpetual, non-revocable, non-transferable, and non-exclusive license to use the Software and documentation related thereto for Cumberland County communications system provided.

Any copies of the Software and documentation that Cumberland County acquires pursuant to the Contract shall bear all copyright, trademark, and other proprietary notices, except as provided by law or authorized in the Contract.

The Contractor shall provide copies of software licenses, operating instructions, programming instructions, technical documentation and maintenance procedures to allow making maintenance and provisioning changes to all equipment included in the System.

## **14.8 Software Upgrades during Warranty and Maintenance Periods**

All software upgrades required during the warranty period, as well as the subsequent maintenance periods, are to be included at no additional cost to the County. The County desires to ensure the availability of up-to-date software functionality without incurring additional expenses. This applies to all software products and systems procured by the County, including but not limited to operating systems, applications, databases, and other related software components.

During the one-year warranty period, the contractor shall provide all software upgrades and updates necessary to maintain the software's optimal performance, security, and compatibility at no additional cost to the county. Beyond the warranty period, the contractor shall provide ongoing maintenance and support services software.

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This includes, but is not limited to, bug fixes, security patches, major version upgrades, minor updates, patches and feature enhancements. During all maintenance periods, the vendor shall include all software upgrades and updates required to maintain the software's performance, security, and compatibility, at no additional cost to the county.

Moreover, the vendor shall provide timely documentation and notifications regarding any software upgrades and updates. This includes release notes, installation instructions, and any impact or compatibility considerations associated with the upgrade or update

#### **14.9 DC Power Systems and Batteries**

The Contractor is completely responsible for regular and preventative maintenance on all battery systems through the System Warranty period.

Preventative maintenance testing shall include, at a minimum, the following tests/ measurements/ inspections:

- (1) Measurement of a significant deviation (>25%) in the impedance, conductance or DC resistance of the cell as compared to the levels that were recorded at the time of commissioning. (2) A partial discharge test with the battery connected to the load in which the voltages of each cell in the string are recorded in a test that involves lowering the rectifier float voltage below the open circuit voltage and discharging the battery with the connected load current. (3) Periodic measurement and monitoring of cell temperature. (4) Measurement of cell voltage compared to midpoint voltage. (5) Complete inspection of all inter-battery buss connections.

#### **14.10 Remote Diagnostics**

It is recommended that the Contractor have the capability to remotely monitor, diagnose, repair, and restore access the new system.

The remote maintenance access must run in the background and cannot impact system operations.

Contractor shall describe their remote maintenance access system and capabilities in their proposal.

#### **14.11 Spare Parts Inventory**

The Proposer shall determine the number of spares for each component and complete assemblies required to sustain day-to-day operation and maintenance for the warranty and the subsequent optional extended maintenance period.

This list shall include manufacturers' complete catalog identification numbers and model designators, quantities, options, and catalog "cut sheets".

The submission shall be in sufficient detail to enable Cumberland County to readily identify the equipment.

Examples of equipment assemblies include field replaceable elements of servers, site controllers, central control system, and dispatcher workstations.

The spare parts list shall clearly identify all components including: Proposer name and contact information; part/version number; reliability, refurbishment and replacement requirements; and quantity of spares for each component necessary to ensure sustained operation of Cumberland County's system.

The Contractor shall store the system spare parts inventory at a location approved by Cumberland County.

Use of the spare parts inventory shall be documented, and equipment removed from service, whenever possible, shall be repaired and replaced into the spare parts inventory by the Proposer at no expense to Cumberland County.



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Alternatively, the Contractor may provide replacement equipment from a spare parts depot maintained by the Contractor.

The spare parts inventory, including any test equipment and/or software, shall remain the property of Cumberland County at all times.

#### **14.12 Third-Party Manufacturer Warranties**

All warranties, including Third-Party equipment, shall commence on the date of Final Acceptance.

The Contractor shall ensure that warranty on any Third-Party equipment meets the minimum warranty required elsewhere in this specification document.

For warranties that are provided directly from equipment manufacturers, the Contractor shall formally transfer all such warranties to Cumberland County.

In the event that any Third-Party manufacturer customarily provides a warranty period greater than required elsewhere in this specification document, the warranty shall be for the greater period of time.

For each warranty manufacturer, provide name, address, and telephone number for service for each item of equipment or system with a copy of the formal signed equipment and software warranties.

Original software distribution media, and an itemized list of test equipment required supporting maintenance of the installed radio system.

#### **14.13 System and Equipment Support**

The Contractor shall obtain from the manufacturer a warrant that replacement or compatible parts for all system components, including proprietary products but not subscriber equipment, shall be available for purchase at least ten [10] years after the final acceptance date.

### **15 SUBSCRIBER EQUIPMENT**

The County desires preliminary unit pricing for subscriber radios that can be implemented on the proposed simulcast system. The proposer shall identify the different tier models and capabilities of portable and mobile radios to include standard analog, P-25 and DMR unit operation. A separate Excel spreadsheet will be provided identifying the types and models of mobile, portable, and alert paging equipment.

### **16 PRICING AND FINANCIAL CONDITIONS**

The equipment provided by the Proposer shall be a complete turnkey system, with firm pricing for all equipment and services described by the specifications. Proposers shall submit their pricing based upon their best offer price at the time of initial bid submission, including special discounts, trade-ins, cost incentives or signing bonuses.

The jurisdiction is exempt from all federal excise, transportation taxes, and state sales taxes. No exemption certificates are required for this procurement, and none will be issued.

All pricing shall be FOB destination.

This pricing structure shall remain in effect for a period of not less than 12 months following final system acceptance.

Pricing provided in the response to this RFP request must be all-inclusive. If a specific type of equipment is proposed, all pricing associated with that piece of equipment must be included. The price shall include all requirements to make that equipment operational. For example, a price for a mobile radio shall include the microphone, speaker, power cord, programming hardware and software, etc.

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After the initial period, unit pricing shall escalate at no more than the annual Consumer Price Index (CPI) as calculated by the jurisdiction Finance/Purchasing Department. This section shall apply not only to purchases made by the Jurisdiction but shall also apply to other entities within the jurisdiction including fire, law enforcement, ambulance services, public works, and other agencies as authorized by the jurisdiction.

Pricing shall include the resources needed to decommission legacy equipment, including antennas and transmission lines, packaged and returned to the County for disposal as described in this specification.

Maintenance pricing for parts and labor shall also be included in the pricing sheets. This includes subsequent years after expiration of the Warranty period, years-2 through year-10.

## **16.1 Pricing Sheets**

The Proposer shall submit the attached pricing sheet.

All costs shall be rounded to the nearest dollar!

Design review, equipment delivery, freight, installation, programming, optimization, project management, engineering, training, testing, Proposer travel and waiting time, per-diem, and supplies shall be included in the pricing worksheets.

Summary Pricing Sheets and detailed Pricing Worksheets of the proposed system, sub-assemblies, installation and implementation labor services on a per site basis.

Proposals should clearly and effectively communicate system concept, infrastructure configuration and user equipment options. Pricing should reflect both system and component level costs.

Partial payment shall be made by the County after the items awarded to the Proposer have been received, inspected, and found to comply with procurement specifications, to be free of damage or defect, and to be properly invoiced. A single itemized invoice of equipment, software, and services shall bear the contract number and purchase order number.

## **16.2 Proposed Payment Schedule**

Cumberland County will pay the winning vendor for services performed in accordance with the signed Agreement. Invoices will be submitted in the following schedule:

- 20% of contract price will be paid upon contract execution.
- 10% of contract price will be paid upon completion of Detailed Design Review [DDR].
- 20% of the contract price for services related to the infrastructure will be paid after the complete staging test.
- 10% of the contract price for services related to the microwave radio system infrastructure will be paid after equipment delivery and the completion of installation at all the sites.
- 20% of the contract price for services related to the VHF radio system infrastructure will be paid after equipment delivery and the completion of installation at all the sites.
- 20% Balance of the contract will be payable after field testing, final system acceptance, and after the 30-day operational system test.

If the contractor desires alternate payment terms, they are to be submitted in the proposal subject to mutual agreement during contract negotiations.

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The Cumberland County reserves the right to request substantiating information on any bill submitted. Cumberland County will, within 30 days after receipt of an invoice requesting payment indicate the approval of payment and process the invoice.

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## 1. SUBSCRIBER RADIO EQUIPMENT SPECIFICATION

The CCRCC desires to maintain a subscriber pricing list for towns in the County to purchase mobile, portable, and alert paging receiver equipment. The Proposer shall provide pricing for subscriber equipment based on the level of potential units to be purchased. Pricing shall include discounts based on quantities purchased. The Proposer shall determine various price thresholds based on quantity.

No subscriber units will be purchased under this procurement. However, the pricing sheet will have minimal quantities included so the CCRCC and the Towns can evaluate the subscriber radios.

### *1.1 Proposed Subscriber Equipment*

The CCRCC requires the Proposer to provide various types of radio subscriber equipment for the different agencies and participants. The County intends to procure radio subscriber units that shall require a variety of different features and options depending on the various user departments and their respective operational needs.

Subscriber units shall support analog, DMR and P25 digital communications.

Please provide per unit pricing for all different tier subscriber radios as shown on the pricing sheets.

The Proposer shall thoroughly describe the features and functionality provided by each of the subscriber tiers. In general, higher tier Public Safety radios shall include a larger suite of features and functionality that can withstand the harsh environments encountered by the first-responder community. Lower tier radios shall also be of high quality and design but not require advanced feature set and capacity of a Tier-1 radio.

### *1.2 General Subscriber Requirements*

All subscribers shall have the following capabilities:

1. Subscribers provided shall be capable of analog, DMR and P25.
2. Subscriber radios shall consist of an integral radio set, capable of frequency synthesis of multiple RF channels. Additionally, the radio shall include such other items as are necessary for a complete, highly reliable, two-way radio suitable for communications in a multi-channel conventional system.
3. Subscribers shall be equipped with a data port. This data port shall allow for connection of test equipment, radio programming devices for the unit's operating frequencies, features, functions and other operating parameters shall be field tailorable via PC based programmers.
4. Subscriber units shall be equipped to concurrently priority scan both conventional channels [8 minimum] in both the clear and encrypted voice. Channel scanning shall be completed in the minimum time necessary to reliably deliver audio traffic to the radio subscriber.
5. The scan shall be a selectable priority, which means that the transmitter channel or talkgroup selected by the user is configurable to be the priority channel or talkgroup.

#### *1.2.1 Subscriber Characteristics*

1. To the greatest extent possible, all equipment assemblies and sub-assemblies shall be shielded to minimize electromagnetic interference that may be caused to/by electrical equipment co-located and/or adjacent to this equipment.

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2. The equipment shall meet or exceed all the requirements of MIL-STD 810C, D and E standards for shock, vibration, salt, fog, dust and rain.
3. Unit identification modes shall include Unit ID upon Push-To-Talk and Emergency Unit ID.
4. All subscribers shall be programmable for a variable duration transmit time-out-timer for continuous activity to prevent stuck microphone, dead key or abusive key-up scenarios.
5. Subscriber radios shall be equipped with a button or switch that activates the emergency mode. All proposed subscriber radios and associated accessories shall be equipped to operate consistently and reliably according to manufacturer and system specifications in environmental conditions ranging from -30 degrees Celsius to +60 degrees Celsius at a 90% non-condensing humidity level.
6. All subscriber radios with display capabilities shall utilize a hardened LCD display capable of withstanding non-abusive vibration and direct impact encountered in the normal daily radio use without being rendered inoperable. The LCD displays shall provide configurable contrast levels to enable proper usage in direct sunlight and low-light operating conditions. All display radios shall provide user-enabled backlighting for nighttime and low-light usage.
7. Subscriber radios shall be equipped to mute all radio tones and/or audio when operating in covert or sensitive tactical situations (e.g., surveillance, SWAT, etc.).
8. All subscriber radios shall be equipped to provide multiple configurable folders or zones of talkgroups and channels to uniquely organize the available modes programmed into each radio. Each folder or zone shall be accessible through any defined combination of button, switch, or menu item setting.

## 1.2.2 Operational Characteristics

All proposed subscriber radios shall be equipped to operate within the VHF frequency band – 136 – 174 MHz.

## 1.3 *Handheld Portable Radio*

### 1.3.1 General Description

Portable radios shall be comprised of a handheld transceiver, associated accessories, antenna and user functions and controls.

The units shall be of current production and shall be capable of withstanding the harsh environment associated with use in emergency services personnel. Portable housing shall be of high impact polycarbonate or other high impact material.

### 1.3.2 Basic Configuration

For each portable, including spares, shall be equipped with:

- Battery plus a spare
- Single unit charger.
- Flexible antenna whip
- Swivel leather carrying case with hold down strap

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## 1.3.3 Portable Power Supply

The equipment shall operate from a negative ground internal rechargeable battery power source.

Portable subscriber radios shall be equipped to provide a minimum of 12 hours operations having a duty cycle of 10% transmit/10% receive/80% Idle) operational behavior model. The battery shall be appropriately sized for this operation.

All portable subscriber radios shall be equipped to provide an audible and visual battery status indication to warn of battery depletion and need to charge.

## 1.3.4 Portable Operational Characteristic

All portable subscribers shall have the following characteristics

1. Programmable for a variable RF Output Power between 5-watts across the entire frequency operating range.
2. All portables shall be equipped with a noise-cancelling remote speaker microphone.
3. All portable radios shall be equipped standard with a belt clip in addition to any accessories that may be also ordered with the portable radios.
4. Portable speaker audio output operating in a vehicular adapter shall be 5 Watts, minimum.
5. Handheld radios, not operating in a vehicular charger or adapter, should have greater than 500 milliWatts of audio output.

## 1.3.5 Portable Radio Features

1. The LCD display
2. All portables shall be equipped with a top-mounted rotary volume control knob.
3. All portables shall be equipped with a primary, top-mounted channel selector knob.

## 1.3.6 Portable Accessories

Portable radio accessories are listed in the pricing sheet. Suppliers are to provide Unit Cost for each item. The final quantity of accessories will be finalized at the Detailed Design Review meeting.

## 1.4 Mobile Radio

Mobile equipment shall be comprised of a transceiver, associated accessories, antenna and user functions and controls.

The units shall be of current production and shall be capable of withstanding the harsh environment associated with use in emergency service vehicles.

### 1.4.1 Basic Configuration

For each mobile, including spares, shall be equipped with:

- Plug-in type palm microphone with coiled cord
- Plug-in type external speaker
- Permanent antenna mount assembly

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- Low profile roof/trunk mount antenna
- Low loss coaxial cable

## 1.4.2 Power Supply

The equipment shall operate from an external negative ground primary power source supplying a nominal 13.8 VDC.

All power circuits shall provide for reverse polarity protection.

## 1.4.3 Mobile Operational Characteristic

All mobile units shall have the following characteristics:

1. Programmable for a variable RF Output Power between 5-40 Watts across the entire frequency operating range.
2. Mobile external speaker audio output shall be 10 Watts, minimum.
3. For trunk mounted radios, housings shall be equipped with a base plate. The base plate shall allow for the removal of the transceiver from its mounted location for replacement or servicing. Removal of the transceiver from the base plate shall not expose its internal circuitry.
4. Mobiles shall be equipped to operate powered on or in a switched mode, powered down with an ignition sense, as required on an individual basis by the County.
5. Mobile radio shall be of the dash mount type; also provide pricing for dash/remote trunk mount radios.

**A A N Pricing eet**

- 1 ATTACHMENT-2 FEDERALLY REQUIRED PROVISIONS PURSUANT TO THE AMERICAN RESCUE PLAN ACT



# PRICING SHEET - PHASE-1

## Cumberland County Radio System Upgrade

Phase-1 Only	ANALOG COST [each]	SITES								QTY	LABOR	TOTAL [MATERIAL & LABOR] COST	GRAND TOTAL	
		Baldwin	Casco	CCRCC	Gray	Harpwell	Harrison	New	Portland BBT					
RADIO														
VHF Analog Repeaters [3-channels**] w/Rack - all sites	\$0.00									0	\$0.00	\$0.00	\$0.00	RADIO
Comparator/Voter - replace existing	\$0.00									0	\$0.00	\$0.00		
Network/Gateways/Routing/LAN Eqpt	\$0.00									0	\$0.00	\$0.00		
Antennas/T-Line & Protection	\$0.00									0	\$0.00	\$0.00		
Transmitter Combiner														
Receiver Multicoupler	\$0.00									0	\$0.00	\$0.00		
GPS/ simulcast/ existing TX sites only	\$0.00									0	\$0.00	\$0.00		
Grounding and AC protection	\$0.00									0	\$0.00	\$0.00		
Prog. Software, Cables/Interface Eqpt	\$0.00									0	\$0.00	\$0.00		
FCC Licensing	\$0.00									0	\$0.00	\$0.00		
Other [explain]	\$0.00									0	\$0.00	\$0.00		
Other [explain]	\$0.00									0	\$0.00	\$0.00		
**Channel is defined as 9-site FD\PD\or SO systems; for receive-only sites, only the repeater receivers will be activated in Phase-1														
MICROWAVE														
Other [explain]	\$0.00									0	\$0.00	\$0.00	\$0.00	MICROWAVE
Other [explain]	\$0.00									0	\$0.00	\$0.00		
CONSOLE														
Convert to P25	\$0.00									0	\$0.00	\$0.00	\$0.00	CONSOLE
Convert to DMR	\$0.00									0	\$0.00	\$0.00		
Other [explain]	\$0.00									0	\$0.00	\$0.00		
Other [explain]	\$0.00									0	\$0.00	\$0.00		
FACILITIES														
AC Power/Distribution	\$0.00									0	\$0.00	\$0.00	\$0.00	FACILITIES
DC Power Plant/Rectifier/Charger/Dist	\$0.00									0	\$0.00	\$0.00		
Batteries	\$0.00									0	\$0.00	\$0.00		
Status Monitoring/ Alarms	\$0.00									0	\$0.00	\$0.00		
Other [explain]	\$0.00									0	\$0.00	\$0.00		
Other [explain]	\$0.00									0	\$0.00	\$0.00		
OPTIONS														
Convert single channel [1 of 3] at 9-sites to DMR	\$0.00									0	\$0.00	\$0.00	\$0.00	OPTIONS
Convert single channel [1 of 3] at 9-sites to P25	\$0.00									0	\$0.00	\$0.00		
Other [explain]	\$0.00									0	\$0.00	\$0.00		
Other [explain]	\$0.00									0	\$0.00	\$0.00		

SERVICES	
Project Management	\$0.00
Project Engineering	\$0.00
Factory Staging/Integration	\$0.00
Site Design/Engineering/Development	\$0.00
System Acceptance Testing	\$0.00
Documentation	\$0.00
Training	\$0.00
Shipping/Freight	\$0.00
Other Services [Explain]	\$0.00
<b>SERVICES SUB-TOTAL</b>	<b>\$0.00</b>

WARRANTY & MAINTENANCE		
Year-1 \	WARRANTY	Included
Year-2		\$0.00
Year-3		\$0.00
Year-4		\$0.00
Year-5		\$0.00
<b>WARRANTY/MAINTENANCE TOTAL</b>		<b>SUB- \$0.00</b>

# PRICING SHEET - PHASE-1

## Cumberland County Radio System Upgrade

Phase-1 Only	ANALOG COST [each]	Baldwin	Casco	CCRCC	Gray	Harpwell	Harrison	New	Portland BBT	Standish	QTY	LABOR	TOTAL [MATERIAL & LABOR] COST	GRAND TOTAL

--

**RADIO**                      **\$0.00**

**MICROWAVE**                      **\$0.00**

**CONSOLE**                      **\$0.00**

**FACILITIES**                      **\$0.00**

**OPTIONS**                      **\$0.00**

**\$0.00      SUB-TOTAL**

**SERVICES**                      **\$0.00**

**WARRANTY/MAINTENANCE**                      **\$0.00**

**\$0.00      SUB-TOTAL**

**\$0.00      PHASE-1 GRAND TOTAL**

### SUBSCRIBER PER UNIT COST

	Dash Mount Radio 1*	Trunk Mount Radio 1*
MOBILE - analog	\$0.00	\$0.00
MOBILE - P25 & analog	\$0.00	\$0.00
MOBILE - P25, DMR & analog	\$0.00	\$0.00

	Portable Radio 2*
PORTABLE - analog	\$0.00
PORTABLE - P25 & analog	\$0.00
PORTABLE - P25, DMR & analog	\$0.00
Alert Pager	\$0.00

1\*. Includes programming, palm microphone, antenna, & external speaker

2\*. Includes programming, battery, charger & antenna

Please provide specification sheets for each model

# PRICING SHEET - PHASE-2

## Cumberland County Radio System Upgrade

Phase-2 Only	ANALOG COST [each]	EXISTING SITES								NEW		QTY	LABOR	TOTAL [MATERIAL & LABOR] COST	GRAND TOTAL			
		Baldwin	Casco	CCRCC	Gray	Harpwell	Harrison	New	Portland BBT	Standish	Scarborough						Freeport	
RADIO																		
VHF/Analog Repeaters [3-channels**] w/Rack - new sites	\$0.00											0	\$0.00	\$0.00	\$0.00	RADIO		
Activate simulcast repeaters at receive-only sites	\$0.00											0	\$0.00	\$0.00				
Comparator/Voter - add redundant voter	\$0.00											0	\$0.00	\$0.00				
Network/Gateways/Routing/LAN Eqpt	\$0.00											0	\$0.00	\$0.00				
Antennas/T-Line & Protection	\$0.00											0	\$0.00	\$0.00				
Transmitter Combiner																		
Receiver Multicoupler	\$0.00											0	\$0.00	\$0.00				
GPS/ simulcast	\$0.00											0	\$0.00	\$0.00				
Grounding and AC protection	\$0.00											0	\$0.00	\$0.00				
Prog. Software, Cables/Interface Eqpt	\$0.00											0	\$0.00	\$0.00				
FCC Licensing	\$0.00											0	\$0.00	\$0.00				
Other [explain]	\$0.00											0	\$0.00	\$0.00				
Other [explain]	\$0.00											0	\$0.00	\$0.00				
**Channel is defined as 9-site FD\PD\or SO systems; for receive-only sites, only the repeater receivers will be activated in Phase-1																		
MICROWAVE																		
Other [explain]	\$0.00											0	\$0.00	\$0.00	\$0.00	MICROWAVE		
Other [explain]	\$0.00											0	\$0.00	\$0.00				
CONSOLE																		
Convert to P25	\$0.00											0	\$0.00	\$0.00	\$0.00	CONSOLE		
Convert to DMR	\$0.00											0	\$0.00	\$0.00				
Other [explain]	\$0.00											0	\$0.00	\$0.00				
Other [explain]	\$0.00											0	\$0.00	\$0.00				
FACILITIES																		
AC Power/Distribution	\$0.00											0	\$0.00	\$0.00	\$0.00	FACILITIES		
DC Power Plant/Rectifier/Charger/Dist	\$0.00											0	\$0.00	\$0.00				
Batteries	\$0.00											0	\$0.00	\$0.00				
Status Monitoring/ Alarms	\$0.00											0	\$0.00	\$0.00				
Other [explain]	\$0.00											0	\$0.00	\$0.00				
Other [explain]	\$0.00											0	\$0.00	\$0.00				
OPTIONS																		
Convert single channel [1 of 3] at new sites to DMR	\$0.00															\$0.00	\$0.00	OPTIONS
Convert single channel [1 of 3] at new sites to P25	\$0.00															\$0.00		
Other [explain]	\$0.00															\$0.00		
Other [explain]	\$0.00															\$0.00		

SERVICES	
Project Management	\$0.00
Project Engineering	\$0.00
Factory Staging/Integration	\$0.00
Site Design/Engineering/Development	\$0.00
System Acceptance Testing	\$0.00
Documentation	\$0.00
Training	\$0.00
Shipping/Freight	\$0.00
Other Services [Explain]	\$0.00
<b>SERVICES SUB-TOTAL</b>	<b>\$0.00</b>

Additional Cost Added to Phase-1 Warranty & Maintenance Cost	
WARRANTY & MAINTENANCE	
Year-1 \ WARRANTY	Included
Year-2	\$0.00
Year-3	\$0.00
Year-4	\$0.00
Year-5	\$0.00
<b>WARRANTY/MAINTENANCE SUB-TOTAL</b>	<b>\$0.00</b>

# PRICING SHEET - PHASE-2

## Cumberland County Radio System Upgrade

Phase-2 Only	ANALOG COST [each]	Baldwin	Casco	CCRCC	Gray	Harpwell	Harrison	New	Portland BBT	Standish	Scarborough	Freeport	QTY	LABOR	TOTAL [MATERIAL & LABOR] COST	GRAND TOTAL

--

RADIO \$0.00

MICROWAVE \$0.00

CONSOLE \$0.00

FACILITIES \$0.00

OPTIONS \$0.00

\$0.00 SUB-TOTAL

SERVICES \$0.00

WARRANTY/MAINTENANCE \$0.00

\$0.00 SUB-TOTAL

\$0.00 PHASE-2 GRAND TOTAL



***FEDERALLY REQUIRED PROVISIONS PURSUANT TO THE  
AMERICAN RESCUE PLAN ACT***

If you have any questions while completing this paperwork

**Please contact:**

Cumberland County Compliance and Audit Manager  
142 Federal Street Room 100  
Portland ME, 04101  
207-209-4940

[warren@cumberlandcounty.org](mailto:warren@cumberlandcounty.org)

## **Required Document Checklist**

### **The American Rescue Plan Act**

Each bidder, prospective contractor, or proposed subcontractor shall state as an initial part of the bid or negotiations of any federal award or contract, compliance with PART 200 - Uniform Administrative Requirements, Cost Principles, & Audit Requirements for Federal Awards. **All bidders' submissions** must contain all of the following documents, signed and completed.

1. ☐ Certification of the Bidder regarding Disbarment (**Please include a print out from SAMs, showing standings**)
2. ☐ Certification of the Bidder regarding conflict of interest
3. ☐ Certification of the Bidder regarding EEO and signed EEO Statement
4. ☐ Certification of the bidder regarding Federal Provisions

**\*NOTE: BIDDERS MUST READ THE FEDERAL PROVISIONS REQUIREMENTS OF THIS PACKET PRIOR TO BIDDING ON THIS PROJECT\***

**CUMBERLAND COUNTY**  
**Maine**

**COMPLIANCE AND AUDITING MANAGER**

**CONTRACTOR DISBARRED OR SUSPENSION**

**Applicable to bidder**

**Contractor:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_ **Ext.** \_\_\_\_\_

**Contact Person:** \_\_\_\_\_

**Fax:** \_\_\_\_\_

**E-mail:** \_\_\_\_\_

**Tax ID:** \_\_\_\_\_

**BID PRICE: \$** \_\_\_\_\_

**BID DATE:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**PROJECT LOCATION:** \_\_\_\_\_

**PROJECT #** \_\_\_\_\_

**THIS CERTIFICATION IS REQUIRED BY THE REGULATIONS IMPLEMENTING EXECUTIVE ORDER 12549, DEBARMENT AND SUSPENSION, 29 CFR PART 98, SECTION 98.510, PARTICIPANTS' RESPONSIBILITIES. THE REGULATIONS WERE PUBLISHED AS PART VII OF THE MAY 26, 1988 FEDERAL REGISTER (PAGES 19160-19211).**

**1. THE PROSPECTIVE PRIMARY PARTICIPANT CERTIFIES TO THE BEST OF ITS KNOWLEDGE AND BELIEF THAT IT AND ITS PRINCIPALS:**

- a) ARE NOT PRESENTLY DEBARRED, SUSPENDED, PROPOSED FOR DEBARMENT, DECLARED INELIGIBLE, OR VOLUNTARILY EXCLUDED FROM COVERED TRANSACTIONS BY ANY FEDERAL DEPARTMENT OR AGENCY;**
- b) HAVE NOT WITHIN A THREE-YEAR PERIOD PRECEDING THIS PROPOSAL BEEN CONVICTED OF OR HAD A CIVIL JUDGMENT RENDERED AGAINST THEM FOR COMMISSION OF FRAUD OR A CRIMINAL OFFENSE IN CONNECTION WITH OBTAINING, ATTEMPTING TO OBTAIN, OR PERFORMING A PUBLIC (FEDERAL, STATE OR LOCAL) TRANSACTION OR CONTRACT UNDER A PUBLIC TRANSACTION, VIOLATION OF FEDERAL OR STATE ANTI-TRUST STATUTES OR COMMISSION OF EMBEZZLEMENT, THEFT, FORGERY, BRIBERY, FALSIFICATION OR DESTRUCTION OF RECORDS, MAKING FALSE STATEMENTS, OR RECEIVING STOLEN PROPERTY;**
- c) ARE NOT PRESENTLY INDICTED FOR OR OTHERWISE CRIMINALLY OR CIVILLY CHARGED BY A GOVERNMENT ENTITY (FEDERAL, STATE OR LOCAL) WITH COMMISSION OF ANY OF THE OFFENSES ENUMERATED IN PARAGRAPH 1.B OF THIS CERTIFICATION; AND**
- d) HAVE NOT WITHIN A THREE-YEAR PERIOD PRECEDING THIS APPLICATION/PROPOSAL HAD ONE OR MORE PUBLIC TRANSACTIONS (FEDERAL, STATE OR LOCAL) TERMINATED FOR CAUSE OR DEFAULT.**

**2. WHERE THE PROSPECTIVE PRIMARY PARTICIPANT IS UNABLE TO CERTIFY TO ANY OF THE STATEMENTS IN THIS CERTIFICATION, SUCH PROSPECTIVE PARTICIPANT SHALL ATTACH AN EXPLANATION TO THIS PROPOSAL.**

\_\_\_\_\_  
**NAME AND TITLE, AUTHORIZED REPRESENTATIVE**

\_\_\_\_\_  
**SIGNATURE & DATE**

**\*\*\*Please attached a print out of good standing from SAMs. \*\*\***

**CUMBERLAND COUNTY**  
**Maine**  
**COMPLIANCE AND AUDITING MANAGER**

***CONFLICT OF INTEREST***

**2 CFR 200.112 and 2 CFR 200.318**

Conflicts of interest arise when officials or staff stand to benefit either directly themselves or indirectly through business partners or relatives from the awarding or contracting of grant funds. When conflicts of interest arise, ARPA Staff will identify, disclose, and manage them in compliance with Super Circular (2 CFR Part 200.112 Conflict of Interest) and 24 CFR Part 570.611 Conflict of Interest for ARPA.

In the procurement of supplies, equipment, construction, and services by the subrecipients, the conflict of interest provisions in 2 CFR 200.318 shall apply. In all cases not governed by 2 CFR 200.318, this policy will be followed. Such cases include the acquisition and disposition of real property and the provision of assistance by its subrecipients/entities to individuals, businesses, and other private entities under eligible activities that authorize such assistance (e.g., rehabilitation, preservation, and other improvements of private properties or facilities pursuant to §570.202; or grants, loans, and other assistance to businesses, individuals, and other private entities pursuant to §570.203, 570.204, 570.455, or 570.703(i)).

A Conflict of Interest is a real or apparent incompatibility between a person's private interests and his/her public or fiduciary duties. For the purposes of ARPA, the rule is that no persons who are a (n):

- Employee,
- Agent,
- Consultant,
- Officer,
- Elected Official, and/or
- Appointed official



**CUMBERLAND COUNTY**  
**Maine**  
**COMPLIANCE AND AUDITING MANAGER**

**OF THE:**

- Town, City or County under the Cumberland County jurisdiction.
- Recipient of ARPA funds (applies to all non-profit agencies)
- Federal Government

***WHO:***

- Exercise or have exercised any functions or responsibilities with respect to ARPA activities, and/or
- Are in a position to participate in decision making process or gain inside information with regard to such activities,

***SHALL NOT:***

- Obtain a financial interest or benefit from a ARPA -assisted activity,
- Have a financial interest in any contract, subcontract, or agreement with respect to a ARPA -assisted activity, or with respect to the proceeds of the ARPA -assisted activity.

Either for themselves or those with ***whom they have business or immediate family ties***, during their tenure or for one year thereafter.

**EXCEPTIONS**

Upon the written request of the recipient, Treasury may grant an exception to the provisions of this section on a case-by-case basis when it has satisfactorily met the threshold requirements below:

Treasury will consider an exception only after the recipient has provided the following documentation:

1. A disclosure of the nature of the conflict, accompanied by an assurance that there has been public disclosure of the conflict and description of how the public disclosure was made. AND
2. An opinion from the Cumberland County-Legal Department must be obtained indicating the interest for which the exception is sought would not violate State or local law.

**CUMBERLAND COUNTY**  
**Maine**  
**COMPLIANCE AND AUDITING MANAGER**

**IMPORTANT:** *Mere submission of a request for an exception does not authorize a recipient to engage in any activity or enter into any contract that constitute a conflict. An exception is not granted until the subrecipient receives such determination in writing from the County as instructed by Treasury.*

In order to successfully obtain an exception from Treasury, the following points must be addressed:

- Significant cost benefit or essential expertise to the project.
- Opportunity for open competitive bidding or negotiation
- Person affected:
  - Member of low or moderate income class of persons intended to be beneficiaries of the assisted activity.
  - Exception will permit such person to receive same benefits as the class.
- Person affected has withdrawn from his or her functions or responsibilities, or the decision making process with respect to the assisted activity.
- Interest or benefit was present *before* affected person was in the conflicting position.
- Undue hardship to subrecipient or person affected which weighed against public interest served by avoiding the prohibited conflict.
- Any other relevant considerations.

**\*\* CONFLICT OF INTEREST FORMS MUST BE SIGNED BY ADMINISTRATION, STAFF AND BOARD OF DIRECTORS.**

## CONFLICT OF INTEREST

### 2 CFR 200.112 and 2 CFR 200.318

No employee, officer or agent of Cumberland County, or its set a sides communities, sub-grantee or subrecipient shall participate in selection, award or administration of contract or conduct business with a vendor if a conflict of interest, real or apparent would be involved.

- A. the employee, officer or any agent
- B. a member of his/her immediate family
- C. his or her partner
- D. an organization, which employs or is about to employ, any of the above,  
has financial or other interest in the firm selected for award.

Cumberland County's, sub-grantee or subrecipient, officers, employees or agents shall neither solicit nor accept gratuities, favors or anything of monetary value from contractors, potential contractors, or parties to sub-agreements, vendors or potential vendors. Depending on gravity, violation of this Conflict of Interest could result in dismissal, probation or suspension of officers, employees or agents involved or termination of contractual agreements with subrecipients.

**Non-disclosure Policy** any Cumberland County employee, sub-grantee or subrecipient shall make no disclosure of verbal or written price quotations. Violation of the nondisclosure policy shall be subject to disciplinary action as provided by the County or termination of contractual agreements when a subrecipient/sub-grantee employee is involved.

**CUMBERLAND COUNTY**  
**Maine**

**COMPLIANCE AND AUDITING MANAGER**

**Personal Interest** No member of the County Commissioners or any officer or employee of the County, sub-grantee or subrecipient shall have a financial interest, direct or indirect or by reason of ownership of stock in any corporation, in any contract or in the sale to the County of Cumberland, sub-grantee or subrecipient or to a contractor supplying the County of Cumberland, sub-grantee or subrecipient of any land or rights or interest in any land, material, supplies, or services, or in any matter in which he acts for the County of Cumberland. Any willful violation of this section shall constitute malfeasance in office, and any officer or employee of the County of Cumberland, sub-grantee or subrecipient found guilty shall there by forfeit his or her office. Any violation of this section with the knowledge, express or implied, of the person or corporation contracting with the County of Cumberland, sub-grantee or subrecipient shall render the contract void by the Compliance and Audit Director or the County Commissioners.

Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when the transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

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*Employee, Subrecipient or*

---

*Print or type Name and Position/Title*

*Agent Acknowledgment*

---

*Entity/Organization Name*

---

*Date*

**CUMBERLAND COUNTY**  
**Maine**  
**COMPLIANCE AND AUDITING MANAGER**

**CERTIFICATION OF CONTRACTOR REGARDING  
EQUAL EMPLOYMENT OPPORTUNITY**

**Certification by Bidders**

Name of prime contractor: \_\_\_\_\_

Address of prime contractor: \_\_\_\_\_

Tax ID # of prime contractor: \_\_\_\_\_

1. Bidder has participated in a previous contract or subcontract subject to the EEO Clause.  
☐ Yes      ☐ No
2. Compliance reports were required to be filed in connection with such contract or subcontract.  
☐ Yes      ☐ No
3. Bidder has filed all compliance reports due under applicable instructions, including SF-100.  
☐ Yes      ☐ No
4. Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended?  
☐ Yes      ☐ No

This certification is required pursuant to Executive Order 11246 (30 F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any other of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause, and if so, whether it has filed all compliance reports due under applicable instructions. Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven (7) calendar days after bid opening. No contract shall be awarded unless such report is submitted.

By signing below, you are certifying your answers to the four questions above were truthful:

\_\_\_\_\_  
Name and Title of Authorized Representative (print or type)

\_\_\_\_\_  
Signature of Authorized Representative

\_\_\_\_\_  
Date of Signature

**CUMBERLAND COUNTY**  
**Maine**

**COMPLIANCE AND AUDITING MANAGER**

**EQUAL EMPLOYMENT OPPORTUNITY STATEMENT**

**E.O. 11246 requires covered contractors and subcontractors to refrain from discrimination and to engage in affirmative steps to ensure that applicants and employees receive equal employment opportunity regardless of race, color, religion, sex, sexual orientation, gender identity, and national origin. Additionally, E.O. 11246 prohibits contractors and subcontractors from taking adverse action against employees or applicants for asking about, discussing or disclosing their pay or the pay of their co-workers.**

During the performance of this contract, the contractor agrees as follows:

1. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.
2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
3. The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.
4. The contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
5. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
6. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

**CUMBERLAND COUNTY**  
**Maine**

**COMPLIANCE AND AUDITING MANAGER**

7. In the event of the contractor's non-compliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
8. The contractor will include the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance: *Provided*, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

---

General Contractor Signature

---

Date

---

General Contractor Printed Name

# CUMBERLAND COUNTY

Maine

## COMPLIANCE AND AUDITING MANAGER

### FEDERAL REQUIREMENTS FOR SLFRF

1. **TITLE VI OF THE CIVIL RIGHTS ACT OF 1964**

(P.L. 88-352), as amended, (42 USC 2000d) and the requirements imposed by the Regulations of the Department of Commerce (15 CFR Part 8) issued pursuant to that Title. In accordance therewith no person in the United States shall, on the grounds of race, handicap, color, sex, national origin or familial status be excluded from participation in, be denied the benefits of or be otherwise subjected to discrimination under any program or activity which is paid for with federal funds. The Owner further adds that there shall not be any form of discrimination by any party in any ARPA contract on the basis of familial status, sexual orientation or sex.

2. **REHABILITATION ACT OF 1973**

29 USC 794, Executive Order 11914, Section 504. No otherwise qualified handicapped individual shall, solely by reason of his/her handicap, be denied the benefits of, be excluded from participation in, or be subjected to discrimination under any program or activity receiving federal financial assistance.

3. **SECTION 202 OF EXECUTIVE ORDER 11246** Applicable to Federally assisted construction contracts and related subcontracts. During the performance of this contract, the contractor agrees as follows:

- A. The contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor shall take affirmative action to ensure that applicants for employment are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: employment upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of Compensation; and selection for training, including apprenticeship.
- B. The contractor shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Contracting Officer setting forth the provisions of this non-discrimination clause. The Contractor shall state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.
- C. Contractors shall incorporate foregoing requirements in all subcontracts.
- D. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration without regard to race, color, religion, sex, or national origin.
- E. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided by the Contract Compliance Officer advising the said labor union or workers' representative of the contractor's commitment under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- F. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- G. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the Department and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- H. In the event of the contractor's noncompliance with the non-discrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or











# CUMBERLAND COUNTY Maine

## COMPLIANCE AND AUDITING MANAGER

21. **Publications.** Any publications produced with funds from this award must display the following language: “This project [is being] [was] supported, in whole or in part, by federal award number [enter project FAIN] awarded to [name of Recipient] by the U.S. Department of the Treasury.”
22. **Debts Owed the Federal Government.** Any funds paid to Recipient
1. in excess of the amount to which Recipient is finally determined to be authorized to retain under the terms of this award;
  2. that are determined by the Treasury Office of Inspector General to have been misused; or
  3. that are determined by Treasury to be subject to a repayment obligation pursuant to section 603(e) of the Act and have not been repaid by Recipient shall constitute a debt to the federal government.
23. **Disclaimer.** The United States expressly disclaims any and all responsibility or liability to Recipient or third persons for the actions of Recipient or third persons resulting in death, bodily injury, property damages, or any other losses resulting in any way from the performance of this award or any other losses resulting in any way from the performance of this award or any contract, or subcontract under this award. The acceptance of this award by Recipient does not in any way establish an agency relationship between the United States and Recipient.
24. **Protections for Whistleblowers.**
- a. In accordance with 41 U.S.C. § 4712, Recipient may not discharge, demote, or otherwise discriminate against an employee in reprisal for disclosing to any of the list of persons or entities provided below, information that the employee reasonably believes is evidence of gross mismanagement of a federal contract or grant, a gross waste of federal funds, an abuse of authority relating to a federal contract or grant, a substantial and specific danger to public health or safety, or a violation of law, rule, or regulation related to a federal contract (including the competition for or negotiation of a contract) or grant.
  - b. The list of persons and entities referenced in the paragraph above includes the following:
    - i. A member of Congress or a representative of a committee of Congress;
    - ii. An Inspector General;
    - iii. The Government Accountability Office;
    - iv. A Treasury employee responsible for contract or grant oversight or management;
    - v. An authorized official of the Department of Justice or other law enforcement agency;
    - vi. A court or grand jury; or
    - vii. A management official or other employee of Recipient, contractor, or subcontractor who has the responsibility to investigate, discover, or address misconduct.
  - c. Recipient shall inform its employees in writing of the rights and remedies provided under this section, in the predominant native language of the workforce.
25. **Increasing Seat Belt Use in the United States.** Pursuant to Executive Order 13043, 62 FR 19217 (Apr. 18, 1997), Recipient should encourage its contractors to adopt and enforce on-the-job seat belt policies and programs for their employees when operating company-owned, rented or personally owned vehicles.

26. **Reducing Text Messaging While Driving.** Pursuant to Executive Order 13513, 74 FR 51225 (Oct. 6, 2009), Recipient should encourage its employees, subrecipients, and contractors to adopt and enforce policies that ban text messaging while driving, and Recipient should establish workplace safety policies to decrease accidents caused by distracted drivers.

**The Bidder hereby agrees, to and will comply with the terms and use of the federal program and its provisions hereto as a condition of the Bid and**

**CUMBERLAND COUNTY**  
**Maine**

**COMPLIANCE AND AUDITING MANAGER**

**thereby award. The bidder acknowledges that they have read and understand said provisions hereto.**

**Insert Name Here:**

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Authorized Representative:

Title:

Date signed: