1.1 Scope of Work

A. Provide cellular repeater system. This specification is meant to provide the functional requirements of the system to be installed.

B. Equipment and components furnished shall be of manufacturer’s latest model.

C. System shall comply with FCC rules and be UL listed.

D. Contractor shall be responsible for providing complete, functional systems, whether ancillary devices/components are included in this specification or not. The Contractor shall provide equipment for 20% growth on system extensions.

1.2 Summary

A. Section Includes:

1. System Devices.

2. Cabling.

3. Equipment Mounting.

4. System Testing.

1.3 Contractor Qualifications

A. This Contractor (installing the cellular repeater system herein specified) shall be experienced this type of system. "Experienced" shall mean that the Contractor has personnel that have been trained and certified in the installation of similar systems in the local area. Additionally, the Contractor shall have successfully completed installations of similar equipment and project magnitude to that specified herein within the last year of bid submittal in the local area.

B. RELEVANT EXPERIENCE: Contractor must be able to prove to the satisfaction of the Owner/Engineer that it has significant experience in the installation of cellular repeater systems. Installation must include installation, termination, a knowledge of interconnect equipment, and a thorough knowledge of testing procedures.

C. TIME IN BUSINESS: Contractor must have been in business, under the current name and in the business of installing communications systems, continuously, for a period of at least three years prior to the date of this bid.

D. REQUIRED CERTIFICATION: The Contractor shall possess, at a minimum, a State of Florida Low Voltage License.

E. OFFICE LOCATION: The Contractor shall maintain a permanent office within 75 miles of the project site.

1.4 Submittals

A. Contractor shall review building and verify/provide design and include with submittal for review and approval based on equipment in this specification and as depicted on drawings.

B. Product Data: For each type of product indicated; include construction details, material descriptions, dimensions of individual components and profiles, and finishes (including available colors) for each product indicated and describe features and operating sequences, both automatic and manual necessary equipment.

C. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Dimensioned Outline Drawings of the mounting of equipment for the system: Locate and describe mounting and anchorage provisions.

2. Provide dB calculations to establish signal requirements at Panel Antennas. Indicate any modifications required to obtain specified coverage.

1.5 Project Site Conditions

A. Coordinate installation of antenna for access to the roof or exterior side wall so that the bracket and related fasteners are watertight.

Part 2 Products

2.1 Acceptable Manufacturer

A. SureCall Force-5, in quantities indicated.

B. Pre-Approved Equal.

2.2 Cellular Repeater System

A. This Enterprise Signal Booster system shall provide amplified wireless signals from nearby cellular towers to enhance cellular coverage in the building for 2G, 3G, 4G, and WLAN systems for Cellular, PCS, AWS, and LTE frequencies.

B. Prior to ordering equipment, this Contractor shall measure the signal strength at the site at the ground and adjust the equipment requirements, as necessary.

C. This Contractor shall provide efforts to inform/fill out on-line forms the Carrier Companies of the Owner’s intent to install the specified system.

D. This Contractor shall pre-qualify this installation by the manufacturer’s representative or authorized distributor. This effort shall include a site survey to review antenna placement and ensure appropriate signal coverage for the building. Indicated design was based on a two bar or greater exterior signal at the site.

E. Based on the site survey, provide the quantity of equipment for adequate building coverage. System shall be UL listed.

F. The design is based on the following major equipment. Refer to drawings for quantities and locations.

1. SureCall SC-230W-S outside Yagi antenna (instead of antennae in Kits). Antenna shall have a two-foot, SC-400 cable pigtail. Provide Commscope AL4RPV-50 cable to signal boosters. Provide pole (2 inch diameter) for mounting roof antenna. Mount per manufacturer’s recommendations.

2. Kits (SureCall SC-PolyO-72-OD-Kit and SC-PolyO-72-YD-Kit ) with:

a. SureCall Force5 self-contained, five-band, cellular signal booster.

b. Included low dB loss SC-400 coax cable.

3. Galtronics In-Building Antenna PEAR S5606i (instead of antenna in Kit).

G. Additional Items

1. Necessary adapters and connectors (Microlab DN-x4FN series) and lightning surge protector (SureCall CM-LP) with dedicated ground rod and #8 ground cable or heavier, one per kit.

2. Provide low loss LMR-400 cable and other appropriate cable as appropriate to installation (i.e., recommended lengths exceeded for LMR-400, provide LMR-600, as required). Provide in lengths appropriate to installation. Provide outside plant for roof installation and riser rated for inside installation. At antenna, allow length for drip loop and weatherproof all connectors (i.e., foam tape, vinyl tape, and UV protective liquid sealer over outer tape).

a. Per the manufacturer’s installation requirements: Provide, from the roof-mounted antenna, a 75 foot cable into the building; then, connect a lightning surge suppressor; then, provide a two foot cable to the amplifier. From the amplifier, provide cable and connectors/tappers to the in-building antennas. Locate each in-building antenna on the ceiling, face down, in the locations specified on the drawings. Mount amplifier and surge suppressor in a vented plastic enclosure no smaller than 14″ x 14″ , reference drawings for locations.

H. The system shall provide approximately -20 dB signal increase at each Panel Antenna (or better).

I. Separate antenna cable from data systems. Install in separate, category rated, J-hook system. Support vertical cable runs. Provide Velcro ties only.

J. Installation shall maintain minimum required separation distance between the inside and outside antennas. The amplifier shall provide the capability to automatically reduce power or shut down in order to protect the cellular network from interference.

Part 3 Execution

3.1 Installation

A. Install in accordance with manufacturer’s instructions. This effort shall require a “soft install” to verify adequate coverage before permanently mounting the equipment.

3.2 Demonstration

A. The Contractor shall demonstrate system performance. System demonstrations shall be scheduled at the convenience of the listed personnel and after the Contractor has submitted all test results. The test shall be performed in the presence of the Owner/Engineer. The Contractor shall furnish all instrumentation and personnel for the demonstration.

3.3 System Documentation

A. Provide three hard copies and one CD-ROM in AutoCAD 2018 or higher (and pdf) of system as-built drawings to include the following information:

1. Block diagram and riser diagram of the entire system.

2. Exact routing of installed cabling.

3. Service Provider’s signal strength.

B. Provide five copies of the Certificate of Performance. Contractor shall supply the Owner with signed Certificates of Performance stating that the installed system meets or exceeds all criteria set forth herein.

C. Provide three copies of recorded test results.

D. Provide two sets of operating instructions and maintenance manuals (include troubleshooting procedures).

3.4 Warranty

A. The Contractor shall and does hereby warrant all workmanship, materials, and equipment furnished under this scope of work to be free from defects and function or operate satisfactorily for a period of one year from Substantial Completion of this project unless noted otherwise in specific specification section.

B. If any defects are found within the warranty period, the defective equipment shall be replaced at no cost; the one year warranty shall include labor.

C. Contactor shall respond, excluding weekends and holidays, within 24 hours to any warranty service calls. If equipment cannot be repaired within 24 hours of service visit, the Contractor shall provide “loaner” equipment to the facility at no charge.