REQUEST FOR PROPOSAL

RFP# 101216

Georgia, Floyd County
October 4, 2010

TO WHOM IT MAY CONCERN:

The Floyd County Board of Commissioners will receive proposals for a:

Turnkey Community-Wide 800/700 MHz
Digital Trunking (P25) Simulcast System

The Floyd County Board of Commissioners is soliciting competitive sealed proposals from qualified vendors to provide the County with an APCO P-25 compliant new 800MHz digital simulcast trunked radio network capable of meeting current and future communication needs, both reliably and functionally. County public safety agencies, as well as some Floyd County governmental departments, are currently utilizing a combination of existing VHF and UHF conventional analog technology that is outdated and capacity limited, which is no longer meeting the communication objectives of the County.

Proposals should address key technical aspects of a standards-based enhanced digital radio communications network, aligned toward full Project-25 compliance within a fixed time period. Proposals should also address total project price on the basis of initial cost and life cycle analyses. Public Safety agencies that will immediately utilize this new digital radio network include the County Fire, Police, and EMS, as well as many of the Floyd County municipal departments. It is envisioned that other, non-public safety agencies will likewise participate in this new digital radio network.

MANDATORY PRE-PROPOSAL SITE VISIT AND CONFERENCE will take place at the Floyd County Administration Building, 2nd Floor Caucus Room, 12 East Fourth Ave. Rome, Ga. 30161

Site Visits will be conducted Wednesday, October 20, 9:00AM
Conference will be conducted Thursday, October 21, 9:00AM

Sealed proposals will be received until 2:00 PM (local time), on December 16, 2010 at the office of the Floyd County Purchasing Director, located in the Floyd County Administration Building, 12 East Fourth Avenue, Suite 106, Rome, Georgia.

Bids must be accompanied by a Bid Bond in an amount of not less than five percent (5%) of the base bid. All bonds must be signed or countersigned by a Georgia Resident Agent.

A faithful Performance Bond in the amount of one hundred percent (100%) of the amount of the bid, and a Labor Materials Payment Bond in the amount of not less than the amount of said Bid, one hundred percent (100%) will be required from the successful vendor.

Specifications, further instructions and agreements can be obtained from the Office of the Purchasing Director lamn@floydcountyga.org, www.romefloyd.com or (706) 291-5109.

Payment of said award, if approved, will be made by the Floyd County Board of Commissioners.

The County reserves the right to waive compliance by any applicant with any provision contained in this request whenever the County in its sole discretion believes such waiver is in the County’s best interests.

Floyd County is an Equal Opportunity Employer M/F/H.

________________________________________
Nancy Lam, Purchasing Director

Legal ad to run, Oct. 4 and Oct. 18
Floyd County Georgia Request for Proposal Specifications
P-25 Digital Public Safety Radio Network

October 4, 2010
Floyd County Georgia Request for Proposal Specifications
P-25 Digital Public Safety Radio Network

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1.0 General Proposer Response Provisions

1.1 Purpose

This Specification encompasses a turnkey project to provide the County of Floyd, Georgia with an APCO P-25 compliant new 800MHz digital simulcast trunked radio network capable of meeting current and future communication needs, both reliably and functionally. County public safety agencies, as well as some Floyd County governmental departments, are utilizing a combination of existing VHF and UHF conventional analog technology that is outdated and capacity limited, which is no longer meeting the communication objectives of the County.

A key desire of Floyd County is to transition away from channel inefficient solutions and to embrace new, emerging radio technology that is in full compliance with Industry-recognized open standards. A second, critically important aspect of this communications network procurement involves infrastructure reliability and hardening in response to heightened terrorism activities, worldwide, and to regional natural and environmental hazards such as winter type snow or ice storms and tornadoes.

This Specification defines key functional and technical aspects of a standards-based enhanced digital radio communications network, aligned toward full Project-25 compliance within a fixed time period. Public Safety agencies that will immediately utilize this new digital radio network include the County Fire, Police, and EMS, as well as many of the Floyd County municipal departments. It is envisioned that other, non-public safety agencies will likewise participate in this new digital radio network.

Floyd County recognizes that the most important aspect of any public safety radio network is coverage reliability coupled with clearly understood audio quality delivered to users throughout their various working environments. Floyd County appreciates the need for Proposers to have adequate flexibility in these Specifications, such that proposed solutions can be technically optimized to meet user desires and coverage expectations. Accordingly, this Specification does not define a required use of any specific 800MHz antenna site placement, antenna system hardware or minimum number of sites to achieve the desired coverage performance. That is, these Specifications are designed to functionally describe user expectations, reliability and the Floyd’s desire for near-term APCO Project-25 infrastructure compliance.

Interoperability between Floyd County first responders and other adjacent municipal and county jurisdictions is another area of concern that is addressed by these Specifications.

Floyd County is also aware that the voluntary development and user adoption of APCO Project-25 open-standards has been a laboriously slow one. APCO Project-25 standards develop commenced nearly eighteen years ago and has only has recently achieved the ratification of switch interconnectivity standards for networks. Additionally, it is recognized that final development of narrowband Project-25 Phase-II 6.25KHz specifications is nearing completion.
Due in large part to the protracted development of Project-25 standards, vendor development of high-capacity voted/simulcast Project-25 infrastructure solutions (necessary to provide reliable in-building portable radio support) has been slow and has not achieved the same degree of competitive availability as exists for VHF/UHF conventional Project-25 needs. Fortunately, the federal government's desire for all military and federal agency radio networks to transition to Project-25 narrowband technologies has fueled both the standards-completion process and has accelerated development of complex network infrastructures, inclusive of simulcast technology, by the radio vendor community.

Following the federal government's lead, it is perceived that significant and tangible improvements to local-area 700/800MHz operations as well as wide area interoperability can be achieved, minimally, through the application of Project-25 technologies. This Specification addresses those functional, operational, and to a limited extent, technical requirements for Floyd's envisioned new Project-25 digital radio communications network.

1.2 Instructions

This Specification is a complete document and must be returned intact as well as any addenda, which are released subsequent to the issuance of this Specification package. The RFP Authorization Form in Section 16 must be completed. The Appendices do not need to be returned. All responses and attachments should be placed into the RFP Response immediately behind the page, on which the information was requested, in the form of a point-by-point response. Supplementary material may not be substituted for direct responses to questions.

If supplementary materials are inserted, each inserted page must be labeled in the bottom margin with the number of the Specification page behind which it is being placed. If more than one page is inserted behind a particular Specification page, then each must be labeled with the appropriate page number plus a letter designator, e.g. 121a, 121b, 121c, etc.

1.2.1 Procurement Process

Floyd County has determined that the procurement of a high technology 800MHz trunked radio network shall be accomplished by response to these Specifications rather than through the receipt of unsolicited proposals. Responses in the form of an unsolicited proposal or of a type that offer technology solution approaches other than those ultimately resulting in minimally a Project-25 Phase I compliant network will be rejected without further consideration.

Proposer Responses must be adequate to cover all expenses related to compliance with all applicable requirements of this Specification. Any related costs, direct or indirect, must be clearly identified in the Proposal Response. All cost related to the preparation or submittal of the response to this Specification is the responsibility of the Proposer.
1.2.2 The Proposal Process

1.2.2.1 Proposal Release

The Proposal will be publicly advertised and released in accordance with applicable Floyd County Procurement policy and State of Georgia laws and shall include the notification of the time and place when and where the Proposal is due. Additionally, these Specifications may be directed to those businesses that are known to be a potential offerer of goods or services of the type required.

1.2.2.2 Pre-Proposal Conferences

Floyd County and Consultant will hold one mandatory Pre-Proposal Conference with potential Proposers concerning the requirements. This Conference will be held at the Floyd County Administration Building at a date and time to be determined. Any verbal agreements or representations made at this Conference or at any other time during the Proposal period will not be binding on Floyd County. Official statements concerning the Proposal will be issued in writing as an RFP Specification Addenda.

1.2.2.3 Proposal Questions

If during the review or preparation of the Proposal submittal, a Proposer discovers any errors, omissions or ambiguities, they should submit, in writing, their questions to the Consultant. Written questions that are submitted at least 48-hours in advance of the Pre-Proposal Conference will be addressed during the Conference. Written questions submitted after this time period will be addressed in a written addendum to the Floyd County Procurement Department, forwarded to the Consultant and if received by the Consultant at least seven days prior to the Proposal Submission Date. Direct contact with any Floyd County public safety or local government departments concerning this Proposal must have prior approval as identified in Section 1.9.

Failure to follow this contact procedure may result in Proposer disqualification.

1.2.2.4 Late Proposal Submission

Any Proposal Response submitted after the specified submission due date and time, as publicly advertised, will not be accepted and will be returned unopened to the submitting organization. Any Proposal Response may be withdrawn by the Proposer prior to the scheduled Proposal Submission Date.

1.2.2.5 Proposal Submittal

All copies of the Proposal, in the indicated quantities and including all requested materials, should be provided to the address listed below by the date specified in Proposal Advertisement or as may be amended by addendum:

Purchasing Director, Floyd County Administration Building, Suite 106
#12 East Fourth Avenue
Rome, GA 30161
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Proposal Response submittals shall be valid for a period of one hundred and twenty days (120) days after Proposal submission date. Exceptions taken on any part of the stated functional or operational requirements, particularly to those that directly relate to coverage reliability and delivered audio quality, may disqualify the Proposer.

1.2.2.6 Proposer Qualifications

Floyd County reserves the right to discontinue consideration of a Proposer’s submittal if information requested on the Proposer’s ability to perform is not submitted or is otherwise unacceptable. Floyd County may, at any time prior to Contract Award, request proposal clarification information submitted on other similar systems or the specific hardware/software solution. Proposers shall not be allowed to enhance, add/remove services or otherwise alter their proposal configuration submittal beyond that described in their initial Proposal response.

Floyd County may enter into discussions with qualified Proposers concerning their submission during the proposal evaluation process. These discussions will be closed to third parties including other Proposers, unless such discussions are prohibited by the State of Georgia’s Law. During these discussions, clarifications or minor corrections to their Proposal Submittals, with the exception to price charges, will be considered, as appropriate, within Floyd County, Georgia’s Procurement Policy.

Proposer(s) may be disqualified if there is reason to believe that: some form of collusion exists between Proposers; the Proposer is involved in litigation with Floyd County; and the Proposer is not performing on another contract of similar scope or has previously defaulted on another City/County contract, within the last five years.

1.2.2.7 Recommendation

After all qualified Proposals have been evaluated, the Consultant and Floyd's Radio Project Committee (FRPC) will provide to Floyd County an evaluation of all responsive proposals and a written recommendation. Proposal response submittals will not be publicly released until Floyd County has authorized the granting of a Contract to the responsive and best Proposer.

1.2.2.8 Contract Award

Upon notification of Contract Award, the Contractor shall provide Performance and Payment Bonds and Proof of Insurance as set forth herein. Failure to provide the required bonds or proof of insurance within ten (10) days after notification of Contract Award shall entitle Floyd County to rescind the award and retain any Proposal security. If Floyd County then must re-advertise the project because of this failure to timely execute the Contract, the defaulting party shall not be eligible to submit a subsequent Proposal response.

Floyd County shall authorize award of the Contract to the best responsive Proposer that is compliant with these Specifications. No Contract shall be binding on Floyd County until it has been approved as to form by the County's Legal Counsel and executed by both responsible parties (Floyd County and Contractor).
A Pre-Construction Conference will be held at which time all required Contractor documents must be submitted. Upon Floyd County's approval of these documents, a Notice to Proceed will be issued to the Contractor.

1.2.2.9 Proposal Response

The Proposal Response shall be divided into three sections: Technical, Infrastructure Pricing and User Equipment Pricing. Twelve (12) copies of the Technical Response and six (6) copies of the Infrastructure and Subscriber Equipment Pricing Responses are to be submitted. The Pricing Responses shall be separated from the Technical Response and independently sealed.

Each Proposal Response shall be submitted in standard 8 1/2" x 11" three ring binders. Additionally, Proposers shall also submit their Proposal Response in a digital format (Portable Data File – PDF- format) on a CD-ROM, placed within the Proposal Response Binder. The entire Response package must be submitted in a sealed container addressed to: Purchasing Director, Floyd County Administration Building, Suite 106, #12 East Fourth Avenue, Rome, Georgia 30161 and identifying the title and RFP Number of the procurement. The time and date of the Proposal Opening must be plainly marked on the container as well as the Proposer's name, address and Georgia Contractor's License Number. All Proposal Responses should be delivered by hand, with receipt requested, or by certified or registered mail.

Any confidential/proprietary information contained in the Proposals must be contained in a separate section. All Proposal Responses become property of Floyd County. A cover letter transmitting the Proposal Response must accompany the package.

1.2.2.10 Proposal Evaluation and Selection by Consultant

Technical and Pricing Proposals shall be evaluated separately using a weighted point system whereby out of a maximum 100% Overall Project Score, 70% shall be allocated to Technical Proposal evaluation scores with 30% being allocated to life cycle system cost.

Technical Proposals will first be evaluated for overall responsiveness and completeness to the RFP Specifications. Proposals that are determined responsive and complete will be evaluated by the Consultant.

Technical Proposals will be graded in the following areas, listed in relative order of importance, with respect to the requirements as outlined in this RFP:

1. Performance, compatibility, expansion capabilities and versatility (30%).
2. Reliability, redundancy and warranty (18%).
3. Proposer qualifications, history of product support and RFP deviations (10%).
4. Equipment repair, installation, and implementation (10%).
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5. Interoperability (15%).

6. Training (7%).

7. Maintenance and time limit of availability of service parts (6%).

8. Organization, scope and detail of proposal (4%).

The scored results of this Technical Evaluation will be multiplied by 0.70, thereby yielding a weighted technical project-total score. The results of this portion of the Evaluation shall be submitted to the Floyd Purchasing Department.

At the direction of the Floyd's Radio Project Committee (FRPC) as to the suitability and acceptability of the Technical Evaluation Results, the Consultant, will next open and evaluate costs for each responsive Technical Proposal Submittal.

The relative cost differences between responsive Cost Proposals shall be compared and evaluated by simple percentage. The Proposer Submittal receiving the highest Overall Project Score shall be recommended by the Consultant as being the most responsive, best proposal. In the case of a tied Overall Project Score, the Consultant shall recommend that Proposal Submittal having the highest Technical Proposal evaluation score.

1.2.2.11 Total Costs

Floyd County reserves the right to evaluate total project price on the basis of initial cost and life cycle analyses. Any deviations by Proposers from the pricing requirements herein shall be approved in advance of Proposal Submittal or they will be construed as being non-conforming and the Proposal Submittal will not be given further consideration.

1.3 Definitions

Definitions as used herein:

(a) Proposer: 
Any organization, company, vendor, or supplier responding to this specification.

(b) Contractor: 
The Proposer to whom a Contract is awarded.

(c) Proposal, Proposal Response, Submittal: 
Correspondence or material furnished by Proposers in response to this specification.

(d) County of Floyd, Georgia, E911: 
System Owner/Client

(e) Tusa Consulting Services, TCS or Consultant: 
75757 Old Military Road (Hwy 1082) 
Covington, LA 70435 
(985) 249-6467, Telephone (985) 249-6468, Fax
1.4 Proposer Standards

The Proposer must have manufactured, delivered and installed several radio systems of equivalent technology (700/800MHz IMBE digital voice simulcast transmit/receiver voted) having comparable size and scope. Proposer's referenced systems shall be described with enough information that Floyd County or its Consultant can reasonably determine their project equivalency. The Proposer shall prepare a summary report for a minimum of three of the installed and fully operational systems that best emulates that being proposed for Floyd. These reports should include a detailed summary of the system and its significant operational features/components as well as a current customer contact including name, address, and phone number, title, department and system responsibility.

Radio spectrum allocations now occupied by commercial television broadcast interests within the 700MHz band have become available solely to public safety operations. Proposers will likewise be required to provide sufficient information necessary to support claims that both proposed infrastructures and user equipment will be functionally and operationally compatible with these new channels (764-767MHz and 773-776MHz, paired with 794-797MHz and 803-806MHz, respectively). Failure to propose equipment capable of operations on this new spectrum shall be considered non-responsive and that proposal submittal shall be given no further consideration.

A factory authorized service center that is fully staffed and trained to support the proposed infrastructure network, and all related subsystem equipment, must be located within the 100 miles of Floyd County and duly registered and licensed to conduct business within the State of Georgia to be considered adequate to satisfy initial installation, implementation, optimization, warranty and ongoing maintenance needs. The Contractor and all subcontractors, if any, must be able to legally conduct business within the State of Georgia.

The following standards shall apply, as a minimum, to all equipment, installation methods and materials:

A. EIA/TIA–Electronic/Telecommunications Association
B. NEC - National Electric Code
C. NEMA - National Electrical Manufacturer's Association
D. IEEE - Institute of Electrical and Electronic Engineers, Inc.
E. FCC - Federal Communications Commission
F. FAA – Federal Aviation Administration
G. NFPA – National Fire Prevention Association
H. Building Codes for Floyd County, Georgia
I. OSHA - Occupational Safety and Health Administration
1.5 Workmanship

All workmanship must conform to normal and accepted standards for the telecommunications industry and will be thoroughly examined by Floyd County Representatives and its Consultant at various stages during project implementation and before final network acceptance. All fixed site equipment, including electronic communications infrastructure, dispatch consoles; alarm system consoles, network management consoles, electrical wiring, towers, antennas, mounts etc. must be installed by or under the supervision of the Contractor.

The Contractor must completely remove and properly dispose of residue due to its work, return the site to a useable state and will be responsible for the cost of repairing all damage caused by the Contractor or its Sub-Contractors during network installation.

Floyd County and its Consultant reserve the right to halt the installation process due to poor workmanship, housekeeping, scheduling, work interruptions, etc. Work halts that have resulted from poor workmanship shall not relieve the Contractor of their responsibility to conform to the installation time requirements as stated in this Specification.

1.6 Materials

All equipment, except with the expressed written permission of Floyd County and its Consultant, must be new and unused, meet telecommunications industry standards, and, where applicable, be registered with and approved by the Federal Communications Commission. Floyd County or its Consultant reserves the right to reject and require the return, at the Contractor's expense, of any and all components which are defective or fail to comply with this Specification. Such rejections and/or returns will neither validate nor invalidate the remainder of the Contract. Rejections of material for cause shall not provide an extension of time to the Contractor.

1.7 Sub-Contractors

It is intended that a single Contractor have total turnkey responsibility for the project so as to assure a fully operational network. Therefore, any Proposer desiring to use Sub-Contractor(s) must include within their Proposal Response a list and description of the qualified Sub-Contractor(s). Floyd County will require documentation and references, including a thorough background investigation, to ensure the qualification of a Sub-Contractor. Any Sub-Contractor or person that is determined by the County to be unqualified or unacceptable to perform their duties, may at the County's sole discretion, be barred from working on the project. The Sub-Contractor(s) cannot be changed after submission of the Proposal Response except with the written permission of Floyd County. Changes in Sub-Contractors shall not provide an extension of time to the Contractor.

1.8 Premises Visits

Proposers, before submitting a Proposal Response, may desire to visit selected public safety premises in order to familiarize itself with conditions, which may affect the work. Floyd, it's designated local representative or the Consultant will coordinate access and escort to the
various sites. If more than one visit to a site is requested and time allows, Floyd County
designee will make the necessary arrangements.

Proposers must indicate any special requirements, i.e., architectural, mechanical, electrical,
civil or structural modifications, that their equipment may need at either County-owned or
non County-owned locations that are intended to be utilized.

The costs for these special requirements shall be disclosed in the Proposal Submittal as this is
a turnkey project whereby the costs to furnish and install the proposed network infrastructure
are fixed to the Proposal amount.

1.9 Contact

All contact and inquiry concerning this Specification shall be directed to:

    Dominic F. Tusa
    Tusa Consulting Services, TCS or Consultant:
    75757 Old Military Road (Hwy 1082)
    Covington, LA 70435
    (985) 249-6467, Telephone
    (985) 249-6468, Fax

All contact requiring Floyd County input shall be directed to:

    Nancy Lam, Purchasing Director, Floyd County Administration Building, Suite 106
    #12 East Fourth Avenue
    Rome, GA 30161
    lamn@floydcountyga.org

1.10 Notification

Proposers will be notified of Floyd's selection according to Floyd County's Procurement
Policy.

1.11 Installation

1.11.1 Project Time Frame for Completion

The Project's time frame for completion is not greater than eighteen months from the Notice
to Proceed. The Project will not be deemed completed until a fully-compliant Project-25
simulcast infrastructure has been installed; all system functionality, audio quality and
mandatory coverage testing has satisfactorily been completed to the reasonable satisfaction
of Floyd County and their Consultant; and a Certificate of Substantial Completion has been
issued by Floyd.
1.11.2 Installation Delays

If, at any time after the Contract Award, the Contractor becomes aware of any problems that may result in a delay in completing installation and system acceptance, the Contractor must immediately notify the designated Floyd County Representative and the Consultant by telephone, with confirmation in writing, citing the cause, probable effect and potential time delays duration with recommendations for alternative action. This paragraph does not relieve the Contractor of contractual responsibilities; however, failure to notify promptly will be a basis for determining the Contractor negligent of an otherwise excusable delay.

1.11.3 Installation Damage

The Contractor shall be responsible for the repair of any damage to County property caused by the Contractor or its Sub-Contractors during installation, implementation, optimization, maintenance, or de-installation of any equipment or services.

1.12 Training

Floyd County considers training to be of paramount importance. User and dispatcher training shall be completed on-site by the Contractor's personnel. Dispatcher training shall be more extensive than user training and will involve all designated regular and relief dispatchers employed by the County at the time of system operational testing.

The Contractor shall provide administrative training for six (6) Communication Network Managers. Software training shall be provided which will enable these personnel to perform functionality/feature changes to fixed site equipment and portables/mobiles; poll the network diagnostics; perform traffic and feature usage studies; etc. It is the desire of Floyd County that such training is to commence within 30 days upon completion of contract negotiations and execution, and be completed prior to the Customer Design Review (CDR) meeting.

The Contractor shall provide comprehensive maintenance training whereby County service/support personnel are qualified in the proper diagnostic, maintenance and repair service skills needed to quickly resolve P-25 700/800MHz communications equipment malfunctions as well as microwave backhaul operational problems. The Contractor shall provide operational and full maintenance training for all County radio maintenance personnel, either on site or at remote factory locations. This level of training will be essentially equivalent to the level of service training required by the Contractor for its proposed Maintenance Providers. Additionally, the Contractor shall develop and train radio maintenance personnel in those aspects of maintenance necessary to ensure the highest availability and reliability of infrastructure and subscriber equipment resources. Preventive maintenance training shall encompass all elements of supplied infrastructure equipment, inclusive of standby generator equipment, battery plants, battery charging systems, tower light systems, site grounding systems, alarm systems and all other subsystems directly or indirectly related to infrastructure reliability and operations.

The Contractor shall be responsible for all direct or indirect costs of user, dispatcher, maintenance personnel and communications network manager training, such as meeting rooms, travel, lodging and transportation as necessary for County personnel.
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The Contractor agrees that the Consultant and appropriate Floyd County personnel will be permitted to observe user equipment installation, network implementation and all optimization/testing phases.

The Contractor agrees that, upon network system acceptance, designated Floyd County maintenance personnel shall be provided with security and access codes, which will allow Floyd County to make routine operational changes and conduct radio profile maintenance. The Contractor shall continuously notify Floyd County of any computer and radio network software code revisions and any recommended equipment modifications. All such code revisions, upgrades and modifications shall be automatically incorporated into the project, through the commencement of acceptance testing and up to the date of formal system acceptance.

The Contractor shall coordinate with Floyd County all training sessions. All training must be approved by the County. Dispatch, users/operators, maintenance personnel and network manager follow-up training shall be provided and scheduled no more than ninety (90) days after network acceptance for the purpose of training reinforcement.

1.13 Parallel Implementation

The new network must be installed in a parallel implementation. That is, infrastructure equipment will be fully installed and operationally ready before the existing analog voice system can be decommissioned. The current VHF/UHF conventional analog systems are the only Public Safety Voice communications systems and must operate 24/7/365. No interruptions in service of any duration may be allowed without prior approval of the Floyd County or their designee. Therefore, fully duplicated voice radio systems will coexist for some period of time. The period of time of parallel installation will be used to perform testing of operational functionality of the entire network, dispatch consoles, mobiles, portables, network features, high capacity receiver-voting and simulcast transmitter operations. After the new network has been tested on a subset of radio channels and later accepted, the Contractor must remove the existing decommissioned VHF/UHF system mobile equipment, inclusive of any antenna system components and power/control wiring, as identified and directed by the Floyd County designee.

Since existing dispatch console equipment will potentially control the old system during the parallel phase, the Contractor is responsible for developing a plan to accommodate both existing and proposed systems during the parallel and transitional periods of installation and implementation.

1.14 Manufacturer Support

Proposers shall provide a letter from sub-system manufacturer(s) which guarantees manufacturer's support in the case of any conditions or problems which can not be remedied by the Contractor or in case the Contractor defaults on its warranty and/or maintenance agreements.
1.15 Parts Availability

The Proposer shall provide written guarantee that all proprietary backbone components and repair parts shall be available for at least fifteen (15) years from the date of network acceptance. End user equipment (i.e. portables, mobile, etc.) repair parts shall be available for at least five (5) years from the date of cessation of equipment manufacturer.

Proposers shall fully disclose the end-of-life status of each major equipment grouping proposed in response to this Specification. That is, end-of-production dates should be provided, minimally, for base stations, microwave radios, network controllers, power supplies, dispatch consoles, audio switches, simulcast optimization subsystems and all models of user equipment. It is the intent, to the maximum extent possible, for Floyd County to avoid the purchase of any network equipment that is nearing (within 24 months) the end of its production cycle.

1.16 Warranty of Network Performance

In submitting their Proposal Response, the Proposer acknowledges that it has carefully reviewed the functional requirements and warrants to Floyd County that the 800MHz P-25 radio network installed shall function according to equipment specifications, industry standards and the minimum operative characteristics specified in Sections 4.0 and 5.0 of this Specification.

The Contractor is further responsible for providing radio network coverage as specified in Section 7.0. All costs incurred in order to comply with the functional, operational and technical requirements of this Specification shall be the responsibility of the Contractor.

1.17 Remedies

Remedies shall be negotiated with the apparent responsive and best Proposer, as part of contract negotiations.

1.18 Contracts

This Specification and the Proposer’s Response will be an integral part of the Contract. Any and all statements made in the Proposal Response will automatically become part of the final Contract for equipment and services. Inability to contractually guarantee any statement made in their Proposal Response will result in Proposer disqualification.

Omission in the Proposal Response of any equipment, services or provisions herein prescribed shall not be construed so as to relieve the Contractor of any responsibility or obligation necessary to the complete and satisfactory installation of any and all systems, equipment, and services specified. The network price and any optional prices quoted must include all equipment, service, features, materials, labor, etc. necessary to make all the features, services, and equipment, which are included, fully functional. The Proposer agrees that the cost of additional equipment, materials, or labor necessary to meet these requirements, which was not otherwise calculated in his Proposal Response, shall be solely at the Contractor's expense.
Each Proposal Response must be signed by a duly authorized officer who is empowered to contractually bind the Proposer.

Floyd County shall enter into contract negotiations with the apparent responsive and best Proposer. Should Floyd County be unable to negotiate a Contract with the apparent responsive and best Proposer, Floyd County may exercise the right to enter into Contract negotiations with the apparent responsive Proposer having the next-highest evaluation score.

1.19 Non-Appropriation of Funds

In the event no funds or insufficient funds are appropriated and budgeted by the County or are otherwise unavailable for fulfilling the requirements of the Contract, the obligations of Floyd County shall terminate on the last day of the fiscal period for which appropriations are received without penalty or expense to the County of any kind whatsoever. Floyd County will immediately notify the Contractor or its assignee of such occurrence. In the event of such termination, Floyd County agrees to peaceably surrender possession of the equipment to the Contractor or its assignee on the date of such termination. The Contractor will be responsible for packing all equipment and any freight charges. Floyd County will not cancel if any funds are appropriated to it, or by it, for the acquisition, retention or operation of the equipment or other equipment performing similar functions for the current fiscal period in which the termination occurs or the next succeeding fiscal period thereafter and that it will not during the funding period give priority to other functionally similar equipment or services. The Contractor shall covenant and agree to indemnify and hold Floyd County harmless against any loss, damage liability, cost, penalty or expense, including attorney's fees, which it is not otherwise agreed to by Floyd County in the equipment Contract and which is incurred and arises upon a failure of Floyd County to appropriate funds in the manner described herein for a continuation of the Contract or exercise of the option to purchase the equipment.

1.20 Acceptance

Acceptance testing procedures shall be negotiated with the apparent responsive and best Proposer as part of Contract negotiations.

1.21 Purchase Payment Schedule

The following payment schedule shall apply:

10% - at Contract execution.

25% - at delivery of and inventory by Floyd County designee of network infrastructure components to Floyd County designated location(s).

10% - upon infrastructure installation completion.

25% - upon satisfactory completion of audio quality and range coverage testing.

15% - upon issuance of subscriber equipment and satisfactory completion of all training.
15% - upon Final System Acceptance.

The Proposer agrees that all prices quoted in its Proposal Response are valid for one year from the Contract execution date. Future price discounts are valid for the time periods indicated in Section 16.

1.22 Right of Refusal

Floyd County reserves the right to reject any and all Proposals received. Acceptance of any Proposer’s Response will not place Floyd County under any obligation to accept either the lowest priced or most technologically advanced response.

1.23 Contractor's Insurance

The Contractor shall be responsible for any and all loss of material connected with the construction due to unexplained disappearance, theft or misappropriation of any kind or nature. The foregoing provisions shall not obligate to relieve the Contractor and any Subcontractors of responsibility for loss or damage to their own or rented property or property of their employees of whatever kind or nature, including but not limited to tools, equipment, forms, scaffolding and temporary structures including their contents. Floyd County shall in no event be liable for any loss or damage to any of the aforementioned items or any other property of Contractor and any Subcontractors, which is not included in the permanent construction. The Contractor and any Subcontractors hereby waive any right of recovery they may have against Floyd County for damage or destruction of property of whatever kind or nature whether it is their own property or property of their employees.

The Contractor shall procure and maintain for the duration of the Contract the following insurance policies as mandated by and with minimum limits set by the County of Floyd, Georgia Procurement Policy with coverage for occurrences and claims that may arise from or in connection with the performance of the obligations hereunder by the Contractor, its agents, employees, representatives and subcontractors:

1. A policy or policies to insure the Contractor for legal liability on account of personal injury (including death resulting wherefrom) or loss of or damage to property however arising in the execution of this Contract and specifically including explosion, collapse, and underground damage. The combined liability limits shall not be less than $1,000,000. This insurance shall include coverage for (a) Premises - Operations; (b) Broad Form Contractual Liability; (c) Products and Completed Operations; (d) Use of Contractors and Subcontractors; (e) Personal Injury; (f) Broad Form Property Damage. "Claims made" form shall not be acceptable. The "occurrence form" shall not have a "sunset clause".

2. The policy or policies for this combined liability shall also include products/completed operations liability for one year after completion of the work and acceptance by Floyd.
3. A policy to cover the full liability of the Contractor in accordance with the provisions of the Worker's Compensation Law of the State of Georgia. The Contractor shall also maintain employer's liability coverage with limits of not less than $1,000,000 per year. The Contractor shall also obtain from its Workers' Compensation Insurance carrier a waiver of subrogation in favor of Floyd.

4. The Contractor will provide evidence of automobiles liability coverage for owned, non-owned and/or hired vehicles in limits not less than $1,000,000 combined single limit per occurrence for bodily injury and property damage.

The policies or certificates evidencing the coverage provided above shall be submitted at a Pre-Construction Conference prior to commencing any work or Floyd County issuance of a formal Notice to Proceed. Such policies or certificates shall provide that insurance will not be materially altered or canceled without thirty (30) days prior written notice to Floyd.

1.23.1 Other Provisions

The insurance policies required by the Contract shall contain, or be endorsed to contain, the following provisions:

1. Floyd, its officers, agents, servants and employees, shall be added as "additional insureds" under the Comprehensive General Liability and Automobile Liability Coverages.

2. The Workers' Compensation and Employer's Liability coverage shall contain an express waiver of all rights of subrogation against Floyd, its officers, agents, servants, and employees, for losses arising from work performed by the Contractor for Floyd.

3. All insurance policies required by this Contract shall be endorsed to state that coverage shall not be suspended, voided, canceled by either party, or reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail has been given to Floyd.

1.23.2 Acceptability of Insurers

All insurance required by this Section shall be placed with insurers that are authorized to do business in the State of Georgia and have a rating of no less than A- in the most current edition of the A.M. Best Insurance Report. Insurers shall have a minimum financial size category of VIII according to A.M. Best.

1.23.3 Certificates of Insurance

The Contractor shall furnish to the Floyd County Certificates of Insurance affecting coverage required by this Contract. The certificates are to be signed by a Georgia licensed agent authorized by that insurer to bind coverage on its behalf and endorsements. The certificates and endorsements must be received and approved by Floyd County prior to the Contract's effective date.
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1.24 Indemnity

Indemnity shall be negotiated with the apparent responsive and best Proposer as part of Contract negotiations.

1.25 Performance and Payment Bonds

A Performance Bond in the amount of one hundred percent (100%) of the Contract Price shall be provided by the Contractor in the event the Proposer is awarded a contract. The Performance Bond shall be exercised by Floyd County for failure of the Contractor to perform according to the terms of the Contract and this Specification.

A Payment Bond in the amount of one hundred percent (100%) of the Contract price shall be provided by the Contractor. The Payment Bond submitted must be from a surety company authorized to do business in Georgia with a rating of A- or better in the most current edition of the A.M. Best Insurance Report. The Payment Bond must be countersigned by a Georgia licensed agent authorized to represent the surety company writing the Payment Bond. That agent's power of attorney must be attached to the Payment Bond submitted.

The cost of these Performance and Payment Bonds are the responsibility of the Contractor.

Bonds shall be executed on statutory forms acceptable to the Floyd County. They shall be maintained in force through completion of the work and its acceptance by Floyd County and the Consultant. They shall guarantee the Contractor's remedying any defects and damages due to faulty workmanship and/ or material for one year after the date of Final System Acceptance.

The Surety Company issuing bonds in connection with this project must be approved by the client and authorized to do business in the State of Georgia. All bonds must be presented prior to Contract execution.

1.26 Certificate of Ethics

Proposers are required to provide a Certificate of Ethics acceptable to the Floyd County Procurement policy stating that no commission or any other compensation has been or will be paid to Consultant or to Floyd County or its employees in regards to the selection and purchase of this radio communications network.

1.27 Proposal Pricing Summary Sheets

Proposers shall provide detailed price breakdown submittals for infrastructure and subscriber equipment items, system integration/project management and installation/engineering services. Additionally, Proposers shall furnish a Proposal Summary Sheet for each of the two required Price Proposals. The entries on the Proposal Summary Sheets must agree with the same entries provided elsewhere in the Proposer's Response to these Specifications. In the event of any discrepancies, and not as a result of simple arithmetic of submitted prices, the lowest figure will prevail. Any errors or omissions in submitting pricing for the equipment or services shall be the responsibility of the Proposer.
1.28 Non-Collusion Affidavit

If the following affidavit on Page 21 is not properly executed and notarized, your Proposal Response will not be considered:

NON-COLLUSION AFFIDAVIT

STATE OF_________________
COUNTY OF________________
________________________________________, Being first duly sworn, deposes and says that:

(1) Executor is (Owner) (Partner) (Officer) (Representative) or (Agent), of __________________________, the Proposer that has submitted the attached Proposal Response:

(2) Such Proposal Response is genuine and is not a collusive or sham Proposal:

(3) Neither the said Proposer nor any of its officers, partners, owners, agents, representatives, employees or parties of interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly, or indirectly with any other Proposer, firm or person to submit a collusive or sham Proposal in connection with the Contract for which the attached Proposal Response has been submitted or to refrain from proposing in connection with such Contract, or has in any manner, directly or indirectly sought by agreement or collusion or communication or conference with any other Proposer, or to fix any overhead, profit or cost element of the Proposer price or the Proposer price of any other proposer, or to secure through any advantage against Floyd County, Georgia or any person interested in the proposed Contract; and

(4) The price or prices quoted in the attached Proposal Response are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Proposer or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

________________________________________

Subscribed and sworn to, this _____________ day of ________________, 201____.
1.29 Brokerage Fee

The Contractor warrants that he has not employed any person to solicit or secure this Contract upon an agreement for a commission, percentage, brokerage or contingent fee. Breach of this warranty shall give Floyd County the right to terminate the Contract, or, at the discretion of Floyd, to deduct from the Contract price or consideration, the amount of such commission, percentage, brokerage or contingent fee. This warranty shall not apply to commissions payable by contractors upon contracts or established commercial or selling agencies maintained by the Contractor for the purpose of securing business. No elected official or employee of Floyd County, Georgia shall be permitted to share any part of this Contract or any benefit that may arise therefrom, and any contract made by Floyd County in which such individual(s) shall be personally interested shall be void, and no payments shall be made thereon by Floyd County or any officers thereof.

1.30 Conflict of Interest

In the interest of ensuring that efforts of the Contractor do not conflict with the interests of Floyd, and in recognition of the Contractor's professional responsibility to Floyd, the Contractor agrees to decline any offer of employment if its independent professional work on behalf of the County is likely to be adversely affected by the acceptance of such employment. The initial determination of such a possibility rests with the Contractor. It is incumbent upon the Contractor to notify Floyd County and provide full disclosure of the possible effects of such employment on the Contractor's independent, professional work on behalf of Floyd. Final decision on any disputed offers of other employment for the Contractor shall rest with Floyd.

1.31 Corporate Resolution

Proposal Response submittals must contain a Corporate Resolution or Power of Attorney authorizing and identifying agents to sign their Proposal or other documents as required by this Specification, the Floyd County Procurement Office or the State of Georgia. This Corporate Resolution or Power of Attorney must be certified and notarized.

1.32 Bid Bond

Proposal Response submittals must contain a five percent (5%) bid guarantee to be submitted with their Proposals. The bid guarantee shall consist of a firm commitment such as a Bid Bond, certified check, or other negotiable instrument accompanying the proposal as assurance that the Proposer will, upon acceptance of his proposal, execute such services as required. Such bid security shall be held by Floyd County until the earlier of the end of the proposal validity period, or award, or rejection of proposals, after which said securities will be returned to the unsuccessful Proposals.
2.0 Existing Network Configuration

2.1 General

Floyd County operates an enhanced E911 system and a conventional radio system, which was installed in the early 1960's. This system consists of a single tower and a shelter containing the base stations and repeaters on top of Mount Alto. Floyd County and the City of Rome agencies operate on VHF (Rome) and UHF (Floyd County) frequencies which cause difficulty within these jurisdictions.

The call signs of the existing VHF and UHF systems are as follows:

- KNCG426  Floyd County Police
- KNCG425  Floyd County Sheriff
- WPMT948  Floyd County Sheriff (Detention Center)
- WPMT477  Floyd EMS
- WPSJ241  Floyd County Animal Control
- WPXD408  Cave Spring Police & Fire
- WXP689  Cave Spring Public Works
- WPTZ995  Redmond EMS
- KRL288  Rome Fire
- KIC242  Rome Police

All of these agencies utilize a local communications shop to provide support for public safety and local government communications needs. Coosa Valley Communications (10 Bale Street, Rome, Georgia), maintains all of Floyd County's and most of Rome's radio equipment. Mr. Lamar Smith is the owner of Coosa Valley Communications and can be reached either by electronic mail (lamarcvc@bellsouth.net) or telephone (706-291-0034) if necessary.

2.2 Emergency Medical Services

Redmond EMS and Floyd EMS provide emergency and non-emergency pre-hospital care and transportation services for Floyd County. Redmond EMS and Floyd EMS also services parts of Polk County.

The EMS departments operate on the VHF repeaters (Redmond) and UHF repeaters (Floyd) located near the city at the summit of Mount Alto near Rome, Georgia. These EMS agencies operate a fleet of approximately 77 subscriber radio units. Each of the EMS personnel is assigned a portable radio and could potentially utilize the radio system at any given time. Each EMS vehicles is assigned a mobile radio.

Currently the EMS agencies have eight base stations throughout the County. Both EMS agencies use the radios nearly 95% of the time with cell phones and PDAs used the remaining 5% for non-emergency communications.
Radio dispatch services are countywide and both EMS services are dispatched from the County E911 Center. Since the radio traffic is principally on a small number of UHF band channels there is channel congestion. Occasionally some users do inadvertently interfere with on-going operations.

Functionally, EMS desires the following features: Unit ID display; Emergency call notification; automatic vehicular location, status/test messaging; and the radio disable feature. Additionally, the departments would prefer to retain on-scene communications ability via vehicular repeaters as this provide for both wide area (via main system linkage) and highest-reliability local area conventional coverage.

In terms of radio interoperability, EMS must maintain efficient, reliable communications with the Fire services. The EMS personnel currently interoperate with all emergency agencies in Floyd County. Outside Floyd County the EMS agencies need to interoperate with all surrounding counties. A separate air medical channel is desired, however, this operation can result in wide-spread communications interference.

### 2.3 Rome - Floyd County Fire Department

The Rome - Floyd County Fire Department provides fire protection to all of the City of Rome and all of Floyd County, except in the unincorporated area in the southwest part of the County around Cave Spring. The Department has 149 employees with ten stations. The dispatch function of the Rome - Floyd County Fire Department is provided by the Floyd County E911 Center.

The Rome - Floyd County Fire Department operates on the VHF repeaters located near the summit of Mount Alto near Rome, Georgia. The Department also operates a fleet of approximately 78 subscriber radio units. Each of the FD personnel has access to a portable radio and could potentially utilize the radio system at any given time. Portable radios are not assigned to individuals except in a few cases.

The Fire Department has a requirement for analog communications, particularly at fireground locations. To accomplish this, the Rome – Floyd County Fire Department has determined that they want to use an analog mode of communications as their proposed mode for fireground communications. This mode would be a simplex mode rather than using the infrastructure equipment at the tower sites.

An additional requirement is the ability to perform the Fire Station alerting to specific fire stations. This should be accomplished through a separate 800MHz analog system or through a separate IP network.

Functionally, the various fire departments desire those same features as identified by EMS: Unit ID display; Emergency call notification; automatic vehicular location, status/test messaging; and the radio disable feature. Additionally, the departments would prefer to retain on-scene communications ability via vehicular repeaters as this provide for both wide area (via main system linkage) and highest-reliability local area conventional coverage.

The Department regularly has the need for interoperable radio communications with all emergency agencies in the County, neighboring counties (Walker, Gordon, Bartow, Polk
2.4 Floyd County Police Department

The Floyd County Police Department is responsible for responding to all calls outside of the City of Rome and the City of Cave Spring. In addition, Floyd County Police are charged with the responsibility of patrolling parks within the City of Rome.

The Floyd County Police Department operates on UHF repeaters located near the summit of Mount Alto near Rome, Georgia. They also operate a fleet of approximately 208 subscriber radio units. All PD personnel are assigned a portable radio and could potentially utilize the radio system at any given time. Each vehicle is assigned a mobile radio. The Floyd County Police Department does not currently employ base stations.

The dispatch function of the Floyd County Police Departments is provided by the Floyd County E911 Center.

2.5 Floyd County Sheriff’s Office

The Floyd County Sheriff’s Office serves warrants, houses inmates in the detention center (820 inmates) and provides security for the courts. The Floyd County Sheriff’s Office has a staff of 153 full time personnel.

The Floyd County Sheriff’s Office operates on UHF repeaters located near the summit of Mount Alto near Rome, Georgia. In addition, the Sheriff’s Office operates a UHF repeater at the Jail. The Floyd County Sheriff’s Office operates a fleet of approximately 237 subscriber radio units. Each of the Sheriff’s Office personnel is assigned a portable radio and could potentially utilize the radio system at any given time. Each Sheriff’s Office vehicle is assigned a mobile radio.

The Sheriff’s Office has a dedicated repeater at the jail that is used for all communications of prisoner movements. This radio is hard wired to a number of base stations throughout the jail. This system will need to be replaced with an 800MHz analog repeater.

The Sheriff’s Office personnel currently interoperate with all emergency agencies in Floyd County to include the Rome PD, Floyd County PD, Cave Spring PD, Rome FD, both EMS departments, County Public Works, Rome Public Works, the Magistrate Court, the Metro Task Force, EMA and Animal Control.

Outside the county the Sheriff’s Office interoperates with other Sheriff agencies in the state. This is currently accomplished by using VHF radios that have access to the state band.

2.6 Rome Floyd Metro Task Force

The Rome Floyd Metro Task Force is a multiagency drug task force consisting of seven full time investigators and is tasked with enforcing the drug and vice laws in the City of Rome and Floyd County.
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The Rome Floyd Metro Task Force operates on UHF repeaters located near the summit of Mount Alto near Rome, Georgia. Each of the Task Force personnel is assigned two portable radios, one on the City’s VHF system and the other on the County’s UHF system. Each Task Force vehicle is assigned a mobile radio for each band. The Task Force does not currently utilize base stations.

The Metro Task Force personnel currently interoperate with all emergency agencies in Floyd County. This includes the Floyd County PD, Rome PD and the Sheriff’s Office.

Outside the county, the Metro Task Force would need to interoperate with The Georgia Bureau of Investigation, the DEA, FBI and ATF.

2.7 Floyd County E911 Center

The Floyd County E911 Center receives and dispatches all calls for service for most of the agencies in Floyd County.

The Floyd County E911 Center uses a RF link to the radio repeaters on Mount Alto. The Floyd County E911 Center personnel currently interoperate with all agencies in Floyd County, and with all agencies that communicate regularly with police, sheriff, EMA, EMS and fire services.

2.8 Floyd County Magistrate Court

The Floyd County Magistrate Court is tasked with serving papers for the jurisdiction of Floyd County and executing court orders.

The Court, like most agencies, operates on UHF repeaters located near the summit of Mount Alto near Rome, Georgia. They have been assigned a portable radio and could potentially utilize the radio system at any given time. Vehicles may already contain mobile radios from other agencies.

The Magistrate Court personnel currently interoperate primarily with the Rome PD, Floyd County PD, the Sheriff’s Office and Animal Control.

Outside the county the Magistrate Court does not need to interoperate with any agency.

2.9 Floyd County Prison

The Floyd County Prison Department is responsible for housing and supervising 448 inmates that perform work in Floyd County. The department also operates a work release center which is capable of housing 100 residents. Currently the Floyd County Prison Department has 70 employees.

The Floyd County Prison Department operates on UHF repeaters located near the summit of Mount Alto near Rome, Georgia. The Floyd County Prison Department operates a fleet of approximately 53 subscriber radio units. Each of the Prison personnel is assigned a
portable radio and could potentially utilize the radio system at any given time. The Floyd County Prison Department does not utilize base stations.

The Prison Department does have inmates on work details around the county and utilizes a prisoner count when prisoners are on the work detail. These prisoner counts take place over the air and are conducted at 10AM, Noon and 2PM. Prison personnel are therefore required to carry a radio.

The Floyd County Prison has a need for an 800MHz analog repeater that can be used for all communications of prisoner movements, similar to the Floyd County Jail. Currently the Floyd County Prison does not have a radio repeater. This new radio system should be hard wired to a number of base stations throughout the prison. This system should also be an 800MHz analog repeater.

The Prison Department personnel currently interoperate with all emergency agencies in Floyd County including the Floyd county PD, Rome PD, the Sheriff’s Office as well as County and City Public Works.

There are no agencies outside the county that the Prison would need to interoperate with.

2.10 Rome Police Department

The Rome Police Department provides police services for a population of approximately 35,000 with a daytime population of 50,000 plus. The department performs patrol, traffic stops and investigations of crimes of persons and property inside the City of Rome.

The Rome Police Department operates on VHF repeaters located near the summit of Mount Alto near Rome, Georgia. The Rome Police Department operates a fleet of approximately 210 subscriber radio units. Each of the PD personnel is assigned a portable radio and could potentially utilize the radio system at any given time. Each Floyd County Police Department vehicle is assigned a mobile radio. The Rome Police Department does not utilize base stations.

The Rome Police Department is currently using mobile data and will need additional bandwidth in the future for streaming video.

The Rome Police Department personnel currently interoperate with emergency the Floyd County PD and Rome FD. There are no agencies outside Floyd County, at this time that the Rome PD needs to communicate with.

2.11 City of Cave Spring

The City of Cave Spring provides its own Fire, Police, and Emergency Services in addition to having its own Water department and Maintenance Department. The City of Cave Spring does provide extraterritorial Fire and Water services.

The City of Cave Spring operates on VHF repeaters located near the City of Cave Spring, Georgia. The City of Cave Spring operates a fleet of approximately 77 subscriber radio units. Each of the City of Cave Spring personnel is assigned a portable radio and could potentially
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utilize the radio system at any given time. Each of the City of Cave Spring vehicles is assigned a mobile radio.

Currently the City of Cave Spring has a base station at the Fire Department and one at the Police Department. A new one is needed at City Hall.

The City of Cave Spring personnel currently interoperate with emergency agencies in Floyd County including the Floyd County PD, Rome-Floyd FD and the Floyd County Sheriff’s Office. In addition, Cave Spring Fire has a mutual aid agreement with the Rome-Floyd Fire.

Outside Floyd County the City of Cave Spring needs to interoperate with Polk County, GA and Cherokee County, AL.

The City of Cave Spring has a separate VHF repeater in Cave Spring that is primarily used by the Fire Department.

2.12 Floyd County EMA

The Floyd County EMA is the coordinating agency for emergency response in the City of Rome and Floyd County. The department has two full time employees and 50 volunteers. The Floyd County EMA has the capacity to operate on all of the repeaters located near the summit of Mount Alto near Rome, Georgia. The Floyd County EMA operates a fleet of approximately 35 subscriber radio units. Each of the Floyd County EMA vehicles is assigned a mobile radio.

Currently the Floyd County EMA does utilize one base station.

EMA needs to interoperate will all agencies on the radio system, both inside the county and outside the county. The County EMA agency will most likely be the department to maintain the radio system.

2.13 The non-public safety agencies

The non-public safety agencies for Rome and Floyd County are Animal Control, the Floyd County Board of Education, Floyd County Public Works, the Floyd County Water Department, Rome Public Works, the Rome-Floyd Parks and Recreation Authority, Rome Water and Sewer, Rome Transit and Rome Board of Education.

The majority of these agencies operate on the UHF and VHF repeaters located near the summit of Mount Alto near Rome, Georgia. These agencies also operate a fleet of approximately 444 subscriber radio units. Rome-Floyd Parks and Recreation Authority, Rome Public Works, Floyd County Public Works, and Animal Control will have to have contact with the prison dispatchers and E911. There are no agencies that needed to communicate with agencies outside of Floyd County.

Attachment A contains an Interoperability Matrix covering all the agencies inside of Floyd County and how they should interoperate with each other. Attachment D contains subscriber radio quantities that are needed per agency.
3.0 Identified User Needs

3.1 General

The Floyd County, Georgia has operated a legacy VHF/UHF analog conventional networks supporting public safety users for over 20 years. The issues with this system are interoperability, call waiting and radio propagation coverage. As a result of the lack of interoperability and coverage County firefighters, sheriff’s deputies, medical responders, police and the E911 dispatchers had to resort to relaying messages through whoever could hear the call in other agencies or by depending on cell phones instead of their radios. This event underscored the difficulties in coordinating efforts between agencies in areas of the county where there is little to no radio communications coverage. These capacity and coverage deficiencies must be resolved by the newly proposed 800 MHz P-25 compliant radio network.

A full description of the network’s current configuration is described by the Specification Document in Section 2. Proposers are strongly encouraged to thoroughly review that information and to conduct as many on-site inspections as necessary to gain a comprehensive understanding of existing-network performance. It is critically important to the success of this digital P-25 project that Proposers have a clear understanding of expectations and to propose a comprehensive set of equipment and services that fully satisfy and expand upon this network’s baseline level of performance.

3.2 Public Safety Needs

3.2.1 Talk Paths

Each of the Public Safety agencies utilizes individual analog conventional channels that are optimized for existing operations. Additionally these agencies share several channels that allow for some interoperability between agencies during special events and local-area emergencies. For the purpose of this RFP, Proposers shall develop new profiles, plus a nearly 100% future growth factor, in the development of their proposed solution.

3.2.2 Automatic Telephone Interconnect

The new system shall incorporate a limited number of telephone gateways and telephone-interconnect features for emergency operations use. Limitations must include the ability to dynamically control the total number of lines available, priority allocation by user, and call duration restrictions according to user priority. In addition, the availability of telephone interconnect features shall be continuously monitored and controlled by the County radio network manager. That is, as dispatch-traffic activity increases on the system, the availability of telephone interconnect features must correspondingly be restricted. This shall be accomplished in such a manner that degradation in system access time is solely a function of the total number of users attempting to pass voice traffic at a given period in time and not a result of channels dedicated to telephone transactions. The telephone interconnect feature is considered of significantly lesser importance to clear or encrypted voice communications.
For the purpose of sizing the telephone interconnect subsystem’s hardware components, a maximum of four simultaneous telephone interconnect calls shall be supported.

3.2.3 Call Privacy

Floyd’s existing VHF/UHF analog conventional radio network is intrinsically open to transmission monitoring with any radio equipment operable on those VHF/UHF frequencies (i.e., scanning receivers, etc...).

The ability to monitor in certain instances is desirable and encouraged. Dispatchers, in addition to their normal dispatch function can also monitor unit-to-unit traffic. This ability to monitor allows the dispatcher to develop a mental picture of ongoing operations. In times of emergency, where public safety personnel may need outside assistance, the dispatcher often has heard and remembered information critical to personnel safety that would otherwise have been unavailable.

Likewise, field users can hear on-frequency traffic and modify their use of the radio as conditions dictate. As an example, when emergency calls are in progress, channel protocol would require users to refrain from lower-priority transmissions. Competition for air-time may increase, but users moderate calls, both in frequency and duration, in response to simply hearing more channel activity. In such a situation, the ability to monitor is desirable.

In the present analog conventional VHF/UHF radio system, it is impossible to control who monitors calls outside of the network. Command and investigative conversations may involve topics of a legally restricted or sensitive nature where eavesdropping by outside, unidentified persons is undesirable or unacceptable.

Accordingly, the new digital voice radio network shall include provisions for call privacy whereby identified users within the network can be excluded from certain talk groups or individual conversations. This provision must offer sufficient flexibility such that the desirable features of monitoring can be retained while permitting privacy to conversations that are potentially confidential. Finally, the new network shall incorporate technical features that prevent unauthorized listeners from monitoring any network calls. Ideally, the new network should inhibit the ability of non-network users from monitoring actual voice transmissions of any type (inclusive of telephone interconnect calls) as well as preventing such persons from monitoring those call assignments transacted via the network’s digital control channel.

Proposers shall describe the scope and operation of such provisions inherent within their proposed solution that prevent the types of undesired radio monitoring discussed above.

3.2.4 Encryption

Digital voice encryption, using Improved Multi-band Excited (IMBE) vocoder technology coupled with federally approved digital encryption schemes, is a required feature of the new network.
Three modes of encrypted digital voice operation are desired:

1. Unit-to-unit, where conversations in an encrypted talk group are secure. These cannot be monitored at a dispatch or control point.

2. Dispatcher-to-unit, where conversations between the County’s E911 Center, future Backup 911 Center and field units are secure.

3. Unit-to-telephone network, where conversations between encrypted units and the switched telephone network are secure.

The new network shall provide encrypted transmission so that system access delays are equal to those in the clear mode. Encrypted transmissions shall not degrade the operation of clear-voice features nor lengthen system access or audio transport delays to other users. Encryption shall not degrade the range or coverage less than normal digital performance.

3.2.5 End User Equipment

It is the County's intention to purchase a fully P-25 800MHz network. Proposers shall demonstrate such P-25 compliancy by demonstrating at a minimum, three different manufacture's radios work on the P-25 system. These approved radios will then be made available to the different services.

Police communications needs have generally shifted from patrol car based, with equipment fixed within vehicles to patrolman based where portable equipment is assigned to individual officers. These same user trends exist within the Fire Service and related public safety agencies.

This migration to portable units, with their reduced output power and often-degraded antenna performance, has placed greater technical demands on radio communications network infrastructures. The coverage needs for mobile-based systems are relatively straightforward as the available effective radiated power from a mobile unit can closely approach that of a base station. Talk-in/talk-out balance can thus be easily achieved with simple backbone system configuration.

Portable radio coverage problems are further compounded by the fact that users often operate within radio-resistant areas such as warehouses, office buildings, apartment structures and single-family dwellings. The need for reliable communications within building structures requires increased talk-in/talk-out system gain.

Further complicating the design of portable-based systems are desired mechanical and ergonomic features, as summarized below:

1. The radio package, itself, must be simple to operate and have a minimum of operator controls or feature selections.
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2. Radios contain a microphone, speaker, talk group selector, volume control, power switch, emergency button, and normal transmit push-to-talk button. All of these input/output devices are subject to near-constant physical abuse within a public safety environment.

3. User must be able to disable message authorization tones.

4. The volume control must be fully adjustable from zero to maximum audio output level.

5. Unit must be extremely rugged to withstand shock and vibration typical of public safety operations. For the Fire Service, other features such as Intrinsically-Safe operation and the ability for the equipment to survive short-term water submersion are required.

6. Units must be operable, within the coverage requirements of Section 7.0, using the smallest flexible antenna available.

7. Radio unit battery packs must operate to provide sufficient power for a full twelve-hour work period. A range of accessories must be available for support in-field battery charging.

8. Radio units must be equipped with alphanumeric displays to more readily identify selected talk groups and operating modes, i.e. clear voice, encrypted voice, etc.

9. Radios must be capable of operation with traditional speaker/microphones as well as sub-miniature radio surveillance accessories.

10. In addition to the specific desired features indicated above, all furnished equipment must meet minimum equipment requirements identified in Section 5.0.

11. Floyd County desires programmable front buttons and some sort of status message.

12. Floyd County requires a backlit display as a standard feature on all portable and mobile subscriber equipment.

3.2.6 Interoperability

As this new network’s coverage footprint will duplicate or partially overlap outside-of-network agency radio communication systems, direct unit-to-unit interoperability is a desired feature. Special talk groups must be provided so that certain public safety users can have access to outside-agency radio networks, regardless of frequency band or communications technology in place.

The methodology of network access is to be accomplished by transparent radio and/or audio links (computer controlled) where the need for linkage is frequent. In those cases where the need for interoperability is relatively infrequent, links can be established manually by the E911 Center or the backup 911 Center. In any case, proposed interoperability linkage
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systems shall be configured such that multiple and successive, narrow bandwidth vocoder schemes are avoided. This is necessary to prevent excessive audio quality degradation as is the cumulative effect of multiple and successive IMBE/AMBE vocoding.

Surrounding Networks:

- Walker County, Georgia
- Gordon County, Georgia
- Bartow County, Georgia
- Polk County, Georgia
- Chattooga County, Georgia
- Cherokee County, Alabama
- Georgia Forestry Commission
- Georgia State Patrol
- Georgia Bureau of Investigation
- Georgia Department of Natural Resources
- Berry College
- Drug Enforcement Administration
- Federal Bureau of Investigation
- Bureau of Alcohol, Tobacco, Firearms and Explosives
4.0 Minimum Operative Characteristics

4.1 General

Section 3.0, Identified User Needs, described the minimum functionality required by the County's various user agencies. In this Section, channel usage characteristics for departments now operable on Floyd's analog conventional VHF/UHF radio networks, will be presented. From this information Proposers can better determine the scope of services needed to satisfy talk group structure requirements for this project.

4.2 Public Safety Departments

The Floyd County Police, Fire, and EMS have utilized the existing analog radio system for many years. During that time, the various channel structures for each have been modified to better suit individual department needs.

Proposers should assume that the current channel assignment/usage will be replaced with the new digital radio network with an entirely different trunked radio talkgroup structure. Attachment A contains an Interoperability Matrix covering all the agencies inside of Floyd County and how they should interoperate with each other.
5.0 Minimum Equipment Requirements

This Section describes the minimum-acceptable requirements for mobile, portable, control station, and fixed-site radio. All radio equipment installed by Contractor shall be FCC type accepted under Part 90 of the FCC Rules and Regulations. Additionally, all supplied equipment shall be in current production and shall meet or exceed the requirements of this Section.

Base station/repeaters shall support APCO Project-25 Phase I and Phase II modulation formats and shall support trunked mobile data technology. If substantial upgrading is involved to support trunked mobile data operations, Proposers shall clearly identify what will be required to "upgrade" a repeater to support mobile data computing and supportive application software. Proposers shall be specific in their responses and shall avoid ambiguous statements such as "digital capable, digital ready", P-25 capable", etc.

The stated minimum requirements, below, for end-user equipment will not necessarily be required on all individual units assigned to differing user agencies. Section 16.0, Pricing Considerations contains those user radio configurations required for each agency/department.

5.1 Mobile Radio Equipment

A. Meet APCO minimum recommendations and EIA/TIA standards for Project-25 Public Safety 700/800MHz trunked radio systems. Furnished equipment must be operable on both Phase I and Phase II infrastructures.

B. Incorporate heavy-duty construction, weather-sealed enclosures and weather-sealed controls to meet Military Standard 810 C, D, E and F for water, shock, vibration, dust, humidity and high/ low temperature performance.

C. Allow operations on P-25 trunked and conventional (analog/P-25) systems with priority scan of talk groups or channels.

D. Front mount and rear mount, dual control-head with single rear mount radio and dual radios with single control-head configurations must be available to meet the needs of the different public safety departments. Rear mount radios may require weatherproof control heads, speakers, microphones and other accessories (specific for fire operations). Dual-band mobile radio configurations (using one control head/speaker/microphone to simultaneously control two mobile radio transceivers) must be available to allow 800MHz trunked/800MHz conventional; VHF/800MHz; UHF/800MHz or VHF/UHF operations, depending upon the types of radio transceivers employed.

E. Incorporate electronic, backlit alphanumeric displays (minimum of eight characters) to provide visual indication of system availability, channel/talk group
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selection, incoming user ID, call alerts and operational status such as scan and channel busy.

F. Emergency priority button on mobile radio control panels to initiate an emergency priority call.

G. External alarm dry-contact closure to provide activation of a horn, light, etc. whenever the radio unit is individually called.

H. Data transmission capability.

I. Digital voice encryption, using P-25 Phase I and Phase II vocoder technology and federally approved AES/DES coding, to provide security during transmission and reception of sensitive communications.

J. Radio operating information shall be contained in an electrically erasable memory device. Unit will be fully programmable from an IBM-compatible computer. Sufficient quantities of programming cables shall be part of the delivered equipment.

K. Transmit Time-Out Timer to warn the user of excessive transmission length. Time out timer should automatically disable the radio’s transmitter after a predetermined period; thereby eliminating talk group/channel interference caused by either a defective speaker/microphone or PTT button.

L. Minimum Electrical Specifications as follows:

   Channel Capacity: 24 channels/system (8-systems/tiers, min.)
   Talk Group Capacity: 16, minimum, per system
   Primary Input Voltage: 11 to 16VDC, negative ground
   Battery Drain: Standby: 1.5 amperes, max.
   Receive: 4.0 amperes, max.
   Transmit: 15.0 amperes, max.
   Environmental: MIL-STD 810 C, D, E and F for shock, vibration, humidity and high/low temperature.

Transmitter

   Frequency Range: 764 to 870MHz (standard post rebanding public safety frequencies)
   Channel Capacity: 24 channels per system (8 systems, min)
   Talk group Selection: 16 talk groups per system
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RF Output Impedance: 50 ohms

Output Power: Sufficient power to achieve required coverage, not less than 10 watts.

Channel Spacing: 25/12.5/6.25 KHz/NPSPAC

Spurious/Harmonic: At least 64db below carrier

Frequency Stability: 1.5 PPM from -30°C to 60°C

Modulation: 11K0F3E; 8K10F1E; 16K0F3E; 8K10F1D

Modulation Deviation: +/- 5KHz for 25KHz Channel
  +/- 2.5KHz for 12.5KHz Channel
  +/- 3KHz for NPSPAC

Audio Distortion: Less than 5% @ 1 KHz

Audio Response: +1, -3db of a 6dB/octave pre-emphasis characteristic from 300 Hz to 3 KHz.

Duty Cycle (EIA): Transmitter 20%

FM Hum and Noise: -40db

Receiver

Channel Capacity: 24 channels per system (8 systems, min)

Channel Spacing: 25/12.5 KHz/6.25KHz; NPSPAC

Sensitivity:
20db Sinad  0.50 microvolts
5% BER  0.50 microvolts

Selectivity:  -70db

Frequency Stability:  1.5-PPM from -30° to 60°C

Modulation Acceptance:  +/-7KHz

Intermodulation:  -70db

Spurious/Image:  -70db
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Audio Output: 10 watts, no more than 3% distortion at 1KHz

Duty Cycle (EIA): Receiver 100%

5.2 Portable Radio Equipment

A. Meet APCO minimum recommendations and EIA/ TIA standards for P-25 Public Safety 700/800MHz trunked radio systems. Furnished equipment must be operable on both Phase I and Phase II infrastructures.

B. Heavy duty construction and weather-sealed cases to meet Military Standards 810 D, E and F for shock, vibration, dust, humidity, high/low temperature and blowing rain.

C. Allow operations on P-25 trunked and/ or conventional (analog/ P-25) systems with priority scan of talk groups or channels.

D. Top-mounted rotary controls with positive stops for volume and channel selection. Control placement must be sufficient to allow gloved-hand operation, as is typically needed by the fire service.

E. Incorporate electronic, alphanumeric (minimum eight-character) backlit display to provide visual indication of system availability, channel/talk group selected, incoming user ID, call alerts and operational status such as scan, transmit or low battery.

F. Transmit Time-Out Timer to warn the user that the radio may be transmitting longer than a predetermined time limit and then disable the transmitter.

G. No protruding push-to-talk switch, thereby preventing accidental transmitter operation or damage to the switch as caused by impact.

H. Protected emergency button to allow easy access when needed but incorporating an ergonomic design whereby the emergency function could not be accidentally activated.

I. An accessory receptacle shall be provided for the connection of external devices such as remote microphones or combination remote speaker/microphone units (with or without antenna), vehicular adapters and mobile data computer equipment.

J. Radio operating information shall be contained in an electrically erasable memory device. Unit will be fully programmable from an IBM PC compatible computer, via the accessory receptacle. Sufficient quantities of programming cables shall be part of the delivered equipment.

K. Portable radios, batteries and accessories (used by the fire service) proposed must be approved by Factory Mutual as intrinsically safe for the following hazardous environments: Class I and II Division I, groups C, D, E, F and G and non-incentive for Class I, Division 2, Groups A, B, C and D.
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L. Carrying case options should include leather-carrying case with swivel mounts, as well as chemical-resistant cases (nylon or similar plastic material) for use by hazardous material groups. Additionally, a quantity of battery belt clips should be included to match the number of non-public safety portable radios supplied for all agencies.

M. Optional surveillance accessories such as miniature microphones, earpieces and remote microphones and headset speaker microphones must be available.

N. Digital voice encryption, using Improved Multi-Band Excited (IMBE) vocoder and federally approved AES/DES coding, to provide enhanced security during transmission and reception of sensitive communications.

O. Provide single-unit 120VAC rapid charger capable of fully charging a discharged high capacity battery pack within a one-hour period. Provide optional single-unit 12VDC rapid charger for vehicular operation.

P. Battery shall operate the proposed radio equipment a minimum of twelve-hours using a duty cycle of 5% transmit, 5% receive and 90% standby.

Q. Radios must be operable on new rebanded 800MHz NPSPAC frequencies as well as 700/800 MHz conventional and trunked frequencies.

R. User programmable audio alert in the event of loss of control channel. Must be a standard feature in present and all future-proposed public safety models.

S. Minimum electrical specifications as follows:

- **Channel Capacity:** 24 channels/system (8-systems/tiers, min.)
- **Talk Group Capacity:** 16 talk group/system
- **Duty Cycle:** Intermittent
- **Temperature Range:** -30°C to +60°C
- **Humidity:** 95% relative humidity @ 50°C
- **Shock, Vibration, Humidity:** Shall meet or exceed MIL STD 810 C, D, E and F for High/low temperature and blowing rain.
- **Frequency Range:** 764 to 870MHz (standard post rebanding public safety frequencies)
- **Talk group Selection:** Rotary-knob style
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Transmitter

Frequency Range: 764 to 870MHz (standard post rebanding public safety frequencies)

RF Output Impedance: Sufficient power to achieve required coverage, but not less than 2.5 watts.

Frequency Stability: 1.5-PPM from -30°C to +60°C

Modulation Deviation: +/-5KHz for 25KHz Channel  
+/-3KHz for NPSPAC

Emissions: 11K0F3E;8K10F1E;16K0F3E; 8K10F1D

Audio Response: Within +1, -3db of a 6db/octave

Audio Distortion: Less than 5% @ 1 KHz, rated system deviation

Spurious/Harmonic: -50db

FM Noise: -40db

Receiver

Frequency Range: 764 to 870MHz (standard post rebanding public safety frequencies)

Channel Spacing: 25/12.5/6.25 KHz/NPSPAC

Mod. Acceptance: +/-7KHz

Selectivity: -70db (25KHz channel)

Sensitivity: 20 db Quieting  
5% BER  0.5 microvolts  
0.5 microvolts

Intermodulation: -70db

Spurious/Image: -70db

Frequency Stability: 1.5-PPM from -30° to +60°C

Audio Output: 500 milliwatts @ no more than 3% distortion
5.3 Control Station Equipment

A. Available either as integrated 120VAC-powered desktop radio cabinet or a remotely located, AC-powered radio package with separate remote control unit.

B. Control station and control unit shall have optional provision to operate from standby 12VDC source upon failure of AC power.

C. Provision shall be provided for local and remote control operation of the control station.

D. Meet APCO minimum recommendations and EIA/TIA standards for P-25 Public Safety 700/800MHz trunked radio systems. Furnished equipment must be operable on both Phase I and Phase II infrastructures.

E. Allow operations on P-25 trunked and conventional (analog/ P-25) systems with priority scan of talk groups or channels.

F. Digital voice encryption, using Improved Multi-Band Excited (IMBE) vocoder and federally approved AES/DES coding, to provide enhanced security during transmission and reception of sensitive communications.

G. Incorporate electronic, alphanumeric displays (minimum of eight characters) to provide visual indication of system availability, channel/talk group selection, incoming user ID, call alerts and operational status such as scan and channel busy.

H. Transmit Time-Out Timer to warn the user that the radio may be transmitting longer than a predetermined time limit and then disable the transmitter.

I. Control station packaging shall incorporate sufficient electro-magnetic shielding of radio and power supply components to allow multiple control stations to be located at the same site without causing unit-to-unit interference.

J. Proposed control station radios must be operable on new rebanded 800MHz NPSPAC frequencies as well as 700/800MHz conventional and trunked frequencies.

K. Minimum electrical specifications as follows:

   Channel Capacity: 24 channels per system (8 systems/tiers)

   Talk Group Capacity: 16 talk groups per system/tier, minimum

   RF Power Output: Sufficient power to provide required radio coverage, but not less than 10 watts.

   Primary Input Voltage: 120VAC, 60Hz, single-phase with 3 conductor grounded line cord.

   Optional Battery: 12VDC designed for 4-hrs operation
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Shock and Vibration: MIL STD 810 C, D, E & F

Frequency Range: 764 to 870MHz (standard post rebanding public safety frequencies)

Transmitter

Frequency Range: 764 to 870MHz (standard post rebanding public safety frequencies)

Talk group Selection: 16 talk groups per system

RF Output Impedance: 50 ohms

Channel Spacing: 25/12.5/6.25 KHz; NPSPAC

Spurious/Harmonic: At least 70db below carrier

Frequency Stability: 1.5 PPM from -25°C to 60°C

Modulation: 11KOF3E; 16KOF3E; 8K10F1E; 8KF10D

Modulation Deviation: +/-5KHz for 100% @ 1KHz

Audio Distortion: Less than 3% @ 1KHz

Audio Response: +1/-3dd of a 6db-per-octave pre-emphasis characteristic, 300Hz to 3KHz.

Duty Cycle (EIA): Transmitter 20%

Receiver

Frequency Range: 764 to 870MHz (standard post rebanding public safety frequencies)

Channel Capacity: 24 channels per system (8 systems, min.)

Channel Spacing: 25/12.5/6.25 KHz/NPSPAC

Sensitivity:

EIA SINAD (20 dB) 0.50 microvolts
5% BER 0.50 microvolts

Selectivity: -70db
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Frequency Stability: 1.5 PPM from -25° to 60°C

Modulation Acceptance: +/-7KHz

Intermodulation: -70db

Spurious/Image: -75db

Audio Output: At least 1.5 watts, no more than 3% distortion at 1KHz

Duty Cycle (EIA): Receiver 100%

5.4 Fixed Site Equipment Radio

A. Meet APCO minimum recommendations and EIA/TIA standards for P-25 Public Safety 700/800MHz trunked radio systems. Furnished equipment must be operable as a combined Phase I and Phase II infrastructure.

B. Equipment must comply with FCC Part 90 Rules and Regulations for stability, deviation, spurious and harmonic emissions.

C. Base/repeater stations shall be designed for continuous-duty, 100% operation at full manufacturer's specification.

D. Infrastructure shall incorporate site monitor and infrastructure alarm systems having the ability to report major/ minor infrastructure functionality alarms on multiple dispatch-located alarm console display devices. Additionally, the alarm reporting system shall have the capability of being remotely accessed for the monitoring and remote-interrogation of field/site related alarms, using a laptop configuration from any node within the network.

E. All transmitter sites shall utilize 48VDC or 24VDC battery backup subsystems sized for a minimum 8-hour full load capacity and must include auto/transfer natural gas/LPG or diesel fueled standby generator systems.

F. The proposed infrastructure shall include a "Fail-Soft" trunking scheme designed to maintain network performance as critical site components fail. Proposed network solutions must be fault tolerant with redundant levels of computer hardware/software, as necessary, to maintain trunked operation during equipment failures.

G. System infrastructure equipment shall support special services, i.e. encrypted voice, data transmission, multiple Computer Aided Dispatch (CAD) system interfaces, Automatic Vehicle Location (AVL) interfaces, telephone interconnect, audio recording of talk groups, and collection of system operational data.

H. The proposed infrastructure solutions shall have the ability to be expanded, without having to replace previously-installed like equipment. The proposed infrastructure hardware must be configured to readily accept the installation of additional infrastructure sites above
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that included in the Proposer's design, to accommodate future population expansion and growth within the County.

I. Minimum electrical specifications as follows:

Number of Frequencies: One transmit; one receive

Power Input: Configured for either 48VDC or 24VDC operation per Section 6.2.3.1.

Operating Temperature: -30°C to +60°C

Humidity: 95 % relative humidity @ 50°C (typical)

Duty Cycle: 100 % Continuous Operation

Transmitter

RF Power Output: Sufficient power to achieve desired coverage, but not less than 100 watts.

RF Output Impedance: 50 ohms

Frequency Stability: 0.001PPM from -30°C to +60°C ambient. Referenced to GPS-disciplined local oscillator frequency standard.

Emission Designator: 11K0F3E;8K10F1E;16K0F3E; 8K10F1D

Audio Response: Within +1, -3db of a 6db per-octave pre-emphasis from 300Hz to 3KHz, per EIA standards.

Audio Distortion: Less than 2% @ 1KHz

Spurious/Harmonic: More than 70db below carrier.

Modulation Deviation: 0 to +/-5KHz P-25 Compliant per TIA 102 CAAB

Frequency Range: 764 to 870MHz (standard post rebanding public safety frequencies)

FM Hum and Noise: -55db below carrier, or better

Receiver

Frequency Range: 764 to 870MHz (standard post rebanding public safety frequencies)

Channel Spacing: 25/12.5/6.25 KHz; NPSPAC

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Mod. Acceptance: +/-7 KHz minimum

Frequency Stability: 0.001 PPM from -30° to +60°C ambient. Reference to GPS-disciplined local oscillator frequency standard in simulcast configurations.

Sensitivity:
20 dB Quieting  Less than 0.5 microvolts
5 % BER        Less than 0.50 microvolts

Selectivity: -70db minimum

Intermodulation: -80db

Spurious/Image: -80db

Audio Output: 1-watt into 8-ohms with no more than 5% distortion at 1KHz (for local speaker) 600 Ohm line level output, adjustable -20 to +3dBm.

5.5 Fixed Station Equipment Microwave Requirements

A. Digital voice/data technology shall be used to minimize audio-phase delays and/or incompatibility of audio levels within the proposed network solution. Where VoIP techniques are used to interconnect infrastructure sites, in lieu of traditional PCM multiplex channel schemes, a robust means shall be provided thereby assuring that the highest priority possible is given to voice packet delivery.

B. Redundant transmit, receive and base band equipment for each site, configured for automatic hot standby operation, shall be provided. This redundant equipment must automatically switch to the hot standby component(s) upon failure of the primary equipment. Loop-switched configurations, where proposed, shall also incorporate monitored hot standby radio components.

C. A Microwave Alarm System shall be provided to monitor microwave site functions and to provide alarm status of abnormal operational parameters of equipment associated with the microwave system.

D. An order wire channel with individual site handsets must be provided to link all microwave locations for testing and troubleshooting.

E. A separate 24VDC or 48VDC microwave standby battery system shall be provided and sized for 24-hours of continuous microwave/multiplex equipment operation at each infrastructure site. An automatic low-voltage disconnect system shall be employed to protect the battery plant from deep-cycle discharge damage.

F. The proposed microwave subsystem system shall be initially configured for 100% excess capacity to allow for future radio communication needs.
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G. The operating frequency for the microwave system shall be no higher than 18GHz. All
FCC frequency coordination, license application preparation and engineering activities
associated with the development of the FCC license submittal, including path surveys, as
necessary, shall be the responsibility of the Contractor. Any proposed use of unlicensed,
spread spectrum microwave links is unacceptable.

H. Microwave system availability shall be no less than 99.99975% (78.8 seconds outage per
year).

J. Proposed microwave antennas, radomes, and antenna mounts must be capable of
maintaining reliable operations during sustained storm force winds of up to 120mph. Each
furnished antenna system shall be equipped with dual stiff arms/mounts to limit antenna
vibration and flexing during high wind events. If space diversity is required because of the
necessity for higher frequencies and the engineering constraints of longer distances, these
requirements and all necessary materials shall be part of the Proposal.

I. Floyd County desires the microwave links to be capable of a total bandwidth configuration
of 155Mbps (OC3) and scalable to provide up to ten (10) isolated Ethernet ports with
programmable bandwidth.

J. Minimum operational service parameters of each microwave link shall be as follows:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unfaded Bit Error Rate (BER):</td>
<td>Not Less Than 10^-10</td>
</tr>
<tr>
<td>Calculated RF Link Fade Margin,</td>
<td>Not Less Than 40db.</td>
</tr>
<tr>
<td>Including Circulator, Connector,</td>
<td></td>
</tr>
<tr>
<td>and Transmission Line Losses:</td>
<td></td>
</tr>
<tr>
<td>Maximum Faded BER:</td>
<td>Not Less Than 10^-6</td>
</tr>
<tr>
<td>Link Outage Level:</td>
<td>To coincide with 10^-3BER, to occur at a signal level not less than 3 db in excess of the calculated RF link fade margin.</td>
</tr>
</tbody>
</table>

Note: APCO minimum recommendations for Project-25 digital trunked radio systems
include, but are not necessarily limited to, the following operational and functionality
characteristics:

- Digital 9.6 kb control channel; digital working channels.
- Automatic Unit Identification
- Call Privacy
- Emergency communications priority routing
- Centralized System Controller with Management Capabilities
- Multiple, Software-Controlled Talk Groups
- Priority Talk Path Scanning
- Lost/Stolen Radio Inhibit
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• User Priority Levels
• Dynamic user regrouping
• Telephone interconnect operation
• IMBE digital voice coder
• Encrypted digital voice operation
• Interoperability with outside conventional/trunked radio networks
• Direct interconnectivity with other Project-25 compliant network switches
6.0 Infrastructure System Configuration

6.1 General

Floyd County has two existing 800MHz licenses for this project, WQLD890 which is licensed for 18 frequency pairs between 806 – 809MHz and WQKA969 which is licensed for 2 frequency pairs above 809MHz. The winning vendor will be required to do all the license modifications.

Proposers are required, by Section 6.2, to provide a comprehensive functional and technical proposal for a multi-site Project-25 compliant 800MHz simulcast trunked radio network. This radio network should be deployed to operate as a P25 Phase 1 FDMA system. In addition, this 800MHz radio network is required to be capable of doing both P25 Phase 1 FDMA & P25 Phase 2 TDMA without the elimination or addition of any existing hardware.

The new digital voice network shall utilize the necessary number of infrastructure sites, as determined by the Proposer, to meet Floyd County’s coverage requirements.

Proposers shall indicate a guaranteed level of portable and mobile area coverage and delivered audio quality indicative of their design. Alternative multi-site design submittals using radio technologies other than a spectrally efficient simulcast prime component will not be considered as acceptable. The topography of Floyd County, coupled with user expectations for highly-reliable portable radio coverage within buildings, can be most efficiently and optimally resolved using the inherent antenna space diversity and receiver-voting characteristics intrinsic of simulcast trunked radio configurations as compared to multisite-switched trunked radio configurations.

Proposers are required to furnish and install transmit and receive site equipment/configurations to meet Section 7.0 (Coverage Requirements) and that adhere to those minimum technical requirements identified in Section 5.0 for fixed site and microwave equipment.

Physical plant modifications to newly proposed County-owned sites, rental sites or existing County-owned sites, as necessary, to accommodate newly proposed network solutions, shall be the responsibility of the Contractor and must be factored into each Proposal Submittal’s cost estimate. A Proposer’s failure to disclose physical plant modification cost is contrary to Floyd County’s turnkey-project requirement and shall result in an unfavorable evaluation of that Proposer’s Submittal.

Proposers shall provide all pertinent information concerning their equipment, relative to electrical, mechanical, structural and physical space requirements. Proposers must consider enhanced security and environmental issues in preparing their Proposal Response. Any known deficiencies in County-owned sites, as well as for any newly proposed sites, that factor into the proposed solution (inclusive of electrical or lightning protection systems) shall be stated in the Proposal Response.
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It shall be the responsibility of the Proposer to provide a turnkey system and to install industry accepted standard electrical grounding systems and lightning protection devices to protect proposed equipment from damage due to electrical transients on antenna systems, power, telephone and/or control cables.

Sites determined by the Proposer to be potentially prone to flooding or other environmental problems must be so noted by the Proposer in their Proposal Response. Engineering remedies must be based on 100 Year Flood Plain data.

This P-25 800MHz digital trunked radio system will initially be sized to support the existing analog network system user load (approximately 1,500 users) but is anticipated to grow by approximately 25% additional capacity within the next five years. Therefore, the proposed new radio network shall be capable of straightforward channel expansion via 700/800MHz, without the addition or elimination of any existing previously installed equipment, to support ever-increasing user needs.

Floyd County has determined that standards-based APCO Project-25 digital voice radio technology will adequately serve present and anticipated future needs for Floyd County and local government agencies and shall be provided by the Contractor.

The delivery to and installation of: equipment shelters, security systems, standby and emergency power systems, towers, antenna systems, electrical grounding systems, lightning protectors, transmission lines, cable attachment hardware, ice shields, tower-to-building cable tray hardware and all necessary permitting is part of this project and must be furnished by the Contractor.

All transmit/receive site-related equipment shall be remotely controlled via digital microwave from Floyd County’s existing 911 dispatch center located in Rome, as well as their planned backup center in Rome. Any proposed use of leased telephone interconnectivity in lieu of a licensed microwave subsystem or County-owned fiber-optic facilities (if any at the time of implementation) for all or any portions of this digital radio infrastructure, unless otherwise allowed by this Specification, is unacceptable. It is desired that the radio network's infrastructure be supported by a microwave loop(s) configuration. The vendor is encouraged to provide alternative licensed microwave configurations with the pro and cons of each configuration, ultimately that cannot lead to any one single point of failure caused by technical or catastrophic loss of any site.

The Contractor shall furnish and install all wiring, wiring hardware, interface electronics and materials necessary, and at no additional cost than that identified in their Proposal/Contract, to complete the successful implementation and operation of their proposed P-25 800MHz digital radio network and its related equipment groupings.

6.2 Simulcast Configuration

6.2.1 General

Section 2.0 of this Specification generally describes the Floyd County’s existing VHF and UHF conventional analog voice radio network. Proposers are required, by Section 6.2, to provide a comprehensive functional and technical proposal for a multi-site Project-25
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compliant 800MHz simulcast trunked radio network. The new digital voice network shall utilize the necessary number of infrastructure sites, as determined by the Proposer, to meet County's coverage requirements.

Proposers shall indicate a guaranteed level of portable and mobile area coverage and delivered audio quality indicative of their design. Alternative multi-site design submittals using radio technologies other than a core simulcast prime component will be considered. The topography of Floyd County, coupled with user expectations for highly-reliable portable radio coverage within buildings, can be most efficiently and optimally resolved using the inherent antenna space diversity and receiver-voting characteristics intrinsic of simulcast trunked radio configurations as compared to multisite-switched trunked radio configurations.

Therefore, it is desired that the new Project-25 compliant 800MHz simulcast trunked radio system incorporate infrastructure pricing options for both an integrated digital simulcast network configuration (i.e., Rocky Mt. & Scout Camp sites as full-channel simulcast sites) and an integrated digital hybrid simulcast/multisite system configuration (i.e., Rocky Mt. & Scout Camp sites as multisite sites).

Proposers are required to furnish and install transmit and receive site equipment/configurations to meet Section 7.0 (Coverage Requirements) and that adhere to those minimum technical requirements identified in Section 5.0 for fixed site and microwave equipment.

Physical plant modifications to newly proposed County-owned sites, rental sites or existing County-owned sites, as necessary, to accommodate newly proposed network solutions, shall be the responsibility of the Contractor and must be factored into each Proposal Submittal's cost estimate. A Proposer's failure to disclose physical plant modification cost is contrary to Floyd County's turnkey-project requirement and shall result in an unfavorable evaluation of that Proposer's Submittal.

Proposers shall provide all pertinent information concerning their equipment, relative to electrical, mechanical, structural and physical space requirements. Proposers must consider enhanced security and environmental issues in preparing their Proposal Response. Any known deficiencies in County-owned sites, as well as for any newly proposed sites, that factor into the proposed solution (inclusive of electrical or lightning protection systems) shall be stated in the Proposal Response.

It shall be the responsibility of the Proposer to provide a turnkey system and to install industry accepted standard electrical grounding systems and lightning protection devices to protect proposed equipment from damage due to electrical transients on antenna systems, power, telephone and/or control cables.

Sites determined by the Proposer to be potentially prone to flooding or other environmental problems must be so noted by the Proposer in their Proposal Response. Engineering remedies must be based on 100 Year Flood Plain data.
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This 800MHz digital trunked radio system will initially be sized to support the existing analog network system user load but is anticipated to grow by approximately 25% additional capacity within the next five years. Therefore, the proposed new radio network shall be capable of straightforward channel expansion via 700MHz, without requiring the replacement of previously installed equipment, to support ever-increasing user needs.

Floyd County has determined that standards-based APCO Project-25 digital voice radio technology will adequately serve present and anticipated future needs for City and local government agencies and shall be provided by the Contractor. Initial service requirements involve the continued support of mobile data technologies. Proposers must include a description on how their backbone infrastructure equipment can support mobile data hardware, in a manner that voice and data operations are integrated within the same infrastructure component(s), and application software.

The delivery to and installation of: equipment shelters, security systems, standby and emergency power systems, towers, antenna systems, electrical grounding systems, lightning protectors, transmission lines, cable attachment hardware, ice shields, tower-to-building cable tray hardware and all necessary permitting is part of this project and must be furnished by the Contractor.

All transmit/receiver site-related equipment shall be remotely controlled via digital microwave from Floyd County’s existing dispatch center and the EOC/Back-up Center. Any proposed use of leased telephone interconnectivity in lieu of a licensed microwave subsystem or County-owned fiber-optic facilities (if any at the time of implementation) for all or any portions of this digital radio infrastructure, unless otherwise allowed by this Specification, is unacceptable.

It is desired that the radio network’s infrastructure be supported by a microwave loop(s) configuration. The vendor is encouraged to provide alternative licensed microwave configurations with the pro and cons of each configuration, ultimately that cannot lead to any one single point of failure caused by technical or catastrophic loss of any site.

The Contractor shall furnish and install all wiring, wiring hardware, interface electronics and materials necessary, and at no additional cost than that identified in their Proposal/Contract, to complete the successful implementation and operation of their proposed 800MHz digital radio network and its related equipment groupings.

6.2.2 Control Point (Prime Site) Equipment

The Control Point equipment site shall contain, minimally, the following major equipment groupings:

- System Controller
- Simulcast Equalization/ Sync Equipment
- Console Electronics/ Audio Controller
- Remote Sites Microwave Link
- Redundant local area network routers/switches
- Battery & Inverter Systems
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Adequately sized standby power
Connectivity to accessed Emergency Power
Interoperability Link Base Stations
Link Control Equipment
Radio/ Microwave Alarm System
HVAC System
Inert Gas Fire Suppression System

The Contractor shall furnish and install all wiring hardware, cable trays, interface electronics, terminal blocks, and materials necessary to complete the successful implementation and operation of this site and its equipment groupings. Infrastructure equipment proposed for the Control Point must meet the minimum requirements specified by Sections 5 and 6.

It is acceptable for the Control Point site to also serve as a co-located simulcast radio site. However, Floyd County has expressed concern over the potential vulnerability of a single Control Point location, as it could inadvertently become a single-point failure mode for the new digital radio network. Therefore, Proposers are required to incorporate an optional dual-Prime Site, Redundant Control Point design into their proposed solution. This submittal requirement is mandatory and those proposals failing to include such a dual-site redundancy option will be considered as being unresponsive to these Specifications.

6.2.3 Typical Simulcast Infrastructure Site Deployment

Proposers are required to supply, turnkey, all technical support, equipment, material and labor necessary to develop each proposed simulcast infrastructure site into a functional P-25 800MHz digital radio facility, fully incorporated into the specified communications system.

Floyd County desires for Proposer to include language that ensures initial beneficial pricing that will be offered to the Floyd County for the periods described in Section 16.

The County has the following locations, that may be but not limited to, the consideration for infrastructure sites for the new P-25 800MHz digital simulcast trunked radio network:

• Mt. Alto Site (+34°14’ 01.01” -85° 13’ 54.70”)
The County has an option on this property and is near the VHF/UHF site on Mount Alto. This property has no tower, shelter or generator but is near an access road.

• Leonard Road Site (+34°07’ 52.17” -85° 11’ 55.08”)
Property owned by the County and is shared by County water tanks. This property has no tower, shelter or generator, but does have an access road.

• Fouche Gap Site (+34° 18’ 56.00” -85° 18’ 32.00”)
The County has an option on this property. This property has no tower, shelter or generator but is near an access road.

• Cave Spring Site (+34°06’ 28.56” -85° 19’ 30.43”)
The County has an option on this property. This property has a 160ft guyed tower, but no shelter or generator, does not require an access road.
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• Shannon Site (+34°20' 18.60" -85° 02' 59.00")
This site is a former AT&T microwave site. The County has an option on this property. This property has a 100ft freestanding tower, shelter and access road, but no generator.

• Hillindale Site (+34°12' 20.64" -85° 06' 35.08")
Property owned by the City of Rome, and is shared by City water tanks and a cellular tower. This property has no tower, shelter or generator but does have an access road.

• Rocky Mt. Site (+34°21' 02.77" -85° 17' 33.84")
This site owned by Oglethorpe Power Corporation, however, the County has negotiated an agreement to use the shelter, tower and generator at this location. This site has a 120ft tower with an 800MHz antenna system, shelter, generator and access road.

• Scout Camp Site (+34°31' 32.70" -85° 05' 58.70")
Property owned by the Boy Scouts, however, the County has negotiated an agreement to place the site at this location. This property has no tower, shelter or generator but does have an access road.

The construction of site access roads shall be the responsibility of the County. The availability of electric and gas utilities shall be the responsibility of the Contractor. Improvements to the land spaces utilized by the towers, equipment shelters, site grounding, site civil work, security systems, all permitting, including, but not limited to NEPA, SHPO, FAA etc., on-site electrical services and standby power systems shall be the total responsibility of the Contractor.

Proposers shall refer to Sections 9.0, 10.0 and 11.0 for specific requirements pertaining to equipment shelters, towers and standby generator systems.

A typical P-25 digital simulcast radio infrastructure site equipment shelter shall contain, minimally, the following major equipment groupings:

- 800 MHz Simulcast Transmitters (no less than 6 channels)
- 800 MHz Simulcast Receivers (no less than 6 channels)
- GPS-disciplined local oscillator
- Simulcast timing/delay equipment
- Receiver Multi-coupler System
- Transmitter Combiner System
- Transmitter Antenna Systems
- Receiver Antenna System
- Tower top preamplifiers
- Remote site Microwave Links
- Site Alarm Equipment
- Battery & Inverter Systems
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Adequately sized standby power
Connectivity to accessed Emergency Power

Infrastructure equipment proposed for all simulcast sites must meet or exceed the minimum requirements specified by Sections 5.0 and 6.0.

6.2.4 Site Power Systems

The digital radio infrastructure sites shall operate from a 24VDC or 48VDC power source, sized to sustain full trunked-feature operation for a minimum eight-hour period. The battery system shall utilize sealed lead-calcium cells and 100% redundant battery charger components rated for telecommunication service. An automatic low voltage disconnect device shall be provided to protect the battery plant from discharge-related damage. Electrical power switching/disconnect capability shall exist at all sites such that rectifiers, batteries as well as commercial power sources may be separately isolated in a manner whereby each component may be worked on safely. This switching/disconnect capability shall be designed and configured such that radio network operation is unimpaired and uninterrupted during any repair or maintenance cycle.

Repeater stations shall be housed in forced-air ventilated equipment cabinets. Cabinets shall be free standing and incorporate drilled rails to accept standard 19” rack panels.

A minimum of six DC-operated repeater stations shall be housed in any equipment cabinet. No more than eight repeater stations should be located within a single equipment cabinet. Each cabinet shall be power-supported by redundant, metered DC/DC power converters (if required by equipment design) sufficient to sustain the continuous operation of all repeater stations installed within that one cabinet.

Each equipment cabinet shall incorporate a circuit-breaker power distribution panel incorporating protection for power amplifier, exciter and receiver groupings. Individual repeater station ventilation fan(s), if required, shall be DC powered and thermostatically controlled. Additionally, each cabinet shall be equipped with a DC-operated fan and air filtration components. Each equipment cabinet shall be protected by a DC-power circuit breaker, sized for nominal load plus 35% overload factor.

The primary battery chargers, low voltage disconnects and a primary DC circuit breaker panel shall be installed in a freestanding enclosed relay rack unit. Likewise, the system controller and console/audio controller equipment shall be housed in freestanding equipment cabinets similar to those used for repeater stations.

Each controller shall be powered either directly from the DC Battery Plant or by individual, redundant DC/120VAC power inverters whose minimum site/system capacity shall be twice that of calculated controller loads, i.e., if calculated controller load is 1KW the inverter shall be rated for no less than 2KW.

Auxiliary site loads essential to proper system operation, i.e. tower-top preamp, redundant GPS reference oscillators and receiver multi-coupler, shall be interconnected directly to the
site’s battery system. Additionally, the redundant GPS reference oscillators shall have a properly sized UPS between the oscillator and the battery supply.

6.2.5 Infrastructure Functionality

The proposed digital radio solution shall utilize a P-25 Common Air Interface (CAI) digital control channel scheme, whereby user-initiated feature requests and talk group/working channel assignments are processed digitally over a single control channel. The remaining channels shall operate as working channels for analog or digital voice traffic.

Use of infrastructure solutions involving embedded control signaling in lieu of this single digital control channel concept are contrary to Project-25 requirements and are not acceptable. Additionally, the single digital control channel shall have a level of redundancy sufficient to meet the overall requirements and intent of this specification for a no-break, life-critical radio communications network. Redundant control channels must automatically rotate in sequence to “exercise” this support capability in a controlled scheme. When not in use as a control channel, the previously-assigned control channel will operate in the trunked pool of digital voice channel.

The proposed solution must be robust in design to assure continued operation should any of the following failures (or combination thereof) occur:

A. Loss of transmitter(s) operation
B. Loss of receiver(s) operation
C. Failure of dispatch console terminal(s)
D. Failure of console/audio controller
E. Failure of one site controller
F. Loss of DC-DC power converter(s)
G. Failure of entire single site.
H. Loss of Control Channel(s)
I. Loss of Prime Site/Control Point
J. Loss of single/multiple microwave path connectivity

Proposers shall furnish a description of the effect each of the above listed failure modes would have on their proposed network configuration. Proposers shall also describe appropriate mitigation/restoration steps to return the network to full operational capability in response to each of the above listed failure conditions.

6.2.6 Simulcast Site Antenna Systems

The Contractor shall furnish and install antenna systems specifically designed to meet the coverage requirements and objectives described by Section 7.

The Contractor shall equip all antennas, with gas tube lightning arrestor devices (Polyphasor or equivalent). All coaxial cable elements used as interconnecting jumpers for outdoor-mounted equipment or transmitter components shall be 1/2” Andrew FSJ4-50B or equal. Receiver multi-coupler interconnecting cables shall be 1/4” Andrew FSJ1-50A.
Contractor shall furnish and install hot dip galvanized side mount hardware sufficient to extend the transmitter/receiver antennas a minimum of 60-inches from the nearest tower-structure element. Transmission lines shall be grounded at the antenna, at 100ft tower intervals, at the top most part of the tower location, at the mid point (for all towers greater than 200-feet in height), at the location where the transmission lines enter the cable bridge and at the equipment shelter's transmission line copper entry port. Only grounding strap kits, manufacturer-approved for the type of transmission line installed, shall be provided. All cable shall be neatly run down a single leg of the tower on tower cross brace brackets. All connecting hardware will be hose clamp type of a size sufficient for the cable. No tie wraps or electrical tape will be allowed for attaching cables to towers.

Antenna system mounting brackets, components and associated transmission line attachment hardware shall be either stainless steel or hot-dipped galvanized steel.

6.2.7 System/Audio Control Scheme

The proposed radio network must incorporate high levels of redundancy to assure continued trunked system operation. To provide the highest level of trunked reliability, site/system control schemes shall be IP-based, fully redundant and utilize distributed processor technology to the maximum extent possible.

Site/System control schemes must include protected power supply units so that the loss of a single power supply will not interrupt control scheme operations.

Site/System controllers shall minimally provide the following features:

1. Working channel assignment.
2. Verification of user identification.
3. Assignment of call priority.
4. Electronic documentation of call type, caller/called, call time, channel assignment, etc.
5. Monitor/control of special system features such as unit-specific calls, telephone interconnect and talkback paging operations.
6. Ability to disable/enable call access to specific field units.

The console/audio control scheme shall be equipped to initially support the current dispatch console deployment operable in the existing analog conventional VHF/UHF radio systems. It is envisioned that a newly constructed 911 backup Communication Center will be designed and implemented within the next two years. Therefore, the proposed console/audio control scheme must be sized to support a 100% increase in console devices (to facilitate a potential dual-migration/implementation scheme for this new backup Center).

The console/audio control scheme shall be configured to provide the necessary T-1 connection(s) to a shared radio traffic audio recording device. This device shall be of a trunk-tracking design whereby all radio traffic conducted over the proposed number of voice channels and the digital control channel will be archived. This recording device is part of this voice radio communications network project and should be considered for migration to the proposed system. The current logging recorder is a sixteen channel Verint model.
purchased two years ago and is integrated into the existing Positron Front Line VIPER CAD dispatch consoles, that is shared by all users of the County's radio system.

6.2.8 Radio Network Alarm System

The Contractor shall furnish and install an automatic alarm system to monitor and alert, as a minimum, status (per site) on the following radio system operating parameters:

Major Alarm Conditions

1. Site Controller Failure.
2. Control Channel Failure.
3. Console/Audio Controller Failure
4. Receive Amplifier Failure
5. AC Power Failure
6. High Reflected Power, Tx Ant.
7. Battery Charger Failure, Major
8. Generator Failure
9. Tower Light Failure
10. Over/under temperature alarm (HVAC failure)

Minor Alarm Conditions

1. Door Alarm
2. Tripped DC Breakers(s)
3. Low Transmitter Output (each transmitter)
4. Battery Charger Failure, Minor
5. Low Fuel

A summed major/minor alarm indication should be displayed on each alarm system terminal position. This alarm indication should appear as a flag at a conspicuous area on the flat-screen display field. Determination of specific alarm point conditions shall be obtainable from any dedicated alarm system terminal position.

6.2.9 Regional Interoperability via Project-25 ISSI

Currently, the nearby counties operate a variety of conventional and trunked radio communication systems on different frequency bands. Please refer to Section 3, user needs interoperability requirements with surrounding radio networks. Floyd County is, by virtue of this Specification, planning its radio network modernization toward Project-25 Phase I compliancy. Other jurisdictions within the Region are either actively considering the use of Project-25 technology or, are currently in the procurement processes.

In any case, the critical importance placed on seamless interoperability between Project-25 digital voice radio networks, of various manufacture, cannot be overstated.
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The set of minimally-acceptable feature and protocol standards to facilitate the linkage of distributed Project-25 radio systems has been defined as the Inter Sub System Interface, or ISSI. In 2006 a series of protocols and procedures for an initial layer of multi-network interoperability was approved by the APCO Standards Committee. This initial ISSI release defined trunked group and individual call transport between multiple systems as well as subscriber user roaming and unit authentication. Future ISSI releases, will encompass other features such as Over-the-Air Rekeying; data transport; cross-network console operability and conventional radio system interoperability.

In February 2010 Floyd County applied for a $2.4 million Georgia Homeland Security Grant titled Northwest Georgia Interoperable Communications. The purpose of the grant is to increase coverage, expand mutual aid interoperability and facilitate future growth of the NW GA/ TN Valley Regional Communication System further into Georgia. Floyd County has identified a tower site location in northwest Gordon County that will enhance network coverage in South Walker County, and extend system coverage into Whitfield, Floyd and Gordon Counties. The County has had discussions with key public safety officials from each of these entities, and has confirmed their cooperation and commitment to incorporating 800MHz interoperability into their mutual aid response plans. The grant request adds one 10-channel, simulcast site with microwave connectivity to the NW GA simulcast cell. By extending coverage southward this will not only enhance first responder interoperability and encourage future growth, but will also make significant strides toward achieving a long-range goal of master site connectivity with Cobb County, Georgia.

Once the NW GA/ TN Valley Regional Radio System is connected to the Cobb County/ UASI Master Site the County will establish seamless roaming from Atlanta to Knoxville on I-75, and multi-State Emergency Operations Center voice communication.

Floyd County has taken great care to insure alignment between local, regional and state interoperable communication plans. Just as the State of Georgia’s vision for statewide interoperability is connecting 700/800MHz wide area trunked radio systems and conventional VHF systems through the statewide (GIN) MotoBridge network, so is the intent of the NW GA/ TN Valley Regional Radio System and GEMA Area 6.

Prior to the application for this grant (Phase III), the State was awarded a Public Safety Interoperable Communications Grant (PSIC) for $5.7 million for Phase II (Catoosa County began Phase I without any grant assistance.). In 2007, Catoosa County executed Memorandums of Understanding with two other North Georgia Counties, Walker and Dade, to join the NW GA/ TN Valley Regional Radio System, and submitted an application for FY07 funding. This system design incorporates three 10-channel simulcast sites while upgrading and relocating the Catoosa 5-channel repeater site. This project was awarded and is in the final stages of completion. The north GA site will serve as the primary voice communication network for public safety in Catoosa, Walker and Dade Counties and provide wide area, SAFECOM Level 6 interoperability for the various disciplines, cities, and counties operating on the NW GA/ TN Valley Regional Radio System. To date, there are three Georgia counties and nine Tennessee counties utilizing this wide area radio system.

It is the intention of the County that this grant will initiate Phase III of the Northwest Georgia Interoperable Communications project. The system design proposed for FY09 increased the number of simulcast sites for North Georgia from three to four. It provides countywide
coverage of the Northwest Georgia Regional Radio System throughout the combined Catoosa, Walker and Dade counties and offers substantial overlap coverage into Whitfield, Floyd and Gordon counties. The overlapping coverage will add unit to unit, emergency mutual aid communications throughout most of Whitfield County and the City of Dalton by adding a few control stations to interface their consoles or the State’s (GIN) MotoBridge equipment. This also facilitates connectivity of the funded Floyd County P25 System, which is strategic to interoperability throughout GEMA Area 6, and facilitates future expansion into Gordon County, Bartow County, and the State of Alabama. Additional coverage, beyond Floyd County jurisdictional boundaries, is key to facilitating future system growth.

Proposers shall be required to:

A. Describe how their proposed Floyd County radio network solution shall be immediately interfaced to the existing Tennessee Valley Regional Communications System radio networks.

B. Describe how their proposed Floyd County radio network solution can be interfaced to other regional Project-25 radio networks now under development or procurement planning.

C. Provide a commitment to support and provide migration paths for Floyd County network solutions whereby adoption of new ISSI features and functionality (beyond those described above) does not require “forklift” replacement of network infrastructure.

D. Provide a commitment to cooperatively help resolve ISSI interface issues between the proposed Floyd County radio network and those radio vendors supporting other Regional participants, if portions or all of those agencies utilize Project-25 radio networks manufactured by other parties.

6.3 Subscriber Equipment

Mobile, portable and control station equipment requirements are identified in Sections 4 and 5. Specific equipment groupings and quantities are contained in Section 16, Pricing.

It is likely that a majority of indicated user equipment will be ordered at some point during the implementation process but may not be part of the initial system order. Quantities indicated are only approximate estimate and are likely to change.

6.4 Legacy Interoperability and Backup Radio(s) System

Computer-controlled (radio user initiated) and dispatcher-controlled interoperability link stations shall be located at the most appropriate infrastructure tower location to achieve no less than DAQ 3.4 audio quality into the distant host network. The Floyd County preference for interoperability link station placement is at Floyd County-owned sites, if any are proposed in the design.

All interoperability sub-system antenna transmission lines shall be 1/2" Andrew LDF4-50A or equal and equipped with suitable lightning and electrical surge protection devices.
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The proposed network shall include all computer-controller interfaces, control station(s) and antenna systems necessary to successfully provide the interoperability described above and by Section 3.2.6. Proposers should consider the re-use of existing non-obsolete Floyd County-owned VHF, UHF and/or 800MHz base station equipment to meet identified interoperability requirements. Should a Proposer intend to reuse existing equipment, those types of equipment must be identified in the Proposal Response. If such interoperability equipment is a current component of the analog system, those items may not be removed from regular operational use if doing so would degrade existing conventional VHF/UHF analog capabilities. Such equipment, however, may be tested during installation and implementation of the proposed system solution and at the conclusion of user migration, may be converted to a resource of the new digital radio network.

Computer-controlled interoperability links shall become active only whenever a user has specifically selected, from its portable/mobile unit, any one of the interoperability link talk groups defined by Section 3.2.6. These links shall also be available for dispatcher monitoring and/or selection.

6.5 Voice Encryption

Each of the proposed P-25 trunked digital RF channels shall be equipped to support voice encryption using the Improved Multiband Excited (IMBE) Vocoder.

The number and tiers of radios requiring encryption has been provided in Section 16, Pricing Considerations. Encrypted mobile and portable units shall be of the same physical size and general configuration as non-encrypted units. Accessory equipment shall work compatibility with both types of units.

Proposed radio coverage throughout the identified Floyd County Service Area, in the digital encrypted mode, shall be equal to that in the digital clear mode. Proposers shall be required, as part of an oral presentation, to demonstrate both clear and encrypted voice (IMBE) audio quality using portable/mobile equipment identical to that offered in their Proposal Response.

Transportable Repeater Systems

Public Safety agencies also desire portable repeater systems to support various special operations involving large structure fires, police surveillance actions or disaster response events. A combination of small, single-channel repeater systems as well as larger, easily transported trunked communication systems are desired. The following information provides a functional description of both Mobile Repeater and Transportable Trunked Repeater configurations.

6.6.1 Mobile Repeaters

Floyd County public safety agencies may require single-channel repeater stations at the scene of large structural fires, out-of-area mutual aid responses and other localized events. In the event of a structural fire, building amplifier systems (Bi-directional Amplifiers or BDAs) are often rendered inoperable, thereby severely degrading in-building coverage at a time when it is needed most urgently.
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It is envisioned that key tactical response vehicles could be configured with a compact, easily operated repeater system designed to enhance portable coverage within such small geographic areas.

Functionally, the desired Mobile Repeater should be configured as follows:

- Relatively low transmitter power, i.e., 15 watts
- Compact size
- Use of unity gain, low profile antenna
- Self-contained within a waterproof, easily transportable housing
- Have a minimum of operator controls
- Operable on up to five frequencies
- Operable using 12VDC and 120VAC power sources

It is envisioned that such systems could operate within selected vehicles or could alternatively be deployed in fixed field locations.

Proposers shall provide a full technical description of a representative Mobile Repeater device, and per-unit pricing, as part of their Proposal Submittal.

6.6.2 Transportable Trunked Repeater

Floyd County also has interest in obtaining fully mobile, field deployable Transportable Trunked Repeater package(s). These packages shall be a self-contained unit that can be tailored to a disaster scene. Each package shall be designed to be towed by both a full-sized pickup truck and sports utility vehicle. The trunked repeater configuration shall utilize six P-25 compatible 700/800MHz repeater stations (6 channels) and meet the same functional and technical specifications contained in Section 5.0. The design shall incorporate an easily raised, pneumatic antenna mast, no less than 60 ft. and no greater than 80 ft. extended, that will support a 6db omni-directional antenna system.

The Transportable Trunked Repeater package shall also include a power generator of sufficient size to operate all communications equipment, area lights, HVAC and other supportive electronic systems. The package shall include an integral fuel tank sized to support 24-hours of continuous operation at full load. The transportable system shall have full lightning and electrical surge protection capability and a method of easily deploying/integrating a reliable electrical ground system for safe operation. The Transportable Trunked Repeater configuration shall have the capability to seamlessly utilize a separate generator in case of primary generator failure.

Proposers shall provide a full technical description of a representative Transportable Trunked Repeater device, and per-unit pricing, as part of their Proposal Submittal.

6.6 Fire Station Alerting System

The Rome – Floyd Fire Department desires the continued ability to perform individual fire station alerting. The Department's fire station alerting is currently accomplished using various tones that were broadcast over the existing analog radio system. Once a particular fire station received its unique tone, a pre determined response would be automatically
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enabled, such as setting of light and/or audible alarms, in addition to routing the audio of the station’s 800MHz radio to the PA system.

The County desires the new fire station alerting system to activate fire stations at all eleven (11) locations throughout the county. As alerts are sent to the fire stations, an audible signal needs to be heard on the County fire dispatch talk group. The locations of the Rome – Floyd Fire Stations are as follows:

- Rome - Floyd Fire Dept Station 1 617 w 1ST Street, Rome, GA 30161
- Rome - Floyd Fire Dept Station 2 1601 Cave Spring Road, Rome, GA 30161
- Rome - Floyd Fire Dept Station 3 411 E 12th Street, Rome, GA 30161
- Rome - Floyd Fire Dept Station 4 3 Wilshire Road, Rome, GA 30161
- Rome - Floyd Fire Dept Station 5 750 John Davenport Dr., Rome, GA 30165
- Rome - Floyd Fire Dept Station 6 6Burnett Ferry Rd., Rome, GA 30165
- Rome - Floyd Fire Dept Station 7 85 Woods Road, Rome, GA 30165
- Rome - Floyd Fire Dept Station 8 90 Little Texas Valley Road, Rome, GA 30165
- Rome - Floyd Fire Dept Station 9 152 Burlington Dr. Shannon, GA 30172
- Rome - Floyd Fire Dept Station 10 1522 Wax Road, Silver Creek, GA 30173
- Cave Spring Fire Dept Station 16 3 Georgia Ave., Cave Spring, GA 30124

6.7 EMS Alerting System

The Redmond EMS and Floyd EMS also desire the ability to perform individual EMS station alerting similar to the fire station alerting system. As alerts are sent to the EMS stations, an audible signal needs to be heard on the County EMS dispatch talk group.

The County desires the new EMS alerting system to activate EMS stations at all eight (8) locations throughout the county. The locations of the Redmond EMS and Floyd EMS Stations are as follows:

- Floyd EMS Headquarters 500 Riverside Parkway, Rome, GA 30161
- Floyd EMS Station 2 101B Elliot Drive, Rome, GA 30165
- Floyd EMS Station 3 11 Highway 411, Rome, GA 30161
- Floyd EMS Station 4 1933 North Broad Street, Rome, GA 30161
- Redmond EMS Headquarters 100 John Maddox Dr. Rome GA 30165
- Redmond EMS Station 1 80 Redmond Rd. Rome Ga.30165
- Redmond EMS Station 2 304 Russell Field Dr Bldg 800B, Rome, GA 30165
- Redmond EMS Cave Spring 123 Fincher Street Cave Spring, Ga. 30124

6.8 Analog Fireground Operations

The Rome – Floyd County Fire Department has determined their need for analog communications for fireground operations. This will be confined to unit-to-unit, non-repeated simplex operations rather than for county-wide communications via the infrastructure equipment sites.
6.9 Floyd County Sheriff Detention Center Operations

The Floyd County Sheriff’s Office serves warrants, houses inmates in the detention center (820 inmates) and provides security for the courts. The Floyd County Sheriff’s Office has a staff of 153 full time personnel.

The Sheriff’s Office has a dedicated UHF repeater (call sign WPMT948) at the detention center that is used for all communications of prisoner movements and is hard wired to a number of base stations throughout the jail facility.

The Sheriff’s Office has determined the need for a localized 800MHz repeaters on-site to perform this function. By so doing, one or more 800MHz radios could be provisioned for local jail use, wide-area coverage (via the trunked radio network) for prisoner transport and interoperability with local, county and adjacent county police operations. The emergency button operation of the portable radios should be contained to the Detention Center repeater system, except when the portable radios are using the County 800MHz P25 trunked simulcast radio system and the emergency button function should be part of the county-wide system.

6.10 Floyd County Prison Operations

The Floyd County Prison is responsible for housing and supervising 448 inmates that perform work in Floyd County. The department also operates a work release center which is capable of housing 100 residents.

As with the Floyd County Sheriff’s Office, the Floyd County Prison will require an 800MHz analog repeater for communications of prisoner movements. Currently, there is no repeater communications system at the Floyd County Prison. The 800MHz analog repeater system for the Floyd County Prison will be a completely new installation. The emergency button operation of the portable radios should be contained to the Prison repeater system, except when the portable radios are using the County 800MHz P25 trunked simulcast radio system and the emergency button function should be part of the county-wide system.

6.11 Floyd County Mutual Aid System

Proposers shall provide an 800MHz Mutual Aid System consisting of the ICALL channel and all four (4) ITAC channels. The 800MHz Mutual Aid System infrastructure will be located at the Mount Alto site and must be capable of being patched to any of the P-25 800MHz Digital Trunked Radio System talk groups. Proposers should also include services needed in obtaining the needed FCC licensing for the 800MHz Mutual Aid System.

The 800MHz Mutual Aid System will not be required to meet the coverage requirements of the P-25 800MHz Digital Trunked Radio System, however, proposers shall provide coverage
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maps of their proposed 800MHz Mutual Aid System. The coverage maps should include both mobile (talkout & talkback) and portable outdoor (talkout & talkback) down to a level of -106dBm.

6.12 Floyd County Fire Paging

The Rome – Floyd Fire Department desires the continued ability to receive the dispatch talk group while having the ability to receive and transmit on the tactical talk group. The Rome – Floyd Fire Department is currently accomplishing this function using pagers monitoring the dispatch frequency.
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7.0 Coverage Criteria

7.1 General

The new Floyd County P-25 Digital Trunked Radio Network shall be designed to support portable hand-carried radio equipment, operated both on street and within residences/building structures, at physical locations throughout the County plus a three-mile perimeter boundary. Proposers must fully identify and guarantee the coverage predicted for their proposed solution, per the functional and operational requirements of this Specification. The County has also identified those critical structures which shall have in-building portable coverage, and shall be included in the proposers Functional Test Plan and Coverage Test Plan for both signal strength and DAQ testing.

Proposers must take into account the following operating parameters in the development of their coverage guarantee:

A. Shoulder/microphone units without antennas will be used in most instances and shall be the normal configuration considered for the purpose of coverage design. Body and obstruction losses must therefore be considered in the proposed network design for both talk-in/talk-out coverage analyses.

B. Flexible, quarter wavelength antennas shall be required for portable units. Coaxial-skirt type antennas are not acceptable due to size and other mechanical limitations.

C. Building obstructions exist throughout the Floyd County Service Area. The majority of dense building structures are located within Rome's Central Business District. These must be considered in the development of the Proposer's coverage guarantee. As mentioned above, a listing of specific structures requiring in-building radio coverage is contained in Attachment C.

7.2 Service Area

Both mobile radio and portable radio on-street coverage must extend throughout no less than 95% of that area within the land region inclusive of Floyd County, plus a three-mile perimeter overlapping area extending into its adjacent bordering counties. Desired in-building portable coverage shall be no less than 95% within the entire land area encompassing the County.

Coverage is defined as the minimum usable signal necessary to provide a clearly readable voice signal without repetition (no syllables lost) from locations within building structures and outdoors, at street level, within the defined service area. Using the Delivered Audio Quality representations described EIA/TIA TSB-88B; the delivered audio quality throughout the service area shall be no less than DAQ 4.0 for mobile operations and DAQ 3.4 for portable operations.
All references to coverage reliability in this Specification refer to statistical area reliability. For example, the phrase "95% coverage" indicates that the total area described shall exhibit at least 95% statistical probability that coverage areas, if tested, would be found to support electrical performance which equals or exceeds that minimum signal level necessary to deliver Contracted delivered audio quality, as specified by this Specification and the Contract. However, it will not be acceptable to provide a coverage guarantee which includes a relatively large number of failed points within any one vicinity, while still meeting the overall goal of 95% coverage.

7.3 Building/Residence Coverage

Coverage shall be no less than 95% inside of the listing of representative buildings contained in Attachment C. It is desired that the majority of these building structures shall be supported by the proposed network’s fixed infrastructure (tower sites). However, Proposers shall exercise good judgment in balancing the proliferation of costly infrastructure tower sites with the number of building sites improved per new installation. The use of building amplifier systems, while necessary in some instances, shall likewise be minimized to the most practical and fiscally responsible extent possible.

Proposers shall specifically address those City/County buildings identified in Attachment C requiring building amplifier systems and shall provide a comprehensive turnkey cost to furnish and install such coverage enhancement equipment on a per-building basis.

If any of these representative buildings fail to demonstrate 95% reliable coverage (DAQ 3.4 Audio Quality per section 7.5), the following procedure will be followed:

A. Measurements will be made from every failed test point to determine if in-building loss exceeds 25db for that specific test point.

B. If penetration loss exceeds 25db, that specific test point will be omitted from reliability calculations.

C. If penetration loss is equal to or less than 25db, that specific test point will remain included in the reliability calculations.

D. After determining which (if any) test points are omitted, reliability calculations will be repeated. At that time, reliability of less than 95% for the structure represents a failure for the building.

If insufficient coverage is identified, the Contractor will be responsible for modifying the system, at no additional cost to Floyd County, as may be necessary to achieve the required reliability within the failed building. This may include any or all of the following approaches:

1. Bi-directional amplifier (BDA) system installed in the building.*
2. Passive repeater systems installed in the building.
3. Satellite receiver systems in or near the building.
4. Modifying/adjusting repeater site antenna systems.**
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(*Note 1) The determination to utilize a BDA within any structure will be engineered as a part of a comprehensive system design. BDA systems shall not be installed in structures in such a manner or proliferation that creates interference with the overall digital radio network’s operation.

(**Note 2) If any changes are made to the fixed sites (such as re-orienting antenna patterns) in order to resolve building coverage failures, then a complete re-test of coverage shall be required at no additional cost to Floyd County.

The Digital Radio Network shall support no less than 95% in-residence portable radio coverage reliability throughout the land area of Floyd County. For the purpose of defining in-residence portable radio loss factors, Proposers shall assume that the typical in-residence structure occupies up to 2,500 square feet and utilizes single-floor, wood-framed brick veneer type construction.

7.4 Propagation Analysis

Proposers, as part of their Proposal Submittal, shall provide a formal statement that the coverage objectives specified in Section 7.1 - 7.3 are met by their proposed solution. ANY exception taken to the specified coverage requirements must be clearly identified with a detailed description of the extent of the exception and the reason for which it was taken, in order for full consideration to be given to the Proposer during the evaluation process.

Proposers shall provide written descriptions of the processes and propagation models used to calculate proposed area coverage objectives.

Coverage maps and other pertinent calculations must be submitted with the following minimum information clearly defined for each map or submittal:

A. Transmitter site power output

B. Antenna gain and type (Include transmission line losses)

C. Effective signal level necessary, at both infrastructure and user radio antenna ports, to produce DAQ 4.0 and 3.4 delivered audio quality in the typical land mobile radio environment

C. Antenna height

D. Portable unit effective radiated power

E. Portable unit effective receiver sensitivity

F. Transmitter site talk out range, individual site as well as composite coverage

G. Portable unit talk-in range, individual receiver sites as well as composite coverage
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I. Signal level contours for on-street, in-residence and in-building portable coverage as well as 95% mobile/portable on-street coverage. In-building coverage maps shall depict 6db, 15db, 20db and 25db loss profiles.

In addition to the coverage objectives defined herein, the proposed network must be in compliance with the appropriate: 700/800MHz Public Safety Radio Communication Plan, GEMA Region 6.

7.5 Coverage Acceptance Criteria

Verification of the installed system's coverage is a component part of the Test and Acceptance criteria described in Section 14.0, Phasing and Implementation.

In order to avoid subjective interpretation of coverage test results to the maximum extent possible, mobile coverage testing (performed within a road vehicle during terrestrial coverage testing or water craft when performing river coverage testing) shall be done with computer-controlled test equipment. This equipment shall automatically record the position of the test vehicle (by means of GPS positioning) at the time of a reading, and records the signal strength of at least 200 signal samples over a 40-wavelength period for each reading taken within a test grid. Signal strength measurements shall be made continuously along the drive route.

Test grid sizes within the City of Rome's densely-constructed central business district, and governmental areas shall be no greater than 400ft x 400ft. Grids throughout the other areas of the City shall utilize grid sizes no greater than 2,000ft x 2,000ft. Grids sizes outside the City's boundaries shall be no greater than 4,000 ft x 4,000 ft. A minimum of 1,000 accessible grids shall be tested. Floyd County or designee and the Contractor shall mutually determine the size/location of grids and a suitable drive route that encompasses the entirety of accessible grids.

Field strength test results obtained throughout the coverage area, in accordance with minimally required reliability percentages, shall be of sufficient level to produce a Delivered Audio Quality (DAQ) rating of 3.4 (4.0 for mobile radio units) or higher throughout the predicted service area to be considered passing. Mobile radio signal strength measurements shall be made from either a terrestrial (land) vehicle moving at approximately 35 mph, or a water craft (river) vehicle traveling at approximately 20-knots.

The device used to measure field intensity shall be stable and have a dynamic range suitable for the conditions under test. Prior to the execution of these test activities, all test equipment and data gathering equipment to be used shall be fully certified by an independent testing laboratory having calibration tools traceable to the National Bureau of Standards. These certification documents shall be presented to Floyd County's technical staff, or their consultant and/or technical representative, prior to coverage testing for verification.

The test output shall be fed into a laptop computer or an equivalent computer device. The Contractor shall submit a written and/or graphical report containing an analysis of the test results to the Floyd County or designee and Consultant daily, and a formal report at the conclusion of the test. The results shall be depicted for mobile, portable in-residence and portable in-building coverage. The analysis shall include maps of the coverage area divided...
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into grids, with the test results for drive tests displayed in each grid on a separate map. All
test data, in its raw form, shall also be made available to the Consultant for independent
inspection.

Floyd County or its designee reserves the right to disapprove any instrumentation or
procedures. During these tests, the network’s simulcast transmitter(s) output power shall be
monitored by the County or its consultant/technical representative and no adjustments shall
be made to the transmitter(s), portable/mobile radio units or test instrumentation after
appropriate calibration of all involved equipment.

For portable radio voice quality testing, at least 800 grids shall be functionally tested within
the defined coverage area. Floyd County’s Project Representative, Consultant and
Contractor will jointly determine those grid areas to be tested.

The portable radio voice quality testing shall be performed using a minimum of ten
phonetically balanced phrases, to be supplied by the Contractor. A successful test
measurement shall be one which requires no repetition to understand the spoken phrase and
with a DAQ of 3.4 (4.0 for mobile radio units). A successfully tested grid is defined as one
whereby communications from a dispatch console to a portable radio unit, as well as for the
reverse path, are not less than DAQ 3.4 as described below.

<table>
<thead>
<tr>
<th>DAQ</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Reception is very clear and message is perfectly readable. No background noise is present and every word is understood.</td>
</tr>
<tr>
<td>4</td>
<td>Reception is clear, but with slight background noise. Message is readable and every word is understood.</td>
</tr>
<tr>
<td>3.4</td>
<td>Reception is clear, but with slight background noise. Message is readable and understood with few/occasional missing syllables.</td>
</tr>
<tr>
<td>3</td>
<td>Background noise is evident. Message is readable and understood even with missing syllables.</td>
</tr>
<tr>
<td>2</td>
<td>Background noise is prevalent. Message is readable with difficulty and requires repetition.</td>
</tr>
<tr>
<td>1</td>
<td>Evidence that transmission being made. Voice message is barely discernible and no words are understood. Unusable.</td>
</tr>
<tr>
<td>0</td>
<td>No transmission is heard. No activity on the channel is evident.</td>
</tr>
</tbody>
</table>

Ninety-seven percent of grids must meet exceed these defined requirements for the system to
be considered coverage compliant.

Audio quality testing within those representative buildings listed in Section 7.3 must be
conducted manually, using the voiced procedure described above. Portable audio quality
testing for building structures shall be considered successfully completed if of the number of
tested areas meeting the previously indicated DAQ audio requirements equals or exceeds
95% of the total number of tested areas. That is, if a hypothetical 100 areas are tested within
a given building, then 95 of those tested areas must exhibit audio quality of DAQ 3.4 or
greater to be considered acceptable.
Floyd County shall designate the test team to participate in coverage testing. The team shall include, at a minimum in each team, a Consultant representative, a Floyd staff person, two Public Safety representatives and a Contractor representative. All test vehicles shall be provided by the Contractor and be off-road capable. Testing shall commence daily at 9 AM and will cease at 5 PM. At least three teams will conduct the tests in the interest of timely completion. Each test team shall have a suitably equipped Marked Public Safety vehicle as an escort for the entirety of all hours of testing. Failure of Contractor test equipment shall not be considered as an acceptable reason for a Contract time extension. Floyd County will not pay for retesting caused by delays or equipment failures. Testing will proceed through weekends until concluded.

Final System Acceptance shall not be achieved until the constructed radio network successfully concludes performance test requirements the as-built radio network equals or exceeds the coverage performance guaranteed by the Successful Proposal or as otherwise amended by the Contract. Testing will only be scheduled in period of peak seasonal vegetation/foliage periods, i.e., June through August. Therefore, it is critical to the acceptance testing phase that Installation and Implementation is conducted on a schedule that facilitates coverage and performance testing during these specified months.
8.0 Dispatcher Console Requirements

8.1 General

It is a functional requirement that the existing VHF/UHF conventional analog systems remain operational during the installation and acceptance phases of the new Project-25 Digital voice radio network. Any proposal that would cause the temporary interruption of the VHF/UHF analog conventional systems for any duration must be reviewed and approved, in advance, by Floyd County or their designee. The County currently uses the Positron Front Line Viper CAD (version 1.5.0.15) dispatch console. They are satisfied with its reliability and performance, and will be the benchmark upon which any replacement console is judged.

It is the desire of the County to keep their existing dispatch console and have seamless integration with the newly proposed P-25 800MHz radio network. For those proposals that incorporate the replacement of the existing dispatch console with a proprietary console solution, careful consideration must be given to the cost benefits of replacement, functionality of newly proposed dispatch console when compared to the existing console, future warranty costs and vendor support. Proposals that do not provide a pathway for integration of the existing console solution shall provide a cost and functional comparison of the existing console solution with the newly proposed dispatch console solution. Such cost and functional comparison shall provide adequate justification to the County for replacement. Additionally, any newly proposed console shall be seamlessly compatible with the County's existing audio logging recorder, a 16 channel Verint model purchased two years ago and capable of being upgraded to a maximum of 48 channels.

Installation of new radio dispatcher equipment must, likewise, be completed in a manner that causes no interference with the operation of the existing VHF/UHF analog conventional systems. Therefore existing dispatch facilities for Police, Fire, and EMS operations must be evaluated by Proposers to determine the most effective means to install and implement their proposed new dispatch console equipment and associated subsystems.

Note: All consoles, wherever located shall be properly and adequately grounded and surge protected to industry standards for operator safety.

8.2 Radio Console Locations

8.2.1 Floyd County E911 Center

The Floyd County Police, Fire, and EMS Department dispatching facilities are located at the Floyd County E911 Center, in Rome. The mailing address of the 911 center is:

Floyd County-E911 Center
5 Government Plaza
Rome, GA 30162-0946
The main Public Safety Answering Point (PSAP) is a single room, separated into functional dispatch positions (pods) by cubical dividers, is provided for County and City Police, National Crime Information Center (NCIC), Fire, and EMS operations. A total of six radio dispatcher shall be provided. There are a total of three spare dispatch pods available to the E911 center for use in an emergency. The new radio dispatch and fallback control station equipment must be housed within the Center's existing console furniture.

Each dispatcher position shall be equipped to selectively monitor and control any combination of talk groups, NPSPAC mutual aid and interoperability radio channels. Additionally, dispatch consoles must have the capability of establishing and/or disabling dispatcher-controlled RF/audio interoperability service links as described in Section 3.2.6.

The display equipment at each dispatcher position must be of a compact, solid-state liquid-crystal design (Flat Panel 19-inch, minimum, screen) and capable of presenting a real-time alphanumeric display of pre-configured talk groups; call status and per-call user identification.

Each supervisory dispatch console position shall have the capability to monitor and control pre-configured talk groups, NPSPAC mutual aid channels, and dispatcher-controlled interoperability links. In addition, this console position shall be equipped to perform, at a minimum, the following system management tasks:

A. Emergency unit identification in real time.

B. Retrieval of system activity i.e. the types of calls, call duration, when made, user identification, etc.

C. Retrieval of special feature activity, i.e. interconnect usage, encrypted voice transmissions, etc.

D. Ability to remotely disable and re-enable selected field units.

E. Ability to regroup individual radios into special talk groups.

F. Assignment of user priority levels.

G. Ability to monitor summed major site/network alarm status.

The supervisory console position shall be equipped with solid-state liquid crystal flat screen monitor(s) to display real-time transactions at each dispatcher position and the system management information described above. Additionally, printer equipment shall be provided to prepare hard copy reports of accumulated system records.

8.2.2 EOC/Back-up E911 Center

The proposed Floyd EOC/Back-up E911 Center, will be located at 417 E 12th Street, Rome, GA (+34°14' 18" -85° 09' 53"). A schematic (preliminary) design is found in Attachment B for the EOC/Back-up E911 Center. There is an enabling project (Fire Station #3) that will have to be constructed prior to beginning construction on the EOC/Back-up 911 center. The
new EOC/Back-up 911 center should be fully integrated with the proposed 800MHz radio system. The EOC/Back-up 911 center requires the capability to access, maintain and monitor the 800MHz radio system from this location.

There will be a total of three (3) console/dispatch positions and there (3) CAD positions. This center will require connectivity to the existing network infrastructure via the microwave network. A total of three RF control stations should be at this location.

8.3 Desired Functionality

8.3.1 Dispatch Console Reliability

Due to the critical nature of the communications services provided by these multiple public safety dispatch facilities, a high degree of reliability for the new radio dispatch console subsystem is required. The console subsystem, to the greatest extent possible, shall:

1. Be automatically self-correcting.
2. Provide continuous and automatic self-testing and diagnosis.
3. Alert the operator in the event of component or sub-system failure.
4. Allow continued operation of the remaining consoles in the event of failure to a specific console, through isolation of the defective console device.
5. Be of a design that eliminates single points of failure.
6. Interconnectivity between consoles and dispatch locations shall utilize to the greatest extent possible packet-based, in lieu of traditional circuit-switched, technologies

A high degree of modularity is likewise envisioned to reduce the number of sub-systems affected by a single component failure. Repair of sub-systems without totally disabling multiple radio console positions shall be required, as continued console operation is necessary during repair.

8.3.2 Diagnostics

The new dispatch console subsystem shall be equipped with a number of self diagnostic elements that continuously monitor and verify the correct operation of each distributed microprocessor, each audio path in the console electronics and between the console electronics and the new radio network, itself.

Diagnostic capability shall be distributed among independent and redundant subsystems and shall not rely on one central diagnostic circuit.

8.3.3 Power Supply

It is a critical requirement that power loss or surges shall not affect radio dispatch operations. Power loss or surges shall not alter the system software or operating parameters at the radio dispatch positions. External power to each console shall be supplied by a nominal 120VAC, 60Hz, single-phase power source. An uninterruptible power supply, capable of supporting consoles, fallback radios and related equipment for a minimum 45-minute period shall be provided at each dispatch center facility. All dispatch console equipment, in whatever
facility, shall be connected to an outlet on a circuit that is supported by the building primary emergency power generator, if so equipped. It is not the responsibility of the Proposer to supply either the emergency generator or the designated circuits.

8.3.4 Flat Panel Display

A state-of-the-art color, non-interlacing, 19-inch minimum Flat Panel (solid-state) display shall be provided. Each operator shall have the ability to change screen displays to suit operator preferences. No less than eight console preferences shall be configurable for each console.

8.3.5 Headset Jack Configuration

All radio consoles shall be configured for headset and local-microphone operations. Each console shall provide independent transmit audio level settings for audio inputs from the headset microphone and a desktop microphone, such that dispatchers may freely switch operation without affecting dispatch audio quality. Dual headset jacks shall be provided at each position for training and supervisory purposes.

8.3.6 Footswitch

Each of the radio consoles shall include a footswitch for PTT operation of the selected channel(s). The footswitch shall be heavy duty, rated for constant and continuous use, and shall be designed so as not to skid on a smooth flooring surface. The Contractor shall supply and install a switch for each console.

8.3.7 Master Time Source

A time generator system shall be provided, by the Contractor that references the Global Positioning System to synchronize all dispatch, CAD and audio recorder clocks at all radio console positions/centers. This time generator system shall be made to fully interface to and control the event-time display of the radio consoles, console audio recorder, radio network management tools, radio network alarm system, microwave alarm system and CAD systems at each radio dispatch location. This time generator shall have an adequately sized UPS, connected into an emergency powered circuit outlet.

8.3.8 Dispatch Console Positions

Each of the radio dispatch consoles shall include all controls that apply to the various channel/talk groups and auxiliary functions for the console. Each console position shall contain as a minimum:

- Select Speaker – for audio from selected channels/ talk groups, with volume control.
- Unselect speaker – for audio from unselected channels/ talk groups, with volume control.
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- Transmit Function – a color-coded transmit function to control the push to talk (PTT) function for the selected transmitter(s) and/or talk group(s).

- CTCSS Monitor or Disable Function – shall disable the receiver CTCSS decoder of selected conventional base station(s) for monitoring purposes.

- Clock – shall display time in twenty four-hour format.

- VU Meter or Audio Level Display.

- Keypad or screen representation of a keypad for numeric data entry.

- Microphone – desktop microphone type. This microphone shall be resistant to interference, such as transmitting hum for lights, cathode ray tube terminals, or other devices used in the proximity of the console.

- Dual Headset Jack – a dual headset jack shall be provided which will allow for use of a headset equipped with RJ-327 type plug with modular adapter. Separate headset volume controls for radio and telephone audio output shall be provided.

- Intercom – intercom between operator positions shall be provided. A visual display shall be provided to identify both the calling and called parties by console name. Multiple simultaneous intercom conversations between individual consoles shall be possible.

- Private Call – Selected users and dispatchers shall have the ability to selectively communicate “privately” with another individual on the system regardless of what talk group either unit is in. The call shall allow the two users to utilize a single channel resource to communicate without the participation of other units in their respective talk group.

- ID Display on the channel window for standard calls and emergency calls.

- All Receiver Mute Function – a function, which will mute the received audio from all unselected channels, shall be provided. This muting function shall be programmable in predetermined increments.

- Simultaneous Select and Instant Transmit Function – controls shall be provided that allows the operator to manually select any combination of console controlled base stations for simultaneous transmissions. Three selectable combinations shall be allowed at the discretion of the dispatcher. The patch shall utilize a single trunked channel when patching more than one talk group.

- Emergency/ Reset – consoles shall receive emergency alerts from the trunked radio system regardless of the status of the channel control window. Emergency messages shall be indicated by a flashing ID, and emergency ID character and an audible alert. Dispatcher acknowledgment of the message shall silence the audible alert and stop the flashing display. Multiple emergency messages shall be queued in the display
stack and the emergency ID character shall continue to flash until all messages have been viewed and subsequently cleared by the dispatcher.

• Alert Tones – the console shall be provided with three distinct tones used for alerting purposes over the air. Each alert tone shall be immediately broadcast, when activated, on the selected radio channel. The following selections shall be available as a minimum:

  a. Alert 1 – Steady Alert Tone – shall generate a nominal 1000 Hz steady tone.
  b. Alert 2 – Warbling Tone – shall generate a warbling tone.
  c. Alert 3 – Pulsed Alert Tone – shall initiate an automatic sequence, consisting of a nominal 1000 Hz tone, for a period of two (2) seconds.

• Paging Encoders – Each console shall include a multi-tone paging/signaling encoder that is accessible, minimally, through the data entry keyboard.

• Call Indication – a color-coded status call indicator shall be provided for each receiver in a channel control window on the display screen.

• Individual Volume Adjust – shall be provided for each channel on the console. Associated color-coded status indicators shall continuously show whether the channel is in the full or adjustable volume control shall be automatically bypassed when a channel is placed in select status.

• Talk group/Channel Cross Patch

• Channel/Group Name – designated channel/group control modules shall include a minimum of eight character alphanumeric display symbols to identify the channel/group.

• Talk Group/Channel Busy Indication

8.3.9 Video Display Installation

The installation of the Video Display(s) used for the radio dispatch positions shall be desk mounted on furniture provided by Floyd. Contractor-furnished cabling shall be installed in a neat manner, which is approved by Floyd and protected from physical damage. Cable raceways shall be used where possible. No cabling shall create a safety or mobility problem for dispatch personnel.
8.4 Console Electronics

8.4.1 Description

Console electronic circuitry shall be housed in an equipment cabinet/enclosure specific for each dispatch console position. When installed by the Contractor, sufficient space for front and rear servicing of this equipment shall be provided. The use of a centralized console electronic bank that supports audio and control signaling between multiple dispatch console positions is discouraged.

Console electronic enclosures shall contain the various microprocessors, console interfaces, auxiliary function interfaces and other interfaces needed for system operation. If multiple circuit cards are required in the Proposer’s solution, these shall be of plug-in design and shall be able to be inserted and/or removed with power applied and the location’s dispatch positions/equipment remaining on-line.

8.4.2 System Interfaces

The digital voice network’s radio dispatch subsystem shall include that circuitry required to operate remotely-controlled base stations and the trunked simulcast repeaters as described by this Specification and in the Proposer’s Submittal. At a minimum, each base station interface shall consist of a plug-in circuit card (or the software equivalent) containing VoIP-related circuitry, line driver amplifiers, two-wire and four-wire receive amplifiers, digital automatic level adjustment circuitry and fault-diagnostic circuitry. The interface shall be capable of remotely controlling base stations via E/M multiplex-channel and 2175Hz tone-burst signaling.

8.4.3 Auto Diagnostics/Self Healing and Diagnostic Features

The radio dispatch subsystem shall be equipped with a number of self diagnostic capabilities that shall be configured to continuously monitor and verify the correct operation of each distributed microprocessor, each audio path in the console electronics and between the electronics and each radio network base station site. In the case of voice transactions using the Internet Protocol, specialized coding shall be used to assure the timely delivery of audio packets to destinations such that recovered or transmitted audio is absent of noticeable voice delays or audio truncation.

8.4.4 Console Auxiliary I/O Functions

Unless otherwise specified within this document, all external auxiliary input and/or output (logic or relay) functions shall be controlled through an auxiliary interface module. These functions shall be controlled from the console position as required.
8.5 Fallback Control Stations

Each dispatch and supervisory position shall be equipped with a 800MHz trunked control station to permit radio dispatch operations to continue in the event of radio console equipment or connectivity failures. These control stations, in addition to the minimum requirements specified by Section 5.3, must contain an alphanumeric display to provide information on talk group selection and emergency call alerts.
9.0 Special System Requirements

9.1 Generator Equipment Requirements

Standby power generator systems shall be furnished by the Contractor for each newly proposed P-25 800MHz simulcast infrastructure and prime site/control point site. If a proposer plans to reuse any existing (in place) standby power generation equipment at any site, the Proposer shall insure that the loading capacity and functionality of existing equipment will meet and/or exceed the power and run time requirements of any newly proposed standby power generation equipment as outlined below.

For all newly proposed infrastructure sites, the Proposer shall include the necessary labor and materials, as required, to furnish and install LPG fuel tanks, diesel fuel tanks, gas line attachments (where natural gas service is available), automatic transfer switches, manual-operated auxiliary generator connector facilities, generator/fuel tank foundations/platforms, alarm functionality and electrical wiring services to provide fully operational standby power systems. Generators shall be housed within outdoor equipment enclosures in accordance with the manufacturer’s specifications for shock and vibration mounting, ventilation, fuel supply and electrical connections.

9.1.1 General Requirements

It shall be the responsibility of the Contractor to provide, install and test a complete and operable standby power generator with automatic transfer switch. Equipment shall be new, factory tested @ 0.8 power factor for 3-hours, and shall be installed adjacent to the required radio equipment shelters, in accordance with local area building and electrical codes.

9.1.1.1 Documentation

The following documentation shall be supplied by the Contractor for the generator set and transfer switch supplied:

- Specification and data sheets for the exact type and model generator and transfer switch supplied pursuant to this procurement, including all options and accessories included.
- Manufacturer's certification of prototype testing.
- Manufacturer's warranty documents.
- Shop drawings showing plan and elevation views of the equipment.
- Interconnection wiring diagrams showing all external connections required; with field wiring terminals marked in a consistent point-to-point manner.
- Manufacturer's installation instructions.
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- Operator's and maintenance manuals that outline routine maintenance and troubleshooting procedures.
- Transfer switch manual and wiring diagram.

9.1.1.2 Start-Up Service

A factory authorized service representative shall provide initial start-up service and shall conduct on site acceptance testing. Load test records for the installed generator system shall be furnished to Floyd.

9.1.1.3 Type of Generator

Each generator package shall include a dual-fuel (natural/LP Gas fueled) four-cycle, or diesel (2 or 4-cycle) with tank underneath the generator, engine-driven set coupled with low reactance, brushless 120/240vac single-phase generator. Each generator package shall be equipped with a temperature compensated automatic voltage regulator; under/over-speed protection function; a control panel; and high ambient-temperature cooling system.

9.1.1.4 Ratings

Output power rating of each generator shall be sized for the full calculated load for the affiliated site, inclusive of a 50% excess load factor. In no instance, however, shall any generator set be configured for less than 45KW output. Each generator shall be capable of continuous 24-hour operation, full single phase output @ 1.0 pf. The following specifications shall also apply:

Voltage Regulation: Maintained with +/- 2% of rated voltage for constant load between no load and full load.

Frequency Regulation: Maintained within 0.5% from steady state no load to steady state rated load.

Single-Step Load Pickup: 100% of rated output power, less applicable derating factors, with the engine generator at operating temperature.

9.1.1.5 Generator Set Control

Each generator shall be a remote-start type compatible with the automatic transfer switch to be supplied pursuant to this procurement. Manual starting and stopping shall be provided from the control panel.

Cranking control: Shall provide a minimum of three cranking cycles of at least 15-seconds before lockout and activation of an over-crank alarm condition.
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Each generator shall automatically shut down and lock out upon:

- Failure to start (over-crank)
- Over speed
- Low lubricating oil pressure
- High engine temperature
- Other factors that may be harmful to the generator

Alarm contacts shall be provided to allow transmission of fault alarms for any of the above conditions, plus low oil pressure pre-warning, high coolant temperature pre-warning, low coolant temperature, low fuel and an alarm indication when the generator set is running. These alarm contacts shall be wired into and shall be reported by the radio network alarm system being supplied pursuant to this procurement.

Meters shall be provided, and located both at the generator and within the equipment shelter, to indicate output voltage, output current, running time, and frequency/RPM. An AC rheostat shall be supplied for fine tuning of the generator’s output voltage. These devices shall be mounted either on the transfer switch door or a separate, remote panel.

9.1.1.6 Fuel Supply

The Contractor shall supply a new, fully painted, LP gas storage tank to be installed and secured to a concrete pad at a location near the equipment shelter and which is accessible for refueling. In some instances, depending upon local conditions, Contractor shall be required to elevate the fuel tank as necessary (depending upon Contractor's flood determination, to a height equal to the equipment shelter. The fuel tank shall provide sufficient fuel to provide six days of continuous operation of the generator set, at full load under low ambient temperature 20-degrees Fahrenheit). The tank shall be refilled after the conclusion of radio network acceptance tests.

Fuel lines shall be buried below the frost line. At any point at which the fuel line exits above grade, the line shall be insulated to reduce condensation at the regulator. A low fuel level alarm shall be provided.

All regulators and fuel supply lines will be sized accordingly for the generator running at full load. All necessary regulators, drip pots, piping, meters, or other supplies needed for an installation which meets local fire and building codes shall be furnished and installed.

Contractor shall supply a full fuel tank at time of System Acceptance.

9.1.1.7 Exhaust System

A residential-grade exhaust silencer shall be installed on the generator.
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9.1.1.8 Battery and Charger

A lead acid starting battery, rated for the engine type to be supplied, shall be furnished and installed with each generator package. This battery shall be float charged by a 10-ampere, voltage-regulated charger which is powered by a protected 120VAC source. Float, taper and equalize charge settings shall be provided. Battery charger shall be physically located within the generator transfer switch enclosure.

Form-C charging system alarm contacts shall be provided and connected to the radio network's alarm system to report loss of AC power, low battery voltage and excessively-high battery charging current.

9.1.1.9 Cooling System

A radiator-cooled engine is required. The radiator shall be filled with a water/coolant mixture in accordance with the engine manufacturer's recommendations.

A thermostatically-controlled water jacket coolant heater shall be provided and installed in accordance with the manufacturer's recommendations.

9.1.1.10 Base

The generator set shall be mounted on a heavy duty steel base which is, in turn, anchored to a Contractor-furnished generator foundation. The base shall maintain alignment between generator set components and shall include vibration isolators.

9.2 Transfer Switch Requirements

An automatic transfer switch which provides switching of the equipment shelter electrical load between commercial power and generator power shall be supplied and installed for each installed standby generator. Each transfer switch shall be completely factory assembled and shall contain electronic controls designed for surge voltage isolation, with voltage sensors on all phases of both input power sources. Permanently attached manual handles shall also be installed on the transfer switch. The switch shall provide positive mechanical and electrical interlocking and mechanically-held contacts. Quick-make and quick-break contact mechanisms shall be provided for manual transfer under load.

Each transfer switch shall be installed in a key locking, UL listed, NEMA cabinet to be mounted on a wall within the radio equipment shelter. The switch shall be fully wired and integrated with the engine generator set in accordance with local electrical and fire codes.

A manually-operated transfer switch, as well as appropriate power connectorization, shall be provided to allow the interconnection of an auxiliary, trailered generator set should the permanently-located generator fail in operation.

All transfer switches and accessories shall be U.L. listed and labeled, tested per U.L. Standard 1008 and CSA Approved.
9.2.1 General Specifications

Transfer switches shall be double-throw electrically and mechanically interlocked and mechanically held in both positions.

Main switch contacts shall be high-pressure silver alloy. Contact assemblies shall have arc chutes for positive arc extinguishment. Arc chutes shall have insulating covers to prevent inter phase flashover.

Form-C contacts shall be provided in each main switch position for alarm reporting purposes. These contacts shall be connected to the radio network's alarm system for reporting transfer status.

Each transfer switch shall be continuously rated for operation in ambient temperature ranges of -40 to +50 degrees Celsius. Transfer switches shall be rated, minimally, to carry the generator's full rated output, inclusive of the 50% added capacity over calculated equipment loading.

The Line-In; Generator-In and Load site termination for the automatic transfer switch shall be protected from lightning transients using a combination of MOV and varistor technologies. All alarm and instrumentation wiring from the generator, that enters the equipment shelter, must likewise include appropriate lightning surge protection in the form of solid-state, fast-acting voltage clamp devices whose clamping voltage is closely matched to normal individual-alarm signal amplitudes.

9.2.2 Automatic Control

Transfer switch control shall be solid state and designed for a high level of immunity to power line surges and transients. The device shall be tested in accordance with IEEE Standard 587-1980 (or latest revision). Controls shall have optically isolated logic inputs, and isolation transformers for AC inputs. Relays shall be installed on all outputs.

Solid state under voltage sensors shall simultaneously monitor all phases of the standby power source and the commercial power source. Pick up and drop out voltage settings shall be adjustable. Voltage sensors shall allow for adjustment to sense partial loss of voltage on any phase.

Controls shall be provided with solid state over voltage sensors, adjustable from 100-130% of nominal input voltage to monitor the source. An adjustable time delay shall be provided.

Automatic controls shall signal the engine-generator to start upon signal from normal source sensors. A time delay start, variable from 0 to 5 seconds, shall be provided to avoid nuisance start ups. Battery voltage starting contacts shall be gold, dry type contacts which have been factory wired to a field wiring terminal block.

The switch shall transfer when the emergency source reaches the set point voltage and frequency. A time delay shall be provided for transfer that shall be continuously variable from 0 to 120 seconds.
The switch shall retransfer the load to commercial power after a time delay. This time delay shall be variable (adjustable) from 0 to 30 minutes to avoid short engine run times. The retransfer time delay shall be immediately bypassed if the emergency generator fails.

A control shall automatically signal the engine generator to stop after a time delay, which shall be adjustable from zero to ten minutes, the time starting upon return to commercial power.

Power for transfer operation shall be from the source to which the load is being transferred.

Diagnostic indicators shall be provided to allow the last successful step in the sequence of control functions to be pinpointed. The present status of the control functions shall also be indicated. These functions, at a minimum, shall include:

- Source 1 OK
- Start generator set
- Source 2 OK
- Transfer timing
- Transfer complete
- Retransfer timing
- Retransfer complete
- Timing for stop

9.2.3 Front Panel Control Devices

A key-operated selector switch shall be provided which will provide the following functions:

- Test - to simulate commercial power loss to allow testing of the generator set with or without transfer of the load.
- Normal - leaves the transfer switch in its normal operating position.
- Retransfer - a momentary position which will provide an override of the retransfer time delay and cause immediate return to the commercial power source (if available).

9.2.4 Exerciser Clock

Each transfer switch shall be equipped with an exerciser clock which allows setting the day, time and duration of a generator set exercise/test period. Tests under load or with no load shall be selectable.
10.0 General Equipment Shelter/Tower Requirements

10.1 Shelter Design Considerations

10.1.1 Equipment shelters shall be of a skid-mounted, bullet-resistant, prefabricated concrete aggregate type designed to house radio communications and sensitive electronic equipment.

10.1.2 The interior wall measurements shall be no less than 10ft high, 12ft wide and 20ft long. Exterior dimensions shall include nominal wall, roof and skid dimensions, to be determined by Proposer.

10.1.3 Equipment shelters must provide an interior climate suitable for the operation of sensitive electronic equipment, that is, it must be dust proof, watertight and airtight.

10.1.4 Each equipment shelter shall be supported by a concrete pad with attachment devices appropriate for securing the building assembly to survive hurricane force (no less than 120-mph) winds. In the case of sites determined by the Contractor as requiring elevation due to potential flooding, the affected equipment shelter shall be set on poured concrete piers. The finished length of piers shall extend, minimally, four feet above ground level but otherwise in accordance with Contractor’s calculated flood plain elevation plus a two-foot contingency margin. The flood plain data shall be 100 Year data for the location.

10.1.5 Skid components, attachment hardware, cross-braces and lifting eyes shall be hot-dipped galvanized after fabrication.

10.1.6 Shelters shall be designed to withstand sustained hurricane force winds not less than 120-mph.

10.1.7 The exterior wall finish shall be exposed aggregate. Seeding of aggregate for an exposed aggregate finish is not acceptable. Exterior walls must be bullet proof as defined below.

10.1.8 The roof shall be a flat, tapered type having a minimum slope of 1/2" per foot from the roof centerline.

10.1.9 All exterior wall, floor and roof joints shall be sealed using a compressible, resilient sealant. There shall be no exposed roof-to-wall or wall-to-floor joints.

10.1.10 Cement used in concrete shelters shall be standard Portland cement conforming to the requirements of the “Standard Specification of Portland Cement”, ASTM Designation C150. Concrete aggregate shall conform to the requirements of the “Specifications for Concrete Aggregates” ASTM C33 and “Specifications for lightweight aggregates for structural concrete” ASTM C330.

10.1.11 Exterior concrete surfaces shall be sealed with a minimum of two coats of Thoroglaze H Sealer or equal.
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10.1.12 The shelter's interior floor shall be covered with 1/8" x 12" x 12" industrial weight solid vinyl floor tile. Floor color shall be light beige.

10.1.13 Walls shall have a minimum thermal insulation factor of R11.

10.1.14 The shelter's roof shall have a minimum thermal insulation factor of R19.

10.1.15 Interior wall surfaces shall be faced with white vinyl/coated wood paneling.

10.1.16 The interior ceiling surface shall be a white, vinyl coated plywood. Seams in the plywood shall be trimmed with batten strips painted to match the ceiling.

10.1.17 Building openings for the door, air-conditioners, transmission line entrance and other entries shall be framed and sealed in such a manner that moisture cannot penetrate the insulation within the walls or the interior walls of the structure.

10.1.18 A single 36"W x 72"H x 3" thick insulated bulletproof steel door, equipped with a three-point latch, shall be provided. All door hardware shall be stainless steel and incorporate three external hinges. Door shall open outward to maximize internal building utilization.

The term 'bulletproof' is defined, for this Specification, as unable to be penetrated by a .30-06 or .308 commercial cartridge firing a lead tipped, 160-grain projectile, at not more than 2600 fps muzzle velocity. The projectile will be test-fired at a range of 100 yards. The structure/material must not be completely penetrated at that distance.

10.1.19 Stainless steel reinforced, fiberglass coated exterior awnings shall be provided to protect the door entrance and air-conditioner units.

10.1.20 All hardware used on the exterior surfaces of this shelter shall be either hot-dipped galvanized or stainless steel.

10.1.21 Wafer or particleboard wood products are not an acceptable construction material for this project.

10.1.22 Contractor shall provide detailed fabrication drawings for the pier concrete foundation, designed to adequately support the proposed building structures and wind loads. Additionally, the building frame shall be mechanically bonded to the concrete foundation. Generators and fuel tanks shall be similarly elevated for protection against rising water effects, if building locations are flood prone. Fuel tanks shall be restrained from floating and must be secured with adequate metal straps and anchors to prevent buoyancy of a tank of the required capacity at a 95% fuel empty status. Strapping and anchor materials shall be hot-dipped galvanized protected.

All building and foundation detail drawings and related calculations must be reviewed and approved by a Georgia-registered professional engineer.
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10.2 Shelter Electrical Requirements

10.2.1 Each shelter shall be equipped with overhead cable trays located above all planned equipment cabinet groupings. Auxiliary cable trays shall be provided to support transmission lines and telecommunications cables, as necessary. All cable tray joints shall be electrically bonded using No. 6 AWG copper wire jumpers with approved compression fittings. Trays shall be bonded to interior ground halo.

10.2.2 Individual, properly grounded 120VAC, 20A electrical circuits shall be provided to each of the equipment racks/cabinets. Each shall be terminated as a single, duplex outlet mounted on the cable tray directly above the center of each planned equipment cabinet.

10.2.3 Individual, properly grounded 120VAC, 30A electrical circuits shall be provided for each battery charger unit. Sufficient flexible conduit shall be provided above the rack to permit interconnection to chargers located at the bottom of the rack.

10.2.4 DC wiring for the radio network’s battery plant and interconnection to the various equipment groupings shall be furnished and installed, as required.

10.2.5 Two 240VAC electrical circuits shall be provided for the HVAC system. Sizing of these circuits shall be determined by the Proposer.

10.2.6 Install six quad 120VAC convenience outlets equally spaced along interior walls. A total of three 15-ampere circuit breakers shall be provided (two quads per breaker).

10.2.7 Furnish and install a 120/240VAC automatic generator transfer switch and LPG generator set, per Section 9.2, Generator Equipment Requirements. All circuits and outlets for all equipment installed in the shelter shall be on the Emergency power system.

10.2.8 The Contractor shall furnish and install one circuit breaker panel board. Panel board shall be sized for all of the indicated branch circuits, equipment loads plus a fifty-five percent growth factor.

10.2.9 The Contractor shall furnish and install an interior and exterior electrical ground halo and power surge protection for each location, as follows:

A. A single No. 2AWG copper conductor ground halo shall be installed on all four interior walls, spaced approximately six-inches below ceiling level. The halo shall include a twelve-inch gap/break at the furthest point from the single-point ground attachment.
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B. Ground halo shall be mounted on six-inch standoffs, located on twelve-inch centers. It shall be affixed to the transmission line ground entry port, buss bar.

C. All equipment cabinets, racks, transmission line entrance and cable trays shall be individually bonded to the halo using No. 6AWG copper conductors with approved compression fittings.

D. Interior halo shall be bonded to an exterior, buried ground network using low impedance copper conductors.

E. Electrical lightning protector shall be Polyphasor model IS-IL 240BP or equal.

F. A single, stranded No. 00AWG copper exterior ground system shall be installed about the building and tower perimeter, located approximately 18" below grade and exothermically bonded to the building frame, interior halo, transmission line ladder, generator system and radio tower legs. All grounding shall meet a required 3 Ohms or less. All grounding practices and methods shall meet a recognized standard such as IEEE or Motorola R 56.

10.2.10 Install 4-foot, 2-bulb, 80-watt fluorescent light fixtures as necessary to provide effective illumination for each equipment cabinet. Emergency exit and inter lighting as required by fire code. Exterior lights above the door and area lights on each of the exterior shelter corners shall be controlled by at a maximum of two light switches located just inside the door opening on the side away from the hinges at shoulder height.

10.3 HVAC Requirements

10.3.1 The Contractor shall furnish and install a dual, wall-mounted heating and air-conditioning system appropriately sized for each shelter/equipment heat load. Each HVAC unit shall incorporate circuitry to ensure that both compressors do not attempt to restart at the same time. There shall be timer circuits to rotate use of the air conditioner units on a weekly basis. Additionally, sensors may cause both air conditions to run simultaneously as needed to reduce the internal temperature to a safe operating level.

10.3.2 Equipment shall be furnished with compressor anti-cycle circuitry to prevent short-cycle starts against high compressor head pressure.

10.3.3 Equipment shall be furnished with a compressor hot gas bypass to minimize electrical power surges as a result of compressor cycling.
10.3.4 Design of HVAC system shall take into consideration the following environmental conditions:

- Desired Interior Temperature: 72 degrees F
- Maximum Outdoor Temperature: 98 degrees F
- Minimum Outdoor Temperature: 10 degrees F
- Transmitter Power Dissipation: 5,000 watts
- System Controller: 850 watts
- Battery Charger/Inverter: 2,000 watts
- Lighting: 650 watts (Intermittent)

10.3.5 Buildings shall incorporate a thermostatically controlled fan system designed to operate in the event of a total HVAC failure and where the building's interior temperature exceeds 98°F. This system shall incorporate appropriate dampers, screens and filters to limit dust and insect entry into the building.

10.4 Alarm Systems

10.4.1 The Contractor shall furnish and install an over/under temperature sensor, continuously adjustable over the range of 30°F to 98°F, having independent Form-C output contacts suitable for high/low temperature alarm activation.

10.4.2 The Contractor shall furnish and install a door entry alarm sensor, magnetic type, having a Form-C contact closure output.

10.4.3 The Contractor shall furnish and install a single-loop smoke/fire alarm system.

10.4.4 Smoke/fire alarm sensors shall be mounted above battery charger equipment, and in vicinity of AC power distribution panel board.

10.4.5 Smoke/fire alarm panel shall have visual indicators depicting individual alarm sensor status.

10.4.6 Smoke/fire alarm panel shall operate from both 120VAC and 12VDC battery power sources.

10.4.7 All shelters shall be equipped with an inert gas fire suppression system (FM 200 or similar) that is environmentally approved and not injurious to communications staff. The system shall be connected to the communications and shelter fire/smoke system alarms. Trigger of the system causing a gas discharge shall cause the air conditioners to automatically shut off. The air conditioner units must be manually restarted to purge the shelter of the gas, after all evidence of combustion is resolved. All necessary plumbing and overhead dispersal equipment shall be provided. The system shall have modes for test and maintenance that do not trigger activation. The system shall be installed and delivered with a primary tank, on line and a spare, full tank, off line. In the event of a discharge during testing by the vendor, Floyd shall not be responsible for replacement or refill of the system. Refill of the system primary tank, by the vendor, due to an actual event, the spare tank shall be placed in line and the discharged tank shall be refilled and returned as the spare within 48 hours by the vendor.
10.5 Tower Requirements

10.5.1 The basic standard for the design of newly required steel antenna towers, wave guide bridges and supporting structures, shall be ANSI/EIA-222-G or latest version.

10.5.2 Towers shall be either a self-supporting or guyed triangular shaped, solid-rod structure having an overall height to be determined by the Proposer, based on the requirements of area coverage and availability of clear Microwave paths for site connectivity. Limits of available space in certain areas may dictate the use of Self-support towers.

10.5.3 Each tower shall be designed for a minimum sustained 120-mph wind speed, 0.5” ice load, with the full complement of necessary antennas and required lights and other Federally-required equipment. Proposal must take into consideration any current antennas that must be retained by the County for other communications needs.

10.5.4 Antenna loads shall be as determined by Proposer, however, the design shall include a minimum 30% growth factor.

10.5.5 All fabricated tower assemblies and parts shall be hot-dipped galvanized after fabrication per ASTM Standard A123. Hardware shall be galvanized per ASTM Standard A153 and B695. Other types of zinc coating or plating are not acceptable.

10.5.6 Towers shall be supplied with a full-length transmission line ladder designed to accept all transmission lines needed for the proposed design plus a 50% growth factor.

10.5.7 Towers shall be equipped with an outside climbing ladder/cable type safety device and strobe-lighted in accordance with FAA and OSHA requirements.

10.5.8 Antennas, tower top pre-amps and transmission lines as specified by the licensed frequencies and system design, shall be provided and installed by the Contractor.

10.5.9 Electrical Grounding Systems to meet industry standard, as specified above, shall be furnished and installed by the Contractor in accordance with the following minimum practices:

- Install a ground ring around the base of the tower, consisting of 8’x 5/8” ground rods driven to a depth necessary to meet the required resistance measurement of the specifications, adjacent to the foundation of the tower at each leg. Ground rods are to be interconnected by a minimum #00AWG stranded copper wire, which is Cadwelded to each top most ground rod. Copper wire and ground rods are to be installed in a trench of a minimum depth of 18-inches below finished grade. Maximum spacing between rods shall be 15-feet. Each tower leg shall be bonded to the ground ring by #00 stranded copper wire, which has been Cadwelded to the factory provided tab, manufactured onto the tower leg and to the closest ground rod, avoiding any acute bends in the wire. All paint shall be removed from the tab on the tower leg (if painted) at the point the ground connection is made. At the completion
of the Cadwelding process, the welded area shall be resealed with a cold galvanizing compound and repainted if originally painted.

- The ground rod/ring system shall extend around the perimeter of the equipment shelter, transmission line copper entrance port into the shelter and to the perimeter fence.

- Bond all transmission line outer shields to the structure at the top of the tower immediately below the antenna pig tail, mid point if the tower is over 200-feet tall, and at the bottom section of the tower at a point one foot above the bend made in the line to attach it to the Waveguide Bridge and at the copper plate at the entry port into the tower.

- Fencing shall be grounded to the ground ring via #2AWG solid copper wires, bonded, using Cadweld fittings at each fence post. All Cadwelding locations shall be cold galvanized as above

- Antenna mounts shall be grounded to the tower. A copper ground rod shall be mounted to the topmost part of the tower to be the highest point on the structure. A #00AWG stranded copper wire shall run down the tower leg closest to the shelter entrance port and all to ground connections of antenna cables and fixtures on the tower shall be made to this copper wire. This shall terminate at the copper ground rod at that closest leg foundation and be fully bonded into the ground ring.

- The shelter’s interior halo ground and transmission line copper inside entrance port (buss bar) shall be bonded to the outdoor ground system.

- A ground test well shall be provided at a minimum of two points along the ground ring. The test wells shall consist of 4”x2’ PVC pipe, with a screw type cap installed. The test well shall allow measurement of ground system resistance at opposite corners of the tower.

- Grounding system resistance shall be measured to be 3-ohms or less between any point on the ground system and earth ground.

### 10.6 Required Tower Submittals

10.6.1 The Contractor shall furnish wind-load stress and foundation calculations used in the design of the proposed tower structure. These calculations must have been developed and approved by a Professional Engineer registered in the State of Georgia.

10.6.2 The Contractor shall furnish documentation approved by a registered professional engineer, licensed in the State of Georgia, certifying that the proposed tower and foundation meets the requirements of ANSI/EIA-222G or latest version and is in accordance with these Specifications.

10.6.3 Prior to proposal submission, Proposers shall, at their own expense, make such additional investigations on site conditions, as necessary, for the successful and accurate
completion of their Proposal Submittal. Floyd County shall permit site inspection access during normal business hours.

10.6.4 Proposers shall furnish documentation as to any special condition or restriction applied to the use of materials, products or equipment contained in their Proposal. Contractor shall provide to the County a minimum of two sets of completed as-builts on each tower and shelter installed in this project. This shall include engineering and design document from the tower and shelter manufacturer.

10.6.5 The Contractor shall furnish written certification that all installed tower components have been assembled and hot-dipped galvanized in accordance with these minimum requirements.

10.6.6 The Contractor shall provide a detailed report of electrical ground resistance measurements of the completed, as-installed, electrical grounding system, on a per-site basis with field drawings to indicate the measurement at a specific location.

11.0 Site Work Requirements

11.1 Site Preparation and Sub-grading

11.1.1 General

Site clearing, initial earthwork and rough grading and final grading as needed for installation of towers and equipment shelters is the responsibility of the Contractor. The following describes a set of minimum requirements for the execution and completion of site-related construction activities.

11.1.2 Performance

1. Dewatering:

   a. Control grading around excavations to prevent surface water from flowing into excavation areas.

   b. Drain or pump as required thereby maintaining all excavations, trenches and pier holes free of water from any source and discharge to approved drains or channels. Commence dewatering action when water first appears and continue until work is complete to the extent that no damage will result from hydrostatic pressure, flotation, or other causes.

   c. Use pumps of adequate capacity to insure rapid drainage of area, and construct and use drainage channels and sub-drains with sumps as required.

   d. Remove unsuitable excessively wet sub-grade materials and replace with approved backfill material.

2. Compaction:

   a. Compact sub-grades, fills, embankments and backfills using spreading equipment, tamping rollers, rubber-tired rollers, vibratory compactors, or power tampers, as required to obtain reasonable uniformity. Nuclear soil testing results are required to be provided in a report to the Consultant.

   b. Perform within moisture content range as specified to obtain required results with equipment used.

   c. Achieve minimum densities specified as references to:

       1) Cohesive soils - 95 percent maximum density at optimum moisture, AASHTO T99.
2) Cohesionless Soils – 70 percent of maximum relative density.
   a) ASTM, STP 479 Bunnister method.
   b) USBR - E12 relative density.
   c) Relative density, ASTM D2049.

3) Cohesionless Soils
   a) Floyd County or designee may approve the use of AASHTO T99 for certain cohesionless soils using at least 100 percent of maximum density.

4) Compact control fill and backfill in not over 8-inch lifts/ layers and compact to between 90 % to no more than 96 % of maximum density at optimum moisture AASHTO T99.

11.2 Drilled Pier Foundations

11.2.1 General

1. Extent of Work:
   a. Perform all drilling and excavation and supply all labor and materials to construct drilled pier foundations, as necessary.

11.2.2 Performance

1. Quality Assurance:
   a. Field Inspection by County designee - quality control.

   1) Floyd County's Project Representative will be designated to be responsible for field inspection of the drilled pier foundations. He will transmit, in writing, to consultant and Contractor any materials or methods observed by him, which do not conform to this specification and, if required, will not be considered for payment. The County's Project Representative must inspect each drilled pier. Specific responsibilities of the County's Project Representative will be to:

   a) Observe drilling excavation of drilled pier foundations. Ensure the placement of anti-caving physical barriers or the use of special drilling mud to prevent excessive cavitation.

   b) Inspect material and equipment used in construction of drilled piers.

   c) Inspect bearing elevation of drilled piers.
d) Observe placement of concrete and rebar within the drilled pier foundation to match design specification. Ensure that no excessive earth contamination occurs. Contamination of poured concrete is sufficient to cancel the pour and request engineering inspection.

e) Floyd’s representative shall photograph or film all foundation excavation and pouring activities.

2. Contractor Qualifications

a. A minimum of two years experience in drilled pier construction, including experience with similar subsurface material, water conditions, shaft sizes, and special techniques as required.

3. Drilled Pier Details

a. Drilled shaft dimensions and top elevations shall be in accordance with foundation design calculations and drawings.

b. The drilled shaft bearing or bottom elevation shall be at the elevation indicated, unless it is determined by the County's Project Representative that the bearing elevation should be adjusted.

4. Drilled Pier Excavation

a. Excavate drilled shaft to dimensions and required elevations as indicated. Maintain sidewall stability during drilling and extend excavation to suitable material.

b. Determine suitability of supporting material for drilled piers as follows:

1) Inspection of each pier will be by the County's Project Representative and Contractor.

c. Remove from bottom of drilled piers, loose material or free water in quantities sufficient to cause settlement or affect concrete strength as determined by the County's Project Representative.

d. Install temporary casing, where required, to prevent caving of drilled pier sides or excessive seepage.

e. Dewater all drilled pier excavations prior to cleaning, inspection, and placing concrete.

f. Each drilled pier must be inspected and approved by the County’s Project Representative before any concrete may be placed.
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5. Excavated Material
   a. Dispose of any excavated material at locations approved for that purpose.

6. Reinforcing Steel
   a. Place reinforcement for drilled piers in accordance with foundation design documents.
   b. Place bars as shown on foundation drawings with concrete cover of not less than 3-inches where exposed to soil.
   c. A reinforcing cage shall be designed as a structural element and braced to retain its configuration throughout the placing of concrete and the extraction of the casing (if used) from the shaft.

7. Concreting
   a. Dewater drilled piers and maintain the excavation free of water prior to placing concrete.
   b. Place concrete immediately after final inspection.
   c. Place concrete immediately after completion of excavation and after County's Project Representative has completed his inspection. Do not leave uncased excavations open over night.
   d. Free fall concrete (not over 6') may be used provided it is directed through a hopper, or equivalent; such that fall is vertical down center of shaft without hitting sides. Vibrate concrete, but only after casing, if used, has been pulled.
   e. Place concrete in pier in one continuous pour operation from bottom to top.
   f. The County's Project Representative will provide inspection during the removal of casing and placing of concrete. Withdraw casing, if used, only as shaft is filled with concrete. Maintain adequate head of concrete to balance outside soil and water pressure above the bottom of the casing at all times during withdrawal. Specific procedures that the Contractor will follow to accomplish this objective shall be submitted for approval.
   g. Where casing is removed, provide specifically designed concrete with a minimum slump of 5-inches and with a retarder to prevent arching of concrete (during casing pulling) or setting concrete until after casing is pulled. Check concrete level prior to, during, and after pulling casing. Pull casing before slump decreases below 5-inches as determined by testing.
   h. During casing extraction, upward movement of the reinforcing steel shall not be permitted. Downward movement should not exceed 2-inches per shaft length.
i. Remove all water and concrete contaminated with soil, or water before resuming concrete placement.

j. Center reinforcing cages in the drilled pier excavation and suspend them in an approved manner prior to placement of concrete to the cutoff elevation.

k. Leave forms on pier for a period of three days.

   l) Set anchor bolts to the manufacturer's required tolerances, using substantial templates or other approved method.

11.3 Concrete, Forms and Reinforcement

11.3.1 General

1. This Specification includes concrete, forms, and steel reinforcement as used for:

   a. Drilled pier foundations with square caps for steel structures.
   
   b. Concrete pads for transformers and breakers.
   
   c. Equipment shelter and tower foundations.
   
   d. Cable trench.

2. Quality Assurance

   a. Applicable Standards

      1) American Concrete Institute (ACI)

         a) ACI 304 - Recommend Practice for Measuring, Mixing, and Placing Concrete.

         b) ACI 305 - Committee Report on Hot-Weather Concreting.

         c) ACI 306 - Committee Report on Cold-Weather Concreting.


         e) ACI 318 - Building Code Requirements for Reinforced Concrete.

      2) American National Standards Institute (ANSI)

         a) B 1 8.2.1 - Square and Hex Bolts and Screws, Including Askew Head Bolts, Hex Screws, and Lag Screws.
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b) B 18.2.2 - Square and Hex nuts.

   a) A36 - Structural Steel.
   b) A82 - Cold-Drawn Wire.
   c) A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
   e) A615 - Deformed Billet Steel Bars for Concrete Reinforcement.
   f) C31 - Making and Curing Concrete Compression and Flexure Test Specimens in the Field.
   g) C33 - Concrete Aggregates.
   h) C39 - Compressive Strength of Cylindrical Concrete Specimens.
   i) C94 - Ready-Mixed Concrete.
   j) C143 - Slump of Portland Cement Concrete.
   k) C150 - Portland Cement.
   m) C309 - Liquid Membrane-Forming Compounds for Curing Concrete.
   n) C494 - Chemical Admixtures for Concrete.

4) Midwest Concrete Industry Board (MCIB).

11.3.2 Equipment and Materials

1. Concrete Materials
   a. Cement
      1) Conform to ASTM C 150. Portland cement Type 1.
   b. Water
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1) Water shall be clean and free from injurious amounts of oil, acids, alkalines, or other deleterious substances. Any potable drinking water will be acceptable.

c. Fine Aggregates

1) Clean natural sand. Manufactured sand may be used upon written approval of Floyd County's designee. Conform to ASTM C33.

d. Coarse Aggregates

1) Clean crushed stone or processed gravel, not containing organic materials. Conform to ASTM C33.

e. Air Entertainment

1) 4-6 percent air shall be used in all concrete.

f. Water Reducing Admixture

1) Conform to ASTM C494, Type A.

2. Concrete Mix

a. Ready-mixed Concrete

1) Concrete shall meet requirements of ASTM C94, and of materials and proportions specified.

2) Ready-mixed concrete plant shall be subject to approval of Floyd County’s Project Representative.

3. Forms

a. Form materials; use one of the following:

1) Exterior grade plywood 5/8 inch thick.

2) Approved wood fiberboard.

3) Dressed lumber, free of loose knots.

4) Approved preformed economy forms.

5) Forming materials may be treated with approved form oil for ease of form removal.
b. Form Ties
   
   1) Approved break-back type.

4. Steel Reinforcement

   a. Reinforcement Bars
   
   1) Conform to ASTM A615, Grade 60 for all bars No.4 or larger.

   b. Tie and-All No.3 Bars
   
   1) Conform to ASTM A615, Grade 40.

   c. Welded Wire Fabric
   
   1) Conform to ASTM A185, using bright basic wire conforming to ASTM A82. Wire gauge No. 11 or smaller shall be galvanized.

5. Grout

Use unshrink, easy flow type grout as approved by Floyd's Project Representative.

6. Anchor Bolts

   a. Provide all anchor bolts required for complete installation.

   b. Anchor bolts and accessories shall conform to ASTM A307 using A36 steel.

   c. Use hexagonal bolts and nuts conforming to ANSI B 1 8.2.1 and B 1 8.2.2.

   d. All exposed area of anchor bolts and nuts, plus a minimum of three inches of embedded area, shall be hot-dipped galvanized.

   e. Install as indicated on foundation drawings.

11.3.3 Performance

1. Field Testing

   a. Field testing of concrete and making of concrete test cylinders will be performed by an independent testing laboratory approved by the Floyd County Permit Department.
b. Laboratory Testing

1) Laboratory for testing shall be selected and paid by Floyd County.

2) Laboratory will furnish cylinder molds with cap seals or adequate means of identification.

3) Cylinders shall be tested conforming to ASTM C39. Average strength of two test cylinders (at 28 days) shall be used as result of the test. Break one test cylinder after 7-days curing, one after 14-days, and two after 28-days.

4) Results shall be provided to the Project Representative in a formal report. A copy shall be provided to the Consultant and Contractor.

2. Low Strength Concrete

a. Defined as concrete whose 7-day and 14-day test (average of 2 cylinders) is less than 70% and 85%, respectively, of the specified minimum 28-day compressive strength. If concrete does not meet the 4000 lb. test in twenty-eight days, the Contractor shall pay for the cost of the core test.

b. Disposition of Concrete

1) Concrete shall remain accessible with no other work performed that relates to or depends upon the questionable concrete until a formal decision as to the disposition of the concrete is given by Floyd's Project Representative.

2) Low strength concrete shall be removed and replaced if so requested by Floyd County's designee.

3. Placing of Concrete

a. Preparation

1) Clean bonding surfaces free from laitance and foreign materials.

2) Place concrete on property prepared and unfrozen sub grade and only in dewatered excavations.

3) Do not deposit partially hardened concrete or concrete contaminated by foreign materials.
b. Placing Concrete

1) Conform to ACI 304.

2) Place within 60 minutes after mixing, except the County’s designee may extend the period to 90 minutes (maximum) dependent upon weather conditions.

3) Place in horizontal layers not exceeding 18-inches.

4) Vibrate concrete to produce solid mass without honeycomb or surface air bubbles.

c. Curing Concrete

1) Cure with liquid membrane-forming compound conforming to ASTM C309, Type I. Apply according to manufacture’s recommendations.

2) Apply curing compound to all exposed surfaces immediately after removing form or after finishing concrete.

3) Keep formwork wet until stripped.

d. Cold Weather Placing

1) Conform to the practice recommended in ACI 306 when the temperature is below 40-degrees F or is likely to fall below 40-degrees F during a twenty-four hour period after placing.

2) Protect pier caps and other concrete from freezing by the use of insulating blankets.

e. Hot Weather Placing

1) Conform to practices recommended in ACI 305 when temperature is 90-degrees F or above or is likely to rise above 90-degrees F within a twenty-four hour period after placing.

4. Construction Joints

a. Locate where indicated. Conform to AC 318.

b. Clean and break laitance or other foreign material from bonding surface. Bed with 1-inch of grout for bonding in horizontal joints.
5. Surface Finishes

a. Float Finish

1) Compact, accurately screed, and wood float all slabs to a true uniform surface.

2) Test surface with straightedge and eliminate high and low spots of more than 1/8 inch in ten feet.

3) Use this finish in addition to the finishes specified below for all surfaces as indicated.

4) Use a final finish for footing slabs not exposed.

b. Hand-troweled Finish

1) Finish surface as in Float Finish and in addition, trowel and steel trowel to obtain a smooth dense finish after concrete has hardened to ring under the trowel.

2) Use this finish on all floors, slabs, and equipment bases not specifically designated for a different finish.

c. Broom Finish

1) Finish surface as in Float Finish and, in addition, draw a stiff bristled broom across the previously floated surface.

2) Corrugations shall be uniform in appearance, not more than 1/16-inch in depth and shall be perpendicular to direction of traffic.

3) Use this finish on all outdoor slabs subject to vehicular or pedestrian traffic and areas to receive grout.

d. Burlap Finish

1) Apply burlap surface treatment to exposed edges of slabs, curbs and foundations.

2) Wet and fill all voids using mortar with the same sand-cement ratio as original concrete. Use approximately 20 percent white cement to match concrete color.

3) Strike off all excess mortar flush with the surface using a burlap or canvas cloth with a circular motion.

4) Remove all rough spots and rub with cloth to leave a surface of uniform texture and appearance.
5) Finish shall result in a coating of mortar that will fill all small voids and air holes leaving a smooth surface.

6) Cure as specified under Curing Concrete.

6. Defective Surface Treatments
   a. After removal of forms, remove all fins, projections and form ties.
   b. Grout and cure all voids, damaged areas, and tie holes.

7. Forms
   a. Treat forms with an approved oil or lacquer prior to placing reinforcement.
   b. Wet forms with clean, clear water prior to placing concrete.
   c. Adequately brace and stiffen forms to prevent deflection and settlement.

8. Steel Reinforcement
   a. Place accurately, tie at intersection, and support on chairs. Conform to ACI 318.
   b. Tie securely with 16 gauge or larger annealed iron wire.
   c. Splice steel not less than 30 bar-diameters for A615, Grade 40, and 42 bar-diameters for A615, Grade 60, unless otherwise indicated.
   d. Splice plain bars not less than twice that for deformed bars.
   e. Lap welded wire fabric not less than the length of one mesh.
   f. No.3 bars to be Grade 40, with all others to be Grade 60.
   g. Provide ¾-inch chamfer for all exposed edges of concrete, vertical and horizontal.

11.4 Fences and Gates (Chain-Link Security Type)

11.4.1 General

1. Description
   a. This section covers chain-link fabric fence and gates.
2. Quality Assurance

   a. Applicable Standards

      1) Federal Specifications (FS)

         a) FF-BO-575 - Bolts, hexagon and square.

         b) RR-F-191 - Fencing, wire and post, metal and gates, chain-link fence fabric, chain-link and accessories.

         c) RR-F-221 - Fencing, wire, barbed wire, woven-wire and netting, fence post and accessories.

   11.4.2 Requirements

      a. Manufacturer’s standard materials where such materials conform to these Specifications or have been approved by Engineer.

      b. Conform to FS RR-F-191 except as indicated or specified otherwise.

      c. Fence height – 8 ft high galvanized chain link with 4-strand barbed wire at top (9½ feet overall height).

      d. Gate widths as indicated on layout drawings.

      e. Finish for framework and appurtenances (excluding fabric) – Galvanized with minimum weight for zinc per square foot as follows:

         1) Pipe – 1.8 ounces.

         2) Hardware and accessories – conform to FS RR-F-191.

         3) Barbed wire – 0.80 ounce.

      f. Finish for fabric

         1) Galvanized per ASTM A392, Class-2 with 1.8-ounce, minimum weight, for zinc per square foot or

         2) Aluminum coated per ASTM A491, Class-2 with 0.40-ounce, minimum weight, for aluminum per square foot.

      g. All fence and gates to have 4-strand barbed wire at top.

      h. All materials furnished shall comply with the above requirements.
11.4.3 Fabric

a. No. 9 gauge, 2-inch diamond mesh chain-link fabric.
b. Top and bottom selvage twisted and barbed.
c. Fabric fastenings of 9-gauge galvanized wire ties.

11.4.4 Posts, Top Rail and Braces

a. Posts

1) End, angle, corner or pull posts – 3-inches O.D. at 5.79 pounds per foot.
2) Line posts – 2.5-inches O.D. at 3.65 pounds per foot.
3) Gate posts – 4.0-inches O.D. at 9.10 pounds per foot.

b. Top rail

1) 1.625-inch O.D. standard weight steel pipe.
2) 18-foot minimum length of each section.
3) Expansion type coupling for each joint.

c. Post bracing

1) Diagonal truss rods 3/8 inch in diameter equipped with truss tightener.
2) Horizontal braces – 1.660-inch O.D. at 2.27 pounds per foot.

d. Post tops

1) Designed as a weather tight closure cap for tubular posts.
2) Malleable iron or pressed steel.

e. Barbed wire supporting arms

1) Single arm at 45-degrees with vertical, sloping to outside of fence.
2) Constructed for attaching four rows of barbed wire to each arm and designed as a weather tight closure cap for tubular posts.
3) Designed for 200-pound minimum pull down load.
4) Attached to steel posts or integral with post top.
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5) Provided with openings to receive top rail.

6) Malleable iron or pressed steel.

f. Stretcher bars

1) One piece, full height of fabric.

2) 3/6 inch x ¾ inch, galvanized.

3) Bands of galvanized steel or malleable iron.

g. Bolts

1) Zinc coated.

2) Conform to FS FF-B-575.

11.4.5 Barbed Wire

a. Two-strand, l2½ gauge wire with 4-point barbs 5 inches O.C.

b. Conform to FS RR-F-221, Type 1, Style 2.

c. Four rows required on all fence and gates.

11.4.6 Gates

a. Framing

1) Frames of tubular members, 2-inch O.D. at 2.72 pounds per foot.

2) Intermediate horizontal and vertical members for proper gate operation and for attachment of fabric, hardware and accessories.

3) Frames assembled by welding or watertight galvanized steel rigid fittings.

4) Diagonal cross bracing of 3/8 inch diameter adjustable truss rods to provide frame rigidity.

5) Gate end members extended one foot above top members to receive four rows of barbed wire.

b. Hardware

1) Hinges of pressed or forged steel, or malleable iron, non-lift-off type, 1 1.2 pair per leaf.
2) Latches and gate stops – double leaf.
   a) Plunger-bar type latch, full gate height, designed to engage gate stop of flush-plate type with anchors.
   b) Locking device and padlock eyes an integral part of latch.
   c) Keeper to automatically engage gate leaf and secure free end of gate in full 90-degrees open position.

3) Latches – single leaf.
   a) Forked type to permit operation from either side of gate.
   b) Padlock eye as integral part of latch.

11.4.7 Performance

1. Installation
   a. Fence
      1) Follow general contour of ground and properly align.

      2) Posts
         a) Set in concrete retaining wall. Trowel finish tops of footings and dome to direct water away from posts.
         b) Install plumb and in straight alignment.
         c) Space ten feet center-to-center maximum.
         d) Temporarily brace until concrete in bases has set.

      3) Post Bracing
         a) Install at each end and gatepost, and on each side of comer posts.
         b) Install after concrete in post bases has set.
         c) Install so posts are plumb when diagonal rod is under tension.

      4) Top Rails
         a) Run continuously through post caps or barbed wire supporting arms.
b) Install expansion coupling at each joint.

5) Tension Wire
   a) Weave through the fabric and tie to each post with minimum 6 gauge galvanized wire.

6) Fabric
   a) Stretch taut with equal tension on each side of line posts.
   b) Fasten to top rail and steel posts with wire ties.
   c) Space wire ties at 12-inches O.C. maximum on posts and at 24-inches O.C. maximum on top rail.

7) Stretcher Bars
   a) Thread through or clamp to fabric 4-inches O.C.
   b) Secure to posts with metal bands spaced 15-inches O.C. maximum.
   c) Install at each gate, pull and end post, and each side of corner post.

8) Barbed Wire
   a) Attach four rows to each barbed wire supporting arm. Pull wire taut and fasten securely to each arm.
   b) Install four rows above fabric and on extended gate end members of gates.

b. Gates

1) Install plumb, level, and free swinging through full opening without interference.

2) Install all hardware, including keepers, ground set items and flush plate in concrete to engage gate stop.

3) Furnish and install gate alarms.

4) Adjust and lubricate as necessary for smooth operation.

c. Repairing Damaged Coatings

1) Repair any damaged coating in the shop or field by recoating with compatible and similar coating.
2) Apply per manufacturer’s recommendations.

d. Danger Signs

1) Furnish and install signs as approved by Floyd County’s designee.

Note: All fencing at any site must be exothermically bonded to the site’s electrical grounding system. All major posts, gates and fabric must be integrated into this bonding scheme. All locations of exothermic bonding must be properly treated by recoating with a compatible and similar coating to prevent corrosion.

11.5 Crushed Rock Surface

11.5.1 General

1. Description

a. This section includes crushed rock surface and method of depositing for the placement of permanent crushed rock surfacing in equipment shelter areas.

b. Related work specified elsewhere.

1) Site preparation and earthwork – Section 10.1.

2) Herbicide application – Section 10.6.

2. Quality Assurance

a. Applicable Standards

1) American Society for Testing and Materials


   b) C131– Test for Abrasion of Coarse Aggregates by Use of Los Angeles Machine.

   c) C136 – Test for Sieve or Screen Analysis of Fine and Coarse Aggregates.

   d) D423 – Test for Liquid Limit of Soils.

   e) D4242–Test for Plastic Limit and Plasticity Index of Soils.

   f) D75 – Sampling Stone, Slag, Gravel, Sand and Stone Block for Use as Highway Materials.
2) American Association of State Highway and Transportation Officials (AASHTO).

a) T99–Test for the Moisture Density Relations of Soils Using a 5.5-Pound Rammer and a 12-Inch Drop.

b) Samples and Testing.

1) Test to determine conformance with all requirements for material quality and properties specified herein will be performed by an independent laboratory approved by Floyd County and compensated by the Contractor.

2) Obtain representative samples of material in accordance with ASTM D75 for testing. Furnish Floyd's designee sufficient materials for testing from each sample at the time obtained.

3) Furnish specific schedule for sampling to provide Floyd's designee the opportunity to observe sampling.

4) Quality control testing will be performed during construction by a testing laboratory retained by Floyd County.

3) Submittals

a) Includes, but not limited to, the following:

1) Test result reports from testing laboratory indicating conformance with the specifications.

2) Certification of conformance with the specifications.

11.5.2 Equipment

1. General

a. Crushed rock surface shall consist of ¾” aggregate placed on top of a 6-mil polyvinyl.

2. Aggregate

a. Crushed limestone or crushed natural gravel, free from lumps or balls of clay or other objectionable matter, and reasonably free from thin and elongated pieces of dirt. Aggregates shall consist of angular fragments, durable and sound, and shall be reasonably uniform in density and quality.
11.5.3 Performance

1. General Requirements

a. Stockpiles

1) Only with approval of Floyd County’s designee in specified locations.

2) Clear and level storage sites prior to stockpiling.

3) Place in a manner and at locations designated by Floyd County, providing separate stockpiles for materials from separate sources.

b. Preparation of sub-grade

1) Clean off all foreign substances.

2) Correct any ruts, depressions, or soft yielding spots and areas with inadequate compaction.

3) Treat all sub-grade areas with soil sterilant.

4) The County’s Project Representative will inspect, prior to placing crushed rock surface, for adequate compaction and surface tolerances.

c. Grade control

1) Establish and maintain by means of grade stakes, properly spaced so string lines may be stretched between stakes.

2. Placing, Shaping and Compaction of Materials

a. Placing

1) Deposit and spread material in a uniform lift/layer and compact to the thickness indicated and as specified. Spread material uniformly on the prepared sub-grade from moving vehicles or spreader boxes.

2) Level material to the required contour and grades.

3) Remove those portions of the layer, which became segregated or mixed with sub-grade material in spreading and replace with new material as required by Floyd County’s designee.

4) Hauling which may damage the sub-grade or surfacing will be restricted by Floyd County’s designee.
5) Remove and repair sub-grade areas damaged during application of the crushed rock surface.

b. Shaping and Compacting Materials

1) Compact layers no less than 3-inches or more than 6-inches thick.

2) Roll to specified compaction requirements throughout full depth of layer with power rollers, rubber-tired rollers or combination.

3) Shape and smooth by blading and rolling with power roller, rubber-tired roller, or both.

4) Hand tamp in places not accessible to rolling equipment.

5) Degree of compaction shall be as follows:

   a) Base compaction on weight per cubic foot of material passing ¾ inch sieve and compact to at least 100 percent of maximum density at optimum moisture.

   b) Determine and control compaction in accordance with AASHTO T99.

6) Smoothness test shall be as follows:

   a) Surface shall show no deviation in excess of 3/8 inch in any 10 feet when tested with a 10 foot straightened applied parallel with and at right angles to the center lines of the paved area.

   b) Correct any deviation in excess of this amount of loosening, adding or removing material, reshaping, watering, and compacting as requested by Floyd County’s designee.

11.6 Herbicide Applications

11.6.1 General

1. Description

   a. This Section includes a type of herbicide and method of placing on all areas to receive crushed rock surfacing prior to placing crushed rock.

   Note: Herbicides may be only applied by an individual/firm certified in the manufacturer’s recommended proper and safe application methods.

11.6.2 Equipment and Materials

1. Sprayers and applicators shall be suitable for intended use.
2. Mix herbicide per manufacture's recommendations.

3. Herbicide shall be Krover (1) as manufactured by Dupont, Inc., or an approved equal.

4. Do not apply herbicide if it is too windy or where other adverse weather conditions exist.

5. Apply at a rate of 10 pounds of product per acre, or in accordance with manufacturer's recommendations.

11.6.3 Performance

1. Apply only after final sub-grade has been established.

2. Apply before installation of vegetation barrier cloth and placement of crushed rock.

3. Follow manufacturer's recommendations on timing of application with respect to weather and barrier/crushed rock placement.
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12.0 Installation Guidelines

12.1 Engineering Drawings

12.1.1 Contractor shall furnish detailed drawings prior to installation of each major portion of the system as follows:

   A. Transmitter Site(s)
   B. Receiver Site(s)
   C. Site Antenna, Tower, and Grounding System(s)
   D. Receiver Voter Equipment
   E. System Controller Equipment
   F. Dispatcher Console Equipment
   G. Microwave Equipment Terminal(s)

12.1.2 Drawings shall, as a minimum, illustrate:

   A. Relative cabinet/rack locations
   B. Equipment power wiring (primary and emergency)
   C. Equipment interconnection wiring (signal and control)
   D. RF component interconnection details i.e. transmitter, combiner, antenna, etc.
   E. Appropriate signal/voltage levels to facilitate alignment of level-sensitive components.

12.1.3 Civil drawings showing location details of equipment to be placed in existing or new facilities shall be provided by Contractor.

12.1.4 Contractor shall provide a comprehensive test record of alignment levels, settings and software versions installed within both infrastructure and user equipment. The scope and detail of the comprehensive equipment test and acceptance plan shall be completed prior to Contract Execution with the Successful Proposer. Prior to commencement of acceptance testing procedures, the Contractor shall ensure that all installed equipment has been furnished with the latest software releases available for those equipment items/groupings.

12.1.5 Contractor shall supply true copies of Final Project Record Documents which will include the Engineering Drawings, software releases and alignment details listed above, but amended to show system and equipment "as built" at the time of acceptance by Floyd
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County. The total number of document sets to be provided shall include one site-specific set for each infrastructure site and three comprehensive network sets for County use. Final Project Record Documents must be submitted to Floyd County’s Project Representative within forty-five days after system acceptance testing has been successfully concluded. Submissions shall also include electronic versions of all documents submitted. Final payment for Contracted services shall not be released by Floyd County until this documentation submittal has been successfully completed by the Contractor and reviewed and approved by Floyd County’s Project Representative and Consultant.

12.2 Workmanship

All workmanship shall be of the highest standard, in accordance with Industry-accepted practices and the National Electric Code. Work areas shall be maintained in a neat, orderly fashion. Work sites shall incorporate Contractor-provided trash containers and residue of the work shall be discarded as the work is underway. All sites will be cleaned up at the end of each work day, swept clean, tools picked-up, and walkways free of obstacles and obstructions.

The installation of audio, signal, data and control cables within equipment cabinets, enclosures, racks and cable trays must be properly routed such that wires/cables do not cross over each within cable bundles. Cables must be properly labeled, routed and secured. To the maximum extent possible, cables carrying AC power, low-level audio, RF and digital signals must be grouped separately.

All DC wiring, particularly those areas where battery terminals and power distribution bus bars are located, must incorporate insulation barriers to prevent the accidental short-circuiting of otherwise exposed conductors.

Floyd County’s Project Representative and Consultant shall have the ability to temporarily stop work progress by the Contractor if workmanship falls below acceptable levels and shall have the authority to require the Contractor to remove and/or correct all observed instances of poor wiring practice, inappropriate use of installation materials and other obvious installation defects as a result of apparent poor workmanship. Approval to resume installation work activities shall be provided to the Contractor once agreement is reached in resolving observed workmanship defects.

The determination of Contractor workmanship acceptability, as well as the suitability of any proposed rework plans offered by the Contractor, shall remain with Floyd County’s Project Representative and the Consultant.
13.0 Phasing/Implementation

13.1 Phasing of New Network

13.1.1 Contractor must prepare and submit a comprehensive migration plan that will prevent disruption of communication on the existing analog conventional radio network and provide a smooth transition to the new Project-25 digital voice radio network:

A. Contractor must supply a sequence of events for the installation of the new network showing any effect the different stages of installation may have on existing systems. Any relocation or modification to existing equipment must be stipulated and prior approval obtained from Floyd County’s Project Representative.

B. Proposers shall provide a completion time period (in days) for the project, based on Floyd County’s execution of a Notice to Proceed. Proposers shall provide a schematic representation of the implementation process as well as a hypothetical migration plan. These required proposal submittals will be used by Floyd County’s designee and Consultant to evaluate the Proposer’s ability and understanding of Specification requirements to perform this work in a manner that offers no disruption to ongoing public safety communications operations.

C. Contractor shall provide a time schedule for the training of system managers, dispatchers, County Radio System Maintenance Personnel in addition to managers and user personnel. Contractor will supply time schedules for the orderly transfer of departments onto the new network and the estimated time period when the transfer could be completed.

13.1.2 Contractor shall coordinate the orderly transfer of services to the new network only after having successfully concluded equipment alignment and installation procedures, successful completion of the network acceptance test and completion of manager, dispatcher, user and staff training programs.

13.1.3 Contractor must not dismantle or modify the existing analog radio systems without prior approval of Floyd County’s Project Representative. Some portions of the existing network may remain operational after acceptance of the new system. Floyd County’s Project Representative will notify the Contractor when elements of the old analog infrastructure equipment may be reallocated to meet interoperability needs or otherwise can be decommissioned.

13.1.4 Contractor shall assist Floyd County and all user agencies in preparing user talk groups, initial priority levels and shall complete the necessary user equipment installation, programming and record keeping, as required. This activity must be completed prior to service cutover. All fleetmapping documentation will be surrendered to the County by the Vendor.
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13.1.5 Prior to Contract execution, the Successful Proposer must commence negotiations with Floyd County’s Project Representative and its Consultant to develop a comprehensive test and acceptance plan that addresses, minimally, the following major functionality and operability issues:

A. Transmitter Equipment

1. Provide RF power stage measurements at different levels of the transmitter system such as transmitter, filters, combiner, cable, antenna, etc.;

2. Test R.F. components for specified insertion loss;

3. Test for proper frequency, modulation, digital signaling and stability;

4. Test and report of delivered audio quality and signal margins throughout proposed service area, in all required configurations (portable in-vehicle, portable on-street, portable in-buildings, etc.);

B. Receiver Equipment

1. Test of compliance to specifications of equipment provided;

2. Provide log of signal gain or loss to equipment within the receiver system such as antenna, cable, preamp, splitter, or receiver antenna port;

3. Test of audio quality and level (reciprocal of that required for the transmit path) of system balance;

C. Console Audio/ System Controllers

1. Test of compliance to manufacturer’s published specifications of equipment provided;

2. Test of audio quality and level;

3. Verification of network failure modes in response to forced failures of individual communications/ control lines and complete site failures complete written explanation is required;

4. Verification of compliance to TIA/EIA Project-25 ISSI Standards that allow for seamless interoperability with Project-25 radio networks fielded by other manufacturers;

D. Dispatch Centers

1. Provide written results of testing of operational features per dispatch position;
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2. Test system operation during simulated failures of system components i.e. console electronics, power loss, etc.

E. Subscriber Equipment

A random field test of three different manufacturer's (non-Proposers) i.e. portable radio devices (of varying tiers) shall be required to determine P-25 compatibility of Proposers new 700/800MHz network. This test shall use approximately 10 portable devices per tier per manufacturer, or a total of 120 portable non-Proposer portable radios tested. If ten (10%) percent or more of each type or model of equipment tested fails to meet the manufacturer's specifications, then the Contractor shall be required to perform a test of one hundred (100%) percent of that type or model. If more than two units fail to perform adequately, and the units are determined by the manufacturer to meet P-25 compatibility, the Proposers network will be deemed non-P-25 compliant. All replacements for failed units shall also be tested in the same manner as outlined above. All mobile radio installations shall require 100% operational test verifications:

1. Verify compliance with vendor specifications for transmitter, receiver and control circuitry;

2. Check for compliance with RFP requirements and originally proposed functionality;

3. Check for proper user profile programming of equipment and operation on the system;

4. Testing of supportive equipment, i.e., speaker/microphone, DTMF signaling, chargers, batteries etc.

F. Contractor shall provide all test equipment, diagnostic services, documentation, software, personnel, vehicles and other items as necessary to test the delivered and installed radio network in accordance with the Contracted Test and Acceptance Plan, inclusive of operational features, to complete a total system functional test.

G. Proposer shall disclose test procedures and equipment that will be used to verify radio system coverage as specified in Section 7.0.

H. Proposers shall submit within their Proposal Submittal a sample test and acceptance plan that is representative of the scope and complexity of the proposed radio system. This plan must address those items described in Section 13.1.5, A – G.
13.2 Implementation

13.2.1 Contractor is responsible for the provisions and cost of warehousing, insurance, storage and security of radio network infrastructure and user equipment prior to and during the construction and installation phases of the project.

13.2.2 Contractor will assign a Project Manager as a single point of contact between Floyd County's Project Representative and the Contractor. Contractor's Project Manager shall be approved by the County or designee prior to assignment. Floyd County or its designee reserves the right to require replacement of the Contractor's Project Manager at any time during the project. Contractor's Project Manager must be resident within the County Monday through Friday, during normal business hours and for the term of the Contract. Project Manager may be required to remain in the area during periods of Installation and Implementation failure, ATP and System Cut over, as required by Floyd County's Project Representative. The Proposal Response shall include pricing options for extending the Project Manager's term for periods of three total years and five total years.

13.2.3 Prior to installation of any portion of system, Floyd County, its designee and/or Consultant must approve Contractor furnished detail drawings as specified in Section 12.0.

13.2.4 Each portion of the new network must be in compliance with those technical parameters specified in the approved Testing and Acceptance plan.

13.2.5 Contractor must supply comprehensive training on user operation of portable radios, mobile radios, control stations, and other user equipment as required by the Contract. Contractor must also supply comprehensive training for system diagnostics, management systems, preventative and routine maintenance and system operation for System Managers, County Radio System Maintenance personnel, and appointed staff.

13.2.6 Contractor is responsible for any site modifications required to accommodate infrastructure equipment proposed for location in County-owned as well as in non County-owned properties.

13.2.7 Contractor shall provide technical support/engineering as required to modify existing FCC licenses or to acquire additional licenses required to facilitate operation of the proposed digital radio network. This activity shall include all FCC licensing application development, frequency coordination and engineering fees.

13.2.8 Any modification or relocation of existing equipment will require prior approval by Floyd County's Project Representative. Contractor shall supply "as built" drawings and complete written documentation of modifications or relocation to existing systems to facilitate maintenance of this County-owned equipment in the future.
14.0 Warranty and Maintenance Guidelines

14.1 Warranty

14.1.1 Equipment Warranty

Proposer shall warrant all provided network equipment furnished as part of the Contract and associated radio infrastructure, subscriber and related user equipment and software for a period of one year, after the date of system acceptance. Warranty will commence at the time of final acceptance and shall provide all labor and parts for maintenance and repair, including preventive maintenance, of the network provided. All cost for the one-year warranty will be borne by the Contractor. Floyd County desires Proposer to provide a cost proposal for a long term (minimum five years) maintenance agreement through the major communications equipment manufacturer for all system materials and functionality. Floyd County may elect to accept or deny this additional cost maintenance agreement.

The following conditions shall additionally apply:

A. Replacement parts must be of new or current manufacture and meet or exceed the specifications of the original supplied equipment (OEM).

B. Contractor shall have qualified technicians available by telephone with one (1) hour of reported service outage (24/7/365), and on-site, in response to a reported service outage, within two (2) hours during normal working hours (8AM to 5PM Monday through Friday and within one hour between the hours of 5PM and 8AM, weekends and holidays). Major communications equipment manufacturer shall have a fully qualified, staffed and equipped service facility located within Floyd County, Georgia during the contract, warranty and maintenance agreement period.

Response default penalties:

In the event of default on the response time on reported service outages, the Contractor agrees to pay Floyd County the following response penalties: Contractor shall pay $500 for each occasion that its fails to meet the response time obligation for a reported infrastructure service outage. Contractor shall pay $1,000 per twenty-four hour period in which a defective infrastructure site is not restored to operational status.

Should any specific equipment item (such as a specific portable radio, repeater station, station circuit board, power amplifier, etc.) fail three times during the warranty period, Contractor will replace that equipment item and warranty the replacement for one additional year from the time of replacement.

C. The Contractor must make available replacement parts for all Contractor-manufactured components of the digital radio infrastructure for 10 years following...
acceptance. Post-warranty replacement parts service for infrastructure equipment shall be available within 24-hours of parts order replacement. Failure to provide parts for contractor-manufactured items shall result in a 5% cost reduction penalty for each day parts are delayed, capped to a maximum 100% cost reduction.

Proposers shall provide, as part of Infrastructure Pricing, a list of quantities and costs for recommended spares and specific diagnostic, test and repair equipment of Infrastructure and major system components, including antennas and cabling. This list should be based on the best knowledge and experience of the Proposer’s engineering, manufacturing and service personnel. This price submittal shall be in compliance with the requirements indicated by Section 16, Pricing.

D. The Contractor must guarantee the radio network’s operating software, inclusive of user equipment software, for a one-year period following network acceptance. The Contractor shall provide all software updates, at no additional cost, for the entire period under which Floyd County has committed for Contractor-provided after-warranty maintenance services. Contractor shall fix by either update or upgrade any and all know software “bugs” to installed software even if such warranty period has expired.

The Contractor further guarantees that it has good title to any material and software supplied and that it will defend Floyd County from any third party claims concerning such material or software.

### 14.2 Maintenance

14.2.1 During the initial warranty period, the Contractor shall be responsible for:

A. Preventive maintenance of infrastructure and end-user equipment;

B. Repair maintenance of infrastructure equipment, inclusive of antenna systems;

C. Repair maintenance of subscriber and related user equipment;

D. Installation of mobile-mounted radio equipment.

14.2.2 Contractor-provided maintenance during the warranty period will be monitored by Floyd County or its designee.

The Contractor must supply monthly service logs listing the site(s) where service is performed, the equipment involved and service details. Failure of individual units, sub-assemblies and/or components must be reported in writing to the County. This report must, as a minimum, include unit identification (description and serial number), explanation and cause of failure and corrective action taken. Contractor is responsible for all actions of its employees or subcontractors. Any equipment failure(s) caused by any act or omission of Contractor's employee or subcontractor shall be the responsibility of the Contractor, including any costs associated with repair, even if such damage and repair is not to Contractor's equipment, discovered after network installation and acceptance, and shall also be subject to unspecified liquidated damages.
The Contractor shall submit a maintenance work plan that identifies the tasks required in accordance with Section 14.2.1, a listing of Contractor supplied personnel and identification of a single 24/7/365 contact point responsible for Contractor maintenance issues.

All required service logs and repair reports must be submitted to the County or its designee.
15.0 Radio Programming and Spare Parts Requirements

15.1 Radio Programming

15.1.1 Contractor shall assist Floyd County’s designee and various user agencies in determining user identification and talk path assignments.

15.1.2 Contractor shall program all portable, mobile and control station radios, all network or site controllers and all other equipment supplied by the Contractor to operate on the FCC-licensed operating frequencies and the talk paths determined in Section 15.1.1, above.

15.1.3 Contractor shall prepare and furnish to Floyd County’s Project Representative "as programmed" records for each radio (infrastructure & subscriber) placed on the system.

15.1.4 Contractor shall provide training for System Managers sufficient to permit Floyd County designee, System Managers and County Radio System Maintenance personnel to add users, create new or delete obsolete talk paths and to access all other system software controlled features.

15.1.5 Provisions shall be incorporated into the system to allow the Contractor, from its Home Office to remotely interrogate the operating system and provide software assistance if requested by Floyd County designee, or System Manager. Access, for this purpose, must be secure and under the control of the P-25 Project Manager.

15.1.6 Contractor must provide six sets of radio and equipment programming software, appropriately equipped laptop computers, and all other support equipment and special cables necessary to program each type of user equipment supplied by the Contractor.

15.2 Spare Parts

15.2.1 Contractor must maintain an initial stock of spare parts, as determined necessary, to maintain all components of the network’s infrastructure for a one-year period. These spare parts shall be located either at selected Floyd County radio infrastructure sites or at the Contractor’s local-area Maintenance Service Station facility.

15.2.2 As spare parts are consumed in the course of routine or repair maintenance, the Contractor shall immediately replenish its stock of locally housed spare parts, where necessary. A report of the utilization frequency and rate of all spare materials shall be made available. If at any time the Contractor is aware of any equipment repair or recall notifications the Contractor shall notify the County by electronic and routine mail. Trends of unusual system or component failure shall be brought to the attention of Floyd County by the Contractor.
16.0 Pricing Considerations

16.1 General Pricing Information

This infrastructure and subscriber equipment-pricing portion of this Specification is developed as a guide for Proposers so that the necessary information is provided to Floyd County, their designee and Consultant for it to conduct an accurate assessment of proposed cost. This information is illustrative of the detail required for each infrastructure site, inclusive of sites having only dispatch-related equipment. As this is a turnkey system, any pricing omission of a scope that is normally considered part of a multisite or simulcast trunked radio system, will be provided for by the Contractor at no additional cost to Floyd County.

Subscriber equipment (mobiles, portables and accessories) is intended to be purchased as part of this Specification. Some or all user equipment purchases and quantities ordered may be delayed or not ordered depending on Floyd County financing options and capabilities. The pricing of this equipment for both initial and future purchases will be considered in determining the most advantageous price. Floyd County shall perform a life-cycle analysis in determining the best price-value.

In the case of manufacturers of low-tier Project-25 compliant subscriber (user) equipment devices desiring to offer such equipment for consideration, Floyd County welcomes such participation. This procurement, however, is structured for the purchase of both infrastructure and user equipment from a turnkey provider. Therefore, manufacturers of Project-25 compliant subscriber equipment shall have entered into formal sales/service agreements with established infrastructure providers (i.e., Motorola; Harris; EF Johnson, etc) for their equipment to be considered for this procurement. Furthermore, such third-party equipment shall be proposed only by those providers offering a responsive infrastructure proposal.

Proposals for subscriber equipment only shall not be accepted.

16.2 Site Modification Costs

16.2.1 Floyd County-Owned Sites

For equipment to be installed at Floyd County-owned sites which have requirements for site preparatory work involving architectural, mechanical, electrical, civil or structural construction modifications, a description and cost of the modifications required must be provided by the Proposer for each individual named site.

16.2.2 Rental Sites

For equipment installed at rental sites which have requirements for site work involving architectural, mechanical, electrical, civil or structural modifications in order to meet the functional requirements stated herein, the Contractor shall be responsible for all work. It is
the Proposer's responsibility to insure that the selected site can be modified for the equipment selected to occupy that site.

The Proposer shall also provide the annual operating costs of any proposed rental site, inclusive of space rental, antenna placement rental and utilities. Additionally, the Proposer shall provide a letter for the Rental Site Owner that confirms the availability of the necessary space to accommodate the proposed facilities and that such space has been reserved for the full duration of the Proposal Evaluation and Contract Award Period.

16.3 Maintenance Costs

It is the intention of Floyd County to use County resources (County Radio Maintenance Personnel) and rely minimally on outside contract labor, for maintaining its infrastructure equipment and subscriber equipment.

An annual maintenance cost for each infrastructure-related site, to become effective after expiration of the initial warranty period, must be provided. Total site maintenance costs are to be subdivided by the individual major components groupings that comprise each site. All site (backbone infrastructure) maintenance costs should be totaled. Additionally, Proposers are required to provide the percentage of maintenance cost escalation through the twentieth year of network ownership and to indicate their methodology for determining the percentage cost escalation.

16.4 Pricing Summaries

Pricing Summaries for Infrastructure and Subscriber equipment shall be provided as part of the Proposal Submittal.

16.5 Future Purchase Considerations

It is the intent of Floyd County to operate this new radio communications network for, minimally, the next twenty years. As some portions of the equipment purchased may only be available from one vendor, it is important that Floyd County receive reasonable safeguards with regard to future pricing.

16.5.1 Immediate Future Discounts

Floyd County requires within the Proposal a certainty of continued purchase, at the beneficial initial contract costs, of all equipment, components, parts, materials, software and service agreements for a minimum of 5 years.

For all purchases within five (5) years after the network acceptance date, the discount percentage received by Floyd County will be identical to the discount percentages derived from list-price unit equipment costs and proposed unit costs. The Proposer shall define the discount structure for radio infrastructure, subscriber equipment, Contractor-furnished technical services as well as markup percentages used for outside subcontractor services. The list unit price for equipment will be determined by the manufacturer's published equipment list price, as delivered to their authorized sales agents, at the time of actual purchase.
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16.5.2 Purchase Price Discount Years 6 - 10

For years six (6) through ten (10) after the network acceptance date, Floyd County’s discount from the manufacturer's published equipment list price, as delivered to their authorized sales agents, shall be as follows:

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Discount (%)</th>
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<tbody>
<tr>
<td>Fixed Site Equipment</td>
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<tr>
<td>Microwave Related Equipment</td>
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<tr>
<td>Console Equipment</td>
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</tr>
<tr>
<td>Control Station Equipment</td>
<td></td>
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<tr>
<td>Subscriber Equipment</td>
<td></td>
</tr>
<tr>
<td>Accessories</td>
<td></td>
</tr>
<tr>
<td>Spare Parts</td>
<td></td>
</tr>
<tr>
<td>Maintenance Agreement</td>
<td></td>
</tr>
</tbody>
</table>

16.5.3 Price Discount Years 11 - 15

For years eleven (11) through fifteen (15) after the network's acceptance date, Floyd County's discount from the manufacturer's published equipment list price as delivered to their authorized sales agents, shall be as follows:

<table>
<thead>
<tr>
<th>Equipment Type</th>
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</tr>
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<tr>
<td>Fixed Site Equipment</td>
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</tr>
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<td>Maintenance Agreement</td>
<td></td>
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</table>
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16.5.4 Price Discount Years 16 - 20

For years sixteen (16) through twenty (20) after the network’s acceptance date, Floyd County’s discount from the manufacturer's published equipment list price as delivered to their authorized sales agents, shall be as follows:

- Fixed Site Equipment ______%
- Microwave Related Equipment ______%
- Console Equipment ______%
- Control Station Equipment ______%
- Subscriber Equipment ______%
- Accessories ______%
- Spare Parts ______%
- Maintenance Agreement ______%

16.6 Infrastructure Pricing Analysis Worksheets

The following pricing worksheets are to be used as a guide to developing the Infrastructure Price Submittal. These worksheets are indicative of the detail required and may be amended or expanded as necessary. Proposers shall develop and submit individual pricing sheets for each infrastructure site, inclusive of dispatch site locations, for their Price Proposal to be considered responsive. Any omission or error in developing the pricing proposal, as per Section 1.16 of this Specification, shall be the sole responsibility of the Proposer (Contractor).
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### Simulcast System

Control Point #1:

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<tr>
<th>Equipment Description</th>
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<th>RFP Unit Cost</th>
<th>Extended Cost</th>
<th>Maintenance Cost</th>
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Total Annual Maintenance Cost. $______
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Subtotal Equipment: $_______
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Total Equipment/Labor: $_______
Total Annual Maintenance Cost: $_______
Floyd County Georgia Request for Proposal Specifications  
**P-25 Digital Public Safety Radio Network**

Simulcast System  
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Subtotal Equipment $_______  
Subtotal Labor $_______  
Total Equipment/Labor $_______  
Total Annual Maintenance Cost. $_______
Floyd County Georgia Request for Proposal Specifications
P-25 Digital Public Safety Radio Network

16.7 Subscriber Equipment Pricing

Floyd County envisions several tiers of portable and mobile radio units for use by the various public safety and non-public safety agencies. Those non-public safety users having minimal interoperability needs, such as the Water Department, may benefit from lower-tiered, less costly radios having smaller talk group capacities and a limited list of feature options. Public Safety agencies, however, may require highest-tier devices capable of voice encryption, telephone interconnect calling, private call, GPS location, status messaging and other specialized features.

Proposers shall develop cost proposals for low, mid and high-tier radio products using the following general format:

High-Tier Portable

1. At least 250 modes/talk groups/channels
2. 700/800MHz operation
3. Multi-line alpha-numeric LCD text display
4. Radio/Network status icons
5. 9-button keypad
6. Private/Individual Call
7. DES/AES voice encryption
8. IMBE vocoder
9. Emergency Button
10. Programmable option buttons
11. Talk group scan
12. System Scan
13. Intrinsically Safe
14. Integrated voice/data capability
15. Wide range of optional accessories

Mid-Tier Portable

1. At least 120 modes/talk groups/channels
2. 700/800MHz operation
3. Multi-line alpha-numeric LCD text display
4. Radio/Network status icons
5. 3-button keypad
6. Private/Individual Call
7. DES/AES voice encryption
8. IMBE vocoder
9. Emergency Button
10. Programmable option buttons
11. Talk group scan
12. System Scan
13. Intrinsically Safe
14. Integrated voice/data capability
15. Wide range of optional accessories
Low-Tier Portable

1. At least 120 modes/talk groups/channels
2. 800MHz operation
3. Single-line alpha-numeric LCD text display
4. Radio/Network status icons
5. No keypad
6. IMBE vocoder
7. Emergency Button
8. Programmable option buttons
9. Intrinsically Safe
10. Limited list of optional accessories

High-Tier Mobile Radio

1. At least 250 modes/talk groups/channels
2. 700/800MHz & VHF (150-170 MHz) operation
3. Remote Control Head/Rear Mount Configuration
4. Multi-line alpha-numeric LCD text display
5. Radio/Network status icons
6. 9-button keypad
7. Private/Individual Call
8. DES/AES voice encryption
9. IMBE vocoder
10. Emergency Button
11. Programmable option buttons
12. Talk group scan
13. System Scan
14. Integrated voice/data capability
15. Wide range of optional accessories

Mid-Tier Mobile Radio

1. At least 250 modes/talk groups/channels
2. 700/800MHz
3. Remote Control Head/Rear Mount Configuration
4. Multi-line alpha-numeric LCD text display
5. Radio/Network status icons
6. 9-button keypad
7. Private/Individual Call
8. DES/AES voice encryption
9. IMBE vocoder
10. Emergency Button
11. Programmable option buttons
12. Talk group scan
13. System Scan
14. Integrated voice/data capability
15. Wide range of optional accessories
Low-Tier Mobile Radio

1. 800MHz Operation
2. Front-Mount Package
3. At least 120 modes/talk groups/channels
4. Two-Line alphanumeric display
5. Network/Radio Icons
6. IMBE vocoder
7. Programmable option buttons
8. Emergency Button
9. Limited range of optional accessories

The following illustrates the approximate quantities, types and tiers of subscriber equipment that could potentially be used on the P-25 Digital Voice Radio Network:

**Police Departments**

- High Tier Portables
- Mid Tier Portables
- High Tier Mobiles
- Mid Tier Mobiles
- Control Stations

**Fire Departments**

- High Tier Portables (submersible)
- Mid Tier Portables (submersible)
- Control Stations
- High Tier Mobiles

**Emergency Medical Services**

- High Tier Portables
- Mid Tier Portables
- Low Tier Portables
- Control Stations
- Mid Tier Mobiles
- Low Tier Mobiles

Additionally, Proposers shall prepare a detailed optional equipment catalog that describes the full range of options available for all Tiers and indicated portable and mobile radio configurations. The submitted catalog shall include list prices and the proposed discount percentage-reduced initial purchase price.
16.8 Proposal Authorization Form

(To be submitted with each Price Proposal)

I (or we) do hereby declare that I (or we) have carefully examined this RFP Specification and the annexed Addenda numbered __________, and I (or we) have a clear understanding of said Specifications, and shall provide the required communications equipment and the necessary permits and authorizations, tools, machinery, apparatus, and other means of construction, and to furnish all labor, materials, and services specified in the Contract or called for in the said Specifications (including all taxes/fees) necessary for the completion of the work described herein.

Respectfully submitted,

By:

________________________ _______________________
Authorized Signature  Title

________________________ _______________________
Business Name   Business Address

________________________
Telephone Number   Date
Attachment A
Floyd County Interoperability Matrix
## Floyd County Georgia Request for Proposal Specifications
### P-25 Digital Public Safety Radio Network

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Floyd County Georgia Request for Proposal Specifications
P-25 Digital Public Safety Radio Network

Attachment B
Floyd County EOC/911 Center Floor Plan
Floyd County Georgia Request for Proposal Specifications
P-25 Digital Public Safety Radio Network
Attachment C
Floyd County Critical Buildings Requiring Coverage
## Floyd County Georgia Request for Proposal Specifications
### P-25 Digital Public Safety Radio Network

### Floyd Co Critical Facilities

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## P-25 Digital Public Safety Radio Network

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Attachment D
Floyd County Subscriber Radio Quantities per Agency
## Floyd County Radio Inventory

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## Floyd County Georgia Request for Proposal Specifications

### P-25 Digital Public Safety Radio Network

#### Floyd County Radio Inventory (continued)

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Floyd County Georgia Request for Proposal Specifications
P-25 Digital Public Safety Radio Network

Attachment F
Floyd County Forms
CONTRACTOR AFFIDAVIT AND AGREEMENT

By executing this affidavit, the undersigned contractor verifies its compliance with 0.C.G.A. 13-10-91, stating affirmatively that the individual, firm, or corporation which is contracting with Floyd County Board of Commissioners has registered with and is participating in a federal work authorization program* [any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603], in accordance with the applicability provisions and deadlines established in 0.C.G.A 13-10-91.

The undersigned further agrees that, should it employ or contract with any subcontractor(s) in connection with the physical performance of services pursuant to this contract with Floyd County Board of Commissioners, contractor will secure from such subcontractor(s) similar verification of compliance with 0.C.G.A 13-10-91 on the Subcontractor Affidavit provided in Rule 300-10-01-.08 or a substantially similar form. Contractor further agrees to maintain records of such compliance and provide a copy of each such verification to the Floyd County Board of Commissioners at the time the subcontractor(s) is retained to perform such service.

_____________________________________                          ________________________________
Company Name       E-Verify* User Identification Number

_____________________________________         __________________________________
By: Authorized Officer or Agent    Date (Contractor Signed)

_____________________________________        __________________________________
Title of Authorized Officer or Agent        Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN
BEFORE ME ON THIS THE

___________ DAY OF _______________, 201__

Notary Public
My Commission Expires:________________

* As of the effective date of 0.C.G.A. 13-10-91, the applicable federal work authorization program is 'E-Verify" operated by the U.S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA).
SUBCONTRACTOR

By executing this affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. 13-10-91, stating affirmatively that the individual, firm, or corporation which is engaged in the physical performance of services under a contract with ______________________ on behalf of Floyd County Board of Commissioners has registered with and is participating in a federal work authorization program* [any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 ([RCA], P.L. 99-603], in accordance with the applicability provisions and deadlines established in O. C. G. A 13-10-91.

_____________________________________                          ________________________________  
  Company Name       E-Verify* User Identification Number

_____________________________________         __________________________________
  By: Authorized Officer or Agent    Date (Contractor Signed)

_____________________________________        __________________________________
  Title of Authorized Officer or Agent        Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN
BEFORE ME ON THIS THE
_____________ DAY OF _____________________, 201__

Notary Public
My Commission Expires:_____________________

* As of the effective date of O.C.G.A. 13-10-91, the applicable federal work authorization program is 'E-Verify" operated by the U.S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA).
CERTIFICATE OF NON-DISCRIMINATION

In connection with the performance of work under this contract, the bidder agrees as follows:

The bidder agrees not to discriminate against any employee or applicant for employment because of race, creed, color, sex, national origin, ancestry or disability. The vendor shall take affirmative action to insure that employees are treated without regard to their race, creed, color, sex, national origin, ancestry or disability. Such action shall include, but not be limited to the following: employment, upgrading, demotion, transfer, recruiting, or recruitment, advertising, lay-off or termination, rates of pay or other compensation and selection for training, including apprenticeship.

In the event of the bidder’s non-compliance with this non-discrimination clause, the contract may be canceled or terminated by Floyd County Board of Commissioners. The bidder may be declared, by Floyd County, ineligible for further contracts with Floyd County until satisfactory proof of intent to comply shall be made by the vendor.

The bidder agrees to include this non-discrimination clause in any sub-contracts connected with the performance of this agreement.

BIDDER

____________________________________

SIGNATURE

____________________________________

TITLE
FLOYD COUNTY BOARD OF COMMISSIONERS
DRUG-FREE WORKPLACE CERTIFICATE

By signature on this certificate, the Vendor certifies that the provisions of O.C.G.A. Section 50-24-1 through 50-24-6 related to the “Drug-Free Workplace Act” have been complied with in full. The Vendor further certifies that:

1. A drug-free workplace will be provided for the Vendor’s employees during the performance of the contract; and

2. Each Vendor who hires a subVendor to work in a drug-free workplace shall secure from that subVendor the following written certification: “As part of the subcontracting agreement with (Vendor’s name), (subVendor’s name) certifies to the Vendor that a drug-free workplace will be provided for the subVendor’s employees during the performance of this contract pursuant to O.C.G.A. Section 50-24-3(b)(7).”

By signature on this certificate, the Vendor further certifies that it will not engage in the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana during the performance of this contract.

Vendor: _______________________________________________________
By: _____________________________________________________________
Name Printed: ____________________________________________________
Title: ____________________________________________________________
Date: ____________________________________________________________