GRAHAM COUNTY BOARD OF SUPERVISORS
921 THATCHER BLVD.
SAFFORD, SAFFORD, AZ 85546

BID NUMBER: #16/17-35
BID TITLE: **CARRIER GRADE CELLULAR AND VHF REPEATER SYSTEM**

DEAR INTERESTED BIDDER:

The Board of Supervisors is accepting sealed bids for the **CARRIER GRADE CELLULAR AND VHF REPEATER SYSTEM.** See attached specification sheet. Respondents to this bid invitation must identify any deviations from the bid specifications.

If you have any questions regarding this bid please contact John Lucas at (928) 965-6041. All bids must be clearly marked **CARRIER GRADE CELLULAR AND VHF REPEATER SYSTEM #16/17-35** on the outside of the envelope and returned to the above address.

The bid shall follow the attached specifications as closely as possible and will be rejected if it excluded or omits any portion thereof. The Board of Supervisors reserves the right to reject any or all bids. This proposal must include all taxes, freight, delivery charges and/or other charges as may be applicable. The Board of Supervisors will pay only the amount submitted on the proposal, upon completion of project. NO PARTIAL PAYMENTS WILL BE MADE. FULL PAYMENT WILL BE MADE AT THE NEXT REGULAR SUPERVISORS MEETING AFTER COMPLETION OF PROJECT AND A FULLY COMPLETED INVOICE. THE INVOICE MUST BE RECEIVED BY 12:00 NOON WEDNESDAY PRIOR TO THE BOARD MEETING DATE. THE BOARD MEETS THE FIRST AND THIRD MONDAYS OF EACH MONTH.

The bid must be delivered to the Board of Supervisors office by **THURSDAY, NOVEMBER 17, 2016 BY 6:00 P.M. THE BIDS WILL BE OPENED MONDAY, NOVEMBER 21, 2016.**

DATE: October 27, 2016

GRAHAM COUNTY BOARD OF SUPERVISORS

By:_____

PROPOSAL
CARRIER GRADE CELLULAR AND VHF REPEATER SYSTEM
BID #16/17-35
SEE ATTACHED SPECIFICATIONS

BID AMOUNT $_____
TAX $_____
DELIVERY/FRT $_____
OTHER $_____
TOTAL BID AMT $_____

DELIVERY DATE: Will be coordinated with Contractor

F.O.B. GRAHAM COUNTY JAIL FACILITY
600 W. Graham Canal Rd.
Safford, Az 85546

_____
COMPANY NAME / PHONE

ACCEPTED AND AGREED TO:
GRAHAM COUNTY BOARD OF SUPERVISORS

_____
AUTHORIZED SIGNATURE / DATE

_____
AUTHORIZED SIGNATURE / DATE

NEW GRAHAM COUNTY DETENTION FACILITY

DETENTION FACILITY COMMUNICATIONS

BI-DIRECTIONAL AMPLIFIER VHF & CARRIER GRADE CELLULAR REPEATER WITH DISTRIBUTIVE ANTENNA SYSTEM

PROJECT SCOPE

1 Introduction

Graham County requests a proposal for a Carrier Grade Cellular and VHF Repeater System. The proposed system solution is designed to provide 100% RF coverage within the Detention Facility located in Safford, Arizona. This proposal includes engineering services and product to provide Carrier coverage.

The system described herein is for Verizon and AT&T coverage enhancement as well as VHF Graham County Detention Frequency. The Cellular uses off-the-air BDA'S and a Passive (Coax-only) Distributed Antenna System (DAS) approach to distribute Carrier services in the main building. The VHF Repeater System uses a Passive (Coax-only) Distributed Antenna System (DAS) approach to distribute Voice Radio Traffic services in the main building.

1.1 DESIGN OVERVIEW

The proposed solution uses the CSI Series product line which is designed to be a, medium power platform ideal for today's DAS applications. All areas are served by Headend BDA system to provide 95% coverage as required.

1.2 HEADEND EQUIPMENT

The Headend Equipment (HEQ) provides the off-air amplification and filtering required to extend the Carrier's signal into the building over coax. The HEQ is configured with a duplexed port to feed an RF only (non-fiber) DAS for required coverage.

1.3 SPECIFICATIONS SUMMARY

The proposed HEQ solution uses separate architectures to support technologies operating in a frequency range of both Verizon and AT&T.

Electrical Specifications:

- See HRU specs
- Maximum Power Consumption: 300 Watts
- Input Power: 120 VAC

Mechanical Specifications:

- BDA Dimensions: Approx. 20"(W) X 16"(H) X6"(D)
- Mounting: Wall-mount
- External UPS Backup are also wall-mountable

Environmental Specifications:

- Operational Temperature: -25°C to +55°C
- Relative Humidity: 10% to 95% (Condensing Humidity)
- Nena 4 Rated enclosure
- No Fans required

2 PROPOSED SYSTEM ARCHITECTURE

Off-air signals from the Carrier's will be picked up by donor antennas and delivered to the off-air Bi-Directional Amplifier's (BDA). The Wireless Service will have a dedicated donor antenna, feedline, and surge protector. Vendor is responsible for providing the Donor Antennas, feedline cable, surge protection, and any RF jumper cables as may be required.

The off-air signal level for the wireless service is assumed to be a minimum of -65 dBm received at the planned donor antenna locations on the rooftop of the facility. These downlink signals will be filtered, amplified, and distributed to coverage antennas throughout the facility.

2.1 HEADEND SYSTEM DESCRIPTION

The Headend system consists of a (2) Carrier Grade wall-mounted Headend Repeater Units (HRU) plus Battery Backup. Coaxial interconnect cables for Headend system unit are included. The Headend Repeater will require a dedicated 20 A, 120 VAC, 60 Hz service outlet. It is assumed sufficient AC power exists in that location.

2.2 DISTRIBUTED ANTENNA SYSTEM (DAS)

The DAS consists of approximately 800 feet of ½" plenum-rated coaxial cable, 7 indoor antennas and all connectors, couplers, and jumper cables.

3 RF DESIGN PARAMETERS

3.1 DOWNLINK LEVELS

The HRU's will provide the following output signal levels:
+70 dBm minimum composite output power.

4 ENGINEERING SERVICES

4.1 ON-SITE PERFORMANCE VERIFICATION

A Field Engineer will be on site to assist in the activation of the system and to optimize the system. Once the system is optimized, benchmark performance data will be collected, documented, and appear in the system manual.

Vendor will assist with RF coverage testing and make recommendations as to the best method to resolve coverage deficiencies. In the event that coverage testing reveals deficient coverage areas, Vendor will help define any hardware which may be required to remedy the situation such as antennas, couplers, cable, and connectors.

4.2 SYSTEM DESIGN ASSUMPTIONS

- Coverage Area (indoor coverage only).
- The design is based on providing sufficient signal level to phones to produce an RSSI of at least 3 bars over 85% of the designated coverage area, including stairwells. Design assumes the subscriber unit is transmitting at least +20 dBm.
- All signals from donor sites measured at jail roof top are at least -65 dBm
- Line of Sight exists between the donor antenna and the corresponding Base Station Antenna.
- The design assumes no lossy obstructions surrounding the antennas.

4.3 INSTALLATION ASSUMPTIONS

- Vendor is responsible for the installation of all Headend, donor, and DAS equipment materials (i.e. cable, couplers, antennas, etc.) as may be required.
- Adequate AC power outlets are provided and available where active equipment is located (i.e. Telco Rooms / Electrical Rooms). Any electrical conduit or outlets that may be required to power proposed system will be the responsibility of Vendor.
- Vendor is responsible for providing grounding at the Headend location.
- Working hours within the venue will be 8:00am to 5:00pm, Monday through Friday.
- Proper ventilation exists in Headend room to prevent equipment from overheating.
- Vendor is responsible for providing all gravity-mount, non-penetrating antenna masts or mounting brackets that may be required to support the installation of the Donor antenna.

4.4 Equipment Manufacture Replacement

- Vendor may provide other Manufacture options other than Headend and CSI brand equipment at their option as long as specs are comparative. Graham County does however reserve the right to refuse manufacture changes at it option.

PUBLICATION INFORMATION

NEW GRAHAM COUNTY DETENTION FACILITY

DETENTION FACILITY COMMUNICATIONS

BI-DIRECTIONAL AMPLIFIER VHF& CARRIER GRADE CELLULAR REPEATER WITH DISTRIBUTIVE ANTENNA SYSTEM

Graham County request written bids for a Bi-directional Amplifier VHF & Carrier Grade Cellular Repeater with Distributed Antenna System.