Cartersville School System

REQUEST FOR PROPOSAL

October 8, 2020

Dear Sir or Madam:

The Cartersville School System invites you to submit a proposal on the following items.

Digital 2-Way Radios

Return your sealed pricing bid clearly marked **on the outside of the envelope or package to:**

Cartersville School System
RFP # 9200-1008-136 ENCLOSED
P.O. Box 3310, 15 Nelson Street
Cartersville, Georgia 30120

no later than 2:00 p.m., Wednesday, November 4, 2020

The Cartersville School Board reserves the right to accept and/or reject any and all bids.

We invite your participation.

Respectfully,

Richard Dyke
Chief Financial Officer

Enclosures

PROPOSAL FORM

Please include this cover sheet as (page 1) of your proposal

Cartersville School System
P.O. Box 3310
15 Nelson Street
Cartersville, Georgia 30120

We have carefully examined and fully understand the Instructions to Bidders and other documents found in the specifications as prepared by you.

We propose to enter into a contract to furnish the materials and deliver services as specified at the price listed below. We also assure you that a company representative will be readily available to assist in reviewing the materials and services.

Digital 2-Way Radios

$ _____

_____
Name of Company

_____
Signature of Company Representative Authorized to Submit this Proposal

_____
Printed Name of Representative

_____
Business Address/ Street, City, State, Zip Code

_____ _____ _____
Phone Number Fax Number Email

Office use only

INSTRUCTION TO BIDDERS

1. Proposals are due no later than 2:00 PM., Wednesday, November 4, 2020, and shall be opened publicly at that time.

2. **Proposals must be submitted on the forms enclosed**. Bidders may attach other appropriate information to best evaluate the proposal.

3. Proposals must meet the requirements relating to all Georgia Department of Education guidelines.

4. The Cartersville City School Board reserves the right to accept or reject all proposals.

6. Payment will be made within 30 days of the completion of project.

7. Proposals will be evaluated on price, starting date and completion date.

8. Contractor must provide a copy of **Certificate of Liability Insurance, E-Verification number, Workers Compensation Insurance and a W-9 form.**

9. Contractor must remove all existing bus radios and antennas.

10. Contractor must install all new radios and antennas.

11. Contractor must install repeater and all necessary equipment at the site selected by Owner.

12. Contractor must provide Owner with coverage map.

13. Contractor must include programming of all radios purchased.

14. Upon completion the Owner shall be left with fully functional 2-way radio communication system.

15. Further information regarding the RFP can be obtained by email only:

Ken Paige
Director of Operations
Cartersville City Schools
kpaige@cartersvilleschools.org

General System Overview

The system shall provide reliable, efficient, radio functionality for the Cartersville City School System's operational groups and shall accommodate the Cartersville City School System's communications requirements between these operational groups. The radio system shall include the features, functions, and capabilities as described herein.

Required Features and Functions

The proposed Radio System and protocol shall support the following features, functions, and repeater able to be software upgradeable to a "trunking" solution:

1. The system and/or user equipment must support digital transmissions on a 6.25 equivalent, 12.5 kHz TDMA channel. The system and/or user equipment must also support analog transmissions on 12.5 kHz channels.

2. The repeater/base station equipment must be able to manage two independent time slots on a single 12.5 kHz frequency using TDMA (Time Division Multiple Access) technology transmissions.

3. All user portable radios must incorporate increased digital battery life over analog by operating in a TDMA digital mode.

4. All user portable radios must include battery technology for automatic maintenance and recalibration.

5. All user portable radios must support Bluetooth® 4.0 accessories

6. All radio equipment must support the use of radio subscriber accessories for automatic gain control and noise suppression.

7. The system and/or user equipment must include embedded digital forward error correction technology to increase clarity throughout range.

8. The system and/or user equipment must include intelligent channel steering capabilities to revert GPS traffic to alternate channels to control and manage data traffic more efficiently on the system.

9. Voice shall take priority over data transmissions on radios transmitting both voice and data information.

10. The system user shall have the option of applying for licensure to detailed radio interface information. This information shall allow the radio user, if capable, to develop custom applications.

11. The system shall provide a software application that allows the system administrator the ability to monitor and control the radio repeaters within the system. The Repeater Diagnostics and Reporting system shall provide the following capabilities:

    a. Repeater Diagnostics that include enabled-disabled station status, Transmitter power status, available channels and RSSI levels.

    b. Repeater Controls that include changing channels, transmitter power, station reset and repeater knockdown.

    c. Repeater Alarm Reporting including Receiver lock failure, transmit lock detect, station overheating, AC Power supply failure and detect and report of failure.

    d. The application operates over the IP network or locally via USB or GPIO connection.

    e. Repeater Alarms: RX (Receiver lock failure), TX (transmit lock detect), Temp (station overheating), Power (AC Power supply failure), Fan (fan failure), *PA Voltage Major, *PA Voltage Minor, *VSWR Major, *VSWR Minor, *TX Power Major, *TX Power Minor, *PA EEPROM Corruption, *Exciter EEPROM Corruption, *Receiver EEPROM Corruption, *Interoperability between Exciter and PA, *Incorrect Carrier Frequency or Incorrect Code plug for MTR2000 PA. (**NOTE**: starred (*) items are available with MTR3000 repeaters and are not available on XPR series repeaters)

Software upgrade to repeater to a Single Site (Non-Control Channel based) Trunking Capabilities:

1. The system shall support the ability to trunk voice or data traffic to available system channels to maximize efficiency. The Trunking system shall automatically detect a P-T-T as a request to talk, and automatically select and assign a voice path for the communications of the selected talk group. Various entities and work groups must be able to communicate without regard to channel selection, radio site selection or geographic location.

2. The system Trunking protocol shall not require the use of a dedicated control channel, allowing voice/data to simultaneously trunk on all system channels.

3. While in trunked mode, the subscriber access time, defined as PTT to system access, shall not exceed 900 milliseconds when a trunked voice path is available.

4. The system must support the ability to simultaneously trunk twelve (12) voice paths.

5. The system must support twenty-four (24) additional data revert paths for additional data traffic needs.

6. The system shall be capable of supporting data communications that include GPS location services, text messaging, and a data interface for other customer specific and supplied applications including telemetry, system performance management, VoIP dispatch, AVL, work-order management, and email connectivity.

7. In the event of a repeater failure, the system shall continue to maintain its trunked operation, regardless of which repeater fails.

8. In the event of frequency interference, the system shall continue to maintain its trunked operation, regardless of the channel interference.

User Equipment

General

All user radios proposed (portables, mobiles, and control stations) should fully support all features and functions available for user radios in the proposed system. The pricing for user radios shall include all programming and installation services required for operation. At the appropriate time during the implementation process, the Vendor will be expected to develop detailed programming personalities and talk group configurations with input and assistance from [CUSTOMER NAME]. User radio programming shall not be performed until [CUSTOMER NAME]'s Project Manager has approved the programming personalities and issued a written notice to proceed with radio programming.

All proposed portable, mobile, and control station radios shall conform to the minimum standards specified by TIA/EIA-603, Section 5 "Standards for Portables".

Portable Radios

The proposed portable radio should be rugged, reliable, and provide the following minimum features:

- 12.5 kHz analog channel bandwidth.
- 12.5 kHz TDMA (6.25e) digital channel bandwidth.
- Alphanumeric display.
- 16channels or 128 Channels
- Digital Signaling - PTT ID, Private Call, All Call, Call Alert, Escalating Alerts, Emergency, Radio Check, Radio Disable/Enable and Remote Monitor
- Analog Signaling - MDC1200: PTT ID, Emergency and Call Alert
- 16-position channel selector.
- Lone Worker
- Tx Interrupt

- Support 2 TDMA channels in simplex operation
- Group scan.
- Voice Announcement
- External microphone and speaker connections.
- High Capacity 3000mAh Li-ion battery rated for 27.5 hours (Digital)
- Standard 2100mAh Li-ion battery
- IMPRES Battery Management
- Full line of optional accessories.
- Optional intrinsically safe model.
- 2 Programmable buttons (supporting both long and short press)
- Meets IP67 submergibility with or w/o accessory cover attached
- Supports Wi-Fi standard IEEE 802.11b, 802.11g, 802.11n

Proposed portable radio units shall conform to applicable Portable Military Standards 810C, 810D, and 810E. The portable transmitters and receivers must further meet or exceed the following specifications.

Portable Transmitter

Frequency Range	403 - 527 MHz
Frequency Stability	+/- 0.5ppm
RF Power Output	1 – 4 watts
Channel Spacing	12.5 or 25 kHz
Adjacent Channel Power	60 dB @ 12.5 kHz

Portable Receiver

Frequency Range	403 - 527 MHz
Channel Spacing	12.5 or 25 kHz
Analog Sensitivity (12 dB SINAD)	0.16uV
Digital Sensitivity	5% BER: 0.14 uV
Adjacent Channel Selectivity	60dB at 12.5 kHz @ (TIA603A)-1T
	45dB at 12.5 kHz @ (TIA603D)-2T
Spurious Rejection	70 dB
Audio Distortion	3%

Mobile Radios

The proposed mobile radio should be rugged, reliable, and provide the following minimum features:

- 12.5 kHz analog channel bandwidth.
- 12.5 kHz TDMA (6.25e) digital channel bandwidth.
- Alphanumeric display.
- 128 Channels.
- Digital Signaling - PTT ID, Private Call, All Call, Call Alert, Emergency, Radio Check, Radio Disable/Enable and Remote Monitor
- Analog Signaling - MDC1200: PTT ID, Emergency and Call Alert
- Group scan.
- TX Interrupt (decode)
- Support 2 TDMA channels in simplex operation
- Full line of optional accessories.
- Optional high power unit (40 watts).
- 4 Programmable buttons (supporting both long and short press)

Mobile and control station transmitters and receivers must further meet or exceed the following specifications.

Mobile/Control Station Transmitter

Frequency Range	XXX - YYY MHz
Frequency Stability	+/- 1.5ppm (Non-GPS)
	+/- 0.5ppm (GPS)
RF Power Output	1-25 watts
	(low power model)
	40 or 45 watts
	(High power model)
Channel Spacing	12.5 or 25 kHz
Adjacent Channel Power	60 dB @ 12.5 kHz

Mobile/Control Station Receiver

Frequency Range	403 - 470 MHz
Channel Spacing	12.5 or 25 kHz
Analog Sensitivity (12 dB SINAD)	0.30 uV / 0.22uV (typical)
Digital Sensitivity	5% BER: 0.25 uV / 0.19
	(typical)
Adjacent Channel Selectivity	
	50dB at 12.5 kHz
	(W / TIA603D)
Spurious Rejection	70 dB
Audio Distortion	3%

Equipment		Price
(10)	Motorola XPR 3500e (w/stubby antenna) Standard battery	_____
(4)	Motorola XPR 3500e Desktop Chargers	_____
(38)	Motorola XPR 2500	_____
(38)	UHF Antenna ¼ Wave with Cables and Connectors	_____
(1)	Motorola SLR 8000 Digital / Analog Repeater	_____
(1)	UHF Duplexer 4 cavity Pass Reject 350watt 1 MHz spacing. 0.8 dB loss w/ 2 duplexer cables	_____
(1)	Battery Backup Charging Cables	_____
(1)	FCC Modification WNHU890 Call Sign	_____
(1)	Installation Repeater, Antenna, etc.	_____

All vehicle / bus radios must include microphones, mounting brackets