

# **Meade County, KY**

## **Fiscal Court**

### **REQUEST FOR BIDS**

Published

November 2, 2020

### **Analog / VHF Simulcast / Dispatch COMMUNICATIONS SYSTEM UPGRADE**

Responses must be delivered, by hand or mail, to the office of the Meade County Judge/Executive, Meade County Courthouse, 516 Hillcrest Drive, Suite 12, Brandenburg, Kentucky 40108, before 4:30 P.M. on November 13, 2020.

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## PROJECT SCOPE

Meade County, KY Government, hereafter referred to as "County", is seeking a qualified and experienced Bidder to upgrade its existing 4 Site / 4 Channel simulcast radio communications system by adding two (2) additional tower/repeater sites. The upgraded communications system will support mission critical communications for the County and City's public safety departments and agencies, and shall provide improved two-way wireless communications capabilities to all users.

The County's current radio communications system operates in VHF analog mode from four (4) simulcast repeater locations in Meade County, Kentucky that are linked together via a copper gigabit Ethernet connection. This network is a Layer 2, VPLS (Virtual Private Lan Service) connected via a fiber optic network provided by the Brandenburg Telephone Company. The County maintains two (2) communications centers: a primary center, and a secondary (or backup) center. The primary center is located in the Meade County Courthouse at 516 Hillcrest Drive, Brandenburg, KY. The backup center is located inside Muldraugh City Hall at 202 Wendell Street in Muldraugh, Kentucky. Both Centers utilize Motorola MCC-5500 radio consoles when communicating with field units from the County's Law Enforcement, Fire, EMS, and Animal Control agencies. The MCC-5500 consoles are also used for "page-out" alerts to Fire and EMS personnel.

The upgraded system will utilize existing components from the County's current communications system wherever possible. If any existing components are found to be unsuited for re-use, or incompatible with the recommended components of the upgraded system, Bidders must specify so in their response, and give written reason why said components should be replaced.

In addition, the upgraded system will include a total of two (2) additional repeater sites. One located at the Flaherty Fire Department, and the other at the Rhodelia Fire Department. Four (4) new repeaters will be housed at each of these locations; one each to serve the County's Law Enforcement, Fire, and EMS agencies along with a Paging channel. In addition, the upgraded system will link the two (2) added repeater sites into the County's existing simulcast network. The upgraded simulcast system will be configured, with systems in place at each repeater location, to insure the highest quality of (transmit and receive) radio communications possible for the E-911 Dispatch Center, and for field units utilizing the system via mobile and hand-held radios. The two (2) additional simulcast repeater locations will be linked into the County's existing network via a Layer 2, VPLS (Virtual Private Lan Service), via a fiber-optic network connection that will be provided by the Brandenburg Telephone Company.

The County at its sole discretion intends to award a contract to the best qualified firm. The County will receive responses until **4:30 P.M.**, local time, (our clock) on **November 16, 2020**, at the office of the Meade County Judge/Executive, Meade County Courthouse, 516 Hillcrest Drive, Suite 12, Brandenburg, Kentucky 40108. Responses received after this time will not be accepted. Bidders shall submit one (1) original, hard-copy response and four (4) duplicate, hard-copies of their response. The County reserves the right to accept or reject any and all bids.

## **IMPORTANT! – PLEASE READ CAREFULLY BEFORE RESPONDING**

### **GENERAL PROVISIONS**

#### **COMMUNICATIONS DURING SOLICITATION AND LOBBYING PROHIBITION**

Communicating with or lobbying of evaluation committee members, county or city government employees, or elected officials regarding requests for bids, requests for qualifications, bids, or contracts by the Bidders or any member of the Bidder's staff, an agent of the Bidder, or any person employed by any legal entity affiliated with or representing an organization that is responding to the requests for proposal, requests for qualification, bid or contract outside a publicly noticed meeting specifically called to address this particular Request for Proposals is strictly prohibited. Nothing herein shall prohibit a prospective Bidder from contacting the Purchasing Director to address concerns or grievances, or receive clarification about a particular procurement.

For purposes of this provision lobbying activities shall include, but not be limited to, influencing or attempting to influence action or non-action in connection with any requests for proposals, requests for statements of qualifications, invitations for bids, related processes or contracts through direct or indirect oral or written communication or an attempt to obtain goodwill of persons and/or entities specified in this provision. Such actions may cause any proposal, statement of qualification, bid, contract or any other response to be rejected.

#### **ACKNOWLEDGMENT OF AMENDMENTS**

Bidders must acknowledge receipt of all amendments (addenda) to the solicitation in their response. The acknowledgment should be received by the County by the opening/closing date, time and place indicated on the solicitation cover. Failure to acknowledge addenda may impact evaluation and/or result in rejection or disqualification of response(s).

#### **ASSIGNMENT**

The successful contractor shall not assign, transfer, convey, sublet, or otherwise dispose of any award or any or all of its rights, title, or interest therein, or delegate the duties hereunder without the prior written consent of the County.

#### **APPLICABLE LAW**

The resulting contract shall be governed in all respects by the laws of the State of Kentucky, and any litigation with respect thereto shall be brought in the courts of Meade County, Kentucky. The contractor shall comply with all applicable Federal, State, and local laws and regulations. Lack of knowledge by the Bidder will in no way be a cause for relief from responsibility.

#### **PACKAGING CONTAINING PROPOSALS**

Packaging containing responses must be sealed and marked with the words **Sealed Bid for Meade County Communications System Upgrade**. Failure to do so may cause the response not to be considered. If packaging is enclosed by Express Company or Express Mail packaging for shipping purposes, that packaging shall also be sealed and should be clearly marked. Failure to clearly mark packaging may delay delivery and render the response late.

#### **EXPENSES INCURRED IN PREPARING RESPONSE**

The County accepts no responsibility for any expense incurred by the Bidder in the preparation and/or presentation of a response. Such expenses shall be borne exclusively by the Bidder.

## **CLARIFICATIONS**

If any party contemplating the submission of a response is in doubt as to the true meaning of any part of the scope of work or other aspects of the solicitation, a written request for an interpretation should be submitted. Questions or requests for interpretations shall clearly state, in detail, the basis for such question(s) or request(s) including a reference to the specific paragraph or language in the solicitation. Modifications to solicitations will be made only by properly issued written addenda. All such addenda shall become part of the solicitation and resulting contract documents. The County shall only be responsible for explanations or interpretations that are issued in accordance herewith. No oral interpretations will be made as to the meaning of the scope of work or any other solicitation documents. Failure to comply with this provision may result in the Bidder waiving his/her right to dispute any aspect of the solicitation.

## **AGREEMENT TERM AND REQUIREMENTS**

It is the County's intent to develop an agreement for the services specified herein, contingent upon the appropriation of funds. The contents of the response submitted by the successful firm, with any amendments or subsequent revisions, will become part of the resulting contract.

## **CONFLICT OF INTEREST**

The contractor, by responding to this request, certifies that to the best of his/her knowledge or belief, no elected/appointed official or employee of the County is financially interested, directly or indirectly, in the offer of services specified in this request.

## **PRINCIPAL PERSONNEL**

Principal or key personnel identified in the response may not be substituted without prior written approval of the County. Replacements for key personnel under contract must have equivalent professional qualifications and experience as those individuals listed in the response.

## **NONAPPROPRIATION**

All funds for payment by the County under the resulting contract are subject to the availability of an appropriation for this purpose by the Meade County Fiscal Court. In the event funds are not appropriated by the County for the subject services, the County will terminate the contract, without termination charge or other liability.

## **PROPOSAL RECEIPT AND OPENING**

The County will receive sealed responses until date and time indicated on the solicitation cover. Responses must be delivered, by hand or mail, to the office of the Meade County Judge/Executive, Meade County Courthouse, 516 Hillcrest Drive, Suite 12, Brandenburg, Kentucky 40108. Responses must be time stamped in the Judge Executive's Office before or on the hour and date indicated on the cover sheet of this request. Proposals received after the date and time of the opening/closing will be received, date stamped, and returned to the respective Bidders unopened. It is the responsibility of Bidders to ensure that the responses arrive at the designated opening/closing place on time. Late or non-delivery due to mail or express delivery company failure will not be considered adequate reason for consideration of late responses. FAXED RESPONSES WILL NOT BE ACCEPTED AND SHALL NOT BE CONSIDERED FOR EVALUATION OR AWARD.

## **INFORMALITIES AND IRREGULARITIES**

The County reserves the right to reject any or all responses in whole or in part; or accept any response in whole or in part which is deemed most advantageous and in the best interest of the County.

## **INDEPENDENT CONTRACTOR**

The selected firm shall be considered to be an independent contractor and as such shall be wholly responsible for the work to be performed and for the supervision of its employees. The contractor represent that it has, or will secure at its own expense, all personnel required in performing the services under this agreement. Such employees shall not be employees of, or have any individual contractual relationship with the County.

## **PUBLIC INFORMATION**

Upon public opening of all responses presented to the County as a result of this solicitation, any and all information contained therein is considered public and may be reviewed by any persons interested in doing so.

## **INSURANCE REQUIREMENTS**

Prior to execution of a contract and prior to the time the contractor is entitled to commence any part of the project, work, or services under such a contract, contractor should procure, pay for, and maintain the following insurance coverage's and limits. Said insurance shall be evidenced by delivery to the County for confirmation of insurance executed by the insurers listing coverage's and limits, expiration dates and terms of policies and all endorsements whether or not required by the County, and listing all carriers issuing said policies; and 2) upon request, a certified copy of each policy, including all endorsements. The insurance requirements shall remain in effect throughout the term of this contract. Exact insurance coverage and limits will be specified in the resulting contract. All Insurance Information must be submitted upon award of contract.

1. Workers' Compensation in at least the limits as required by law; Employers' Liability Insurance of not less than One Hundred Thousand and 00/100 Dollars (\$100,000.00) for each accident.
2. Comprehensive General Liability Insurance including, but not limited to, Independent, Contractor, Contractual, Premises/Operations, Products/Completed Operation and Personal Injury covering the liability assumed under indemnification provisions of this contract, with limits of liability for personal injury and/or bodily injury, including death, of not less than Two Hundred Thousand and 00/100 Dollars (\$200,000.00), each occurrence; and property damage of not less than One Hundred Thousand and 00/100 Dollars (\$100,000.00), each occurrence. (Combined single limits of not less than Two Hundred Thousand and 00/100 Dollars [\$200,000.00], each occurrence, will be acceptable unless otherwise stated.) Coverage shall be on an "occurrence" basis, and the policy shall include Broad Form Property Damage coverage and Fire Legal Liability of not less than Fifty Thousand and 00/100 Dollars (\$50,000.00) per occurrence, unless otherwise stated by exception herein.
3. Comprehensive Automobile and Truck liability covering owned, hired, and non-owned vehicles with combined single limits of not less than One Million and 00/100 Dollars (\$1,000,000.00), each occurrence. Coverage shall be on an "occurrence" basis, such insurance to include coverage for loading and unloading hazards.

## **PARTNERSHIPS/CORPORATIONS/AGENTS**

When a Bidder is a partnership or joint venture, the response must be signed in the name of the partnership or joint venture and by all persons or entities required to do so under the terms of their partnership or joint venture agreement. Any existing written underlying partnership or joint venture agreements must be included as part of the response. A cover letter may be used to satisfy the signature requirements. When a Bidder is a corporation, the authorized corporate officer signing the response

must set out the corporate name in full beneath which said officer must sign his/her name and give title of his/her office. The response must also bear the seal of the corporation. Anyone signing the response as officer or other agent must file with it legal evidence of the authority to do so.

**VERBAL COMMUNICATIONS**

No oral statement of any person shall modify or otherwise affect the terms, conditions, requirements, or scope of work specified herein. All modifications must be made in writing by the County.

**RECOVERY OF MONEY**

Whenever, under the contract, any sum of money shall be recoverable from or payable by the contractor to the County, the same amount may be deducted from any sum due the contractor under the contract or under any other contract between the contractor and the County. Rights of the County are in addition and without prejudice to any other right the County may have to claim the amount of any loss or damage suffered by the County on account of the acts or omissions of the contractor.

**TRUTH-IN-NEGOTIATION CERTIFICATION**

By submitting a response, the Bidder certifies that the wage rates and costs used to determine the compensation provided for in a resulting contract will be accurate, complete and current as of the date of the resulting contract and no higher than those charged the Bidder's most favored customer(s) for the same or substantially similar services. The said rates and costs shall be adjusted to exclude any significant sums should the County find that the rates and costs were increased due to inaccurate, incomplete or non-current wage rates or due to inaccurate representations of fees paid to outside consultants. The County may exercise its rights under this "certification" within one (1) year following final payment.

**END OF GENERAL PROVISIONS**





ATTACHMENT A (continued)

Expressions and Miscellaneous Declarations (attach additional sheets, if necessary):

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IN WITNESS WHEREOF, this Proposal is hereby signed and sealed as of the date indicated.

ATTEST:

BIDDER:

\_\_\_\_\_  
Witness

BY: \_\_\_\_\_(SEAL)  
(Authorized Signature in Ink)

\_\_\_\_\_  
Witness

\_\_\_\_\_  
(Printed name of Signatory)

\_\_\_\_\_  
(Printed title of Signatory)

CORPORATE SEAL  
(Where appropriate)

\_\_\_\_\_  
(Signature Date)

ATTACHMENT A (continued)  
(ACKNOWLEDGEMENT OF PROPOSER, IF A CORPORATION)

STATE OF \_\_\_\_\_)

COUNTY OF \_\_\_\_\_)

The foregoing instrument was acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by \_\_\_\_\_,

Who is personally known to me or who has produced \_\_\_\_\_

as identification and who did take an oath and who executed the foregoing instrument as

\_\_\_\_\_ of \_\_\_\_\_, a

\_\_\_\_\_ corporation, and who severally and duly acknowledged the execution of such instrument as such officer aforesaid, for and on behalf of and as the act and deed of said corporation, pursuant to the powers conferred upon said officer by the corporation's Board of Directors or other appropriate authority of said corporation, and who, having knowledge of the several matters stated in said foregoing instrument, certified the same to be true in all respects.

He/She is personally known to me or has produced \_\_\_\_\_ as identification.

WITNESS my hand and official seal the date aforesaid.

\_\_\_\_\_(Signature of the Person taking Acknowledgement)

\_\_\_\_\_(Name of Acknowledger Typed, Printed or Stamped)

\_\_\_\_\_(Title or Rank)

\_\_\_\_\_(Serial Number, if any)

ATTACHMENT A (continued)

(ACKNOWLEDGEMENT OF PROPOSER, IF A PARTNERSHIP OR INDIVIDUAL)

STATE OF \_\_\_\_\_)

COUNTY OF \_\_\_\_\_)

The foregoing instrument was acknowledged before me this \_\_\_\_\_ day of

\_\_\_\_\_, 20\_\_\_\_, by \_\_\_\_\_,

who is personally known to me or who has produced \_\_\_\_\_ as

identification and who did take an oath and who executed the foregoing instrument as a member

of the firm \_\_\_\_\_ (if applicable) and acknowledged the execution of same, for and on behalf of and as the act and deed of said firm, for the uses and purposes therein expressed.

He/She is personally known to me or has produced \_\_\_\_\_ as identification.

WITNESS my hand and official seal the date aforesaid.

\_\_\_\_\_(Signature of the Person taking Acknowledgement)

\_\_\_\_\_(Name of Acknowledger Typed, Printed or Stamped)

\_\_\_\_\_(Title or Rank)

\_\_\_\_\_(Serial Number, if any)

## **1 Project Overview**

### **1.1 Introduction**

The County invites proposals for an upgrade of its existing radio communications system. The system upgrade is limited to the addition of two (2) new tower sites at locations which have already been selected by the County. The first (new) tower location is at the Flaherty Fire Department at 3895 Flaherty Road, in Vine Grove, Kentucky. The winning bidder is responsible for conducting a Load Study on the pre-existing communications tower at this location to insure that it will meet the County's Communication System needs. In order to avoid the cost of an additional tower climb, it is preferred the Load Study coincide with the installation of any additional antennas needed at the site. The second (new) tower location is at the Rhodelia Fire Department at 9385 Rhodelia Road in Rhodelia, Kentucky. The winning Bidder will be responsible for the positioning of a mobile communications tower at this location. This mobile tower shall be installed with the appropriate foundation and anchors necessary to insure it will serve the County's needs until a permanent communications tower can be constructed at this site approximately three years from now. In addition, the County is already in possession of a mobile radio tower intended for use at this site. Therefore, Bidders do not need to include the purchase of such a tower as part of their bid response. The same is true of any structures needed to house electronic components at either of the two (2) new tower sites. All housing and structural needs will be provided by the County, and should not be considered by the Bidder during bid formulation.

Each of the new tower locations will require the installation of four (4) additional repeaters; one each to serve the County's Law Enforcement, Fire, and EMS agencies along with a Paging channel. These repeaters will be provided by the County, and the cost of purchasing them should not be included in the bid response. The winning Bidder is responsible for, and must provide, all other electronic equipment, simulcast components, cabling, and manpower needed to make each of the two (2) new sites operational. They must also link the two (2) new tower/repeater sites into our existing simulcast network, and then insure that all tower/repeater locations are functioning properly, and as a cohesive unit. Our existing network is a Layer 2, VPLS (Virtual Private Lan Service), via a fiber-optic network connection that will be provided at each of the two (2) proposed sites by the Brandenburg Telephone Company. The upgraded simulcast system will be configured, with systems in place at each repeater location, to insure the highest quality of (transmit and receive) radio communications possible for the E-911 Dispatch Center, and for field units utilizing the system via mobile and hand-held radios. The resulting system upgrade will support mission critical communications for the County's Public Safety Departments and Agencies, and shall provide improved two-way wireless communications capabilities to all users.

### **1.2 Existing System**

Meade County operates a multi-channel, high band (150-174 MHz.) two way simulcast radio system that operates in analog mode for all police, fire, EMS, and animal control responders. Per Federal Communications Commission requirements, the system was converted to narrow band operation in 2012. The system's base radios and radio consoles are located inside the Meade County Courthouse at 516 Hillcrest Drive, Brandenburg Kentucky.

The current system utilizes four (4) independent repeater sites for enhanced radio coverage throughout the county.

The Brandenburg repeater site contains the control hub for the County's entire simulcast radio system. The antennas for the base radios are located on a County owned, communications tower located adjacent to the Meade County Courthouse at 516 Hillcrest Drive, Brandenburg, Kentucky. The repeaters, and simulcast components, are housed inside the generator room of the Courthouse.

The Muldraugh repeater site is located at 402 Park Ridge Drive in Muldraugh Kentucky. This is a cellular communications tower which contains the repeater antenna. The repeaters, and simulcast components, are housed inside a concrete block building at the base of the tower.

The Garrett repeater site is located at 3516 Garrett Road, Garrett Kentucky. The repeater antenna is mounted on a water tank at this location with the repeaters, and simulcast components, housed inside a concrete slab building at the base of the water tank.

Finally, the Payneville repeater site is located at 5310 Payneville Road, Payneville Kentucky. This is also a water tank with an antenna mount on its top. The repeaters and simulcast components are housed inside a concrete slab building at the base of the water tank.

### **1.3      *Equipment Breakdown by Site***

#### **Meade County Courthouse**

Motorola MCC5500 Operator Position ( x3 )  
4-MTR2000 repeaters  
4-CTCSS tone filters  
4-JPS SNV-12 voters  
Spectracom Sync clock  
Gates Air NetXpress Master shelf  
Gates Air NetXpress LX multiplexer shelf  
Sinclair 4 channel TX combiner/RX multicoupler  
SD212D dual feed antenna with 7/8" transmission line  
Motorola CDM1250 Emergency Base Station ( 1 )  
Zetron 15P Encoder ( 1 )  
Antenna ( x8 )

#### **Muldraugh Repeater Site**

4-MTR2000 repeaters  
4-CTCSS tone filters  
Spectracom sync clock

Gates Air LX multiplexer  
Sinclair 4 channel TX combiner/RX multicoupler  
SD212D dual feed antenna with 7/8" transmission line

**Garrett Repeater Site**

4-MTR2000 repeaters  
4-CTCSS tone filters  
Spectracom sync clock  
Gates Air LX multiplexer  
Sinclair 4 channel TX combiner/RX multicoupler  
SD212D dual feed antenna with 7/8" transmission line

**Payneville Repeater Site**

4-MTR2000 repeaters  
4-CTCSS tone filters  
Spectracom sync clock  
Gates Air LX multiplexer  
Sinclair 4 channel TX combiner/RX multicoupler  
SD212D dual feed antenna with 7/8" transmission line

**Other**

Mobile communications tower (The mobile tower is a guyed mobile tower unit, model MTU3107MDPL Low Profile, that will require hardware, anchors, guy wires, etc. for installation.

All locations are equipped with a backup generator set to automatically provide power if the primary source of power is interrupted.

**1.4 Turnkey Approach**

- A. The desired proposal is one in which the SELECTED BIDDER delivers, installs, and configures specified equipment, reprograms existing equipment if needed, and provides training and documentation if needed. This RFP specifies equipment and performance standards. It is the BIDDER'S responsibility to determine the specific hardware, software, accessories, and services required to deliver a fully-functional upgraded system. The County will not issue any change

orders based on the fact that a detail was omitted from the BIDDER'S proposal. However, the County reserves the right to issue change orders for other reasons deemed necessary.

- B. In order to guarantee the highest level of both testing and component compatibility, and in order to remove intermediaries from any future issue resolutions, BIDDERS must be full line providers of turnkey LMR systems and subscribers developed by the BIDDER.

## **1.5 Project Summary**

A. The SELECTED BIDDER shall be responsible for the following:

1. Furnishing and installing new system equipment (where applicable)
2. Engineering and system design
3. Project management
4. Software installation and programming
5. Training
6. Acceptance testing
7. Coverage testing
8. Reprogramming existing equipment (where applicable)
9. Cutover plan and execution
10. Warranty and maintenance
11. Any FCC licensing completion required

B. The SELECTED BIDDER shall be responsible for developing a complete and fully functional system including, but not limited to the following components:

1. Upgraded radio communications system, including the guarantee of radio coverage
2. Two (2) additional Site Simulcast Solution integrated with the existing four (4) site simulcast system with each site equipped with a controller

C. Work shall be planned, coordinated and conducted with minimal interruption of service to existing critical communications systems.

D. Proposals shall completely describe the equipment and methods that will be used to implement the system.

E. It is preferred that all equipment shall be provided in new condition and be covered by a full manufacturer's warranty of not less than one year. However, the County will accept refurbished components in situations where the use of such components is necessary to match compatibility with existing equipment. Bidders should plainly state in their bid responses where such equipment is being proposed for use. Components of this type should only come from reputable dealers that also provide warranty coverage on said equipment.



- F. In the event that requirements are stated in more than one section and appear to conflict, the more stringent requirement shall apply.

### **1.6 *Proposals Desired***

- A. The County requires a complete turnkey solution addressing all project systems, subsystems, and components.
- B. Proposal Options: Requirements described as an “OPTION” or “OPTIONAL” refer to features or equipment which may or may not be purchased by the County, or items whose quantities are not yet determined. It is not the BIDDER’s option to respond to these requirements; therefore, each BIDDER is required to respond to all OPTIONAL requirements to the greatest extent possible.

### **1.7 *Quality Assurance and Coordination***

- A. The SELECTED BIDDER shall comply with the following standards, rules, regulations, and industry guidelines:
  - 1. American National Standards Institute (ANSI)
  - 2. National Electrical Manufacturer’s Association (NEMA)
  - 3. Electronics Industry Association (EIA)
  - 4. Telecommunications Industry Association (TIA)
  - 5. Telecommunications Distribution Methods Manual (TDMM)
  - 6. National Electrical Code (NEC)
  - 7. Institute of Electrical and Electronics Engineers (IEEE)
  - 8. Federal Communications Commission (FCC)
  - 9. Underwriters Laboratories, Inc. (UL)
  - 10. American Society of Testing Materials (ASTM)
  - 11. National Fire Protection Association (NFPA) 1221
  - 12. Association of Public Safety Communications Officials (APCO)
  - 13. National Emergency Number Association (NENA)
- B. SELECTED BIDDER shall comply with industry best practices for system installation, grounding, bonding, and transient voltage surge suppression (TVSS). The following standards are acceptable:
  - 1. Motorola R56 – Standards and Guidelines for Communication Sites (latest revision)
  - 2. Harris Site Grounding and Lightning Protection Guidelines (AE/LZT – 123 4618/1 latest revision)
  - 3. Other contractor/industry standards – SELECTED BIDDER shall provide to the County for review and approval prior to contract award (if applicable).
- C. Governing codes and conflicts: If the requirements of this RFP conflict with those of the governing codes and regulations, then the more stringent of the two shall become applicable.

- D. If the BIDDER cannot meet any of the standards or guidelines listed above, the BIDDER shall list any and all deviations in their proposal for approval by the County.

### **1.7.1 Frequency Coordination and Licensing**

- A. In recognition that the County does not wish to use funds outside of those appropriated for execution of the RFP award, The SELECTED BIDDER shall be responsible for coordination fees, licensing fees, and signatures as required by the Federal Communications Commission.
1. In order that all BIDDERS include an adequate and representative amount for this purpose in their response, each BIDDER should include an allowance for fees and licensing as a line item in their base pricing.
  2. Land Mobile Radio (LMR) Licenses -- The County has existing VHF MHz frequency channels. If further or additional channels are required, this shall be the responsibility of the BIDDER and should be duly noted in the bid. The SELECTED BIDDER shall be responsible to assist with all frequency research, prior coordination and preparation of all associated FCC license applications and submittals on behalf of the County.

### **1.7.2 Federal Aviation Administration**

- A. The SELECTED BIDDER shall complete Federal Aviation Administration (FAA) forms as or if necessary.

### **1.7.3 Project Management**

- A. The BIDDER shall provide a Project Management Plan.
- B. The Plan shall describe how the SELECTED BIDDER intends to monitor and control the installation and deployment of the proposed system and mitigate risks to ensure that the system meets the design specifications and is delivered on time.
- C. Regularly scheduled status meetings shall be established between the County's Project Team and the SELECTED BIDDER. The SELECTED BIDDER shall schedule these meetings on an as needed basis. All meetings will be subject to the approval of the County.
- D. The County reserves the right to schedule meetings with the SELECTED BIDDER whenever it feels one is necessary.

#### **1.7.3.1 Scheduling**

- A. The SELECTED BIDDER shall develop and maintain a project schedule including tasks, milestones, start and end dates, task prerequisites, and task owners.
- B. The schedule shall represent tasks associated with completing work on all items identified in the WBS. The project schedule shall be updated with actual dates as tasks are completed.
- C. The updated schedule shall be provided as an agenda item for all status meetings between the County and the SELECTED BIDDER.
- D. The schedule shall address the following if/when they are applicable:

1. Site surveys
2. Detailed design review
3. Site preparation
4. Equipment manufacturing
5. Factory acceptance test
6. Equipment delivery
7. System installation
8. System configuration
9. System optimization
10. Acceptance testing
11. Coverage testing
12. User training
13. System cutover
14. System documentation development and delivery
15. System and equipment warranty

### **1.7.3.2 Project Meetings**

- A. A project kickoff meeting shall be scheduled prior to the beginning of the project.
- B. Regular project status meetings shall be scheduled following contract award and the initial kickoff meeting.
- C. The SELECTED BIDDER shall be responsible for conducting the meetings as well as preparing meeting agendas and minutes. However, the County reserves the right to schedule a status meeting at any time during project implementation. In addition to those identified in Section 1.5.4.1, *Scheduling*, above, meeting agenda items shall include, as a minimum, the following items:
  1. Schedule review
  2. Status of deliverables
  3. Risk items
  4. Changes
  5. Plans for the next period
  6. Action item assignments
  7. Punch list review

### **1.7.3.3 Project Punch List**

- A. The SELECTED BIDDER shall establish and maintain a punch list, as mutually agreed to with the County, for site facilities, equipment, and for acceptance tests.
- B. The punch list shall be maintained in real time and include the following at a minimum:
  - 1. Sequential punch list item number
  - 2. Date identified
  - 3. Item description
  - 4. The party responsible for resolution
  - 5. Expected resolution date
  - 6. Resolution date
  - 7. Full details about how each punch list item was resolved and tested
  - 8. Notes about the item
- C. If responsibility for resolving an item is transferred to another person or group, a new entry shall be added to the punch list and the original entry shall be appropriately noted.
- D. The SELECTED BIDDER shall be responsible for reviewing each punch list item and advising the County of any changes. The status of punch list items shall be updated during each status meeting.
- E. Software/Firmware updates must be thoroughly regression tested prior to being released and implemented.
- F. Software updates must include release information identifying the changes made, either to repair a problem or enhancements made.

### **1.7.3.4**

#### ***Project Staffing***

- A. Project staffing shall be managed by the SELECTED BIDDER based on workload and the level of effort throughout the implementation/installation process; however, the positions identified below shall be staffed throughout the duration of the project and shall not be changed without prior approval by the County.
- B. SELECTED BIDDER Project Manager:
  - 1. The SELECTED BIDDER's Project Manager shall be the primary point of contact between the County and the SELECTED BIDDER.
  - 2. The SELECTED BIDDER's Project Manager shall bear full responsibility for supervising and coordinating the installation and deployment of the upgraded communications system; be responsible for development and acceptance of the Project Management Plan; managing the execution of the project against that plan; and overseeing the day-to-day project activities, deliverables, and milestone completion.

3. The SELECTED BIDDER's Project Manager shall be responsible for coordination of the status meetings.

C. SELECTED BIDDER Project Engineer:

1. The SELECTED BIDDER's Project Engineer shall have the primary responsibility for managing the system upgrade and ensuring that the system is installed in accordance with the existing system design.
2. Any deviation from the desired system upgrade shall be subject to project change control procedures and will not be undertaken until approved by the County.
3. The SELECTED BIDDER's Project Engineer shall ensure the development of block diagrams, system level diagrams, and rack diagrams to assist the installation team in completing the system installation.
4. The Project Engineer shall also supervise the development and execution of the Acceptance Test Plan, the Coverage Acceptance Test Plan, and guide the project team through the processes and procedures necessary to prove that the system performs as specified in the contract. No test plan will be executed until approved by the County

#### **1.7.4 QA/QC Program**

- A. The SELECTED BIDDER shall include a Quality Assurance/Quality Control (QA/QC) plan for the radio communications system upgrade project. The QA/QC plan shall be submitted for review during preliminary design as described in this section. The plan shall address all stages of the project, including, but not limited to:

1. Procurement
2. System design
3. Installation
4. Implementation
5. Testing
6. Cutover

- B. The QA/QC plan shall specifically describe the plans and procedures that ensure the proposed system upgrade is designed in accordance with the standards and requirements described in this RFP.

- C. The QA/QC plan shall be included as part of the Project Management Plan developed by the Project Manager.

- D. The QA/QC plan shall be an integral part of the project and include County personnel as part of the review and approval process for all deliverables and submittals.

- E. The proposed QA/QC plan shall address the following project tasks at a minimum:

1. Design analysis and verification
2. RF coverage analysis and verification
3. Design changes and document control

4. Material shipping, receiving, and storage (when applicable)
5. Site preparation (if required)
6. Field installation and inspection
7. Equipment inventory and tracking
8. System testing and validation
9. Software regression testing
10. Deficiency reporting and correction
11. Implementation and cutover
12. Training and certification

## **1.8 Project Submittals**

### **1.8.1 General Requirements**

Key project deliverables and submittals are outlined below and are described in further detail throughout this RFP.

- A. All project submittals shall be subject to review and approval by the County and its Primary Point of Contact (POC).
- B. All submittals shall be provided in hard copy, properly bound. Five (5) hard copies shall be submitted; one marked 'Original' containing the originals of all signed documents and four copies each marked 'Copy #' and the appropriate number 1 through 4.
- C. All submittals shall include a cover letter or letter of transmittal, signed, dated, and fully describing the contents of the submittal.
- D. The proposal shall give clear, concise information in sufficient detail and in the order presented below to allow evaluation based on these requirements. Although the weighting of some of the elements listed in this proposal format varies, all requirements are necessary for evaluation.
- E. To assist in clearly describing how BIDDERS will accomplish work specified in the proposal, samples, literature, program description attachments such as flow charts, tables, and other graphic aids and other materials supporting the program description may be submitted as appendices to the bid.

### **1.8.2 BIDS**

Bids shall include the following sections in the following order:

- A. Detailed overview and description of the proposed system upgrade and services to be provided including an executive summary suitable for distribution to non-technical interested parties.
- B. Point-by-point compliance statements
- C. Qualifications, experience, including three (3) references for systems of comparable size, scope, and function.

- D. System design documentation including updated system description, block diagrams, equipment layouts, and equipment list.
- E. RF coverage predictions and guarantee of coverage
- F. Training programs
- G. System and subsystem warranty information
- H. Preliminary detailed project schedule
- I. Detailed equipment specification sheets for all proposed equipment
- J. Itemized pricing information, including 7x24 maintenance costs for 1<sup>st</sup> & 2<sup>nd</sup> Year

### **1.8.3 References**

- A. BIDDERS shall provide a minimum of three (3) references for systems successfully completed of comparable size and complexity.
- B. Project descriptions shall be limited to two pages to the greatest extent practical. Similar projects are defined by the following minimum criteria:

## 2 Instructions to Bidders

### 2.1 Schedule

- A. The following Solicitation Schedule provides the County’s planned schedule for the Radio Communications System Upgrade. The schedule is subject to change.

**Solicitation Schedule**

Event	Target Date
RFP Issued	November 2, 2020
Site Visits	November 3-11, 2020
Final Deadline for Questions	November 12, 2020
Responses to Questions Provided	November 12, 2020
Proposals Due	November 16, 2020
Proposals Opened / Evaluation Begins	November 16, 2020
Notice of Intent to Award Contract	November 16, 2020

#### 2.1.1 Site Visits

- A. Site visits are considered part of the BIDDERS' due diligence for accurate bids. BIDDERS not attending the site visits will not be eligible to submit a bid.
- B. BIDDERS are required to provide their own vehicle for the site visits. The County will escort the BIDDERS to the sites, but will not provide transportation for the BIDDERS.
- C. All BIDDERS shall submit a document with the bid stating that appropriate due diligence has been performed with respect to investigating existing RF resources, communications system infrastructure/facilities, backhaul components, and other such items. Furthermore, all BIDDERS shall specify in their bids the need for any additional provisions required to implement the proposed solution such as environmental and building permits and allocation of additional infrastructure resources (e.g., radio communications towers, electrical power, space, etc.).

#### 2.1.2 Final RFP Questions

- A. BIDDERS may submit additional questions not addressed in this RFP during the open bidding period.

### 2.2 Addenda to the RFP

During the bid period, the County may issue written addenda to each person, firm, or corporation who has secured a copy of these specifications, making changes or corrections to the specifications as



issued. Such changes or corrections shall be included in the work and/or materials covered by the proposal, and such addenda shall become part of the specifications and contract.

### **2.3 Award of Contract**

The County intends to award a contract(s) for the complete system. However, the County specifically reserves the following rights, consistent with procuring a system that best meets the needs of the County and system users:

- A. The County reserves the right to accept or reject any or all bids or any portion thereof.
- 13. The County reserves the right to accept all or part of any bid depending solely upon the requirements of the County.
- 14. The County reserves the right to seek clarifications of any bids submitted or specific aspects of any proposal prior to the award of the contract. After seeking such clarification, the County will allow the BIDDER an opportunity to provide the requested clarification.
- 15. The County reserves the right to adjust item quantities and/or reconfigure the communications system in the best interest of the County subsequent to award of the contract.

### **3 Radio Communications System Requirements**

A. The communications network upgrade shall include the following system components:

1. Simulcast Radio Communications Network linked site-to-site via a copper gigabit Ethernet connection. The network will be a Layer 2, VPLS, via a fiber optic cable network provided to each new tower/repeater site by the Brandenburg Telephone Company.
2. 8-MTR2000 repeaters (provided by the County)
3. 8-CTCSS tone filters
4. 2 Spectracom sync clock
5. 2 Gates Air LX multiplexer
6. 2 Sinclair 4 channel TX combiner/RX multicoupler
7. 2 SD212D dual feed antenna with 7/8" transmission line
8. Flaherty Tower, an existing structure, Bidder must include a load study of the tower, installation of 2 antennas and coaxes. Materials needed are antenna mounts, coax attachment hardware, buss bars and miscellaneous stainless and grounding hardware
9. Rhodelia Tower, a non-existing structure, Bidder is responsible for the installation of a mobile tower at this location that will be provided by the County. However, the Bidder is responsible for providing guy wires & anchors, 2 antennas & coaxes and antenna sweep testing. Materials needed include antenna mounts, coax attachment hardware, ground rods, #2 tinned wire, buss bars and miscellaneous stainless and grounding hardware. This tower will also require an FCC approved light kit for aircraft safety.
10. Network management system
11. Interoperability solutions
12. Training

#### **3.1.1 Redundancy and Survivability**

A. The proposed radio system is intended to support mission critical operations; therefore, a high degree of redundancy and survivability is required. A network topology utilizing fault tolerance and dual paths to all sites on the network shall be incorporated to the greatest extent possible.

13. All efforts should be made to design the upgraded system without a single point of failure using a distributed and/or redundant architecture. For those elements that would result in a major system failure, redundancy is required. Such elements include, but are not limited to the following:
  1. System controllers
  2. Simulcast controllers
  3. Site Controllers
  4. Backhaul network
  5. Power systems
  6. The proposed radio system shall include several modes of degraded operation or failure modes. The system shall be capable of automatic activation of failure modes in the event of a failure. Additionally, the system shall switchover to a graceful degradation mode.

7. A detailed description shall be supplied describing the system operation when any of the failures described above occurs.
8. The system must consist of a controller at each site to eliminate any potential single point of failure to the greatest extent possible. To not meet this requirement will be considered a “no bid” and will not be accepted.
9. The County realizes its current Radio Communications System Infrastructure is such that total system redundancy and survivability is only partially achievable. Whereas the County is only upgrading its existing system, and not replacing it, the County expects BIDDERS to propose only those redundancy and survivability improvements that fit reasonable within the scope (or near scope) of the existing system.

### **3.1.2 Coverage**

- A. The service area is defined as the geographical boundaries of Meade County, Ky.
10. The system upgrade shall be designed to provide portable on-street coverage to 90% of the service area with 90% reliability and a Delivered Audio Quality (DAQ) of 3.4 or better.
11. The system shall be designed to provide portable in-building (medium density) coverage to 90% of the service area with 90% reliability and a Delivered Audio Quality (DAQ) of 3.4 or better in the attached appendixes.
12. Coverage design, implementation, and testing for the system shall adhere to the Telecommunications Industry Association (TIA), Telecommunications System Bulletin (TSB) 88C, or the latest revision at time of proposal.
13. Delivered Audio Quality (DAQ) as defined in this document applies to both inbound and outbound communications.
14. BIDDERS will guarantee that coverage provided by the upgraded system will match or exceed the County’s specified coverage requirements.

### **3.1.3 Site Locations**

Site locations for this upgrade are located at the Flaherty Fire Department and the Rhodelia Fire Department.

### **3.1.4 Site Equipment**

#### **3.1.4.1 System and Site Control Equipment**

- A. All system, site, and simulcast control equipment shall be deployed to control operation of voice and data channels in the proposed system.
  - B. In order to maintain the operational integrity of the County’s public safety agencies and avoid negative effects due to negotiated command and control of a communications system with entities outside the County, all control equipment proposed must be fully owned by the County and located within county boundaries.
15. The BIDDER shall fully describe the manner in which the proposed system and site controllers function and operate.

16. Routers, switches and servers shall consist of “off the shelf” components. The SELECTED BIDDER shall provide any operating systems or configuration files required for the operation of these “off the shelf” components.

#### **3.1.4.2 Fixed Transmitter/Receiver Equipment**

##### A. General:

1. Repeaters and/or base station equipment shall be solid state in design and function with standard site conditions for temperature, altitude, and humidity. Only linear repeaters are acceptable.
2. Wherever possible, equipment shall have alarm interfaces to provide status alerts in case of failure.
3. The units shall be as compact as possible, with mounting configurations for standard two post relay racks.
4. Repeaters and/or base station equipment shall comply with Part 90 of the FCC Rules and Regulations, as well as appropriate EIA and similar agency standards and be FCC type accepted for the VHF frequency band by or before Final Design acceptance.

#### **3.2 System Options**

##### A. BIDDERS shall provide proposals for each of the following:

1. Extended (year one, and year two) service plans.

#### **3.3 Coverage Maps**

##### A. BIDDER shall include a detailed description of the propagation models used and the assumptions made in preparation of the coverage maps.

2. BIDDER shall submit both talk-out and talk-in system composite coverage maps for all proposed design configurations. The maps shall be clearly labeled with each site name.
3. Coverage shall be depicted using color to depict those areas that meet or exceed the minimum coverage reliability threshold.
4. BIDDER shall include the effects of simulcast interference in calculation of area coverage. Areas predicted to experience simulcast interference will be subtracted from coverage in any discussion of the percentage of area meeting coverage requirements.
5. Coverage maps shall be provided in the proposal in two formats:
  1. 8” x 11” (minimum) full color hardcopy format.
  2. Base station/repeater RF power output
  3. Antenna gain
  4. Antenna down tilt (if applicable)
  5. Transmit ERP
  6. Receiver sensitivity
  7. Antenna height
  8. Mobile and portable antenna height for talk-out and talk-in
  9. Mobile and portable RF output power

## **4 Infrastructure Development**

### **4.1 General Requirements**

A. BIDDER shall identify and propose any additional equipment or modifications necessary, including, but not limited to:

1. Shelters
2. Backup power
3. Site preparation
4. Fencing
5. Detailed dimensioned drawings showing all system components and locations
6. Drawings
7. Drawings and/or specifications shall describe any auxiliary equipment.

B. The County accepts responsibility for providing adequate shelter for radio equipment at each repeater site...provided such shelter does not already exist. BIDDERS shall specify in their response those sites where shelters will need to be provided by the County. In keeping with the County's policy of fiscal responsibility, the County will work with the SELECTED BIDDER to develop design specifications for the needed shelter(s).

### **4.2 Site Power**

A. The County prefers DC rectifiers and batteries; however, BIDDERS may propose either an AC powered site with an uninterruptable power supply or a DC power supply/rectifiers and batteries.

## **5 Training**

### **5.1 General**

- A. The SELECTED BIDDER shall develop and conduct training programs to allow County personnel to become knowledgeable with the upgraded system, subsystems, and individual equipment.
8. The SELECTED BIDDER shall provide:
    1. Operator training:
      - a. The SELECTED BIDDER shall provide complete and comprehensive operational training covering features, operation, and special care associated with the equipment supplied.
      - b. The SELECTED BIDDER shall fully describe all proposed training programs detailing how the BIDDER intends to provide training. The training description shall include the following:
        - i. A list of all subjects with a description of each
        - ii. Class material to be provided by the SELECTED BIDDER
        - iii. Number of classes
        - iv. Class duration
        - v. Need for recurring training
        - vi. Class size
        - vii. Class cost
    2. All training shall be conducted at a location specified by the County. The SELECTED BIDDER shall coordinate with the County regarding number of attendees and schedule.
    3. Classes shall be scheduled as near to system cutover as possible.
    4. The SELECTED BIDDER shall train the County employees or designated individuals. In some cases, a Train-the-Trainer approach will be used to train other users.
    5. The SELECTED BIDDER shall provide all instructional material, including printed manuals, audio, video, interactive self-paced personal computer programs, and complete equipment operating instructions for all technical and operational training classes. All instructional material shall be subject to the approval of the County and shall become property of the County.

## **6 Warranty, Maintenance, and Support**

### **6.1 Warranty**

- A. The proposed, upgraded communications system shall have a warranty period of not less than one year. The warranty period shall commence upon Final System Acceptance or substantial use of the system.
- 6. The SELECTED BIDDER shall provide a single toll-free telephone number that answers 24 hours a day, 7 days a week, 365 days a year, for service requests and warranty claims.
- 7. The BIDDER shall state in the proposal the name, address, and capabilities of the service station(s) providing warranty service.
- 8. The following procedures shall be followed during the warranty period:
- 9. Warranty Maintenance shall be performed 24 hours a day, seven days a week. There shall be no additional charges for work outside of normal 8:00 a.m. to 5:00 p.m. business hours.
- 10. The service facility shall provide prompt repair service, with service agency responding with initial triage call within one hour after a service request by the County and technical on-site service within four hours after a service request by the County.
- 11. In the event County owned spares are used to complete a repair, the model and serial number of both the defective unit and the spare shall be noted in the documentation.
- 12. For all equipment needing factory or depot repairs, a comprehensive tracking system shall be put in place by the SELECTED BIDDER to track units to and from the factory/depot.

### **6.2 Maintenance**

- A. The SELECTED BIDDER shall maintain and repair all systems, equipment, hardware and software throughout the implementation/migration and warranty periods. The County reserves the right to have technical staff onsite to witness, and if desired, assist in the maintenance and troubleshooting procedures. This does not relieve the SELECTED BIDDER from warranty and maintenance responsibility as defined in this RFP.

#### **6.2.1 General Requirements:**

- A. Comprehensive maintenance services shall be proposed for each system.
- 13. BIDDERS must provide as part of bid a comprehensive 7x24 maintenance agreement for all bid components. Plans should be based on the quantities of equipment included in the bid system. Plans should have options for years 2 & 3 dated from Final Acceptance. These plans shall include:
  - 1. Fixed equipment onsite service:
    - a. 1-hour triage response time
    - b. Maximum of 4 hours response for technical on-site support
    - c. 7 x 24 Remote Monitoring of System Components (if applicable)
  - 2. Fixed equipment mail-in board repair:

- a. Normal response - 7-day
  - b. Emergency response - Next day
3. All fixed equipment maintenance plans shall provide 24-hour system support where users can dial one toll-free number to report problems and/or receive technical support.
  4. Additionally, for fixed onsite maintenance, the SELECTED BIDDER's staff will then dispatch the proper technician in the prescribed response time to resolve the problem, if the SELECTED BIDDER is unable to resolve the problem through telephone consultation.
  5. BIDDER must include in pricing, cost of the above 7 x 24 coverage plus 7 x 24 monitoring service.

### **6.2.2 Maintenance Standards**

- A. Replacement parts used in repairs shall be equal in quality and ratings as the original parts.
6. Equipment shall be maintained in a clean condition. Oil, dust and other foreign substances shall be removed on a routine basis.
  7. Equipment and system performance shall be maintained at the level initially described in these equipment and systems specifications. The service organization shall maintain records to confirm this has been done at intervals defined by the County.
  8. The SELECTED BIDDER must be a certified Service Agent of the proposed equipment.
  9. If fixed equipment or a fixed equipment module fails more than twice during the acceptance test or twice during the first year, the SELECTED BIDDER shall meet with the County to discuss and explain such failures.

#### Parts Availability

10. All parts, ordered on a priority basis, shall be delivered within 24 hours after placing an order. The SELECTED BIDDER shall provide year around, 24 hour ordering facilities via telephone, internet, e-mail, and fax service.

### **6.3 Spare Equipment**

- A. BIDDER shall propose to the County as an OPTION, recommended spare parts for the upgraded system, subsystems, and individual equipment.
1. The list of spare parts shall include, but is not limited to:
    - a. Any BIDDER identified Field Replaceable Units (FRUs)
    - b. Any non-FRU infrastructure component that can cause a critical failure if it were to fail examples could include Base Station Antennas and other non-modular components.
    - c. Power supplies
    - d. Test measurement, calibration and repair kits.
  2. Spares for less critical items shall also be enumerated.
  3. The list shall include items that will rapidly and completely restore all critical system functionality with the least amount of effort, e.g., board replacement instead of troubleshooting to component level when a critical unit has failed.



4. The quantities of spares in the list shall be appropriately sized to accommodate equipment quantities in the system.
5. The list shall define the primary equipment category each spare kit supports, e.g., transceiver board for a repeater, interface board for a console, etc.
6. The system engineering design documentation shall include a narrative on the BIDDER's ability to replace failed units from stock and the process and timing to repair, replace, and return failed units delivered for repair.

#### **6.4      *Post-Warranty Maintenance***

- A. The BIDDER must propose maintenance services for subsequent years, renewable on an annual basis.
7. The BIDDER shall fully describe the terms and conditions of the maintenance services in the Proposal.

## **7 System Implementation, Test, and Acceptance**

### **7.1 General**

- A. The SELECTED BIDDER shall attend all project and construction meetings as deemed necessary by the County prior to and during installation.
- 8. If any changes in the overall timeline occur, the SELECTED BIDDER shall update the project schedule for discussion during these project meetings.

#### **7.1.1 Final Design**

Upon being awarded the contract, the SELECTED BIDDER will consult with technicians from the local telephone services provider, to finalize copper gigabit Ethernet connectivity specifications for the Layer 2, VPLS, via fiber optic network. If requested, the County POC (or his/her designee) will act as a coordinator for this activity. The SELECTED BIDDER shall then submit a Final Detailed Design Document within 30 days of contract award. The Final Detailed Design Document shall include the following:

- A. Any updates to previously submitted design information
- 9. System operation and maintenance manuals for all added equipment
- 10. New site installation drawings
- 11. All acceptance test plans as defined in this RFP
- 12. Detailed equipment list
- 13. Detailed description of upgraded system operation
- 14. Detailed description of upgraded system operation during various failure scenarios
- 15. Detailed description of copper gigabit Ethernet connectivity to the Layer 2, VPLS, via fiber optic network
- 16. Detailed description of all subsystems
- 17. Final project schedule
- 18. List of responsibilities for all parties involved

### **7.2 Cutover Plan**

- A. The SELECTED BIDDER shall be responsible for planning and coordinating the implementation of all additional equipment, subsystems, and their connection to the overall system.
- 19. Execution of the cutover plan shall ensure that new systems components are brought online with minimum interruption to all existing systems and communications.
- 20. During final design, the SELECTED BIDDER shall deliver a preliminary cutover plan describing how the upgraded radio system will be phased into a fully operational system.
- 21. The SELECTED BIDDER shall successfully complete all tests and training prior to the actual cutover of systems.

22. The SELECTED BIDDER shall provide the necessary labor to cutover from existing systems to the proposed upgraded system.
23. The plan shall include the schedule and procedures associated with the transition of each operational user group. The plan shall specifically address how the existing users will begin using the new system with minimal operational impact.
24. The plan shall provide detailed component or subsystem cutover plans, and specifically delineate between systems that affect and do not affect ongoing operations.
25. The County reserves the right to approve and change the cutover plan as it relates to any or all system components.

### **7.3 Staging**

- A. Each newly purchased individual assembly or equipment unit shall undergo factory testing prior to shipment.
26. Standard factory test documentation, documenting the tests performed and indicating successful completion of testing shall be maintained by the SELECTED BIDDER.
27. The SELECTED BIDDER shall provide all necessary technical personnel, and test equipment to conduct staging tests. All deviations, anomalies, and test failures shall be resolved at the BIDDER's expense.
28. The SELECTED BIDDER shall use an approved Staging Acceptance Test Plan (SATP). It is expected that the SATP has been performed and all tests have been successful before the County witnesses the official SATP. The SATP shall be signed and dated by the BIDDER and County Contact Person following completion of all tests. All tests in the SATP shall be marked as either pass, fail, or pass qualify.
29. Failed tests shall be documented, corrected, and retested. All defective components shall be replaced and retested. Defective components that cannot be corrected shall be replaced at the expense of the BIDDER.
30. Retest of individual failed SATP tests or the entire plan shall be at the County's discretion.
31. The fully executed, completed and signed SATP document shall be provided to the County.

### **7.4 System Installation**

- A. Installation shall consist of a complete, tested, upgraded system to include placement of associated cabling, appropriate system layout and terminal connections. The SELECTED BIDDER shall provide associated power supplies and any other hardware, adapters and or connections to deliver a complete operable system to the County at the time of acceptance.
32. All installations shall be performed by factory authorized or SELECTED BIDDER affiliated service shops. Other shops or installers may be used upon mutual agreement between the County and the SELECTED BIDDER. Qualified, adequately trained personnel familiar with this type of work shall perform all installations.
33. Prior to the start of the equipment installation the SELECTED BIDDER shall participate in a mandatory project site survey with a County representative to confirm actual equipment location within each space. At that time the exact equipment locations will be determined and documented by the SELECTED BIDDER.

34. The County Contact Person shall coordinate with others, as appropriate; to confirm that any prep work affecting the installation is complete before installation begins.
35. The SELECTED BIDDER shall provide and pay for all materials necessary for the execution and completion of all work. Unless otherwise specified, all materials incorporated into the permanent work shall be new and shall meet the requirements of this RFP. All materials furnished and work completed shall be subject to inspection by the County.
36. Equipment supplied as spare equipment may not be used for installation of the proposed system. All spare equipment must be supplied in an unused condition.
37. All equipment and devices shall be cleaned internally and externally, and all damaged finishes shall be repaired.
38. Worksites shall be left neat and broom swept upon completion of work each day.
39. All shelter floors will be thoroughly cleaned and all scuff marks and abrasions will be removed prior to acceptance. All trash shall be removed weekly.
1. Inspection:
  - a. The County shall conduct an inspection of the installations upon substantial completion. Any deficiencies shall be documented on a single punch list and provided to the SELECTED BIDDER for resolution.
  - b. Final acceptance testing shall not commence until all punch list items are resolved.

## **7.5 Coverage Testing**

- A. BIDDER shall submit a preliminary Coverage Acceptance Test Plan (CATP) with the Proposal. The final CATP shall be submitted during the Final Design stage of the project.
2. Final upgraded system testing should be accomplished prior to coverage testing.
1. CATP:
  - a. The CATP shall be consistent with the procedures and guidelines outlined in TSB-88C latest revision.
  - b. Coverage testing shall commence only after the upgraded radio system is fully tested and aligned. Significant changes to the system will require retesting of coverage at the County's discretion.
2. The SELECTED BIDDER shall perform two types of coverage testing:
  - a. Automated objective mobile drive testing
  - b. Automated subjective DAQ testing (intelligibility testing) automated and intelligibility testing shall be complementary and serve to fully verify that coverage requirements are met both technically and operationally (male and female voices).
3. Test Configurations:
  - a. Testing configurations for automated and intelligibility testing shall represent typical operating configurations to the greatest extent possible, using portable and mobile radio equipment to be used with the system.
4. Automated Objective Mobile Drive Testing:

- a. The SELECTED BIDDER shall test both the signal level and; Frame Error Rate (FER), as applicable, at a statistically significant number of test locations throughout the County utilizing automated test equipment such as an STI-9400 or equivalent.
  - b. Inaccessible grids shall not count as either a pass or fail in the statistical analysis.
5. Automated Subjective DAQ Testing (male and female voice):
  - a. Automated subjective DAQ coverage testing shall be conducted using typical portable radios supplied with the system.
  - b. Automated DAQ test for a noisy environment (Fire).
  - c. Talk-out and talk-in performance shall be documented.
6. The SELECTED BIDDER shall provide a standardized test form for testing.
7. The SELECTED BIDDER shall coordinate with the County to establish pass/fail criteria as well as correlation between the subjective and objective test results. Coverage tests shall be completed in full foliage.

#### **7.6 30-Day Operational Test**

- A. The contractor shall perform a 30 calendar day operational test of the system to ensure that all hardware and software defects have been corrected prior to entering final proof of performance testing. The fully integrated operation of the system, including all additional tower/repeater sites, shall be demonstrated during these tests. The tests shall be designed to demonstrate the reliability, long-term stability, and maintainability of the systems. A failure of any component of the system during this test will cause the test to restart after the repair is completed. The SELECTED BIDDER and the County will agree on what constitutes a critical failure prior to commencing this test.

#### **7.7 Final Acceptance Testing**

- A. Prior to Final acceptance testing, the SELECTED BIDDER shall verify and document that all equipment, hardware, and software are upgraded to the latest factory revision. Multiple revision levels among similar equipment are not acceptable. The County shall be given three (3) days advance notice that the system is ready for final acceptance testing. The Final Acceptance Test Plan shall test all items described in the detailed design documents.
1. Final Acceptance Test Plan (FATP):
    - a. The SELECTED BIDDER shall use the completed and County approved Final Acceptance Test Plan (FATP). It is expected that the FATP has been performed and all tests have been successful before the County Contact Person witnesses the official FATP. The FATP shall be signed and dated by the SELECTED BIDDER and County Contact Person following completion of all tests. All tests in the FATP shall be marked as either pass, fail, or pass qualify.

- b. The SELECTED BIDDER shall provide all necessary technical personnel and test equipment to conduct FATP tests. All deviations, anomalies, and test failures shall be resolved at the BIDDER's expense.
- c. Failed tests shall be documented, corrected, and retested. All defective components shall be replaced and retested. Defective components that cannot be corrected shall be replaced at the expense of the BIDDER.
- d. Retest of individual failed FATP tests or the entire plan shall be at the County's discretion.
- e. The fully executed and completed FATP document shall be provided to the County.

### **7.8 As-Built Documentation**

- A. At the completion of the installation phase, the SELECTED BIDDER shall provide complete as-built documentation as outlined below:

- 1. Equipment provided
- 2. Plan and elevation drawings of all equipment including antennas on towers
- 3. Cabling and terminations
- 4. Block and level diagrams
- 5. Software revisions, builds, notes
- 6. Successfully completed, signed, and dated acceptance test plans

### **7.9 System Acceptance**

- A. The County shall deem the system ready for final acceptance following successful completion and approval of the following:

- 1. Final Design submittals
- 2. System installation
- 3. Final inspection and punch list resolution
- 4. As-built documentation
- 5. Final Acceptance Test Plan (FATP), including Coverage Acceptance Test Plan (CATP)
- 6. 30-day operational test completion
- 7. Training

## Appendix A: Glossary of Terms and Acronyms

AC	Alternating Current
Agency	Term that applies generically to any local, state, federal entity or organization, such as; a department, division, city/town, or bureau. Includes: government, quasi-government and private groups.
ALI	Automatic Location Identification
ANI	Automatic Number Identification
ANSI	American National Standards Institute
APCO	Association of Public-Safety Communications Officials International
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATS	Automatic Transfer Switch
AWG	American Wire Gauge b
Backhaul	The transporting of radio communications traffic between distributed sites (typically access points) and more centralized points of presence.
Bandwidth (BW)	The capacity of a channel to carry signals. The amount of spectrum required to transmit a signal without distortion or loss of information.
BER	Bit Error Rate
Bit	Binary digit
BR	Bit rate
BTU	British Thermal Unit; a measure of energy equivalent to the amount of energy required to heat one pound of water one degree Fahrenheit
CAI	Common Air Interfaces
CATP	Coverage Acceptance Test Plan
Channel	The route through which a message is sent. A connection between initiating and terminating nodes of a circuit. A single path provided by a transmission medium via an electrical separation, such as by frequency or frequency pairs.
Communications	Information transfer among or between users. In public safety communications, the ability of public safety agencies to talk across agencies.
Connectivity	The complete path between two terminals.
Conventional	A radio system with dedicated, single-purpose channels (can be shared between several users with different operational needs; e.g., fire and

	police). A user must select the specific channel to be used.
Coverage	The geographic area included within the range of a wireless radio system. CSSI
DAQ	Delivered Audio Quality
dB	Decibel
DC	Direct Current
Digital	Radio transmission method that replaces analog systems and transmits its signal in binary 1's and 0's the same as a computer. One major difference is that digital signals do not degrade gradually the way analog does as the distance between the transmitter and receiver increases.
DTMF	Dual Tone Multi-Frequency
EIA	Electronic Industries Alliance (publisher of standards)
EMI	Electromagnetic Interface
Encryption	The reversible transformation of data from the original (plain text) format to a difficult to interpret format as a mechanism for protecting its confidentiality, integrity and sometimes its authenticity. Encryption uses an encryption algorithm and one or more encryption keys.
ERP	Effective Radiated Power
FAA	Federal Aviation Administration
FAT	Factory Acceptance Test
FATP	Factory Acceptance Test Plan
FCC	Federal Communications Commission
FER	Frame Error Rate
First Responders	The first professionals called to an incident or emergency that provides immediate support services during prevention, response, and recovery operations.
Frequency	The number of cycles or events of a periodic process in a unit of time.
Frequency	The spectrum of transmission space where mobile radio systems operate in the United States. They are (from low to high):  High HF 25-29.99 MHz Low VHF 30-50 MHz High VHF 150-174 MHz Low UHF 450-470 MHz UHF TV Sharing 470-512 MHz 700 MHz 764-776 & 794-806 MHz



	800 MHz 806-869 MHz
	2.4 GHz
	4.9 GHz
FRU	Field Replaceable Units
GFI	Ground Fault Interrupt
GUI	Graphical User Interface
HVAC	Heating Ventilation and Air Conditioning
Hz	Hertz (same as cycles per second)
IEEE	Institute of Electrical and Electronic Engineers
Infrastructure	Dedicated telecommunications networks; the hardware and software needed to complete and maintain a public safety communications system
Interference	Extraneous energy, from natural or man-made sources, that impedes the reception of desired RF signals.
Interoperability	The ability of diverse systems and organizations to work together (interoperate). In public safety, the ability of personnel to exchange voice and data communications with staff from other agencies, on demand and in real time.
Intranet	A private computer network that uses Internet technologies to share an organization's information or operational systems with its employees in a secure manner.
IP	Internet Protocol
kHz	kilo Hertz (1000 Hertz)
kW	Kilowatts
LAN	Local Area Network
LED	Light emitting diode
LMR	Land Mobile Radio
MHSB	Monitored Hot Standby
MHz	Megahertz (1,000,000 Hz)
Modem	An acronym for modulator/demodulator, which is a device that translates digital signals coming from a computer into analog signals that can be transmitted over standard telephone lines. The modem also translates the analog signals back into digital signals that a computer can understand.
MPE	Maximum Permissible Exposure
Mutual Aid	Generally describes a situation where a major emergency or incident requires a large number of agencies, including agencies from remote

	locations, working together to mitigate the crisis.
Mutual Aid Channel	A radio channel specifically allocated for use during emergency mutual aid situations.
NAS Device	Network attached storage device
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NiMH	Nickel-Metal Hydride
NMS	Network Management System
NMT	Network Management Terminal
NTIA	National Telecommunications and Information Administration (part of Department of Commerce -coordinates use of frequency spectrum).the Federal government
OET	Office of Engineering Technology (FCC)
OSHA	Occupational Safety and Health Administration
Project 25 (P25) or APCO-25	A suite of standards for digital radio communications for use by federal, state/province and local public safety agencies in North America to enable them to communicate with other agencies and mutual aid response teams in emergencies.
PTT	Push-to-Talk
Public Safety Spectrum	Specific bands of frequencies set aside by the FCC for use by public safety agencies. They are:  Low Band (25-50 MHz)  VHF High Band (150-174 MHz) 220 Band (220-222 MHz) UHF Band (450-470 MHz)  700 Band (764-776 and 794-806 MHz)  800 Band (806-824 and 851-869 MHz) GHz Band
QA/QC	Quality Assurance/Quality Control
R56	Motorola Installation Standards and Guidelines for Communication Systems
RAID	Redundant Array of Independent Discs
Receiver	The component(s) of a radio device that converts the radio waves into audible signals.
Repeater	A special receiver/transmitter combination that receives a signal on one frequency and retransmits a new signal on another frequency, usually

	within the same frequency band, sometimes referred to as a relay station.
BIDDER	Any individual or entity bidding on the right to supply products and services in response to this RFP.
RF	Radio Frequency
RFI	Radio Frequency Interference
RFP	Request for Proposal
RPC	Regional Planning Committee
RSSI	Received Signal Strength Indication
SATP	Staging Acceptance Test Plan
SELECTED BIDDER	Any individual or entity selected from among all BIDDERS to supply products and services in response to this RFP.
SoR	Statement of Requirements
Spectrum	The range of electromagnetic radio frequencies that can be decomposed into frequency components, used in the transmission of sound, data and television.
Talkgroup	Radio system users assigned to a specific group of users who regularly communicate with each other.
TCP	Transmission Control Protocol – a component of Internet Protocol (IP) TDMM Telecommunications Distribution Methods Manual
TIA	Telecommunications Industry Association
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TSB	Telecommunications System Bulletin
Turnkey	Entire system with hardware and software assembled and installed by a BIDDER and sold as a package.
TVSS	Transient Voltage Surge Suppression
UL	Underwriters Laboratory VAC Volts Alternating Current VDC Volts Direct Current
VPLS	Virtual Private Lan Service
VSWR	Voltage Standing Wave Ratio
WBS	Work Breakdown Structure

## **Appendix B: Point by Point Compliance Format**

BIDDERS must acknowledge and respond to all RFP numbered and lettered requirements.

BIDDERS should state their acknowledgement/response to each numbered and lettered requirement in writing directly following each requirement.

It is preferable that BIDDERS use bold or colored type in their acknowledgement/response to each requirement.

To indicate the BIDDERS understanding, and/or level of compliance with each RFP requirement, BIDDERS should use the following values when detailing their acknowledgement/response:

‘Understood’ – Read and Understood. BIDDER acknowledges that it has read and understands the RFP requirement. No additional information is required.

‘Comply’ – BIDDER fully complies with the requirement with no exceptions or qualifications. No additional information is required unless the RFP requires the BIDDER to describe, explain, or otherwise provide additional information.

‘Clarify’ – Comply with Clarification. With particular qualifications, the BIDDER meets the requirement as stated. The clarification as to the method or means of compliance must be included.

‘Substitute’ – Substitution. The BIDDER does not meet the RFP requirement as written but is offering an alternative means of achieving the same goal. The substitution proposed by the BIDDER must be included. The County reserves all rights to determine if the proposed substitution adequately meets the desired goal.

‘Exceeds’ – Exceeds Requirement. BIDDER’S proposal exceeds the requirement as written. The way in which the requirement is exceeded must be included. The County reserves all rights to determine if the proposed substitution actually exceeds the desired goal.

‘Non-Comply’ – Non-Compliant. BIDDER’S proposal does not meet the RFP requirement as written. No additional information is required unless the BIDDER wishes to do so.

**Appendix C: List of Existing Site Locations**

**Site List**

Owner	Site Name	Location	Type	FCC #	Latitude	Longitude
Meade County Fiscal Court	Meade County Courthouse	516 Hillcrest Drive, Brandenburg, KY 40108	Communications Tower		38.001733	-86.17515
Meade County Water District	Payneville Water Tower	5310 Payneville Road, Payneville, KY 40157	Water Tank		37.991012	-86.311407
Meade County Water District	Garrett Water Tower	3516 Garrett Road, Ekron, KY 40117	Water Tank		37.903324	-86.099689
Crown Castle, Inc.	Muldraugh Cell Tower	115 Timber Court, Muldraugh, KY 40155	Communications Tower	1204254	37.947805	-85.993972

## **Appendix D: Regional Interoperability**

Meade County Emergency Services desires public safety interoperability with the following mutual aid localities and regional channels such as but not limited to contiguous Counties.

- A. Breckinridge County Sheriff's Department
- B. Breckinridge County Fire Department
- C. Breckinridge County EMS
- D. Hardin County Sheriff's Department
- E. Hardin County Fire Department
- F. Hardin County EMS
- G. Radcliff Police Department (analog)
- H. Harrison County (IN) Sheriff's Department
- I. Harrison County (IN) Fire Department
- J. Harrison County (IN) EMS
- K. Fort Knox MP (analog)
- L. Fort Knox Fire Department (analog)
- M. Fort Knox EMS (analog)
- N. Kentucky State Police
- O. Louisville Metro Police Department
- P. Air Methods
- Q. Air Evac
- R. VMA (001 155.4750 Tx and RX 156.7 hz)
- S. VCALL (002 155.7525 Tx and RX 156.7 hz)
- T. VTac (003 151.1375 Tx and RX 156.7 hz)
- U. VTac (004 154.4525 Tx and RX 156.7 hz)
- V. VTac (005 158.7375 Tx and RX 156.7 hz)
- W. VTac (006 159.4725 Tx and RX 156.7 hz)

## **Appendix E: Overview of System Components**

### Radio Network

2 Site (4) Channel Simulcast Network (100 watt Continuous Duty Cycle Transmitters)

Copper gigabit Ethernet connectivity to a Layer 2, VPLS, via fiber optic network

Phase 1 Compliant

Redundant Site Controllers for continued simulcast operation of remaining sites

Complete Antenna Network

R56 Grounding or approved grounding per bid document

UPS for each site

GPS Synchronization between sites

Includes all cabling, mounting and testing

Integration into the current radio system

### Service Support

7x24 Service on all Primary System Components

1 Hour Response required from Service Facility via Phone Triage

4 Hour Response required for On-Site Technical Service