



**Finance
Procurement Services**

P.O. BOX 550 • Raleigh, NC 27602

To: All Bidders

From: Tom Wester

Date: April 16, 2009

RE: Wake County Alphanumeric Paging System Replacement

Wake County ("The County"), is seeking bids from qualified firms for the replacement of the current 6 site simulcast alphanumeric paging system. A description of the features, benefits, system architecture, and hardware components of the system are detailed in this RFP.

Project Schedule:

- | | |
|--|---------------------|
| • Bid package issue | April 17 , 2009 |
| • Site Visit & Walkthrough | April 23, 2009 10am |
| • Last Day for Questions due to Wake County via E-mail | April 28, 2009 5pm |
| • Last Addenda Posted | May 1, 2009 |
| • All bids to Wake County by 3:00 p.m. EDT | May 7, 2009 |
| • Tentative award date | May 14, 2009 |

Bidding Instructions:

Deliver one (1) signed original, and two complete (2) copies of the bid to the person and address listed below in a sealed package. Make sure that all items detailed in the Project Specifications section are included. The sealed package shall have the Company Name, Project Name and Bid Number clearly marked on the front of the sealed envelope. Bids packages are to be delivered to:

Mr. **Tom Wester**, CLGPO Wake County
Procurement Services Wake County Office Bldg
Room 926
337 S. Salisbury Street (27601)
PO Box 550 (27602)
Raleigh, NC

Sealed bids will be received at the above address until, **May 7, 2009 at 3:00 p.m. EDT** and then opened, for furnishing and delivering the commodity as described herein. Bids must be submitted in a sealed package with the bid signed and dated. Failure to return a signed execution of bid shall result in disqualification. Bids will not be accepted by electronic and/or facsimile means. Late responses, regardless of delivery means, will not be accepted.

The County reserves the right to reject any and all bids and to make the award as it deems in the best interest of the County.

Project Specifications

Background/Objective

Wake County, North Carolina currently operates a fully redundant Alphanumeric paging system which consists of the Motorola Unipage Model 15 Paging Terminal, and six simulcast sites transmitting on Motorola VHF Nucleus stations. The simulcast portion is controlled by a Motorola Advanced Simulcast Controller (ASC 1500).

The existing Wake County Simulcast Paging System was designed to make the addition of sites, repeaters and digital technology as easy as possible. Many components key to operation and to the addition of Simulcast sites and channels were included in the existing Simulcast system and subsequent upgrades. As such, additional TeNSr channel banks, DIUs, GPS clocked frequency standards, antennae and RF transmission line will not be required.

The project scope requirements defined in this section are mandatory unless otherwise noted. As part of the deliverables for this contract award, the selected firm will be expected to provide detailed documentation. Also, all proposed equipment shall be high quality, durable, and generally acknowledged as “public safety” grade, designed and manufactured to provide high reliability under heavy use in severe environments.

The County will consider proposals of new or alternative technologies that meet the performance requirements described herein. Preference will be given to the most superior technical solution that meets the functional and performance requirements described herein, while utilizing the most cost effective set of remote transmit sites.

Scope Exclusions

The acquisition or replacement of any Wake County alphanumeric paging devices (subscriber devices) is to be considered out of scope for this project

Vendor Qualifications

- **Manufacturer Qualifications:** Manufacturing facilities for paging equipment shall be certified to the ISO 9000 quality standard. The manufacturer should be experienced in manufacturing digital simulcast paging system equipment similar to that indicated for this Project and with a record of successful in-service performance.
- **General Personnel Qualifications:** Personnel who will be engaged in this project may be subject to prerequisite criminal background checks at the County’s discretion. Prior to commencing construction, the successful Vendor will be required to supply signed releases from employees and provide relevant information as necessary for criminal background investigations.
- **Installer Qualifications:** An experienced installer who is certified as an authorized representative of the digital simulcast paging equipment manufacturer for both installation and maintenance of units is required for this Project.

The County may request subsequent information substantiating the above requirements. Failure to provide this information by the date identified by the county may result in a vendor’s bid being declared non-responsive.

Written Agreement

The selected proposer shall be required to enter into a written agreement, which must be approved by the County's Procurement Department, Legal Department, and County Manager Office and may require approval by the Board of County Commissioners.

Signature on the Bid Acknowledgement form section shall serve as an acceptance that the proposer is willing to enter into an agreement with the County if their bid is accepted.

Evaluation Criteria and Contract Award

The County shall evaluate and select proposers to provide the required equipment and services based on the completed responses. The County shall be the sole judge in determining how the evaluation process shall be conducted and what vendor shall be considered for award as deemed to be in the best interest of the County.

The County may conduct such investigations as the County considers necessary to assist in the evaluation of any bid to establish responsibility, qualifications and financial ability of any potential vendor to perform the services specified under this bid within the desired timeframe as outlined in the project schedule. The evaluation criteria noted below are the criteria to be used for evaluation of responses to this bid.

Evaluation Criteria

- Adequacy and completeness of response
- References/Qualifications
- Pricing

Preparation of Bids

The Bid Acknowledgement form must be signed by a company representative authorized to bind the offeror contractually.

Interpretations, Discrepancies, and Omissions

Should any proposer find discrepancies, omissions or ambiguities in this bid the proposer must at once request in writing an interpretation from the proposal contact (Tom Wester) listed on the bid cover page. All questions submitted must be in writing. The deadline for submitting questions is **WEDNESDAY, April 29, 2009 at 5:00pm EDT**. All questions will be answered to the extent possible in the form of addenda to the specifications. All written requests for clarification should be addressed to the attention of Tom Wester.

Failure to request an interpretation will be considered evidence that the Proposer understands the provision of the bid document

The issuance of a written addendum is the only official method by which interpretation, clarification or additional information will be given by the County. Only questions answered by formal written addenda will be binding. Oral and other interpretations or clarification will be without legal effect.

Cost of Developing Bid Response

All costs related to the preparation of responses and any related activities are the sole responsibility of the proposer. The County assumes no liability for any costs incurred by proposers throughout the entire selection process.

Proposal Ownership

All bids, including attachments, supplementary materials, addenda, etc. shall become the property of the County and will not be returned to the proposer.

System Specifications

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

General

The project will consist of a complete simulcast, VHF alphanumeric paging system to support Public Safety operations, to include:

1. Paging Terminal (encoder) with the primary unit to be located at the Wake county Office Building downtown Raleigh, NC.
 2. Interface to the Computer Aided Dispatch system at the Raleigh Wake Emergency Communications Center.
 3. Termination ports (POTS lines) to support eight Centrex type business lines provided by the County's directly via the Local Exchange Carrier (LEC).
 4. Termination ports to support 8 analog Direct Inward Dialing (DID) business lines. These lines will be provided via analog two-wire analog facilities via the Local Exchange Carrier (LEC). The ports will be required to support wink start and reverse battery (Answer Supervision)
 5. The Paging Equipment will be required to support reverse battery (Answer Supervision).
 6. IP gateway to allow input from County's LAN. Must be able to send/receive mail messages via SMTP
 7. Network Management Tools to be located at the Wake county Office Building downtown Raleigh, NC.
 8. Subscriber Management Tools to be located at the Wake county Office Building downtown Raleigh, NC.
 9. POCSAG format capabilities as appropriate.
 10. Priority and Group paging
 11. Base station control and synchronization equipment.
 12. Paging base station equipment.
- The paging system shall be provisioned with initial minimum capacity to serve 10,000 public safety and administrative subscriber units.
 - The system shall be designed to transport a minimum of 600 character alphanumeric messages.

Paging Terminal

1. The paging terminal shall have redundant capabilities
2. The paging terminal shall support formats including:
 - a. POCSAG (512,1200, and 2400 baud)
 - b. Numeric pages via DTMF inputs, allowing callers to use a standard telephone keypad to enter unique numeric messages
3. The paging terminal shall support alphanumeric messages using remote terminals connected

via serial cable and/or via modem

4. The paging terminal shall include multi-port serial (RS-232) incoming TAP (Telocator Alphanumeric Protocol) interface to accept input from the County's Computer Aided Dispatch (CAD) system
5. The paging terminal shall support priority paging that can be assigned per pager and per-interface
6. The paging terminal shall support group paging where one group can be a member of another group and an individual pager can be in several different groups
7. The paging terminal shall support system voice prompts to guide callers through the paging process
8. The paging terminal shall provide for subscriber recorded prompts to enable users to record their own voice prompts
9. The paging terminal shall support Telco analog and digital T1 trunk lines
10. The paging terminal shall be capable of controlling remote transmitters by encoding the paging site address, analog/digital mode, and transmitter keying information and sending the data over telephone lines, microwave or a radio link
11. The paging terminal shall be capable of monitoring alarms and initiating display pages to a terminal or subscriber unit whenever an alarm condition is met
12. The paging terminal shall be capable of web based paging

Paging Transmit Stations

1. All paging transmit station equipment necessary for simulcast operation shall be rack mountable
2. Paging transmitters shall comply with Part 90 of the FCC Rules and appropriate EIA and similar agency standards and be FCC type accepted for the appropriate frequency band(s).
3. Technical specifications:
 - a. Output frequency: 155.520 MHz
 - b. RF output power: 100 - 125 Watts max
 - c. Duty cycle: 100 percent (Continuous Duty).
 - d. Frequency stability: 1 pps with external reference.
 - e. Channel bandwidth: 25 kHz/12.5 kHz selectable.
 - f. Output impedance: 50 ohms.
 - g. Maximum deviation: 5 kHz.
 - h. Spurious Performance: >70 dBc
 - i. Adjacent Channel Performance: >70 dBc
 - j. Carrier Offset: Up to ± 3000 Hz in 1 Hz steps
 - k. Launch Time Delay: 0 to 40 ms in 5 μ s steps
 - l. Operating Voltage: 115 / 230 VAC, 60 Hz
 - m. Operating Humidity: 0 to 95 percent RH @ 50°C
 - n. Modulation Modes: POCSAG required
 - o. Modulation Characteristics: Rise and fall times default to standard settings as defined by POCSAG protocol.

Network Management

1. The paging network must provide at least two levels of administrative access for managing functions and features. The first level is the paging network administrator which ensures the system stays operational and sets the parameters for the overall system's operation. The second level is the pager (subscriber) administrator which sets the parameters for the individual pagers' operation.
2. The hardware/software to support the paging network administration and pager administration must be included in the price of the system. The paging network administrator must interface to the paging network controller via a wireline interface; a radio frequency connection to the paging network controller is not acceptable.

3. The paging network and pager administration terminals must be standard video display terminal, including a keyboard, display device and interface equipment.
 4. Proposers shall provide descriptions of the full capability of the paging network management and pager management packages and indicate which are included in the base price.
- Features required by the paging network administrator and dispatcher shall include, but not be limited to:
 1. The paging network administrator sub-system must support at least two terminals with the capability to expand up to three terminals without modification to the computer network. One local and one remote terminal shall be supported initially.
 2. Networking interfaces shall use TCP/IP (or Ethernet) protocols
 3. Configuration Maintenance shall include system configuration and accounts management.
 4. Alarms: All major system equipment failures must be capable of being displayed at the alerting network administrator terminals. These failures include but are not limited to paging transmitter failures, link failures and paging network controller failures. These alarm indications must be capable of being forwarded to specific pagers within the paging system. The pager will display to the administrator or maintenance personnel the severity of the alarm in a plain language manner.
 5. Airtime summary traffic report capability is required that lists by capcode the number of calls and the amount of airtime used.
 6. Priority access control for up to 8 levels of priority must be separately assignable to either individual capcodes or groups. It is assumed emergency priority is the highest priority level.
 7. Alerting network administrator terminals must be capable of providing the administrator a series of reports listing the condition of the system, the configuration of options and capabilities.
 8. Password protection from unauthorized users.
 9. Backup of the pager subscriber and paging network databases.
 10. Database reports that are customizable through a report writer package.
 11. Ability to print standard summation reports on system usage.
 - The network manager sub-system shall allow an operator or supervisor at the appropriate terminal to perform the following paging network configuration and control tasks:
 1. Add/delete subscriber units to access the system.
 2. Report channel activity/ status.
 3. Report air time usage by capcode or group.
 4. Display alarm status.
 5. Modify priority level assignments of capcodes, groups or both.
 6. Query and report loading information for each 15 minute period, for the previous seven days (min) of operation.
 7. Provide Status/Message displays.

Interfaces

- All interface cards and line protection devices shall be supplied as necessary to deliver a complete and functioning system.

Simultaneous Broadcast

In order to provide wide area coverage, and to minimize interference between multiple transmitters operating on the same frequency, the County uses simultaneous broadcast, also known as simulcast. Simulcast functionality must be used in the system design.

The following critical simulcast system parameters must be controlled and equalized:

1. Radio frequencies of adjacent transmitters.

2. Deviation of adjacent transmitters.
3. Where applicable, channel banks and multiplexers must be synchronized.
4. Paging transmitter power levels, launch delays and frequency offsets must be controlled.
5. The proposer shall describe in detail, the approach to transmitter frequency stabilization. A frequency standard will be provided at each site.
 - a. At a minimum, the following shall be addressed:
 - i. The system shall be designed such that the radio frequency difference between any pair of transmitters operating in the simulcast mode shall not exceed 10 Hz, over an ambient operating temperature range of -10 degrees C to +50 degrees C
 - ii. The configuration and failure modes of frequency references or sources shall be completely described, including failure modes and alarms. Failure of a single frequency reference shall not cause loss of simulcast operation.
6. Proposer shall describe the procedures and facilities for routine verification of system alignment, and the procedures and facilities for realignment and re equalization.
7. The Contractor shall submit detailed alignment verification procedures and realignment procedures, for review and approval, prior to the scheduled beginning of the acceptance tests. Minor adjustments to procedures and facilities which may be necessary after the submission of the detailed procedures and before full system acceptance, shall be included in the final system documentation.

Installation/Implementation Services

The successful proposer will provide the installation and implementation services as specified below.

Due to the nature of the simulcast paging infrastructure replacement, the County cannot experience any significant downtime during this project. Some Project Management is expected from the Vendor. The following outlines the steps associated with this addition:

- Upon a completed contract, Vendor will process the order for factory manufacturing and ship the equipment to an authorized Vendor facility
- Vendor will receive and inventory shipped equipment from the factory
- Vendor engineering and service subcontractor will optimize simulcast paging system and confirm equipment is operating per specifications

Contract Administration

Vendor Responsibilities:

- Assign a single point of contact with authority to make project decisions.
- Assign resources necessary for project implementation.
- Schedule the kick-off meeting with the County.

County Responsibilities:

- Assign a single point of contact responsible for County signed approvals.
- Assign other resources necessary to ensure completion of tasks for which the County is responsible.
- Supply interior building cable trays, raceways, conduits, and wire supports.

Optimization

Optimize FNE

Vendor Responsibilities:

- Verify that all equipment is operating properly and that all electrical and signal levels are set

accurately.

- Verify that all audio and data levels are at factory settings.
- Verify communication interfaces between devices for proper operation.
- Test features and functionality are in accordance with manufacturers' specifications and that they comply with the final configuration established during the CDR/system staging.

County Responsibilities:

- Provide access/escort to the sites.

Completion Criteria:

- FNE optimization is complete.

Link Verification

Vendor Responsibilities:

- Perform test to verify site link performance, prior to the interconnection of the Vendor-supplied equipment to the link equipment.
- *County Responsibilities:*
- Make available the required links which meet the specifications supplied by Vendor.

Completion Criteria:

- Link verification successfully completed.

Optimization Complete

- System optimization is completed. Vendor and the County agree that the equipment is ready for acceptance testing.

Perform Equipment Testing

Vendor Responsibilities:

- Test individual components of the system to verify compliance to the equipment specifications.
- Repeat any failed test(s) once Vendor (or the County) has completed the corrective action(s).
- Prepare documentation of component tests to be delivered as part of the final documentation package.

County Responsibilities:

- Witness tests if desired.

Completion Criteria:

- Successful completion of equipment testing.

Perform Functional Testing

Vendor Responsibilities:

- Verify the operational functionality and features of the individual subsystems and the system supplied by Vendor, as contracted.
- If any major task as contractually described fails, repeat that particular task after Vendor determines that corrective action has been taken.
- Document all issues that arise during the acceptance tests.

- Document the results of the acceptance tests and present to the County for review.
- Resolve any minor task failures before Final System Acceptance.

County Responsibilities:

- Witness the functional testing.

Completion Criteria:

- Successful completion of the functional testing.
- County approval of the functional testing.

System Acceptance Test Procedures

- County approves the completion of all the required tests.

Resolve Punchlist

Vendor Responsibilities:

- Work with the County to resolve punchlist items, documented during the Acceptance Testing phase.

County Responsibilities:

- Assist Vendor with resolution of identified punchlist items by providing support, such as access to the sites, equipment and system, and approval of the resolved punchlist item(s).

Completion Criteria:

- All punchlist items resolved and approved by the County.

Finalize Documentation & Final Acceptance

- The documentation will be limited to the following:
- Provide as-built modifications to site manual

County Responsibilities:

- Receive and approve all documentation provided by Vendor.

Completion Criteria:

- All required documentation and deliverables is provided, completed, and approved by the County.

Change Order Process

CHANGE ORDERS. Either Party may request changes within the general scope of this Agreement. If a requested change causes an increase or decrease in the cost or time required to perform this Agreement, the Parties will agree to an equitable adjustment of the Contract Price, Performance Schedule, or both, and will reflect the adjustment in a change order. Neither Party is obligated to perform requested changes unless both Parties execute a written change order.

Site Visit & Walkthrough

A tour of the County's paging infrastructure will be held on **Thursday, April 23, 2009 at 10am** at the Wake County Office Building room 1410. The address is 337 S. Salisbury Street, Raleigh. Bidders will be able to see the current equipment and configuration. Attendance by bidders is **non-mandatory, but strongly encouraged**.

Bid Response Requirements

For this section, vendors are required to provide detailed written responses to the following items. The responses shall be considered technical offers of what vendors propose to provide and shall be incorporated in the contract award as deemed appropriate by the County. Using company letterhead, please attach your responses to these questions to the last page of the enclosed Bid Acknowledgement form. Failure of vendors to respond to any of the following technical submittal requirements may be grounds for considering a proposal non-responsive.

1. A cover letter stating the name, address and telephone number of the proposing vendor. This letter must bear the signature of the person having the authority to make the proposal for the firm.
2. Response to all items in the Project Specifications section.
3. Completed Cost Worksheet.
4. Executed Bid Acknowledgement form.
5. Proposed project schedule, which includes a detailed timeline for task accomplishment.
6. A list of at least three references, preferably public entities, for which you have performed similar services. The list should include a summary of services provided, as well as a specific contact person at each organization.
7. Any other information deemed necessary by the proposing vendor.

Cost Worksheet

Qty	Description	Unit Price	Extended Price
1	Equipment Cost per Site (6 TX sites)		
1	Equipment Cost (Encoder/Simulcast Controller, etc.)		
1	Implementation Costs		
1	Project Management Costs		
Total Cost			

Bid Acknowledgement:

Company Name: _____

Address: _____

Person Authorized to Sign Bids: _____ (print)

Signature: _____

Phone: _____ Fax: _____