**10.3.8** 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.

## 10.4 Identified Candidate Sites for New Towers

### 10.4.1 Customer Owned Land

The Customer has identified candidate tower sites from customer owned land that may be used for new tower sites proposed by the Vendor. This list is located in Appendix C - Tower Candidate Sites List.

### 10.4.2 Customer Owned Tower and Shelter Requirements

The customer has an AT&T legacy tower and shelter at the Glencoe Facility that will be used in the RF design.

The tower will require the vendor to perform a load study to be completed after the removal of the legacy feed horns. The vendor will provide pricing as a part of this proposal to remove these feed horns. Should any of the metal have any value from a recycling center, the vendor will reimburse the county as part of the cost to remove the feed horns. As an alternative, the County reserves the right to have the contractor leave the metal on site for the County to dispose of the metal with their own disposal process.

The shelter will be considered by the vendor and will be used for the new proposed equipment. Any grounding updates for the shelter will be considered and priced as part of this proposal.

A generator load study will be completed by the vendor and a new generator will be provided per the generator specifications in Section 9.

### 10.4.3 Partnership Towers

The Customer has identified candidate tower sites made available through partnerships that may be used for new tower sites proposed by the Vendor. This list is located in Appendix C - Tower Candidate Sites List.

The vendor should confirm with the customer and the vendor that there will be no leased fees for the identified Partnership towers and land.

# 11.0 Site Work Requirements

## 11.1 Site Preparation and Sub-grading

### 11.1.1 General

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

### 11.1.2 Dewatering of the Site

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

**11.1.2.2** 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.

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

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

### 11.1.3 Soil Compaction

**11.1.3.1** 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.

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

**11.1.3.3** Achieve minimum densities specified as references to:

**11.1.3.3(a)** Cohesive soils - 95 percent maximum density at optimum moisture, AASHTO T99.

**11.1.3.3(b)** Cohesionless Soils – 70 percent of maximum relative density.

- ASTM, STP 479 Bunnister method.
- USBR - E12 relative density.
- Relative density, ASTM D2049

## 11.2 Drilled Pier Foundations

### 11.2.1 General

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

### 11.2.2 Performance

**11.2.2.1** Quality Assurance will be met with a field inspection of The Customer's quality control designee.

**11.2.2.1(a)** The Customer's Project Representative will be designated to be responsible for field inspection of the drilled pier foundations. The representative will transmit, in writing, to the consultant and contractor any materials or methods observed that do not conform to this specification and, if required, will not be considered for payment. The Customer's Project Representative must inspect each drilled pier.

Specific responsibilities of The Customer's Project Representative will be:

• 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.

• Inspect bearing elevation of drilled piers.

• 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.

• The Customer's representative shall photograph or film all foundation excavation and pouring activities Contractor's Qualifications.

**11.2.2.1(b)** The Contractor's qualifications must be minimum of two-year's experience in drilled pier construction, including experience with similar subsurface material, water conditions, shaft sizes, and special techniques as required.

**11.2.2.2** Drilled Pier Details

**11.2.2.2(a)** Drilled pier shaft dimensions and top elevations shall be in accordance with foundation design calculations and drawings.

**11.2.2.2(b)** The drilled pier shaft bearing, or bottom elevation shall be at the elevation indicated, unless it is determined by The Customer that the bearing elevation should be adjusted.

**11.2.2.2(c)** The excavate pier shaft shall be drilled to required dimensions and elevations as indicated. Sidewall stability will be maintained during drilling and extend excavation to suitable material.

**11.2.2.2(d)** Inspection of each pier will be by The Customer's Project Representative and Contractor to determine suitability of supporting material for drilled piers.

**11.2.2.2(e)** 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 Customer.

**11.2.2.2(f)** Install temporary casing, where required, to prevent caving of drilled pier sides or excessive seepage.

**11.2.2.2(g)** Dewater all drilled pier excavations prior to cleaning, inspection, and placing concrete.

**11.2.2.2(h)** Each drilled pier must be inspected and approved by The Customer's Project Representative before any concrete may be placed.

**11.2.2.2(i)** Dispose of any excavated material at locations approved for that purpose.

**11.2.2.3** Reinforcing Steel

**11.2.2.3(a)** Place reinforcement for drilled piers in accordance with foundation design documents.

**11.2.2.3(b)** Place bars as shown on foundation drawings with concrete cover of not less than 3-inches where exposed to soil.

**11.2.2.3(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.

**11.2.2.3(d)** Dewater drilled piers and maintain the excavation free of water prior to placing concrete.

**11.2.2.3(e)** Place concrete immediately after final inspection.

**11.2.2.3(f)** Place concrete immediately after completion of excavation and after The Customer's Project Representative has completed his inspection. Do not leave uncased excavations open overnight.

**11.2.2.3(g)** Free fall concrete (not over 6 feet) 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 only after casing, if used, has been pulled.

**11.2.2.3(h)** Place concrete in pier in one continuous pour operation from bottom to top.

**11.2.2.3(i)** The Customer'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. Always maintain an adequate head of concrete to balance outside soil and water pressure above the bottom of the casing during withdrawal. Specific procedures that the Contractor will follow to accomplish this objective shall be submitted for approval.

**11.2.2.3(j)** Where the 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.

**11.2.2.3(k)** During casing extraction, upward movement of the reinforcing steel shall not be permitted. Downward movement should not exceed 2-inches per shaft length.

**11.2.2.3(l)** Remove all water and concrete contaminated with soil, or water before resuming concrete placement.

**11.2.2.3(m)** Center reinforcing cages in the drilled pier excavation and suspend them in an approved manner prior to placement of concrete to the cutoff elevation.

**11.2.2.3(n)** Leave forms on pier for a period of three days.

**11.2.2.3(o)** 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

This RFP includes concrete, forms, and steel reinforcement. This includes drilled pier foundations with square caps for steel structures, concrete pads for transformers and breakers, equipment shelter and tower foundations, and cable trenches.

### 11.3.2 Quality Assurance and Applicable Standards

**11.3.2.1** American Concrete Institute (ACI)

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

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

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

**11.3.2.1(d)** ACI 315 - Manual of Standard Practice for Detailing Reinforced Concrete Structures.

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

**11.3.2.2** American National Standards Institute (ANSI)

**11.3.2.2(a)** B 1 8.2.1 - Square and Hex Bolts and Screws, Including Askew Head Bolts, Hex Screws, and Lag Screws.

**11.3.2.2(b)** B 1 8.2.2 - Square and Hex nuts.

**11.3.2.3** American Society for Testing and Materials (ASTM)

**11.3.2.3(a)** A36 - Structural Steel.

**11.3.2.3(b)** A82 - Cold-Drawn Wire.

**11.3.2.3(c)** Al 85 - Welded Steel Wire Fabric for Concrete Reinforcement.

**11.3.2.3(d)** A307 - Low-Carbon Steel Externally and Internally Threaded Standard Fasteners.

**11.3.2.3(e)** A615 - Deformed Billet Steel Bars for Concrete Reinforcement.

**11.3.2.3(f)** C31 - Making and Curing Concrete Compression and Flexure Test Specimens in the Field.

**11.3.2.3(g)** C33 - Concrete Aggregates.

**11.3.2.3(h)** C39 - Compressive Strength of Cylindrical Concrete Specimens.

**11.3.2.3(i)** C94 - Ready-Mixed Concrete.

**11.3.2.3(j)** C 143 - Slump of Portland Cement Concrete.

**11.3.2.3(k)** C 150 - Portland Cement.

**11.3.2.3(l)** C309 - Liquid Membrane-Forming Compounds for Curing Concrete.

**11.3.2.4** Midwest Concrete Industry Board (MCIB)

**11.3.3** Equipment and Materials

**11.3.3.1** Concrete Materials

**11.3.3.1(a)** Cement must conform to ASTM C 150. Portland cement Type 1.

**11.3.3.1(b)** Water shall be clean and free from injuries amounts of oil, acids, alkaline, or other deleterious substances. Any potable drinking water will be acceptable.

**11.3.3.1(c)** Fine Aggregates such as Clean natural sand. Manufactured sand may be used upon written approval of The Customer's designee. They shall Conform to ASTM C33.

**11.3.3.1(d)** Coarse aggregates such as Clean crushed stone or processed gravel, not containing organic materials shall conform to ASTM C33.

**11.3.3.1(e)** 4-6 percent air shall be used in all concrete.

**11.3.3.1(f)** Water reducing admixture shall conform to ASTM C494, Type A.

**11.3.3.2** Concrete Mix

**11.3.3.2(a)** Ready-mixed Concrete shall meet requirements of ASTM C94, and of materials and proportions specified.

**11.3.3.2(b)** Ready-mixed concrete plant shall be subject to approval of The Customer's Project Representative.

**11.3.3.3** Form materials

**11.3.3.3(a)** Exterior grade plywood minimum 5/8 inch thick.

**11.3.3.3(b)** Approved wood fiberboard.

**11.3.3.3(c)** Dressed lumber, free of loose knots.

**11.3.3.3(d)** Form tires shall be approved break-back type.

**11.3.3.4** Steel Reinforcement

**11.3.3.4(a)** Reinforcement bars shall conform to ASTM A615, Grade 60 for all bars No. 4 or larger.

**11.3.3.4(b)** Tie and-all No.3 bars shall conform to ASTM A615, Grade 40.

**11.3.3.4(c)** Welded wire fabric shall conform to ASTM A185, using bright basic wire conforming to ASTM A82. Wire gauge No. 11 or smaller shall be galvanized.

**11.3.3.5** Anchor Bolts

**11.3.3.5(a)** All anchor bolts required for complete installation shall be provided.

**11.3.3.5(b)** Anchor bolts and accessories shall conform to ASTM A307 using A36 steel.

**11.3.3.5(c)** Use hexagonal bolts and nuts conforming to ANSI B 1 8.2.1 and B 1 8.2.2.

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

**11.3.3.5(e)** Install as indicated on foundation drawings.

**11.3.4** Performance

**11.3.4.1** Field Testing

Field testing of concrete and making of the concrete test cylinders will be performed by an independent testing laboratory approved by the Customer's Permit Department.

**11.3.4.2** Laboratory Testing

**11.3.4.2(a)** Laboratory for testing shall be selected and paid by the Contractor.

**11.3.4.2(b)** Laboratory will furnish cylinder molds with cap seals or adequate means of identification.

**11.3.4.2(c)** 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.

**11.3.4.2(d)** Results shall be provided to the Project Representative in a formal report. A copy shall be provided to the Consultant and Contractor.

**11.3.4.3** Low Strength Concrete

Low strength is 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.

**11.3.4.3(a)** 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 the Customer's Project Representative.

**11.3.4.3(b)** Low strength concrete shall be removed and replaced if requested by the Customer's designee.

**11.3.4.4** Preparation and Placing of Concrete

**11.3.4.4(a)** Clean bonding surfaces free from laitance and foreign materials.

**11.3.4.4(b)** Place concrete on property prepared and unfrozen sub grade and only in dewatered excavations.

**11.3.4.4(c)** Do not deposit partially hardened concrete or concrete contaminated by foreign materials.

**11.3.4.4(d)** Placing the concrete shall Conform to ACI 304.

**11.3.4.4(e)** Place concrete within 60 minutes after mixing, except The Customer's designee may extend the period to 90 minutes (maximum) dependent upon weather conditions.

**11.3.4.4(f)** Place in horizontal layers not exceeding 18-inches.

**11.3.4.4(g)** Vibrate concrete to produce solid mass without honeycomb or surface air bubbles.

**11.3.4.5** Curing of Concrete

**11.3.4.5(a)** Cure with liquid membrane-forming compound conforming to ASTM C309, Type I. Apply per manufacturer's recommendations.

**11.3.4.5(b)** Apply curing compound to all exposed surfaces immediately after removing form or after finishing concrete.

**11.3.4.5(c)** Keep formwork wet until stripped.

**11.3.4.6** Placing Concrete in Cold Weather

**11.3.4.6(a)** 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.

**11.3.4.6(b)** Protect pier caps and other concrete from freezing using insulating blankets.

**11.3.4.7** Placing Concrete in Hot Weather

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

**11.3.4.8** Concrete Construction Joints

**11.3.4.8(a)** Locate where indicated. Conform to AC 318.

**11.3.4.8(b)** Clean and break laitance or other foreign material from bonding surface. Bed with 1-inch of grout for bonding in horizontal joints.

**11.3.4.9** Concrete Surface Float Finish

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

**11.3.4.9(b)** Test surface with straightedge and eliminate high and low spots of more than 1/8-inch in 10 feet.

**11.3.4.9(c)** Use this finish in addition to the finishes specified below for all surfaces as indicated.

**11.3.4.9(d)** Use a final finish for footing slabs not exposed.

**11.3.4.10** Concrete Hand-troweled Finish

**11.3.4.10(a)** 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.

**11.3.4.10(b)** Use this finish on all floors, slabs, and equipment bases not specifically designated for a different finish.

**11.3.4.11** Concrete Broom Finish

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

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

**11.3.4.11(c)** Use this finish on all outdoor slabs subject to vehicular or pedestrian traffic and areas to receive grout.

**11.3.4.12** Concrete Burlap Finish

**11.3.4.12(a)** Apply burlap surface treatment to exposed edges of slabs, curbs and foundations.

**11.3.4.12(b)** 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.

**11.3.4.12(c)** Strike off all excess mortar flush with the surface using a burlap or canvas cloth with a circular motion.

**11.3.4.12(d)** Remove all rough spots and rub with cloth to leave a surface of uniform texture and appearance.

**11.3.4.12(e)** Finish shall result in a coating of mortar that will fill all small voids and air holes leaving a smooth surface.

**11.3.4.12(f)** Cure as specified under Curing Concrete.

**11.3.4.13** Defective Concrete Surface Treatment

**11.3.4.13(a)** After removal of forms, remove all fins, projections and form ties.

**11.3.4.13(b)** Grout and cure all voids, damaged areas, and tie holes.

**11.3.4.14** Concrete Forms

**11.3.4.14(a)** Treat forms with an approved oil or lacquer prior to placing reinforcement.

**11.3.4.14(b)** Wet forms with clean, clear water prior to placing concrete.

**11.3.4.14(c)** Adequately brace and stiffen forms to prevent deflection and settlement.

**11.3.4.15** Steel Reinforcement

**11.3.4.15(a)** Place accurately, tie at intersection, and support on chairs. Conform to ACI 318.

**11.3.4.15(b)** Tie securely with 16 gauge or larger annealed iron wire.

**11.3.4.15(c)** Splice steel not less than 30 bar-diameters for A615, Grade 40, and 42 bar-diameters for A615, Grade 60, unless otherwise indicated.

**11.3.4.15(d)** Splice plain bars not less than twice that for deformed bars.

**11.3.4.15(e)** Lap welded wire fabric not less than the length of one mesh.

**11.3.4.15(f)** No.3 bars to be Grade 40, with all others to be Grade 60.

**11.3.4.15(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

**11.4.1.1** Quality Insurance and Applicable Standards

**11.4.1.1(a)** Federal specification RR-F-191 - Fencing, wire and post, metal and gates, chain-link fence fabric, chain-link and accessories.

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

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

**11.4.2** Requirements

**11.4.2.1** Manufacturer's standard materials where such materials conform to these specifications or have been approved by The Customer.

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

**11.4.2.3** Fence height – 8 feet high galvanized chain link with 3-strand barbed wire at top (9½ feet overall height).

**11.4.2.4** Gate widths as indicated on layout drawings.

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

**11.4.2.5(a)** Pipe – 1.8 ounces.

**11.4.2.5(b)** Hardware and accessories – conform to FS RR-F-191.

**11.4.2.5(c)** Barbed wire – 0.80 ounce.

**11.4.2.6** Finish for Fence Fabric

**11.4.2.6(a)** Galvanized per ASTM A392, Class-2 with 1.8-ounce, minimum weight, for zinc per square foot or, aluminum coated per ASTM A491, Class-2 with 0.40- ounce, minimum weight, for aluminum per square foot.

**11.4.2.7** All fence and gates to have 3-strand barbed wire at top.

**11.4.2.8** All materials furnished shall comply with the above requirements.

**11.4.3** Fence Fabric

**11.4.3.1** No.9 gauge, 2-inch diamond mesh chain-link fabric.

**11.4.3.2** Top and bottom selvage twisted and barbed.

**11.4.3.3** Fabric fastenings of 9-gauge galvanized wire ties.

**11.4.4** Post, Top Rail, and Braces

**11.4.4.1** Post

**11.4.4.1(a)** End, angle, corner or pull posts – 3-inches O.D. at 5.79 pounds per foot.

**11.4.4.1(b)** Line posts – 2.5-inches O.D. at 3.65 pounds per foot.

**11.4.4.2** Top Rail

**11.4.4.2(a)** 1.625-inch O.D. standard weight steel pipe.

**11.4.4.2(b)** 18-foot minimum length of each section.

**11.4.4.3** Expansion Type Coupling for Each Joint.

**11.4.4.3(a)** Diagonal truss rods 3/8 inch in diameter equipped with truss tightened.

**11.4.4.3(b)** Horizontal braces – 1.660-inch O.D. at 2.27 pounds per foot.

**11.4.4.4** Post tops shall be designed as a weather tight closure cap for tubular post.

**11.4.4.5** Top Rail Expansion Type Coupling for Each Joint.

**11.4.4.6** Malleable Iron or Pressed Steel Barbed Wire Supporting Arms

**11.4.4.6(a)** Single arm at 45-degrees with vertical, sloping to outside of fence.

**11.4.4.6(b)** Constructed for attaching three rows of barbed wire to each arm and designed as a weather tight closure cap for tubular posts.

**11.4.4.6(c)** Designed for 200-pound minimum pull-down load.

**11.4.4.6(d)** Attached to steel posts or integral with post top.

**11.4.4.6(e)** Provided with openings to receive top rail.

**11.4.4.7** Malleable Iron or Pressed Steel Stretcher Bars

**11.4.4.7(a)** One-piece, full height of fabric.

**11.4.4.7(b)** 3/6-inch x ¾-inch, galvanized.

**11.4.4.7(c)** Bands of galvanized steel or malleable iron.

**11.4.4.8** Malleable Iron or Pressed Steel Bolts

**11.4.4.8(a)** Zinc coated.

**11.4.4.8(b)** Conform to FS FF-B-575.

**11.4.5** Barbed Wire

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

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

**11.4.5.3** Three rows required on all fence and gates.

**11.4.6** Gates

**11.4.6.1** Framing

**11.4.6.1(a)** Frames of tubular members, 2-inch O.D. at 2.72 pounds per foot.

**11.4.6.1(b)** Intermediate horizontal and vertical members for proper gate operation and for attachment of fabric, hardware and accessories.

**11.4.6.1(c)** Frames assembled by welding or watertight galvanized steel rigid fittings.

**11.4.6.1(d)** Diagonal cross bracing of 3/8 inch diameter adjustable truss rods to provide frame rigidity.

**11.4.6.1(e)** Diagonal cross bracing of 3/8 inch diameter adjustable truss rods to provide frame rigidity.

**11.4.6.2** Gate hardware hinges shall be of pressed or forged steel, or malleable iron, non-lift- off type, 1 to 1.2 pair per leaf.

**11.4.6.3** Latches and Gate stops – Double Leaf.

**11.4.6.3(a)** Plunger-bar type latch, full gate height, designed to engage gate stop of flush-plate type with anchors.

**11.4.6.3(b)** Locking device and padlock eyes an integral part of latch

**11.4.6.3(c)** Keeper to automatically engage gate leaf and secure free end of gate in full 90-degrees open position.

**11.4.6.4** Latches – Single Leaf

**11.4.6.4(a)** Forked type to permit operation from either side of gate

**11.4.6.4(b)** Padlock eye as integral part of latch.

**11.4.7** Performance and Fence Installation

**11.4.7.1** Follow general contour of ground and properly aligned.

**11.4.7.2** Fence Post

**11.4.7.2(a)** Set in concrete retaining wall. Trowel finish tops of footings and dome to direct water away from posts.

**11.4.7.2(b)** Install plumb and in straight alignment.

**11.4.7.2(c)** Temporarily brace until concrete in bases has set.

**11.4.7.2(d)** Spaced 10 feet center-to-center, maximum.

**11.4.7.3** Post Bracing

**11.4.7.3(a)** Installed at each end, at the gatepost, and on each side of corner posts.

**11.4.7.3(b)** Install after the concrete in post base has set.

**11.4.7.3(c)** Install so posts are plumb when diagonal rod is under tension.

**11.4.7.4** Top Rails

**11.4.7.4(a)** Run continuously through post caps or barbed wire supporting arms.

**11.4.7.4(b)** Install expansion coupling at each joint.

**11.4.7.5** Tension wire shall be weaved through the fabric and tie to each post with minimum 6-gauge galvanized wire.

**11.4.7.6** Fabric

**11.4.7.6(a)** Stretch taut with equal tension on each side of line posts

**11.4.7.6(b)** Fasten to top rail and steel posts with wire ties.

**11.4.7.6(c)** Space wire ties at 12-inches O.C. maximum on posts and at 24-inches O.C. maximum on top rail.

**11.4.7.7** Stretcher Bars

**11.4.7.7(a)** Thread through or clamp to fabric 4-inches on center.

**11.4.7.7(b)** Secure to posts with metal bands spaced 15-inches on center maximum.

**11.4.7.7(c)** Install at each gate, pull and end post, and each side of corner post.

**11.4.7.8** Barbed Wire

**11.4.7.8(a)** Attach three rows to each barbed wire supporting arm. Pull wire taut and fasten securely to each arm.

**11.4.7.8(b)** Install four rows above fabric and on extended gate end members of gates.

**11.4.7.9** Gates

**11.4.7.9(a)** Install plumb, level, and free swinging through full opening without interference.

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

**11.4.7.9(c)** Furnish and install gate alarms.

**11.4.7.10** Repairing Damaged Coatings

**11.4.7.10(a)** Repair any damaged coating in the shop or field by recoating with compatible and similar coating.

**11.4.7.10(b)** Apply per manufacturer's recommendations.

**11.4.7.11** Furnish and install Danger signs as approved by the Customer's designee.

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## 11.5 Crushed Rock Surface

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

**11.5.1** Applicable Standards

**11.5.1.1** American Society for Testing and Materials

**11.5.1.1(a)** C117– Test for Materials Finer than No. 200 Sieve in Mineral Aggregate by Washing.

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

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

**11.5.1.1(d)** D423 – Test for Liquid Limit of Soils.

**11.5.1.1(e)** D75 – Sampling Stone, Slag, Gravel, Sand and Stone Block for Use as Highway Materials.

**11.5.1.2** American Association of State Highway and Transportation Officials (AASHTO)

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

**11.5.1.3** Sample and Testing

**11.5.1.3(a)** Test to determine conformance with all requirements for material quality and properties specified herein will be performed by an independent laboratory approved by the Customer and compensated by the Contractor.

**11.5.1.3(b)** Obtain representative samples of material in accordance with ASTM D75 for testing. Furnish the Customer's designee sufficient materials for testing from each sample at the time obtained.

**11.5.1.3(c)** Furnish specific schedule for sampling to provide the Customer's designee the opportunity to observe sampling.

**11.5.1.4** Submittals. Includes, but not limited to, the following:

**11.5.1.4(a)** Test result reports from testing laboratory indicating conformance with the specifications.

**11.5.1.4(b)** Certification of conformance with the specifications.

**11.5.2** Materials

**11.12.1.1** Crushed rock surface shall consist of ¾-inch aggregate placed on top of a 6-mil polyvinyl barrier.

**11.12.1.2** Aggregate shall consist of 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 and General Requirements

**11.5.3.1** Stockpiles

**11.5.3.1(a)** Only with approval of the Customer's designee in specified locations.

**11.5.3.1(b)** Clear and level storage sites prior to stockpiling.

**11.5.3.1(c)** Place in a manner and at locations designated by the Customer, providing separate stockpiles for materials from separate sources.

**11.5.3.2** Preparation of Sub-Grade

**11.5.3.2(a)** Clean off all foreign substances.

**11.5.3.2(b)** Correct any ruts, depressions, or soft yielding spots and areas with inadequate compaction.

**11.5.3.2(c)** Treat all sub-grade areas with soil sterilant.

**11.5.3.2(d)** The Customer's Project Representative will inspect, prior to placing crushed rock surface, for adequate compaction and surface tolerances.

**11.5.3.3** Grade Control

**11.5.3.3(a)** Establish and maintain by means of grade stakes, properly spaced so string lines may be stretched between stakes.

**11.5.3.4** Placing of Materials

**11.5.3.4(a)** 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.

**11.5.3.4(b)** Level material to the required contour and grades.

**11.5.3.4(c)** 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 the Customer's designee.

**11.5.3.4(d)** Remove and repair sub-grade areas damaged during application of the crushed rock surface.

**11.5.3.5** Shaping and Compacting Materials

**11.5.3.5(a)** Compact layers no less than 3-inches or more than 6-inches thick.

**11.5.3.5(b)** Roll to specified compaction requirements throughout full depth of layer with power rollers, rubber-tired rollers or combination.

**11.5.3.5(c)** Shape and smooth by blading and rolling with power roller, rubber-tired roller, or both.

**11.5.3.5(d)** Hand tamp in places not accessible to rolling equipment

**11.5.3.5(e)** 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.

**11.5.3.5(f)** Determine and control compaction in accordance with AASHTO T99.

**11.5.3.5(g)** 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.

**11.5.3.5(h)** Correct any deviation specified in excess of this amount by loosening, adding or removing material, reshaping, watering, and compacting as requested by the Customer's designee.

## 11.6 Herbicide Applications

### 11.6.1 Equipment and Materials

**11.6.1.1** Sprayers and applicators shall be suitable for intended use.

**11.6.1.2** Mix herbicide per manufacturer's recommendations.

**11.6.1.3** Herbicide shall be Krover (1) as manufactured by DuPont, Inc., or approved equal.

**11.6.1.4** Do not apply herbicide if it is too windy or where other adverse weather conditions exist.

**11.6.1.5** Apply at a rate of 10 pounds of product per acre, or in accordance with manufacturer's recommendations.

### 11.6.2 Performance

**11.6.2.1** Apply only after final sub-grade has been established.

**11.6.2.2** Apply before installation of vegetation barrier cloth and placement of crushed rock.

**11.6.2.3** Follow manufacturer's recommendations on timing of application with respect to weather and barrier/crushed rock placement.

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## 12.0 Minimum Subscriber Requirements and Price Considerations

### 12.1 General

This Section describes minimally-acceptable requirements for subscriber radio equipment. All radio equipment proposed by Vendors and installed by the Contractor shall be FCC type accepted under Part 90 of the FCC Rules and Regulations. All supplied equipment proposed by the Vendor and provided/installed by the Contractor shall be in current production and shall meet or exceed the requirements of this Section.

In general, public safety/local government communications needs have shifted from car based, with equipment fixed within vehicles, to user-based where portable radio equipment is assigned to individual users.

This migration to portable units, with that equipment's reduced output power level 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.

The Customer's current tower site configuration currently does not benefit portable radio operations in needed locations coupled with the age of the fixed site infrastructure. Portable radio coverage problems are further compounded by the fact that users often respond to incidents within propagation-resistant areas such as warehouses, office buildings, apartment structures, hospitals, and single-family dwellings.

The subscriber equipment must be:

**12.1.1** Small, light-weight and easy to operate.

**12.1.2** The antenna should be physically short and in keeping with the size of the radio package.

**12.1.3** Radio unit battery packs are expected to operate to provide sufficient power for a full twelve-hour work period.

**12.1.4** A range of accessories is expected to be available to support in-field battery charging.

**12.1.5** The battery packs should provide a reasonably long-life (i.e., two years) within the typical operational profile of 5% transmit, 5% receive and 90% standby/on.

**12.1.6** While most radio users operate in the clear, unencrypted mode, a need for standards-based voice encryption is necessary.

**12.1.7** The Vendor shall provide documentation, and demonstrate P25 operational compliancy with, minimally, BK Technologies (RELM), EF Johnson/Kenwood, L3Harris, Motorola Solutions, & Tait portable, mobile, and control station radios. These radios must have been tested and certified to function on its proposed P25 infrastructure technology.

**12.1.8** The Vendor shall also describe those processes and methods it employs to confirm where infrastructure software releases and hardware changes to its P25 network/site controllers, base station, and gateway products are verified for continued compatibility with P25 equipment manufactured and offered for purchase by others.

**12.1.9** The portable radio package is expected to be simple to operate having a minimum of operator controls or feature selections.

**12.1.10** Radios contain a microphone, speaker, talk group selector, volume control, power switch, emergency button, and normal transmit push-to-talk button. These input/output devices are subject to near-constant physical abuse within a public safety environment and affect overall equipment reliability.

**12.1.11** The user is expected to be able to disable backlighting and tones, when necessary; Commonly known as stealth mode.

**12.1.12** The volume control is expected to be fully adjustable from zero to maximum audio output level.

**12.1.13** Unit is expected to be extremely rugged to withstand shock and vibration typical of public safety operations. For some agencies, other features are needed such as Hazardous Location operation and the ability for the equipment to survive short term water submersion.

**12.1.14** Units are expected to be operable, within the coverage requirements of Section 6 Coverage Criteria, using the smallest unity-gain flexible antenna available.

**12.1.15** Radio units are expected to be equipped with alphanumeric displays, where spcified on the subscriber list in Appendix H - Subscriber Radio List, to readily identify selected talk groups and operating modes, i.e. clear voice, encrypted voice, etc.

**12.1.16** Radios are expected to be capable of operation with traditional speaker/microphones as well as sub-miniature radio surveillance accessories. All speaker microphones must have noise cancelling capabilities and 3.5mm jack for the ability to use a Receive-Only earpiece.

**12.1.17** In addition to the specific desired features indicated above, all furnished equipment is expected to meet minimum equipment requirements identified in this section.

**12.1.18** Radios and equipment that is proposed for fire agency use, must be the fire grade equipment that is offered by the vendor. Any additional training for this specialize fire equipment must be provided by the vendor. Any proposed accessories must be in the Fire rated category.

**12.1.19** All proposed subscribers shall be capable of generating two-tone alert tones that will allow tornado siren or other similar application activiation.

**12.1.20 User Equipment Training**

**12.1.20.1** A comprehensive training program must be established by the Vendor in its Technical Submittal, to be implemented if selected as the Contractor. This program would include not only user familiarization with physical features and functions of assigned radio equipment, but also instruction pertinent to the System's talkgroup structure and how the System's infrastructure establishes local, wide-area and outside interoperable call transactions.

**12.1.20.2** The Contractor's training program must include the necessary graphics, visual simulations, and printed media tools to establish an appropriate training process for users. Training videos must be available to users on a private web-based portal, thereby allowing for individual refresher training.

**12.1.20.3** The Contractor must also supply technical assistance during the initial warranty period that allows for ongoing modifications to these training resources, to keep them in-step with additions and changes to the operable and interoperable resources within the System.

**12.1.20.4** The Vendor shall provide a detailed description of its proposed user/infrastructure training program. Examples of training tools developed for similar P25 regional trunked and conventional radio configurations shall be provided within the Vendor's Technical Proposal Submittal.

**12.1.20.5** The Customer must approve all training curriculum prior to training.

**12.1.20.6** The Vendor must provide resumes of professional training staff that will train the user on how the radio operates on the proposed system.

**12.1.20.7** The Vendor shall propose train-the-trainer subscriber training for up to 36 individuals.

## 12.2 Control Station Equipment

All control station P25 radios proposed shall:

**12.2.1** Be available either as an integrated 120VAC powered desktop radio rack or a remotely located, AC powered radio package with separate remote-control unit.

**12.2.2** Control station and control unit shall have an alternative provision to operate from standby 12VDC source upon failure of AC power.

**12.2.3** Alternatives shall be provided for local and remote-control operation of the control station.

**12.2.4** Must meet APCO minimum recommendations and EIA/TIA standards for P25 Public Safety 700/800MHz digital trunked radio systems. Furnished equipment must be operable on conventional and both Phase 1 and Phase 2 infrastructures.

**12.2.5** Allow operations on P25 trunked and conventional (analog/P25) systems with priority scan of talk groups or channels.

**12.2.6** Offer digital voice encryption, using an Advanced Multi-Band Excitation +2 (AMBE+2) or Newer P25 Phase 1 and Phase 2 vocoder, DES-OFB and federally approved 256-bit AES coding to provide enhanced security during transmission and reception of sensitive communications.

**12.2.7** 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.

**12.2.8** Include 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.

**12.2.9** Control station packaging shall incorporate sufficient electromagnetic 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.

**12.2.10** All Control Station proposed for interoperability solutions must be capable of a minimum of 16 channel/talkgroup steering thru the base station gateway by a dispatch console.

**12.2.11** Minimum electrical specifications as follows:

| | | |
|---|---|---|
| **12.2.11.1** | Primary Input Voltage: | 120 VAC, 60 Hz, single-phase with 3-conductor grounded line cord. |
| **12.2.11.2** | Optional Battery: | 12 VDC designed for 8 hrs. of operation |
| **12.2.11.3** | Environmental: | MIL-STD 810 C, D, E, F and G for shock, vibration, humidity and high/low temperature. |
| **12.2.11.4** | Temperature Range: | -30 °C to +60 °C |
| **12.2.11.5** | Humidity: | 95% relative humidity at 50 °C |
| **12.2.11.6** | Talk Group Selection: | Rotary-knob style |

**12.2.12** **Transmitter** specification are as follows:

| | | |
|---|---|---|
| **12.2.12.1** | Frequency Range: | 764 to 870 MHz |
| **12.2.12.2** | Channel Capacity: | 500 channels |
| **12.2.12.3** | Talk Group Capacity: | 16 talk groups per system/tier, minimum |
| **12.2.12.4** | Talk Group Capacity: | 16 talk groups per system/tier, minimum |
| **12.2.12.5** | RF Power Output: | 18 W (700 MHz); 30 W (800 MHz) |
| **12.2.12.6** | RF Output Impedance: | 50 ohms |
| **12.2.12.7** | Channel Spacing: | 12.5/6.25 KHz, NPSPAC |
| **12.2.12.8** | Spurious/Harmonic: | At least 70 dB below carrier |
| **12.2.12.9** | Frequency Stability: | 1.5 PPM from -25 °C to 60 °C |
| **12.2.12.10** | Emission: | 16K0F3E; 11K0F3E; 8K10F1D; 8K10F1E; 9K80F1D, 9K80D7W or comparable Phase 2 Emission. |
| **12.2.12.11** | Modulation Deviation: | +/-2.5KHz for 12.5KHz channel, +/-4 KHz NPSPAC |
| **12.2.12.12** | Audio Distortion: | Less than 2% at 1 KHz |
| **12.2.12.13** | Audio Response: | +/-3 dB of a 6 dB-per-octave pre-emphasis, characteristic, 300Hz to 3KHz. |
| **12.2.12.14** | Duty Cycle: | Transmitter 20-80% |
| **12.2.12.15** | Hum and Noise: | -35dB |

**12.2.13** **Receiver** specifications are as follows:

| | | |
|---|---|---|
| **12.2.13.1** | Frequency Range: | 764 to 870 MHz |
| **12.2.13.2** | Channel Capacity: | 500 channels |
| **12.2.13.3** | Channel Spacing: | 12.5/6.25 KHz/NPSPAC |
| **12.2.13.4** | Adjacent Channel Rejection: | -63 dB |
| **12.2.13.5** | Digital Sensitivity: | 5% BER: 0.35 µV |
| **12.2.13.6** | Frequency Stability: | 1.5 PPM from -25 °C to 60 °C |
| **12.2.13.7** | Intermodulation Rejection: | -75 dB |
| **12.2.13.8** | Spurious Response Rejection: | -75 dB |
| **12.2.13.9** | Audio Output: | Not less than 3W |
| **12.2.13.10** | Audio Distortion: | No more than 2% at 1 KHz |
| **12.2.13.11** | Duty Cycle (EIA): | Receiver 100% |

## 12.3 Mobile Radio Equipment

All mobile P25 radios proposed shall

**12.3.1** Meet APCO minimum recommendations and EIA/TIA standards for P25 Public Safety 700/800MHz digital trunked radio systems. Furnished equipment must be operable on both Phase 1 and Phase 2 infrastructures.

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

**12.3.3** Allow operation on P25 trunked systems with priority scan of talkgroups.

**12.3.4** 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 users. Rear mount radios may require weatherproof control heads, speakers, microphones and other accessories (specific for fire operations).

**12.3.5** Include emergency button on mobile radio control panels to initiate an emergency call.

**12.3.6** Support special services, i.e. encrypted voice, Computer Aided Dispatch (CAD), and Automatic Vehicle Location (AVL).

**12.3.7** Be capable of an external alarm dry-contact closure to provide activation of a horn, light, etc. whenever the radio unit is individually called.

**12.3.8** Be capable of providing 9.6kb/s data-messaging transmission capabilities.

**12.3.9** Offer digital voice encryption, using an Advanced Multi-Band Excitation +2 (AMBE+2) or newer P25 Phase 1 and Phase 2 vocoder technology, DES-OFB and federally approved 256-bit AES coding to provide security during transmission and reception of sensitive communications.

**12.3.10** Ensure radio operating information is contained in an electrically erasable memory device. Unit will be fully programmable from a laptop/desktop computer.

**12.3.11** Include a transmit time out timer to warn the user of excessive transmission length. Time out timer should automatically disable the radio's transmitter after a pre-determined period.

**12.3.12** Ensure mobile radios in the 800MHz band must be operable on 800MHz NPSPAC frequencies as well as 700/800MHz conventional and trunked frequencies.

**12.3.13** Mobile radios shall be operable also in the VHF band and must operate from 136 – 174 MHz.

**12.3.14** **Electrical Specifications** are as follows:

**12.3.14.1** Primary Input Voltage: 11 to 16 VDC, negative ground

**12.3.14.2** Battery Drain:

| | | |
|---|---|---|
| **12.3.14.2(a)** | Standby: | 1.5 amperes, max. |
| **12.3.14.2(b)** | Receive: | 4.0 amperes, max. |
| **12.3.14.2(c)** | Transmit: | 15.0 amperes, max. |
| **12.3.14.3** | Environmental: | MIL-STD 810 C, D, E, F, and G for shock, vibration, humidity, and high/low temperature. |
| **12.3.14.4** | Temperature Range: | -30 °C to +60 °C |
| **12.3.14.5** | Humidity: | 95% relative humidity at 50 °C |
| **12.3.14.6** | Talk Group Selection: | Rotary-knob style |

**12.3.15** **Transmitter** specifications are as follows:

| | | |
|---|---|---|
| **12.3.15.1** | Frequency Range: | 764 to 870MHz |
| **12.3.112.3** | Channel Capacity: | 500 channels (Single band radio), 700 channels (Multi-band radio) |
| **12.3.15.3** | Talk Group Capacity: | 16 minimum, per system |
| **12.3.15.4** | RF Output Impedance: | 50 ohms |
| **12.3.15.5** | Output Power: | 30 W (700MHz)/35W (800MHz) (Single band radio); 50 W (VHF) (Single Band Radio); 35 W (Multi-band radio) |
| **12.3.15.6** | Channel Spacing: | 12.5/6.25 KHz/NPSPAC |
| **12.3.15.7** | Spurious/Harmonic: | At least 64 dB below carrier |
| **12.3.15.8** | Frequency Stability: | 1.5 PPM from -30°C to 60°C |

| | | |
|---|---|---|
| **12.3.15.9** | Frequency Speed: | 24MHz (700MHz)/18MHz (800MHz) |
| **12.3.15.10** | Emission: | 16K0F3E; 11K0F3E; 8K10F1D; 8K10F1E; 9K80F1D, 9K80D7W or comparable Phase 2 Emission. |
| **12.3.15.11** | Modulation Deviation: | +/- 2.5KHz for 12.5KHz Channel; +/- 3KHz for NPSPAC |
| **12.3.15.12** | Audio Distortion: | Less than 5% at 1KHz |
| **12.3.15.13** | Audio Response: | +/-3dB of a 6dB/octave pre-emphasis characteristic from 300Hz to 3KHz |
| **12.3.15.14** | Hum and Noise: | -45dB |
| **12.3.15.15** | Duty Cycle: | Transmitter 20% |

**12.3.16** **Receiver** specifications are as follows:

| | | |
|---|---|---|
| **12.3.16.1** | Frequency Range: | 764 to 870MHz |
| **12.3.16.2** | Channel Capacity: | 500 channels (Single band radio), 700 channels (Multi-band radio) |
| **12.3.16.3** | Channel Spacing: | 12.5KHz/6.25KHz; NPSPAC |
| **12.3.16.4** | Digital Sensitivity: | 0.25 µV 5% Bit error Rate (BER): |
| **12.3.16.5** | Adjacent Channel: | Rejection: -60dB |
| **12.3.16.6** | Frequency Stability: | 1.5 PPM from -30° to 60°C |
| **12.3.16.7** | Frequency Spread: | 24MHz (700MHz); 18MHz (800MHz) |
| **12.3.16.8** | Intermodulation: | -75dB (Single band radio) |

| | | |
|---|---|---|
| **12.3.16.9** | Rejection: | -80dB (Multi band radio) |
| **12.3.16.10** | Spurious Response Rejection: | -75dB (Single band radio) - 80dB (Multi band radio) |
| **12.3.16.11** | Audio Output: | 10 W (Single band radio), 12 W (Multi-band radio) |
| **12.3.16.12** | Audio Distortion: | No more than 2% at 1KHz |
| **12.3.16.13** | Duty Cycle: | Receiver 100% |

## 12.4 Portable Radio Equipment

All portable P25 radios proposed shall:

**12.4.1** Meet APCO minimum recommendations and EIA/ TIA standards for P25 Public Safety 700/800MHz digital trunked radio systems. Furnished equipment must be operable on both Phase 1 and Phase 2 infrastructures.

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

**12.4.3** Allow operations on P25 trunked systems with priority scan of talk groups.

**12.4.4** Include top mounted rotary controls with positive stops for volume and channel selection. Control placement must allow gloved hand operation, as is typically needed by the fire service.

**12.4.5** 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.

**12.4.6** Include 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.

**12.4.7** Contain no protruding push-to-talk switch, thereby preventing accidental transmitter operation or potential damage to the switch caused by impact.

**12.4.8** Include a protected emergency button to allow easy access when needed but incorporating an ergonomic design in which the emergency function could not be accidentally activated.

**12.4.9** 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.

**12.4.10** Radio operating information shall be contained in an electrically erasable memory device. Unit will be fully programmable from a laptop/desktop computer, via the accessory receptacle.

**12.4.11** Portable radios, batteries and accessories must be configurable as rated for hazardous locations for use in hazardous environments.

**12.4.12** Carrying case alternatives 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.

**12.4.13** Alternative surveillance accessories such as miniature microphones, earpieces and remote microphones and headset speaker microphones must be available for the proposed radios.

**12.4.14** Offer digital voice encryption, using an Advanced Multi-Band Excitation +2 (AMBE+2) or newer P25 Phase 1 and Phase 2 vocoder, DES-OFB, and federally approved 256-bit AES coding to provide enhanced security during transmission and reception of sensitive communications.

**12.4.15** 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. Provide alternative 120VAC multi-bank chargers with a minimum of 6 slots. Provide alternative 12VDC multi-bank chargers with a minimum of 6 slots.

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

**12.4.17** Portable radios in the 800 MHz band must be operable on 800MHz NPSPAC frequencies as well as 700/800 MHz conventional and trunked frequencies.

**12.4.18** Portable radios shall be operable also in the VHF band and must operate from 136 – 174 MHz.

**12.4.19** 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).

**14.4.20** All proposed Fire portable radios will be configured and have the capability for Quik Call II, two-tone signaling.

**12.4.21** **Electrical Specifications** as follows:

| | | |
|---|---|---|
| **12.4.21.1** | Primary Power: | Battery pack (further defined in RFP) |
| **12.4.21.2** | Environmental: | MIL-STD 810 C, D, E, F and G for shock, vibration, humidity and high/low temperature. |
| **12.4.21.3** | Temperature Range: | -30°C to +60°C |
| **12.4.21.4** | Humidity: | 95% relative humidity at 50°C |
| **12.4.21.5** | Talk Group Selection: | Rotary-knob style |

**12.4.22** **Transmitter** specifications are as follows:

| | | |
|---|---|---|
| **12.4.22.1** | Frequency Range: | 764 to 870 MHz |
| **12.4.22.2** | Channel Capacity: | 500 channels (Single-band radio), 700 channels (Multi-band radio) |
| **12.4.22.3** | RF Output Impedance: | 50 ohms |
| **12.4.22.4** | Output Power: | 3 W 700/800MHz |
| **12.4.22.5** | Frequency Stability: | 1.5 PPM from -28°C to +58°C |
| **12.4.22.6** | Modulation Deviation: | +/-2.5KHz for 12.5KHz channel; +/-3 KHz for NPSPAC; |

| | | |
|---|---|---|
| **12.4.22.7** | Emissions: | 16K0F3E; 11K0F3E; 8K10F1D; 8K10F1E; 9K80F1D, 9K80D7W or comparable Phase 2 Emission. |
| **12.4.22.8** | Audio Response: | +/-3 dB of a 6 dB/octave |
| **12.4.22.9** | Audio Distortion: | Less than 2% at 1 KHz |
| **12.4.22.10** | Spurious/Harmonic: | -50 dB |
| **12.4.22.11** | Hum and Noise: | -35 dB |
| **12.4.22.12** | Duty Cycle: | Intermittent |

**12.4.23** **Receiver** specifications are as:

| | | |
|---|---|---|
| **12.4.23.1** | Frequency Range: | 764 870MHz |
| **12.4.23.2** | Channel Capacity: | 500 channels (Single band radio), 700 channels (Multi-band radio) |
| **12.4.23.3** | Channel Spacing: | 12.5/6.25 KHz/NPSPAC |
| **12.4.23.4** | Adjacent Channel: | -60dB (Single band radio), -65dB (Multi band radio) Rejection |
| **12.4.23.5** | Digital Sensitivity: | 5% BER: 0.25 µV |
| **12.4.23.6** | Intermodulation Rejection: | -72 dB (Single band radio) - 74 dB (Multi-band radio) |
| **12.4.23.7** | Spurious Response Rejection: | -72 dB (Single band radio) - 70 dB (Multi-band radio) |
| **12.4.23.8** | Frequency Stability: | 1.5 PPM from -30° to +60°C |
| **12.4.23.9** | Audio Output: | 1.5 W |

**12.4.23.10** Audio Distortion: No more than 2% at 1 KHz

## 12.5 Pagers

Pagers are NOT required as part of this RFP.

## 12.6 Subscriber Equipment Pricing

**12.6.1** THE Customer 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 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, GPS location, status messaging and other specialized features. Multikey encryption on and radio model must be 256-bit AES.

**12.6.2** The Vendor shall develop cost proposals for low (Public Works/Schools), mid and high-tier (Law/Fire/EMS) radio products using the following general format:

**12.6.2.1** High-Tier Portable

**12.6.2.1(a)** At least 500 modes/talk groups/channels

**12.6.2.1(b)** 700/800MHz operation (optional multiband operation)

**12.6.2.1(c)** Multi-line 12 character minimum, alpha-numeric LCD text display

**12.6.2.1(d)** Radio/network status icons

**12.6.2.1(e)** 256-bit AES multi-key voice encryption

**12.6.2.1(f)** AMBE+2 vocoder, or newer

**12.6.2.1(g)** Emergency button

**12.6.2.1(h)** Programmable option buttons

**12.6.2.1(i)** Talk group scan

**12.6.2.1(j)** System scan

**12.6.2.1(k)** Hazardous Location C1D2

**12.6.2.1(l)** Integrated voice/data capability

**12.6.2.1(m)** GPS receiver

**12.6.2.1(n)** OTAP

**12.6.2.1(o)** OTAR

**12.6.2.1(p)** Wide range of optional accessories

**12.6.2.2** Mid-Tier Portable

**12.6.2.2(a)** At least 250 modes/ talk groups/ channels

**12.6.2.2(b)** 700/800MHz operation

**12.6.2.2(c)** Multi-line 12 character minimum, alpha-numeric LCD text display

**12.6.2.2(d)** Radio/network status icons

**12.6.2.2(e)** 256-bit AES multi-key voice encryption

**12.6.2.2(f)** AMBE+2 vocoder, or newer

**12.6.2.2(g)** Emergency button

**12.6.2.2(h)** Programmable option buttons

**12.6.2.2(i)** Talk group scan

**12.6.2.2(j)** System scan

**12.6.2.2(k)** Hazardous Location C1D2

**12.6.2.2(l)** Integrated voice/data capability

**12.6.2.2(m)** GPS receiver

**12.6.2.2(n)** OTAP

**12.6.2.2(o)** OTAR

**12.6.2.2(p)** Wide range of optional accessories

**12.6.2.3** Low-Tier Portable

**12.6.2.3(a)** At least 48 modes/talk groups/channels – Rotary Selector

**12.6.2.3(b)** 700/800MHz operation

**12.6.2.3(c)** Single line, 8 character minimum, alpha-numeric LCD text display

**12.6.2.3(d)** Radio/network status icons

**12.6.2.3(e)** AMBE+2 vocoder, or newer

**12.6.2.3(f)** Emergency Button

**12.6.2.3(g)** Programmable option buttons

**12.6.2.3(h)** Limited list of optional accessories

**12.6.2.4** High-Tier Mobile Radio

**12.6.2.4(a)** At least 500 modes/talk groups/channels

**12.6.2.4(b)** 700/800MHz operation (optional multiband operation)

**12.6.2.4(c)** Remote control head/rear mount/dash mount configurations

**12.6.2.4(d)** Multi-line alpha-numeric LCD text display

**12.6.2.4(e)** Radio/network status icons

**6.12.2.4(f)** 256-bit AES multi-key voice encryption

**12.6.2.4(g)** AMBE+2 vocoder, or newer

**12.6.2.4(h)** Emergency button

**12.6.2.4(i)** Programmable option buttons

**12.6.2.4(j)** Talk group scan

**12.6.2.4(k)** System scan

**12.6.2.4(l)** Integrated voice/data capability (option)

**12.6.2.4(m)** OTAP

**12.6.2.4(n)** OTAR

**12.6.2.4(o)** GPS receiver

**12.6.2.4(p)** Wide range of optional accessories

**12.6.2.5** Mid-Tier Mobile Radio

**12.6.2.5(a)** At least 250 modes/talk groups/channels

**12.6.2.5(b)** 700/800MHz

**12.6.2.5(c)** Remote control head/rear mount configuration

**12.6.2.5(d)** Multi-line alpha-numeric LCD text display

**12.6.2.5(e)** Radio/network status icons

**12.6.2.5(f)** 256-bit AES mulit-key voice encryption

**12.6.2.5(g)** AMBE+2 vocoder, or newer

**12.6.2.5(h)** Emergency button

**12.6.2.5(i)** Programmable option buttons

**12.6.2.5(j)** Talk group scan

**12.6.2.5(k)** System scan

**12.6.2.5(l)** Integrated voice/data capability

**12.6.2.5(m)** OTAP

**12.6.2.5(n)** OTAR

**12.6.2.5(o)** GPS receiver

**12.6.2.5(p)** Wide range of optional accessories

**12.6.2.6** Low-Tier Mobile Radio

**12.6.2.6(a)** 700/800MHz operation

**12.6.2.6(b)** Front mount/dash mount package

**12.6.2.6(c)** At least 48 modes/talk groups/channels – Rotary Selector

**12.6.2.6(d)** Two-line alphanumeric display

**12.6.2.6(e)** Network/radio icons

**12.6.2.6(f)** AMBE+2 vocoder, or newer

**12.6.2.6(g)** Programmable option buttons

**12.6.2.6(h)** Emergency button

**12.6.2.6(i)** Limited range of optional accessories

Appendix H: Subscriber Radio Requirements, illustrates the quantities, types and tiers of subscriber equipment required.

**12.6.3** Additionally, the Vendor 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.

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# 13.0 Installation Guidelines

## 13.1 Contractor Project Management

**13.1.1** Contractor will assign a Project Manager as a single point of contact between the Customer and the Contractor for the full duration of the project.

**13.1.2** The Contractor's PM shall conduct an initial Design Review Meeting whereby the project's order of task progression, site/facility layout details, tower engineering studies, coverage design and related items will be presented to The Customer for review, comment and approval for the Contractor to proceed with production tasks.

**13.1.3** During the period prior to the Design Review Meeting, the Contractor will initiate monthly progress meeting with the Customer whose purpose is to update on progress made in preparation for the Design Review Meeting.

**13.1.4** The Contractor's PM is responsible for developing and maintaining an updated Project Time Line.

**13.1.4.1** Project Time Line updates/revisions, commencing with the Customer's official Notice to Proceed to the Contractor, shall be submitted by the PM on the last day of each project-month for review and approval by the Customer.

**13.1.4.2** The monthly Project Time Line submittal shall depict:

- Progress made per task in the preceding 30-day period;
- Work/tasks to be accomplished in the next 30-day period;
- Identification of critical path items and;
- Work/tasks to be undertaken by the Customer (if any).

**13.1.4.3** Coincident with the production of the updated Project TimeLine, the Contractor's PM shall identify any known or anticipated issues that will cause a delay to the project's implementation schedule that are not within the Contractor's control. Failure by the Contractor's PM to identify such issues in advance will negate any opportunity for schedule relief to the Contract's specified Project Completion Date.

**13.1.5** Failure by the Contractor to produce a monthly updated Project Time Line within the period specified herein will result in an automatic 7-day reduction of the Contract's specified Project Completion Date (or that Project Completion Date as previously modified by The Customer's executed Change Order if any.

**13.1.6** Any change in PM, anytime during the full duration of the project, must be approved by the Customer and the new PM shall be selected by the Customer via an interview process.

**13.1.7** The Contractor's Key Personnel shall be approved by the Customer prior to assignment. The Customer reserves the right to require replacement of the Contractor's Key Personnel at any time during the project.

## 13.2 Engineering Drawings

**13.2.1** Contractor shall furnish detailed drawings at the project's initial Design Review Meeting and updated drawings prior to installation of each major portion of the System as follows:

**13.2.1.1** Transmitter Site(s)

**13.2.1.2** Receiver Site(s)

**13.2.1.3** Site Antenna and Grounding System(s)

**13.2.1.4** Receiver Voter Equipment

**13.2.1.5** System Controller Equipment

**13.2.1.6** Dispatcher Console Equipment

**13.2.1.7** Fiber Optic Equipment Terminal(s)

**13.2.2** Drawings shall, as a minimum, illustrate:

**13.2.2.1** Relative rack/rack locations

**13.2.2.2** Equipment power wiring (primary and emergency)

**13.2.2.3** Equipment interconnection wiring (signal and control)

**13.2.2.5** Appropriate signal/voltage levels to facilitate alignment of level-sensitive components.

**13.2.3** Civil drawings showing location details of equipment to be placed in existing or new facilities shall be provided by Contractor.

**13.2.4** Contractor shall provide a comprehensive test record of alignment levels, settings and software versions installed in System. In addition, contractor shall provide service manuals for all System equipment furnished.

**13.2.5** In addition, the Contractor shall conduct baseline noise floor site measurements and shall develop, plan and resolve any determination of site/system-induced noise degradation as caused by the Contractor's design or work.

**13.2.6** The scope and detail of the comprehensive equipment test and acceptance plan shall be completed prior to Contract Execution with the Contractor.

**13.2.7** Prior to the commencement of acceptance testing procedures, the Contractor shall ensure that all installed system equipment has been furnished or upgraded to the latest software releases available for those equipment items/groupings.

**13.2.8** Contractor shall supply true copies of Final Project Record Documents, including 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 the Customer.

**13.2.9** The documentation package shall include in this document submittal a Permissible Exposure Study, as required by the FCC, for each radio infrastructure site.

**13.2.10** The total number of documentation sets to be provided shall include one site-specific set for each infrastructure site and three comprehensive System documentation sets for the Customer's use.

**13.2.11** Final Project Record Documents must be submitted to the Customer within thirty days after system acceptance testing has been successfully concluded.

**13.2.12** Submissions shall also include electronic versions of all documents submitted.

**13.2.13** Final payment for Contracted services shall not be released by the Customer until this documentation submittal has been successfully completed by the Contractor and reviewed and approved by the Customer.

## 13.3 Workmanship

**13.3.1** All workmanship shall be in accordance with Industry-accepted best practices and the National Electric Code.

**13.3.2** Work areas shall be maintained in a neat, orderly fashion.

**13.3.3** Work sites shall incorporate Contractor-provided trash containers and residue of the work shall be discarded as the work is underway.

**13.3.4** 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.

**13.3.5** The installation of audio, signal, data and control cables within equipment racks, enclosures, racks and cable trays must be properly routed such that wires/cables do not cross over each within cable bundles.

**13.3.6** Cables must be properly labeled, routed and secured.

**13.3.7** To the maximum extent possible, cables carrying AC power, low-level audio, RF and digital signals must be grouped separately.

**13.3.8** All DC wiring, particularly those areas where battery terminals and power distribution buss bars are located, must incorporate insulation barriers to prevent the accidental short-circuiting of otherwise exposed conductors.

**13.3.9** The Customer 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 because of apparent poor workmanship.

**13.3.10** The Customer shall provide the Contractor with approval to resume installation work activities once an agreement is reached to resolve observed workmanship defects.

**13.3.11** The determination of Contractor workmanship acceptability, as well as the suitability of any proposed rework plans offered by the Contractor, shall remain with the Customer.

## 13.4 Equipment Storage

**13.4.1** The Contractor shall provide the necessary storage space and skilled labor needed to receive, inventory and maintain supplies and consumables throughout the term of the contract. Customer reserves the right to inspect and inventory equipment at any time.

## 13.5 Factory Staging

**13.5.1** The Customer shall require a full factory staging of the Contractor's radio configuration within the manufacturing facilities used by the Contractor.

**13.5.1.1** The Contractor shall install, configure and conduct a pre-test of the manufactured equipment and subsystems prior to inviting the Customer to participate in functional test processes on the configured System's equipment.

**13.5.2** The Contractor shall provide a detailed description of functional tests to be undertaken as part of the factory staging process. These tests shall be pre-approved by the Customer prior to the conducting of any on-site system verification.

**13.5.3** The factory staged equipment shall not be shipped to the Customer and the Contractor's staging area until the most recent levels of software version has been properly installed in the system's various components and that all portions of the functional staging test have been successfully completed and approved by the Customer.

**13.5.4** Wiring and construction anomalies, if observed during staging, must likewise be fully resolved and corrected prior to shipment of the equipment.

**13.5.5** The Vendor shall, as part of its Technical Response, submit a sample staging test plan representing those functional tests anticipated for a project of this scope and complexity.

**13.5.6** Staging shall occur for any RF and/or microwave equipment and shall not start until no less than 70% of the sites are constructed or under construction.

**13.5.7** The Customer or its designee shall approve the date for staging of the equipment.

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## 14.0 Phased Implementation

### 14.1 Transition Planning

**14.1.1** As part of their response, the Vendor must prepare and submit a preliminary migration plan that will prevent disruption of communication on the existing radio network and provide a smooth transition to the proposed system:

**14.1.1.1** The Vendor must supply a preliminary sequence of events for the installation of the system showing any effect the different stages of installation may have on existing systems. Any relocation or modification to existing equipment by the Contractor as part of its work must be stipulated and prior approval obtained from the Customer.

**14.1.1.2** The Vendor shall provide a completion period (in days) for the project, based on the Customer's execution of a Notice to Proceed. The Vendor shall provide a schematic representation of the implementation process as well as a hypothetical migration plan.

**14.1.1.3** These required proposal responses will be used by the Customer to evaluate the Vendor's ability and understanding of the RFP requirements to perform this work in a manner that offers no disruption to ongoing public safety communications operations.

**14.1.2** Upon contract award, the Contractor shall provide:

**14.1.2.1** A detailed time schedule for the training of system managers, telecommunicators, radio managers and other personnel.

**14.1.2.2** Contractor will supply time schedules for the orderly transfer of departments onto the system and the estimated time-period when the transfer could be completed.

**14.1.2.3** A detailed repair maintenance training plan for the Customer's in-house technical staff members.

It shall encompass all operational elements of the System to include:

**14.1.2.3(a)** Network Controllers

**14.1.2.3(b)** Base Stations Gateways

**14.1.2.3(c)** Microwave Subsystem

**14.1.2.3(d)** Alarm System

**14.1.2.3(e)** Dispatch Consoles

**14.1.2.3(f)** Radio Control Stations, related appurtenances, and all third-party equipment.

**14.1.2.4** This training shall be completed prior to the System's Acceptance Testing activity and is to be performed in the Customer's selected location. Training locations and dates will be determined between the Customer and the Contractor.

**14.1.2.5** All curriculums for the training plan must be approved by the Customer prior to the commencement of training. The Contractor must provide training and identify necessary tools, to include test equipment and software, to the Customer's technical staff, as they would to their internal or contracted technical staff.

**14.1.2.6** Coordinate the orderly transfer of services to the system network only after having successfully concluded equipment alignment and installation procedures, successful completion of the project's acceptance test, and completion of manager, telecommunicator, user, and staff training programs.

**14.1.3** Contractor must not dismantle or modify the existing trunked radio system without prior approval of the Customer.

**14.1.4** Some portions of the existing system may remain operational after acceptance of the new system.

**14.1.5** The Customer will notify the Contractor when elements of the old infrastructure equipment may be reallocated to meet interoperability needs or otherwise can be decommissioned.

**14.1.5.1** It is the Contractor's responsibility to remove or relocate all the old infrastructure equipment.

**14.1.5.2** The Customer desires a trade in value on any existing equipment that is part of current communications system.

**14.1.6** Contractor shall assist the Customer in preparing user talkgroups, 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.

**14.1.7** All talkgroup structure documentation will be provided to the Customer by the Contractor.

**14.1.8** As part of contract with the Successful Vendor, the Customer and Successful Vendor will jointly develop a final comprehensive test and acceptance plan that addresses, minimally, the following major functionality and operability issues:

**14.1.8.1** Microwave Network

**14.1.8.1(a)** Provide RF power and Receive measurements for the microwave;

**14.1.8.1(b)** Test path fade loss for each direction on each path of the microwave network;

**14.1.8.1(c)** Test for proper frequency, modulation, digital signaling and stability;

**14.1.8.1(d)** Verify data integrity on the microwave system including network components utilizing BER Testing.

**14.1.8.2** Transmitter Equipment

**14.1.8.2(a)** Provide RF power stage measurements at different levels of the transmitter system such as transmitter, filters, combiner, cable, antenna, etc.;

**14.1.8.2(b)** Test RF components for specified insertion loss (i.e., transmission line return loss);

**14.1.8.2(c)** Test for proper frequency, modulation, digital signaling and stability;

**14.1.8.2(d)** Test and report of delivered audio quality and signal margins throughout proposed service area.

**14.1.8.3** Receiver Equipment

**14.1.8.3(a)** Test of compliance to specifications of equipment provided;

**14.1.8.3(b)** Provide log of signal gain or loss to equipment within the receiver system such as antenna, cable, preamp, splitter, or receiver antenna port;

**14.1.8.3(c)** Test of audio quality and level (reciprocal of that required for the transmit path) of system balance;

**14.1.8.4** Console Audio/ System Controllers

**14.1.8.4(a)** Test of compliance to manufacturer's published specifications of equipment proposed;

**14.1.8.4(b)** Test of audio quality and level;

**14.1.8.4(c)** Verification of network failure modes in response to forced failures of individual communications/ control lines and complete site failures complete written explanation is required;

**14.1.8.4(d)** Verification of compliance to TIA/EIA P25 ISSI/CSSI Standards that allow for seamless interoperability with P25 radio networks fielded by other manufacturers;

**14.1.8.4(e)** Bit error-rate and voiced audio quality testing of System infrastructure, backhaul and site-specific local area networking infrastructure;

**14.1.8.4(f)** Fade margin verification of microwave link segments as used to interconnect radio sites, network controllers and radio dispatch facilities;

**14.1.8.5** Dispatch Centers

**14.1.8.5(a)** Provide written results of testing of operational features per dispatch position;

**14.1.8.5(b)** Test system operation during simulated failures of system components i.e. console electronics, power loss, etc.

**14.1.8.6** Third Party Vendor Equipment

**14.1.8.6(a)** Provide functional testing and verification of any third party equipment used;

**14.1.8.7** 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.

**14.1.8.8** The Vendor shall disclose test procedures and equipment that will be used to verify radio system coverage as specified in Section 6 Coverage Criteria.

**14.1.8.9** The Vendor shall submit within their response a sample test and acceptance plan that is representative of the scope and complexity of the proposed system radio network infrastructure.

## 14.2 Implementation

**14.2.1** Contractor is responsible for the provisions and cost of warehousing, insurance, storage and security of radio network infrastructure prior to and during the construction and installation phases of the project.

**14.2.2** Prior to installation of any portion of system, the Customer must approve Contractor furnished detail drawings as specified in Section 13 Installation Guidelines.

**14.2.3** Each portion of the P25 System must follow those technical parameters specified in the approved Testing and Acceptance Plan.

**14.2.4** Contractor must supply comprehensive training for system diagnostics, management systems, preventative and routine maintenance and system operation for System Managers and designated The Customer staff as required..

**14.2.5** Contractor is responsible for any site modifications required to accommodate infrastructure equipment proposed for location in The Customer-owned, as well as in non-The Customer-owned properties.

**14.2.6** Contractor shall provide technical support/engineering as required to modify existing FCC licenses or to acquire additional licenses required to facilitate operation of the system.

This activity shall include all FCC licensing application development, frequency coordination and engineering fees. Any frequency work will be coordinated with the State of Oklahoma Frequency Coordinator.

**14.2.7** Any modification or relocation of existing equipment will require prior approval by The Customer. Contractor shall supply "as built" drawings and complete written and electronic documentation of modifications or relocation to existing systems to facilitate maintenance of this equipment in the future.

**14.2.8** The Contractor's PM shall develop, monitor, and adapt/update the project's implementation schedule. The schedule shall be presented using The Customer-approved project task-maintenance software such as Microsoft Project or similar software that doesn't require the customer to purchase a software platform to track the project schedule. Schedule updates must be submitted by the Contractor on regular dates that are approved by The Customer, or sooner if implementation issues require more frequent schedule updates.

**14.2.9** The Contractor's PM shall, in addition to Item 14.2.9, prepare and submit, on regular dates approved by The Customer, a project status report that details the anticipated accomplishments, work to be completed and risks for the period depicted by the revised, updated schedule.

**14.2.10** Specific attention should be made to those items and due dates to be met by The Customer to facilitate the unimpeded completion of the work.

**14.2.11** The Contractor's System Engineer shall develop and submit appropriate block and level diagrams, site-specific configuration drawings, field technician workbooks and other related technical materials necessary for the accurate, timely completion of the work. The Contractor's PM shall present the Contractor's internal Quality Control/Quality Assurance plan that depicts the steps and safeguards being undertaken to eliminate field issues with respect to hardware and software quality. This material and process shall be orally presented by the Contractor as part of its Design Review Meeting with The Customer, prior to the commencement of any field installation activities by the Contractor.

# 15.0 Warranty and Maintenance Guidelines

## 15.1 Warranty

### 15.1.1 Equipment Warranty

The following conditions shall apply for equipment Warranty:

**15.1.1.1** The Vendor will provide post-warranty maintenance and services comparable to the same services proposed for the warranty period.

**15.1.1.1(a)** All warranty and post-warranty services will be clearly identified and provided in a matrix.

**15.1.1.1(b)** All warranty and post-warranty services will cover the entire system, including Vendor provided OEM and third-party equipment. These services will be priced individually for customer information.

**15.1.1.1(c)** The Customer can remove any alternative post-warranty services as determined by The Customer's need to provide in-house or subcontract any of these respective services.

**15.1.1.2** The Vendor shall warranty all provided network equipment furnished as part of the Contract and associated radio infrastructure, related user equipment and software for not less than one year, after the date of Final System Acceptance. This includes, but is not limited to, the P25 Trunking, Microwave, and Mutual-Aid portions of the Contract.

**15.1.1.3** The System Warranty period will commence at the time of Final System Acceptance and the Contractor shall provide all labor and parts for maintenance and repair, including preventative maintenance, of all system equipment provided in the proposed network.

**15.1.1.4** All cost for the one-year warranty services will be absorbed by the Contractor.

**15.1.1.5** Replacement parts must be of new or current manufacture and meet or exceed the specifications of the original supplied equipment (OEM).

**15.1.1.6** Post-warranty replacement parts service for emergency infrastructure equipment repair, not available locally, shall be shipped out on the first available flight. Any parts required for non-emergency repair that are not available locally should be shipped out for next day delivery.

**15.1.1.7** The Contractor shall have factory-trained technicians and system engineers available by telephone 24x7x365. The technicians or system engineers must respond by telephone within thirty (30) minutes of observed or reported service outage and be on-site, in response to a reported service outage, within two (2) hours.

**15.1.1.7(a)** Contractor shall be required to provide a list of certified factory trained technicians performing maintenance on the system including all sub systems and equipment.

**15.1.1.7(b)** The Vendor shall provide documentation that supports the current certifications of factory-trained technicians. The Vendor is responsible for keeping all credentials and certifications required to maintain the system current and up to date.

**15.1.1.8** Service providers responding to emergency service outages must provide continuous non-stop support until the problem is resolved.

**15.1.1.9** Non-critical service requests response will be within one (1) working day.

**15.1.1.10** When a critical system failure occurs, more stringent requirements shall be met by the Contractor.

**15.1.1.10(a** A critical system failure is defined as a significant reduction in the ability to communicate. Examples of such failures are: Site off the air, Dispatch console failure at a location with no backup console available, Primary and Secondary Network Controller failure such as the system does not have the ability to operate on trunked calls, site link failure due to network equipment, or 50% or more failed base/repeaters at a radio site.

**15.1.1.11** In the event of a critical system failure, Contractor will notify The Customer of the failure.

**15.1.1.12** Critical failures shall have service restored within six (6) hours or less from notification to the Contractor, via The Customer notifying the Contractor, or monitored software notification.

**15.1.1.13** Original Equipment Manufacturers (OEM) shall have a fully qualified, staffed, and equipped service facility positioned and capable of meeting this RFP's response time criteria during the warranty and maintenance agreement periods. Any subcontractors used during the warranty and post-warranty maintenance period must be pre-approved by The Customer.

**15.1.2** The Vendor will supply as part of the technical response, a list or services and preventative maintenance to be provided during the warranty period as well as a schedule at which these services will occur.

**15.1.3** The Contractor must make available replacement parts for all Contractor-manufactured components of the digital radio infrastructure for 15 years following Final System Acceptance.

**15.1.4** The Contractor must identify lifecycle and parts availability of all OEM and third party equipment proposed.

**15.1.5** Post-warranty replacement parts service for emergency infrastructure equipment repair, not available locally, shall be shipped out on the first available flight.

**15.1.6** Any parts required for non-emergency repair that are not available locally should be shipped out for next day delivery.

**15.1.7** Contractor must guarantee the system's operating software, inclusive of user equipment software, for a one-year period following Final System Acceptance.

**15.1.8** The Contractor shall provide all system software updates, at no additional cost, for the entire period under which The Customer has committed for Contractor-provided post-warranty maintenance services.

**15.1.9** Contractor shall resolve all known software defects or "bugs" to system software during warranty and post-warranty period via patch, or system software updates.

**15.1.10** Prior to Final System Acceptance, System shall be updated to the latest system software release that is approved for shipping and generally available.

## 15.2 Remedies

In the event of default on the response time to reported service outages, the Vendor agrees to pay The Customer the following penalties for response remedies:

**15.1.1** Contractor shall pay $250 for each occasion that it fails to meet the response time obligation for a reported infrastructure service outage.

**15.1.2** Contractor shall pay $500 per twenty-four-hour period in which a failed infrastructure site is not restored to operational status.

**15.1.3** Should any specific equipment item (such as a repeater station, station circuit board, power amplifier, etc.) be submitted for repair three times during the warranty or post-warranty term, Contractor will replace that equipment item with a new item at no cost to the Customer and warranty the replacement for one additional year from the time of replacement.

## 15.3 Maintenance

**15.3.1** During the initial warranty period, the Contractor shall be responsible for:

**15.3.1.1** Annual Preventative maintenance of all proposed System equipment and any supplied equipment;

**15.3.1.2** Repair maintenance of infrastructure equipment, inclusive of antenna systems;

**15.3.2** Contractor-provided maintenance during the warranty period will be monitored by the Customer.

**15.3.3** The Contractor must supply monthly service logs listing the site(s) where service is performed, the equipment involved and service details.

**15.3.4** Failure of individual units, subassemblies and/or components must be reported in writing to The Customer. This report must, as a minimum, include unit identification (description and serial number), explanation and cause of failure, and corrective action taken.

**15.3.5** 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.

**15.3.6** The Contractor shall submit a maintenance work plan that identifies the tasks required in accordance with Section 14.2, a listing of Contractor supplied personnel and identification of a 24x7x365 Single Point of Contact (SPOC) responsible for Contractor maintenance issues.

**15.3.7** All required service logs and repair reports must be submitted to the Customer.

## 15.4 Service/Maintenance Software

The Contractor shall provide:

**15.4.1** A suite of software applications for the Customer to be able to view and monitor all alarms and faults on the system, both non-critical and critical.

**15.4.2** The contractor shall provide the Customer with access to an electronic ticketing system for the duration of the warranty and post-warranty maintenance term that gives the Contractor and the Customer the ability to submit and track service/repair tickets along with assets associated with the system.

**15.4.3** Software capable of decoding an encrypted control channel in real-time, over the air, should encrypted control channels be utilized at system acceptance, or a later time during the period of this contract.

**15.4.4** As part of its cost submittal, the Vendor shall provide for alternative maintenance services that are equivalent to those provided by the initial warranty. The term of each alternative extended maintenance support alternative shall be five (5) years to be paid annually by the Customer.

**15.4.5** The Customer reserves the right to utilize outside or outsourced contract labor for maintaining its infrastructure equipment and end user devices. For outside contractor needs, the term of this extended maintenance service shall be as long as fifteen years, structured into three 5-year alternative service intervals. Vendors shall provide a detailed description of services (along with service exclusions) available for this extended post-warranty maintenance service, including infrastructure software updates, hardware updates required to support newer software, defective parts replacements, and spare parts.

**15.4.6** Vendor shall propose alternative cybersecurity services for the System, inclusive of network security monitoring service, system security patch subscription service, security patch installation service (on-site vs. remote), automated antivirus subscription & installation services available to the Customer. Including pricing alternative for warranty and post-warranty periods.

**15.4.7** Vendor shall propose Network Monitoring services to provide 24x7x365 System surveillance and dispatch services of on-site field maintenance teams during the warranty period and the optional price to extend this service beyond warranty.

**15.4.8** The Vendor will supply as part of the technical response, a list or services and preventative maintenance to be provided during the warranty period as well as a schedule at which these services will occur.

## 15.5 Spare Parts Support

**15.5.1** Contractor must provide and maintain a stock of spare parts, as determined necessary by the Contractor, to maintain all components of the System's infrastructure for the warranty period. These spare parts shall be located either at selected System radio infrastructure sites or at the Contractor's local maintenance service facility. A list of these spare parts determined to be necessary by the Contractor shall be provided to the Customer.

**15.5.2** As spare parts are consumed during 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 Customer by electronic and routine mail. Trends of unusual System or component failure shall be brought to the attention of the Customer by the Contractor.

**15.5.3** If spares from the initial list are not available to maintain the proper working order of the proposed System, the Contractor shall add additional spares at no cost to the Customer.

**15.5.4** The spares inventory will be supplied and shipped as part of the required staging event. This applies to all spare parts recommended by the Contractor

## 16.0 Infrastructure Pricing Considerations

### 16.1 General Pricing Information

This equipment-pricing portion of this RFP shall serve as a guide for the Vendor. The necessary information is provided to The Customer to conduct an accurate assessment of the proposed price. This information is illustrative of the detail required for each infrastructure site, inclusive of sites having only dispatch-related equipment.

Vendors shall provide a per-site granular price detail of proposed equipment, towers, generators, site civil engineering, program management, system engineering, installation services, and maintenance services. As this is a turnkey project, any pricing omission of a scope typically considered part of a P25 simulcast trunked radio system of this type will be provided for by the Contractor at no additional cost to the Customer.

The Vendors are requested to provide finance pricing alternatives for the infrastructure, subscribers, and maintenance proposed. This information should include at a minimum terms, interest percentages, and payment terms.

### 16.2 Site Modification Costs

**16.2.1** For equipment to be installed at the Customer-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 Vendor for each individually named site.

**16.2.2** For newly-added sites, the price provided by the Vendor shall include services typical and customary for the development and commissioning of a new system site, exclusive of access roadway development. The Customer will provide site access roadways if the property is the Customer-owned.

### 16.3 Lifecycle Costs

**16.3.1** The Customer reserves the right to perform a lifecycle analysis on the proposed system to determine the best price value. A critical part of such research involves knowledge of the overall lifecycle of the various OEM and 3rd Party elements making up a Vendor's System solution. From general availability to manufacture discontinue and all phases in between, the production age of the proposed system affects the ability to source spare parts, software upgrade, and support services. Lifecycle analysis is a critical factor in determining the operational life of the proposed P25 technology and supporting products.

**16.3.2** Vendors shall disclose key lifecycle dates of the proposed system, including subscribers, P25 System software, infrastructure, network elements, and 3rd Party supporting equipment. From general availability (GA) release dates to manufacture discontinue (MD) dates along with important OEM hardware and software support dates for standard, extended and out-of-support milestone dates. Please detail how software support dates/phases affect service availability and pricing.

**16.3.3** Vendors shall disclose as part of their Cost Proposal when System was first released for sale to the Public. Vendors shall also provide a life-cycle roadmap, referenced by year and so depict when any third party equipment is likely to be discontinued and when parts/software support will cease to be available.

### 16.4 Warranty and Post-Warranty Maintenance Costs

**16.4.1** Costs for the initial warranty and extended post-warranty maintenance service, inclusive of infrastructure software updates, hardware updates required to support newer software, defective/failed parts replacements, and spare parts, shall be included as part of the Vendor's cost proposal. Multi-year pricing shall be detailed by calendar year or the Customer fiscal year.

**16.4.2** The Vendor shall provide detailed pricing for all system support services proposed under the post- warranty maintenance timeframe.

**16.4.3** Post-warranty maintenance services will replicate all services available during the warranty year period, to include all third party equipment proposed.

**16.4.4** The Vendor will provide post-warranty system services as an extended warranty service from the start of post warranty to 15-years.

**16.4.5** The Vendor will provide post-warranty depot services as an annual price from the start of warranty through 15-years.

## 16.5 Pricing Summaries

**16.5.1** Pricing Summaries for Infrastructure equipment shall be provided as part of the response. All summary information will be supported by detailed cost information as detailed further in this Section. Pricing Summaries include;

**16.5.2** Infrastructure Equipment

**16.5.3** Project Management, Engineering, & Installation Services

**16.5.4** Subscribers by Agency Submitted

**16.5.5** Subscriber Programming and Installation Services

**16.5.6** Infrastructure Discount

**16.5.7** Subscriber Discount

**16.5.8** Turnkey Discount

**16.5.9** System Maintenance

**16.5.10** Subscriber Maintenance

**16.5.11** Total Cost of Ownership at 5, 10, & 15 years

**16.5.12** Alternative Requests

## 16.6 Future Purchase Considerations

**16.6.1** The Customer intends to operate this new radio communications network for, minimally, the next twenty years. Therefore, The Customer must receive reasonable safeguards regarding future Vendor equipment and maintenance services pricing to establish a total long-term cost of ownership.

## 16.7 Immediate Future Discounts

**16.7.1** For all purchases within five (5) years after the System's acceptance date, the discount percentage received by The Customer will be identical to the discount percentages derived from list-price unit equipment costs and Vendor-submitted unit costs as contained in its Proposal.

## 16.8 Purchase Price Discount Years 6 - 10

**16.8.1** For years six (6) through ten (10) after the System's acceptance date, The Customer's discount from the manufacturer's published equipment list price, as delivered to their authorized sales agents, shall be as follows:

| | |
|---|---|
| Fixed Site Equipment | _____% |
| Antenna Related Equipment | _____% |
| Console Equipment | _____% |
| Control Station Equipment | _____% |
| Spare Parts | _____% |
| Managed & Support Services | _____% |

## 16.9 Price Discount Years 11 - 15

**16.9.1** For years eleven (11) through fifteen (15) after the System's final acceptance date, The Customer' discount from the manufacturer's published equipment list price as delivered to their authorized sales agents, shall be as follows:

| | |
|---|---|
| Fixed Site Equipment | _____% |
| Antenna Related Equipment | _____% |
| Console Equipment | _____% |
| Control Station Equipment | _____% |
| Spare Parts | _____% |
| Managed & Support Services | _____% |

## 16.10 Price Discount Years 16 - 20

**16.10.1** For years sixteen (16) through twenty (20) after the System's acceptance date, The Customer's discount from the manufacturer's published equipment list price as delivered to their authorized sales agents, shall be as follows:

| | |
|---|---|
| Fixed Site Equipment | _____% |
| Antenna Related Equipment | _____% |
| Microwave Equipment | _____% |
| Console Equipment | _____% |
| Network Equipment | _____% |
| Control Station Equipment | _____% |
| Spare Parts | _____% |
| Managed & Support Services | _____% |

## 16.11 Infrastructure Pricing Analysis Worksheets

**16.11.1** The following pricing worksheets are to be used as an example to develop the Infrastructure Price Submittal. These worksheets are indicative of the detail required and may be amended or expanded by the Vendor as necessary. Any omission or error in developing the pricing proposal, shall be the sole responsibility of the Contractor.

**Primary/Redundant Site** (individual submittals required)

| Equipment Description | Number Req'd | List Unit Cost | Extended Cost | Maintenance Cost |
|---|---|---|---|---|
| Transmitters | | $ | $ | $ |
| Transmitter Antenna System | | $ | $ | $ |
| Combiner Package(s) | | $ | $ | $ |
| Receiver Antenna System | | $ | $ | $ |
| Multicoupler | | $ | $ | $ |
| Mutual Aid System | | $ | $ | $ |
| Gateway Control Stations | | $ | $ | $ |
| Base Station Gateway | | $ | $ | $ |
| Microwave Interface Equipment | | $ | $ | $ |
| Broadband Gateway | | $ | $ | $ |
| Inter SubSystem Interface (ISSI) | | $ | $ | $ |
| Standby Generator System | | $ | $ | $ |
| Battery Charger System | | $ | $ | $ |
| Site Civil Modifications | | $ | $ | $ |
| Tower | | $ | $ | $ |
| Tower Installation | | $ | $ | $ |
| Equipment Shelter | | $ | $ | $ |
| Shelter Installation | | $ | $ | $ |
| Project Management | | $ | $ | $ |
| System Engineering | | $ | $ | $ |
| | | $ | $ | $ |
| | | $ | $ | $ |
| | | $ | $ | $ |
| | | $ | $ | $ |

| | |
|---|---|
| Subtotal Equipment | $ |
| Subtotal Labor | $ |
| Total Equipment/Labor | $ |
| Total Annual Maintenance Cost | $ |

**Radio Site (one per location)**

| Equipment Description | Number Req'd | List Unit Cost | Extended Cost | Maintenance Cost |
|---|---|---|---|---|
| Transmitters | | $ | $ | $ |
| Transmitter Antenna System | | $ | $ | $ |
| Combiner Package(s) | | $ | $ | $ |
| Receiver Antenna System | | $ | $ | $ |
| Multicoupler | | $ | $ | $ |
| Mutual Aid System | | $ | $ | $ |
| Gateway Control Stations | | $ | $ | $ |
| Base Station Gateway | | $ | $ | $ |
| Microwave Interface Equipment | | $ | $ | $ |
| Broadband Gateway | | $ | $ | $ |
| Inter SubSystem Interface (ISSI) | | $ | $ | $ |
| Standby Generator System | | $ | $ | $ |
| | | | | |
| Battery Charger System | | $ | $ | $ |
| Site Civil Modifications | | $ | $ | $ |
| Tower | | $ | $ | $ |
| Tower Installation | | $ | $ | $ |
| Equipment Shelter | | $ | $ | $ |
| Shelter Installation | | $ | $ | $ |
| Project Management | | $ | $ | $ |
| System Engineering | | $ | $ | $ |
| | | $ | $ | $ |
| | | $ | $ | $ |
| | | $ | $ | $ |

| | |
|---|---|
| Subtotal Equipment | $ |
| Subtotal Labor | $ |
| Total Equipment/Labor | $ |
| Total Annual Maintenance Cost | $ |

# 17.0 Additional Requirements

## 17.1 Fire/EMS Paging System

The customer does not require a paging solution in this RFP.

## 17.2 Fire Station Alerting

Fire Station Alerting will replace any current legacy radio in respective Fire Stations with a new control station radio that can be alerted by the proposed P25 system. The control station will meet the specifications as outlined in Section 12.

- Cushing Fire Department

## 17.3 Alternative Shared System Infrastructure

**17.3.1.** The Customer is sensitive to the costly nature of P25 systems. Therefore, vendors are encouraged to submit creative additional proposals that may utilize any or all capabilities, software, and hardware of other systems that are already being provided by the vendor. This may include systems that are currently under construction but can be modified to accommodate additional equipment added for the purposes of this RFP, or systems that are complete and in normal operation (Further referenced as "existing system").

**17.3.2.** Alternative system configuration technical requirements.

**17.3.2.1.** Any proposed alternative configuration must meet all technical requirements outlined within this RFP. If an alternative configuration will not support all technical requirements listed in this RFP, each item not supported must have detailed explanation for why it cannot be supported. Any unsupported requirement risks being graded down or found non-compliant. Furthermore, an alternative system configuration will not be considered if the primary response to this RFP is graded as noncompliant.

**17.3.2.2.** Alternative configurations must have redundant network connection points into the existing system. Additionally, the proposed optional configuration must be able to continue regular trunking operations and communications in the event of network connectivity failure to the existing system. This includes dispatch consoles having direct network access into the remaining RF sites, or RF connectivity.

**17.3.3.** Alternative System Configuration Pricing Requirements

**17.3.3.1.** Within the pricing proposal of the alternative system configuration, key cost differences (whether savings or additional cost) shall be identified and marked as such for comparison purposes. An example of this is if a specific item is needed in a stand-alone system, but already exists with the alternative solution, the vendor shall highlight this cost savings.

**17.3.4.** Alternative System Configuration Submittal Requirements

**17.3.4.1.** Any alternative system configuration proposal must follow all dates and guidelines as prescribed in this RFP, including the separation of its pricing from the technical proposal.

Additionally, any alternative system configuration that requires joining an existing system or site, must include written authorization from the owner of the existing system or site. This authorization must be included within the technical proposal submittal for the alternative system configuration.

**17.4** Additional Connectivity

Any additional connectivity required by Commerical type service (fiber, etc.) to meet any redundancy requirements must be clearly identified in the proposal with costs listed as an alternative.

**Appendix C Tower Candidate Site List**

The following list and supplemental pages show sites identified as candidate sites for new sites necessary to achieve the coverage requirements. None of these sites are required to be used, but are for information only.

| | | | | | |
|---|---|---|---|---|---|
| 1. | Any Payne County owned land or other properties identified in .shp files. These files will be provided during the mandatory pre-proposal conference. | | | | |
| 2. | Drumright | | 35.98367N | 96.61074W | OKWIN Site |
| 3. | Camey | | 35.810333N | -97.066416W | OKWIN Site |
| 4. | Guthrie | | 35.925333N | -97.379611W | OKWIN Site |
| 5. | Glencoe* | | 36.11.57.7N | 96.55.25.5W | |
| 6. | Cushing | Safety Center | 35.9838675N | 96.774957W | |
| 7. | Cushing | Weather Tower | 35.9779895N | 96.7888425W | |
| 8. | Cushing | Water Plant | 35.9904501N | 96.7415211W | |
| 9. | Cushing | Power Distribution | 35.9799901N | 96.7354308W | |
| 10. | Cushing | AT&T Lease | 35.5858694N | 96.7222373W | |
| 11. | Cushing | AT&T Lease | 35.9877213N | 96.7590435W | |
| 12. | Cushing | AT&T Lease | 36.9738875N | 96.7654127W | |
| 13. | Cushing | Verizon Lease | 35.9791235N | 96.7402374W | |
| 14. | Stallard | | 36-06-38.4 N | 097-02-27.0 W | OKWIN Site |
| 15. | Cushing | Grand River Dam | 35.98361 N | -96.80361 W | |

No leased sites will be used in the submittal of this proposal, unless specifically stated in the RFP or addendum.

* The Glencoe tower and shelter will be utilized as part of the RF design for Payne County.

**Appendix D** **Critical Building List**

| Name | Address | Requestor |
|---|---|---|
| Payne County Courthouse | 606 S Husband Street, Stillwater, OK 74074 | Sheriff |
| Glencoe High School | 201 E Lone Chimney, Glencoe, OK 74032 | Sheriff |
| Glencoe Elementary | 303 N Rose Ave, Glencoe, OK 74032 | Sheriff |
| Ripley Public Schools | 403 1st Ave, Ripley, OK 74062 | Sheriff, Ripley |
| Oak Grove Public Schools | 8409 E. 9th Street, Cushing, OK 74023 | Sheriff, Drumright |
| CoreCivic Cimarron Correctional Facility | 3200 S Kings Hwy, Cushing, OK 74023 | Sheriff, Cushing |
| Quail Crossing RV Park | 20324 E 44th St., Yale, OK 74085 | Sheriff |
| Cowboy Travel Plaza | 522 S Peach Road, Orlando, OK 73073 | Sheriff |
| Perkins Livestock, LLC | 2405 W 116th St, Perkins, OK 74059 | Sheriff |
| Sunnyside School | 1919 S Kings Hwy, Cushing, OK 74023 | Sheriff |
| Oak Grove Church | 420 N Oak Grove Rd, Cushing, OK 74023 | Drumright |
| Drumright Fire Department | 116 W. Broadway, Drumright, OK 74030 | Drumright |
| Yale Elementary School | 800 N C St., Yale, OK 74085 | Yale |
| Yale High School | 115 E. Chicago, Yale, OK 74085 | Yale |
| American Heritage Bank | 202 N. Main, Yale, OK 74085 | Yale |
| TeePee Smoke Shop | 28314 E. 6th St (Hwy 51), Yale, OK 74085 | Yale |
| Yale EMS | 105 W. Boston, Yale, OK 74085 | Yale |
| Chava's Mexican Restaurant | 101 N. Main, Yale, OK 74085 | Yale |
| Yale Fire Department | 801 E. Chicago Ave., Yale, OK 74085 | Yale |
| Yale High School Gym | 714 E. Chicago Ave., Yale, OK 74085 | Yale |
| Walmart | 3100 E. Main, Cushing, OK 74023 | Cushing |
| Cushing High School | 1400 E. Walnut, Cushing, OK 74023 | Cushing |
| Cushing Middle School | 521 S. Harmony Rd., Cushing, OK 74023 | Cushing |
| Cushing Lower Elementary | 1601 S. Harmony Rd., Cushing, OK 74023 | Cushing |
| Cushing Upper Elementary | 316 E. Steele, Cushing, OK 74023 | Cushing |
| Cimarron Towers | 214 E. Broadway, Cushing, OK 74023 | Cushing |
| First Baptist Church | 2238 E. Main, Cushing, OK 74023 | Cushing |
| Cushing Regional Hospital | 1027 E. Cherry, Cushing, OK 74023 | Cushing |
| Interstate 35 from the Cimarron River northward ~ 2 miles | | Guthrie |
| Cimarron River bottom spanning the length of Payne Co | | Perkins Fire |
| Katy Dam | E0590 Rd & S35800 Rd. | Yale |
| Payne County line Area bound by Walt's Corner to the North, Lone Chimney Rd to the South, Clay Rd to the West, Council Rd to the East | | Glencoe |
| Payne County line Area at the intersection of Knob Hill Road & Rose Rd | | Glencoe |
| Payne County line Area at the intersection of Walt's Corner & Union Rd | | Glencoe |
| Payne County line Area at the intersection of Prairie Rd & Lone Chimney Rd | | Glencoe |
| Payne County line Area at the intersection of Union Rd & VFW Rd | | Glencoe |
| Payne County line Area at the intersection of Lone Chimney Rd & Mt. Vernon | | Glencoe |
| | 105 E. Quay/Main, Yale, OK 74085 | Cushing |
| | 29717 E.56th, Yale, OK 74085 | Cushing |
| | 18819 E Goodwin Rd., Yale, OK 74085 | Cushing |
| | 3120 S. Schlegal, Cushing, OK | Cushing |
| | 12508 S. Mehan, Ripley, OK | Cushing |
| | 337998 E. 770 Rd., Tyron, OK | Cushing |
| | 355912 E. 770 Rd, Cushing, OK | Cushing |
| | 21 S. Main, Agra, OK | Cushing |
| Crude Oil Tank Farm - TC Energy | 350827 E. 750 Rd | Cushing |
| Crude Oil Tank Farm - Tmagellan | 351253 E. 750 Rd | Cushing |
| Crude Oil Tank Farm - Semcrude | 3710 N. Little | Cushing |
| Crude Oil Tank Farm - Deeprock Energy | 1613 E. Deeprock Rd | Cushing |
| Crude Oil Tank Farm - Plains | 740306 S, 3510 Rd | Cushing |
| Crude Oil Tank Farm - Enbridge | 2101 S. Linwood | Cushing |
| Crude Oil Tank Farm - NGL | 346245 E. 740 Rd | Cushing |
| School Building including one below grade building | | Perkins Fire |
| Cimarron Casino holdings in and around Perkins | | Perkins Fire |

| | | |
|---|---|---|
| Serveral large all metal industrial buildings | | Perkins Fire |
| Ripley Fire Station | 205 S. Morton | Ripley Fire |
| Ripley City Hall | 203 S. Morton | Ripley |
| Ripley Round-up Arena | 200 W. Main | Ripley |
| Ripley Mini Mart | 203 N. Morton | Ripley |
| US-64 Hwy & OK-108 Hwy | | Lela |
| OK-33 Hwy & Coyle Road | | Payne County |
| BOARD OF EDUCATION BUILDING | 314 S. LEWIS | Stillwater Public Schools |
| HIGHLAND PARK ELEMENTARY SCHOOL | 400 S. DRURY LANE | Stillwater Public Schools |
| LINCOLN ACADEMY | 215 E. 12TH | Stillwater Public Schools |
| RICHMOND ELEMENTRAY SCHOOL | 201 W. RICHMOND RD. | Stillwater Public Schools |
| SANGRE RIDGE ELEMENTARY SCHOOL | 2500 S. SANGRE RD. | Stillwater Public Schools |
| SKYLINE ELEMENTARY SCHOOL | 1402 E SUNRISE | Stillwater Public Schools |
| STILLWATER HIGH SCHOOL | 1224 N. HUSBAND | Stillwater Public Schools |
| STILLWATER HIGH SCHOOL - VO AG BUILDING | 148 N. DRURY LANE | Stillwater Public Schools |
| STILLWATER HIGH SCHOOL ARTS | 1224 N. HUSBAND | Stillwater Public Schools |
| STILLWATER HIGH SCHOOL FIELD HOUSE | 1224 N. HUSBAND | Stillwater Public Schools |
| STILLWATER HIGH SCHOOL FOOTBALL LOCKER ROOI | 1224 N. HUSBAND | Stillwater Public Schools |
| STILLWATER HIGH SCHOOL FOOTBALL STADIUM | 1224 N. HUSBAND | Stillwater Public Schools |
| STILLWATER HIGH SCHOOL GYM | 1224 N. HUSBAND | Stillwater Public Schools |
| STILLWATER HIGH SCHOOL PAC | 1224 N. HUSBAND | Stillwater Public Schools |
| STILLWATER HIGH SCHOOL ROUND TOP GYM | 1224 N. HUSBAND | Stillwater Public Schools |
| STILLWATER HIGH SCHOOL WEIGHT ROOM | 1224 N. HUSBAND | Stillwater Public Schools |
| STILLWATER HIGH SCHOOL WEST GYM | 1224 N. HUSBAND | Stillwater Public Schools |
| STILLWATER JUNIOR HIGH | 1900 N. SKYLINE | Stillwater Public Schools |
| STILLWATER MIDDLE SCHOOL | 2200 S. SANGRE RD. | Stillwater Public Schools |
| STILLWATER PUBLIC SCHOOLS - INDOOR PRACTICE F | 1616 N. CIMARRON PLAZA | Stillwater Public Schools |
| STILLWATER PUBLIC SCHOOLS - IT DEPT | 1644 CIMARRON PLAZA | Stillwater Public Schools |
| STILLWATER PUBLIC SCHOOLS - O&E SUPPORT BUILI | 5021 N. PERKINS RD. | Stillwater Public Schools |
| STILLWATER PUBLIC SCHOOLS - O&E SUPPORT BUILI | 5005 N. PERKINS RD. | Stillwater Public Schools |
| STILLWATER PUBLIC SCHOOLS - VIRTUAL LEARNING | 308 W. FRANKLIN | Stillwater Public Schools |
| WESTWOOD ELEMENTARY SCHOOL | 502 KINGS ST. | Stillwater Public Schools |
| WILL ROGERS ELEMENTARY SCHOOL | 1211 N. WASHINGTON | Stillwater Public Schools |
| 4-H YOUTH DEVELOPMENT | 324 N MONROE STREET | OSU |
| 4TH STREET GARAGE | 720 W 4TH AVENUE | OSU |
| A P REYNOLDS CONCESSIONS | 515 N KNOBLOCK STREET | OSU |
| A P REYNOLDS STADIUM | 515 N KNOBLOCK STREET | OSU |
| ADAMS MARKET | 1109 W SCOTT AVENUE | OSU |
| ADV TECH RES CNTR | 801 W ATHLETIC AVENUE | OSU |
| AEROSPACE SYSTEMS DIS LAB | 3100 N HARGIS ROAD | OSU |
| AGRI CENTER OFFICE | 208 N ORCHARD STREET | OSU |
| AGRICULTURE | 212 N MONROE STREET | OSU |
| AGRONOMY LABORTRY-AF | 318 CELIA LANE | OSU |
| ALUMNI CENTER | 115 S HESTER STREET | OSU |
| AN NUT & PHYS CENTER | 5434 W 6TH AVENUE | OSU |
| ANAPLASMOSIS | 2702 W VIRGINIA AVENUE | OSU |
| ANAPLASMOSIS HAY BARN | 2702 1/2 W VIRGINIA AVENUE | OSU |
| ANIMAL SCIENCES | 310 N MONROE STREET | OSU |
| ANIML LOAFG SHED-SHP | 210 N MAR VISTA STREET | OSU |
| ANSCI FARM HOUSE #2 | 3006 W VIRGINIA AVENUE | OSU |
| ARCHITECTURE | 710 W ATHLETIC AVENUE | OSU |
| ARENA - BEEF CATTLE | 5902 W 6TH AVENUE | OSU |
| AT&T WIRELESS EQUIPMENT | 1957 W FARM ROAD | OSU |
| ATHLETIC CENTER | 607 W HALL OF FAME AVENUE | OSU |
| ATHLETIC TICKET CALL CTR | 325 W HALL OF FAME AVENUE | OSU |
| AVIATION CTR | 1720 W WRIGHT DRIVE | OSU |
| BANK NA | 1224 N BOOMER ROAD | OSU |
| BARTLETT CENTER | 602 W MORRILL AVENUE | OSU |
| BARTLETT IND LIV LAB | 618 N MONROE STREET | OSU |
| BASEBALL FACILITY | 915 N WASHINGTON STREET | OSU |
| BATH HOUSE - CAMP RED | 10319 W LAKEVIEW ROAD | OSU |
| BENNETT CHAPEL | 130 S HESTER STREET | OSU |
| BENNETT HALL | 417 N KNOBLOCK STREET | OSU |
| BERT COOPER ENG LAB | 980 N RIDGE DRIVE | OSU |
| BIO & AG EN LAB | 323 N CLEVELAND STREET | OSU |
| BIO & AG ENGR W ANNEX | 220 N MAR VISTA STREET | OSU |

| | | |
|---|---|---|
| BIO & AG ENGR W LAB | 212 N MAR VISTA STREET | OSU |
| BIO & AG ENGR W STORAGE | 220 1/2 N MAR VISTA STREET | OSU |
| BIOENERGY LAB | 208 N MAR VISTA STREET | OSU |
| BLUESTEM RGE RES SHED | 9414 W 44TH AVENUE | OSU |
| BOOKER FLIGHT CENTER | 3020 N HARGIS ROAD | OSU |
| BOOKER-STINCHCOMB | 1205 W McELROY ROAD | OSU |
| BOONE PICKENS STADIUM | 260 N KNOBLOCK STREET | OSU |
| BOST HALL | 610 N MONROE STREET | OSU |
| BOVINE ISOLATION FAC | 2700 W VIRGINIA AVENUE | OSU |
| BRUMLEY APTS UNIT D1 | 1605 W FARM ROAD | OSU |
| BRUMLEY APTS UNIT D2 | 1515 W FARM ROAD | OSU |
| BRUMLEY APTS UNIT D3 | 1604 W MILLER AVENUE | OSU |
| BRUMLEY APTS UNIT D4 | 1514 W MILLER AVENUE | OSU |
| BRUMLEY APTS UNIT E1 | 219 N ORCHARD STREET | OSU |
| BRUMLEY APTS UNIT E2 | 220 N WALNUT STREET | OSU |
| BULL BARN&LAB-DAIRY | 2738 W MCELROY ROAD | OSU |
| BUNK HSE 1 - CAMP RED | 10319 W LAKEVIEW ROAD | OSU |
| BUNK HSE 10 - CAMP RED | 10319 W LAKEVIEW ROAD | OSU |
| BUNK HSE 11 - CAMP RED | 10319 W LAKEVIEW ROAD | OSU |
| BUNK HSE 12 - CAMP RED | 10319 W LAKEVIEW ROAD | OSU |
| BUNK HSE 2 - CAMP RED | 10319 W LAKEVIEW ROAD | OSU |
| BUNK HSE 3 - CAMP RED | 10319 W LAKEVIEW ROAD | OSU |
| BUNK HSE 4 - CAMP RED | 10319 W LAKEVIEW ROAD | OSU |
| BUNK HSE 5 - CAMP RED | 10319 W LAKEVIEW ROAD | OSU |
| BUNK HSE 6 - CAMP RED | 10319 W LAKEVIEW ROAD | OSU |
| BUNK HSE 7 - CAMP RED | 10319 W LAKEVIEW ROAD | OSU |
| BUNK HSE 8 - CAMP RED | 10319 W LAKEVIEW ROAD | OSU |
| BUNK HSE 9 - CAMP RED | 10319 W LAKEVIEW ROAD | OSU |
| BURN SIMULATOR | 1510 S KARSTEN CREEK ROAD | OSU |
| BUSINESS | 111 N HESTER STREET | OSU |
| CALF REARNG-BF CATTL | 5906 W 6TH AVENUE | OSU |
| CALVING SHED WEST - DF | 2732 W MCELROY ROAD | OSU |
| CAMP REDLANDS DN HALL | 10319 W LAKEVIEW ROAD | OSU |
| CAMP REDLANDS RSCH FAC | 10319 W LAKEVIEW ROAD | OSU |
| CAMPUS FIRE STATION | 600 W UNIVERSITY AVENUE | OSU |
| CANINE LONG-TERM HSNG | 1407 N WESTERN ROAD | OSU |
| CANINE LONG-TERM HSNG ANX | 1335 N WESTERN ROAD | OSU |
| CAREERTECH CENTRAL | 1510 W 7TH AVENUE | OSU |
| CARREKER HALL EAST | 1210 W McELROY ROAD | OSU |
| CARREKER HALL WEST | 1218 W McELROY ROAD | OSU |
| CENTRAL DINING SERV | 306 N WESTERN ROAD | OSU |
| CENTRAL PLANT | 510 N WASHINGTON STREET | OSU |
| CINGULAR WIRELESS EQUIP | 901 N McDONALD STREET | OSU |
| CLASSROOM | 110 N HESTER STREET | OSU |
| CLINE EQUINE TEACHING CTR | 2703 W MCELROY ROAD | OSU |
| CNG FUELING FACILITY | 2221 W LAKEVIEW ROAD | OSU |
| COLVIN CENTER ANNEX | 1610 W FARM ROAD | OSU |
| COLVIN CTR BATH HOUSE | 316 N CLEVELAND STREET | OSU |
| COLVIN CTR POOL CONTROL | 312 N CLEVELAND STREET | OSU |
| COLVIN RECREATION CTR | 320 N CLEVELAND STREET | OSU |
| CONST TECH LAB #2 | 1802 W McELROY ROAD | OSU |
| CONT ENV PLANT FAC | 620 N RIDGE DRIVE | OSU |
| CONTROLLED ENVIR LAB | 1424 W FARM ROAD | OSU |
| COWGIRL CORRAL | 621 N WALNUT STREET | OSU |
| CROSS COUNTRY | 1405 N WALNUT STREET | OSU |
| CT CURRICULUM CENTER | 701 S WALNUT STREET | OSU |
| CT N. & W. 601 S WALNUT | 601 S WALNUT STREET | OSU |
| CT PERKY 1500 W 7TH. | 1500 W 7TH AVENUE | OSU |
| CT PRINT PLANT & WAREHSE | 1201 N WESTERN ROAD | OSU |
| CT TESTING 709 S WALNUT | 709 S WALNUT STREET | OSU |
| CVM ACADEMIC CENTER | 2115 W FARM ROAD | OSU |
| DAIRY BARN-DAIRY FRM | 2624 W MCELROY ROAD | OSU |
| DAIRY FREE-STALL BARN | 2720 W MCELROY ROAD | OSU |
| DAIRY VISITORS | 2720 W MCELROY ROAD | OSU |
| DAVIS HALL | 1225 W McELROY ROAD | OSU |
| DEMAREE APTS S-36 | 1325 W McELROY ROAD | OSU |

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| DEMAREE APTS S-37 | 1405 W McELROY ROAD | OSU |
| DEMAREE APTS S-38 | 700 N GARFIELD STREET | OSU |
| DEMAREE APTS S-39 | 615 N GARFIELD STREET | OSU |
| DEMAREE APTS S-40 | 608 N GARFIELD STREET | OSU |
| DEMAREE APTS S-41 | 604 N GARFIELD STREET | OSU |
| DEMAREE APTS S-42 | 504 N GARFIELD STREET | OSU |
| DRUMMOND HALL | 1218 W DRUMMOND LANE | OSU |
| DRYG&WEIGHING LAB-AF | 318 AGRONOMY LANE | OSU |
| DUMP TRUCK WASH STA | 1940 W CONNELL AVENUE | OSU |
| EDMON LOW LIBRARY | 905 W ATHLETIC AVENUE | OSU |
| ELECTRONICS LAB | 1102 N WILLIS STREET | OSU |
| ENDEAVOR | 215 N HESTER STREET | OSU |
| ENERGY CONSERV DEMO | 1784 W MCELROY ROAD | OSU |
| ENGINEERING NORTH | 215 N WASHINGTON STREET | OSU |
| ENGINEERING SOUTH | 124 N HESTER STREET | OSU |
| ENTO LIVESTK RSH FAC | 1201 N SANGRE ROAD | OSU |
| EQ SPORTS AN SHELTER 1 | 1421 W LAKEVIEW ROAD | OSU |
| EQ SPORTS AN SHELTER 10 | 1421 W LAKEVIEW ROAD | OSU |
| EQ SPORTS AN SHELTER 2 | 1421 W LAKEVIEW ROAD | OSU |
| EQ SPORTS AN SHELTER 3 | 1421 W LAKEVIEW ROAD | OSU |
| EQ SPORTS AN SHELTER 4 | 1421 W LAKEVIEW ROAD | OSU |
| EQ SPORTS AN SHELTER 5 | 1421 W LAKEVIEW ROAD | OSU |
| EQ SPORTS AN SHELTER 6 | 1421 W LAKEVIEW ROAD | OSU |
| EQ SPORTS AN SHELTER 7 | 1421 W LAKEVIEW ROAD | OSU |
| EQ SPORTS AN SHELTER 8 | 1421 W LAKEVIEW ROAD | OSU |
| EQ SPORTS AN SHELTER 91 | 1421 W LAKEVIEW ROAD | OSU |
| EQ SPORTS BIOSAFE MANURE | 1421 W LAKEVIEW ROAD | OSU |
| EQ SPORTS FEED STORAGE | 1421 W LAKEVIEW ROAD | OSU |
| EQ SPORTS RSCH FORCE P | 1421 W LAKEVIEW ROAD | OSU |
| EQ SPORTS RSCH STALL | 1415 W LAKEVIEW ROAD | OSU |
| EQ SPORTS RSCH STRG | 1427 W LAKEVIEW ROAD | OSU |
| EQ SPORTS TREADMILL | 1429 W LAKEVIEW ROAD | OSU |
| EQ SPTS MED LAB | 1945 W FARM ROAD | OSU |
| EQUESTRIAN SADDLG BN | 2813 W CONNELL AVENUE | OSU |
| EQUINE BREEDING BARN | 2631 W MCELROY ROAD | OSU |
| EQUINE EXAMINATION | 1971 W FARM ROAD | OSU |
| EQUINE HAY BARN | 2639 W MCELROY ROAD | OSU |
| EQUINE SPORTS RSCH | 1433 W LAKEVIEW ROAD | OSU |
| EQUINE TRAILER STRG | 2635 W MCELROY ROAD | OSU |
| EXCELSIOR | 835 N WILLIS STREET | OSU |
| FACILITIES MGMT SRVCS | 502 N WILLIS STREET | OSU |
| FAMILY RESOURCE CTR | 719 N WALNUT STREET | OSU |
| FEED MILL STORAGE | 315 S RANGE ROAD | OSU |
| FEED MIXING PLANT | 309 S RANGE ROAD | OSU |
| FEED MIXING PLANT B | 315 S RANGE ROAD | OSU |
| FEED MIXING PLNT ANX | 321 S RANGE ROAD | OSU |
| FIRE PROT/SAFETY LAB | 860 N McDONALD STREET | OSU |
| FIRE PROTECTION PUB | 930 N WILLIS STREET | OSU |
| FIRE PUBLI & TRAINNG | 1723 W TYLER AVENUE | OSU |
| FIRE PUBLI WAREHOUSE | 923 N WILLIS STREET | OSU |
| FIRE TECH OUTDOOR LB | 1754 W McELROY ROAD | OSU |
| FIRE TRAINING MECH | 1510 S KARSTEN CREEK ROAD | OSU |
| FIRE TRAINING STORGE | 1510 S KARSTEN CREEK ROAD | OSU |
| FM ADMINISTRATION | 402 N WILLIS STREET | OSU |
| FM HORTICULTURE | 705 N WILLIS STREET | OSU |
| FM LANDSCAPE STORAGE | 1935 W CONNELL AVENUE | OSU |
| FM LUMBER STORAGE | 1925 W CONNELL AVENUE | OSU |
| FM MULTIPURPOSE FACIL | 1216 N WALNUT STREET | OSU |
| FM SERVICES NORTH | 602 N WILLIS STREET | OSU |
| FM UTIL OFC STORAGE | 1720 W TYLER AVENUE | OSU |
| FM UTILITIES STORAGE | 725 N RIDGE DRIVE | OSU |
| FM WAREHOUSE #1 | 1942 W CONNELL AVENUE | OSU |
| FM WAREHOUSE #2 | 1930 W CONNELL AVENUE | OSU |
| FM WAREHOUSE #3 | 1920 W CONNELL AVENUE | OSU |
| FM WAREHOUSE #4 | 1910 W CONNELL AVENUE | OSU |
| FOOD/AG PRODUCTS CTR | 304 N MONROE STREET | OSU |

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| FORESTRY GRNHS | 223 S SANGRE ROAD | OSU |
| FRI CONTROL | 1112 N WILLIS STREET | OSU |
| FST TRAINING TOWER | 1510 S KARSTEN CREEK ROAD | OSU |
| GARY STEWART CORE RSH | 1715 W TYLER AVENUE | OSU |
| GENERAL ACADEMIC | 626 W MORRILL AVENUE | OSU |
| GREENHOUSE 1-SPC PRJ | 1425 N WESTERN ROAD | OSU |
| GREENHOUSE 2-SPC PRJ | 1427 N WESTERN ROAD | OSU |
| GREENHOUSE 3-SPC PRJ | 1429 N WESTERN ROAD | OSU |
| GREENHOUSE 4-SPC PRJ | 1431 N WESTERN ROAD | OSU |
| GREENHOUSE LEARNING CTR | 318 N LINCOLN STREET | OSU |
| GRIFFITH COMM CTR | 614 N MONROE STREET | OSU |
| GUNDERSEN | 625 W MORRILL AVENUE | OSU |
| HAY BARN - VMR | 14021 W 32ND STREET | OSU |
| HAZARDOUS REACTN LAB | 1110 N WILLIS STREET | OSU |
| HEADHOUSE & 5 GRNHS | 1424 W FARM ROAD | OSU |
| HELMS HALL | 2610 W MCELROY ROAD | OSU |
| HENRY BELLMON RES CTR | 205 N MONROE STREET | OSU |
| HERD UNIT-BF CATTLE | 5810 W 6TH AVENUE | OSU |
| HORT CLUB GREENHOUSE | 1433 N WESTERN ROAD | OSU |
| IBA HALL | 1318 W FARM ROAD | OSU |
| INDOOR HITTING FACIL | 615 N KNOBLOCK STREET | OSU |
| INFORMATION TECHNOLOGY | 414 N McDONALD STREET | OSU |
| INST FOR TCHG AND LRNG EX | 101 N TELECOM LANE | OSU |
| INTR FIRE ATTACK FACIL | 1510 S KARSTEN CREEK ROAD | OSU |
| KAMM HALL | 320 N McFARLAND STREET | OSU |
| KERR HALL | 1217 W FARM ROAD | OSU |
| KERR-DRUMMOND CAFT | 218 N KERR LANE | OSU |
| KOSN TRANSMITTER - NOWATA | NORTHEAST OF NOWATA | OSU |
| KOSR TR EQUIP -STILLWATER | MCELROY ROAD | OSU |
| KOSU BIXBY TR EQ - TULSA | Near 21st and S. Sheridan | OSU |
| KOSU STUDIO - OKC | 726 W SHERIDAN AVENUE | OSU |
| KOSU TR EQ - PONCA CITY | Near Donald Avenue and Meadow Lane | OSU |
| KOSU TRANSMITTER- GUTHRIE | 8301 W FOREST HILLS ROAD | OSU |
| LAUNDRY | 1511 W McELROY ROAD | OSU |
| LCB BUNKHOUSE | 511 CABIN CIRCLE | OSU |
| LCB CABIN 00 | 727 CABIN WAY | OSU |
| LCB CABIN 1 | 523 CABIN CIRCLE | OSU |
| LCB CABIN 10 | 719 CABIN WAY | OSU |
| LCB CABIN 11 | 715 CABIN WAY | OSU |
| LCB CABIN 12 | 830 CABIN COURT | OSU |
| LCB CABIN 13 | 829 CABIN COURT | OSU |
| LCB CABIN 14 | 825 CABIN COURT | OSU |
| LCB CABIN 15 | 821 CABIN COURT | OSU |
| LCB CABIN 16 | 819 CABIN COURT | OSU |
| LCB CABIN 17 | 813 CABIN COURT | OSU |
| LCB CABIN 18 | 808 CABIN COURT | OSU |
| LCB CABIN 2 | 628 CABIN ROAD | OSU |
| LCB CABIN 3 | 621 CABIN ROAD | OSU |
| LCB CABIN 4 | 705 CABIN WAY | OSU |
| LCB CABIN 5 | 609 CABIN ROAD | OSU |
| LCB CABIN 6 | 607 CABIN ROAD | OSU |
| LCB CABIN 7 | 537 CABIN CIRCLE | OSU |
| LCB CABIN 8 | 603 CABIN ROAD | OSU |
| LCB CABIN 9 | 723 CABIN WAY | OSU |
| LCB CONCESSIONS | 515 CABIN CIRCLE | OSU |
| LCB FEE BOOTH | 1295 S LAKE CARL BLACKWELL ROAD | OSU |
| LCB FISHERY OFFICE | 510 CABIN CIRCLE | OSU |
| LCB FLOATING FUEL DOCK | 514 CABIN CIRCLE | OSU |
| LCB LINEN STORAGE | 714 CABIN WAY | OSU |
| LCB MGR RESIDENCE | 802 CABIN COURT | OSU |
| LCB PARK OFFICE | 405 S LAKE CARL BLACKWELL ROAD | OSU |
| LCB PIONEER LODGE | 518 CABIN CIRCLE | OSU |
| LCB TRAILHEAD REST | 408 PINE GROVE | OSU |
| LG ANIMAL RES VM | 2704 WEST VIRGINIA | OSU |
| LIBRARY ANNEX | 1212 N BOOMER ROAD | OSU |
| LIBRARY AUXILIARY | 415 N WILLIS STREET | OSU |

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| LIFE SCIENCES EAST | 1001 W ATHLETIC AVENUE | OSU |
| LIFE SCIENCES WEST | 123 N MONROE STREET | OSU |
| LOAFING SHED 1 - VMR | 14021 W 32ND STREET | OSU |
| LOAFING SHED 2 - VMR | 14021 W 32ND STREET | OSU |
| LOAFING SHED 3 - VMR | 14021 W 32ND STREET | OSU |
| MAE RESEARCH | 1724 W TYLER AVENUE | OSU |
| MARE BARN - VMR | 14021 W 32ND STREET | OSU |
| MARR STUD APTS TELEC | 1409 W McELROY ROAD | OSU |
| MATH SCIENCES | 107 N MONROE STREET | OSU |
| MCELROY HALL | 208 N McFARLAND STREET | OSU |
| MCKNIGHT CENTER | 705 W UNIVERSITY AVENUE | OSU |
| MCPHERSON HALL | 925 N GARFIELD STREET | OSU |
| MILKING PARLOR | 2726 W MCELROY ROAD | OSU |
| MOBILE HM - VMR | 14021 W 32ND AVENUE | OSU |
| MONIN BARN - VMR | 14021 W 32ND STREET | OSU |
| MONROE STREET GARAGE | 509 N MONROE STREET | OSU |
| MORRILL | 618 W MORRILL AVENUE | OSU |
| MORSANI-SMITH HALL | 1205 W McELROY ROAD | OSU |
| MOV STRG - CAMP REDLANDS | 10319 W LAKEVIEW ROAD | OSU |
| MSM BUSINESS ACCELERATOR | 1201 S INNOVATION WAY DRIVE | OSU |
| MULTI SPECIES RESEARCH | 1323 N WESTERN ROAD | OSU |
| MULTI TRANS TERMINAL | 1006 W HALL OF FAME AVENUE | OSU |
| MUSIC BUILDING | 306 S HESTER STREET | OSU |
| N INTRA RESTRMS AND SHLTR | 1625 N WESTERN ROAD | OSU |
| N INTRA SOCCER STORAGE | 1485 N WESTERN ROAD | OSU |
| NANCY RANDOLPH DAVIS | 122 N MONROE STREET | OSU |
| NANCY RANDOLPH DAVIS WEST | 1125 W DRUMMOND LANE | OSU |
| NEAL PATTERSON STADIUM | 621 N WALNUT STREET | OSU |
| NEW FRONTIERS AG HALL | 212 N. MONROE STREET | OSU |
| NHOF DINING HALL | 1270 W HALL OF FAME AVENUE | OSU |
| NMR LAB MECHANICAL | 1007 W FARM ROAD | OSU |
| NMR LABORATORY | 1001 W FARM ROAD | OSU |
| NOBLE RESEARCH CNTR | 902 W FARM ROAD | OSU |
| NORTH CLASSROOM | 315 N MONROE STREET | OSU |
| NORTH LINCOLN | 1710 N LINCOLN STREET | OSU |
| NUT-PHYS CTR ANX | 5418 W 6TH AVENUE | OSU |
| OBI - ANGUS BARN | 10907 W HIGHWAY 51 | OSU |
| OBI - BRANGUS BARN | 10907 W HIGHWAY 51 | OSU |
| OBI - FOUR BREED BARN | 10907 W HIGHWAY 51 | OSU |
| OBI - HAY BARN | 10907 W HIGHWAY 51 | OSU |
| OBI - HEREFORD BARN | 10907 W HIGHWAY 51 | OSU |
| OBI - LIM & CHAR BARN | 10907 W HIGHWAY 51 | OSU |
| OBI - OFFICE-HEADQUARTERS | 10907 W HIGHWAY 51 | OSU |
| OBI - OLD ANGUS BARN | 10907 W HIGHWAY 51 | OSU |
| OBI - POLLED HEREF BARN | 10907 W HIGHWAY 51 | OSU |
| OBI - RESIDENCE | 10907 W HIGHWAY 51 | OSU |
| OBI - RESIDENCE GARAGE | 10907 W HIGHWAY 51 | OSU |
| OBI - SALE BARN | 10907 W HIGHWAY 51 | OSU |
| OBI - WORKING PENS | 10907 W HIGHWAY 51 | OSU |
| OBSERVATORY | 9605 W 44TH STREET | OSU |
| OBSERVATORY CONTROLS | 9605 W 44TH STREET | OSU |
| OFFICES - 1202 MCELROY | 1202 W MCELROY ROAD | OSU |
| OK ANIMAL DISEASE DI | 1950 W FARM ROAD | OSU |
| OK FND SEED STOCKS CLNG | 201 S RANGE ROAD | OSU |
| OK FND SEED STOCKS STRG | 201 S RANGE ROAD | OSU |
| OKLA FOUND SEED STOCKS | 201 S RANGE ROAD | OSU |
| OLD BATH HOUSE 1 - CAMP R | 10319 W LAKEVIEW ROAD | OSU |
| OLD CENTRAL | 119 S HESTER STREET | OSU |
| OSU DISCOVERY | 300 NE 9TH STREET | OSU |
| OSU DISCOVERY - PARKING | 300 NE 9TH STREET | OSU |
| OSU FLIGHT SCHOOL | 1818 W WRIGHT DRIVE | OSU |
| OSU FOUNDATION | 400 SOUTH MONROE | OSU |
| OSU POSTAL PLAZA | 720 SOUTH HUSBAND STREET | OSU |
| OSU TRANSIT SERVICES | 2221 W LAKEVIEW ROAD | OSU |
| OUTDOOR REHAB SHLTR | 1510 S KARSTEN CREEK ROAD | OSU |
| PARKER HALL | 1212 PARKER LANE | OSU |

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| PASTURE 86 HAY BARN | 2927 N PERRY ROAD | OSU |
| PASTURE 86 INOC SHED | 2927 N PERRY ROAD | OSU |
| PASTURE 86 OFFICES | 2927 N PERRY ROAD | OSU |
| PASTURE 86 STALL BARN | 2927 N PERRY ROAD | OSU |
| PASTURE 86 WORKING BARN | 2927 N PERRY ROAD | OSU |
| PATCHIN-JONES HALL | 102 S CLEVELAND STREET | OSU |
| PATILLO COMM CTR | 320 N McFARLAND STREET | OSU |
| PAUL MILLER JOURN/BR | 120 S HESTER STREET | OSU |
| PAVILION - CAMPU REDLANDS | 10319 W LAKEVIEW ROAD | OSU |
| PAYNE ELLIS HALL | 1310 W McELROY ROAD | OSU |
| PESTICIDE STORAGE # 2 | 295 S SANGRE ROAD | OSU |
| PETERSON-FRIEND HALL | 320 N McFARLAND STREET | OSU |
| PETRO TECH CLSRM BLG | 1702 W ESKRIDGE AVENUE | OSU |
| PETROLEUM TECH WRHS | 1701 W ESKRIDGE AVENUE | OSU |
| PHYSICAL SCIENCES | 1002 W ATHLETIC AVENUE | OSU |
| PL PATH RES GRNHS | 301 N SANGRE ROAD | OSU |
| PLNT&SOIL HNDLNG | 237 S SANGRE ROAD | OSU |
| PLT PATH FIELD LAB | 251 N SANGRE ROAD | OSU |
| POWER DIST CTR | 312 N LINCOLN STREET | OSU |
| POWER PLANT | 911 W HALL OF FAME AVENUE | OSU |
| PRAIRIE ARTS | 1001 S DUCK STREET | OSU |
| PROGENY TEST UNIT-BF | 5910 W 6TH AVENUE | OSU |
| PROSSER APTS N-16 | 1502 W WILLHAM AVENUE | OSU |
| PROSSER APTS N-17 | 1500 W WILLHAM AVENUE | OSU |
| PROSSER APTS N-18 | 1503 W WILLHAM AVENUE | OSU |
| PROSSER APTS N-19 | 803 N WALNUT STREET | OSU |
| PROSSER APTS N-20 | 1506 W McELROY ROAD | OSU |
| PROSSER APTS N-21 | 1501 W WILLHAM AVENUE | OSU |
| PROSSER APTS N-22 | 1404 W WILLHAM AVENUE | OSU |
| PROSSER APTS N-23 | 1402 W WILLHAM AVENUE | OSU |
| PROSSER APTS N-24 | 1405 W WILLHAM AVENUE | OSU |
| PROSSER APTS N-25 | 1500 W McELROY ROAD | OSU |
| PROSSER APTS N-26 | 802 N GARFIELD STREET | OSU |
| PROSSER APTS N-27 | 1401 W WILLHAM AVENUE | OSU |
| PROSSER APTS N-28 | 902 N GARFIELD STREET | OSU |
| PSYCHOLOGY | 112 S MONROE STREET | OSU |
| PUBLIC INFORMATION | 102 S MONROE STREET | OSU |
| PUMP HOUSE - VMR | 14021 W 32ND STREET | OSU |
| PUREBRED HAY BARN | 5816 W 6TH AVENUE | OSU |
| RANGE COW RES CTR HQ | 13810 W 6TH AVENUE | OSU |
| RESEARCH LABORATORY | 2724 W VIRGINIA AVENUE | OSU |
| RESIDENCE- BF CATTLE | 5918 W 6TH AVENUE | OSU |
| RESIDENTS HOUSE - CR | 10319 W LAKEVIEW ROAD | OSU |
| RICHMOND HILL RSCH CP | 5202 N RICHMOND HILL DRIVE | OSU |
| RIDGE RD GREENHOUSE | 618 N RIDGE DRIVE | OSU |
| ROPES COURSE STRG - CR | 10319 W LAKEVIEW ROAD | OSU |
| S RANGE ANIMAL SHELTER 1 | 13810 W 6TH AVENUE | OSU |
| S RANGE ANIMAL SHELTER 2 | 13810 W 6TH AVENUE | OSU |
| S RANGE ANIMAL SHELTER 3 | 13810 W 6TH AVENUE | OSU |
| S RANGE ANIMAL SHELTER 4 | 13810 W 6TH AVENUE | OSU |
| S RANGE ANIMAL SHELTER 5 | 13810 W 6TH AVENUE | OSU |
| S RANGE ANIMAL SHELTER 6 | 13810 W 6TH AVENUE | OSU |
| S RANGE FEED STORAGE | 13810 W 6TH AVENUE | OSU |
| S RANGE GARAGE | 13810 W 6TH AVENUE | OSU |
| S RANGE LOAFING SHED 1 | 13810 W 6TH AVENUE | OSU |
| S RANGE LOAFING SHED 2 | 13810 W 6TH AVENUE | OSU |
| S RANGE LOAFING SHED 3 | 13810 W 6TH AVENUE | OSU |
| S STALLION BARN -VMR | 14021 W 32ND STREET | OSU |
| SCOTT HALL | 1224 PARKER LANE | OSU |
| SCOTT-PARK-WENTZ CFT | 1301 W DRUMMOND LANE | OSU |
| SERC HEADQUARTERS | 2945 W MCELROY ROAD | OSU |
| SERETEAN CENTER | 120 S KNOBLOCK STREET | OSU |
| SF - FARM HOUSE #3 | 2917 W 6TH AVENUE | OSU |
| SHEEP BARN | 2502 W VIRGINIA AVENUE | OSU |
| SHERMAN SMITH TRNG FACIL | 724 W HALL OF FAME AVENUE | OSU |
| SHOP BLDG - VMR | 14021 W 32ND STREET | OSU |

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| SITLINGTON HALL | 1215 W McELROY ROAD | OSU |
| SMALL GRAINS-AGRON F | 417 S AUGUST DRIVE | OSU |
| SMALL JOBS OFFICE | 715 N RIDGE DRIVE | OSU |
| SOC SCIENCES & HUMANITIES | 124 S MONROE STREET | OSU |
| SOCCER COMPLEX MECH | 681 N WALNUT STREET | OSU |
| SOCCER FLD RESTRMS | 802 N WILLIS STREET | OSU |
| SOFTBALL COMPLEX | 501 W McELROY ROAD | OSU |
| SOUTH RANGE HAY BARN | 13810 W 6TH AVENUE | OSU |
| SOUTH RANGE STALL BARN | 13810 W 6TH AVENUE | OSU |
| SOUTH RANGE STORAGE | 13810 W 6TH AVENUE | OSU |
| SPREC | 305 S RANGE ROAD | OSU |
| STALLION BARN - VMR | 14021 W 32ND STREET | OSU |
| STEVENS APTS S-70 | 401 N McDONALD STREET | OSU |
| STEVENS APTS S-71 | 402 N WALNUT STREET | OSU |
| STEVENS APTS S-72 | 404 N WALNUT STREET | OSU |
| STEVENS APTS S-73 | 1707 W SCOTT AVENUE | OSU |
| STEVENS APTS S-74 | 1711 W SCOTT AVENUE | OSU |
| STEVENS APTS S-75 | 411 N McDONALD STREET | OSU |
| STEVENS APTS S-76 | 403 N McDONALD STREET | OSU |
| STEVENS APTS S-90 | 504 N McDONALD STREET | OSU |
| STEVENS APTS S-91 | 602 N McDONALD STREET | OSU |
| STEVENS APTS S-92 | 710 N McDONALD STREET | OSU |
| STORAGE - CAMP REDLANDS | 10319 W LAKEVIEW ROAD | OSU |
| STORAGE - CONST TECH | 1832 W McELROY ROAD | OSU |
| STORAGE - WESTERN RD | 1115 N WESTERN ROAD | OSU |
| STORAGE-INTRAMRL FLD | 1801 W HALL OF FAME AVENUE | OSU |
| STOUT HALL | 123 S STOUT LANE | OSU |
| STRATTON BARN - VMR | 14021 W 32ND STREET | OSU |
| STUDENT UNION | 110 S HESTER STREET | OSU |
| STUDENT UNION PKG GARAGE | 800 W UNIVERSITY AVENUE | OSU |
| SWINE BARN-SWINE FRM | 2621 W 6TH AVENUE | OSU |
| TENNIS CENTER | 825 W McELROY ROAD | OSU |
| TEUBNER - 619 S MAIN ST | 619 S MAIN STREET | OSU |
| THATCHER | 601 W ATHLETIC AVENUE | OSU |
| TOMF | 2111 W LAKEVIEW ROAD | OSU |
| TOOL BARN - CAMP REDLANDS | 10319 W LAKEVIEW ROAD | OSU |
| TOTUSEK ARENA | 2815 W MCELROY ROAD | OSU |
| TRACK FACILITY | 700 W McELROY ROAD | OSU |
| TRACK FACILITY STORAGE | 710 W McELROY ROAD | OSU |
| TRANSP SERV SHELTER A | 2050 W FARM ROAD | OSU |
| TRANSP SERV SHELTER B | 2030 W FARM ROAD | OSU |
| TRANSPORTATION SVCS | 2124 W FARM ROAD | OSU |
| UAFS CONTROL | 4015 N CLAY ROAD | OSU |
| UAFS HANGAR | 4015 N CLAY ROAD | OSU |
| UAFS RAMADA | 4015 N CLAY ROAD | OSU |
| UNIV APT STRG 1 | 1702 W SCOTT AVENUE | OSU |
| UNIV APT STRG 2 | 1677 W McELROY ROAD | OSU |
| UNIV APT STRG 3 | 1694 W McELROY ROAD | OSU |
| UNIV APT STRG 4 | 804 N WALNUT STREET | OSU |
| UNIV ASSESS AND TESTING | 1524 W ADMIRAL AVENUE | OSU |
| UNIV COMMONS NORTH | 1340 W HALL OF FAME AVENUE | OSU |
| UNIV COMMONS SOUTH | 1320 W HALL OF FAME AVENUE | OSU |
| UNIV COMMONS WEST | 1400 W HALL OF FAME AVENUE | OSU |
| UNIV HEALTH SVCS | 1218 W FARM ROAD | OSU |
| UNIVERSITY HANGAR | 3320 N AIRPORT INDUSTRIAL ACCESS ROAD | OSU |
| UNIVERSITY HOUSE | 1600 N WASHINGTON STREET | OSU |
| UNIVERSITY MAILING SVCS | 601 N WILLIS STREET | OSU |
| UPHOLSTERY SHOP | 1718 W SCOTT AVENUE | OSU |
| USDA | 224 N ORCHARD STREET | OSU |
| USDA HERU - ARS 1 | 9501 W LAKEVIEW ROAD | OSU |
| USDA HERU - ARS 10 | 9501W LAKEVIEW ROAD | OSU |
| USDA HERU - ARS 11 | 9501W LAKEVIEW ROAD | OSU |
| USDA HERU - ARS 12 | 9501W LAKEVIEW ROAD | OSU |
| USDA HERU - ARS 2 | 9501W LAKEVIEW ROAD | OSU |
| USDA HERU - ARS 25 | 9501W LAKEVIEW ROAD | OSU |
| USDA HERU - ARS 3 | 9501W LAKEVIEW ROAD | OSU |

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| USDA HERU - ARS 4 | 9501W LAKEVIEW ROAD | OSU |
| USDA HERU - ARS 5 | 9501W LAKEVIEW ROAD | OSU |
| USDA HERU - ARS 6 | 9501W LAKEVIEW ROAD | OSU |
| USDA HERU - ARS 8 | 9501W LAKEVIEW ROAD | OSU |
| USDA HERU - ARS 9 | 9501W LAKEVIEW ROAD | OSU |
| USDA HERU - RCC STORAGE | 9501W LAKEVIEW ROAD | OSU |
| USDA HERU - SHELTER 1 | 9501W LAKEVIEW ROAD | OSU |
| USDA HERU - SHELTER 2 | 9501W LAKEVIEW ROAD | OSU |
| USDA PSF--GRNHS #9 | 1315 N WESTERN ROAD | OSU |
| USDA PSF--HEADHOUSE | 1311 N WESTERN ROAD | OSU |
| USDA PSF--OFC&LAB | 1301 N WESTERN ROAD | OSU |
| VENTURE ONE - OTRP | 1110 S INNOVATION WAY DRIVE | OSU |
| VET MED TEACHNG HOSP | 2065 W FARM ROAD | OSU |
| VETERINARY MED ANNEX | 1905 W FARM ROAD | OSU |
| VILLAGE SUITES C AND D | 209 N WALNUT STREET | OSU |
| VILLAGE SUITES CASNR | 224 N CLEVELAND STREET | OSU |
| VILLAGE SUITES E AND F | 209 N CLEVELAND STREET | OSU |
| VILLAGE SUITES HS | 206 N CLEVELAND STREET | OSU |
| VISUAL ARTS ANNEX | 802 N RIDGE DRIVE | OSU |
| VM MAINT FACILITY | 1951 W FARM ROAD | OSU |
| W CHILLED WATER PLT | 720 N WILLIS STREET | OSU |
| WATER PLANT | 226 S PIONEER STREET | OSU |
| WEED SCIENCE-AGRON F | 226 S AUGUST DRIVE | OSU |
| WELLNESS CENTER | 1601 W HALL OF FAME AVENUE | OSU |
| WENTZ HALL | 1313 W DRUMMOND LANE | OSU |
| WENTZ LN PKG GARAGE | 1209 W WENTZ LANE | OSU |
| WES WATKINS CENTER | 810 W HALL OF FAME AVENUE | OSU |
| WEST APTS S-80 | 1802 W SCOTT AVENUE | OSU |
| WEST APTS S-81 | 1710 W SCOTT AVENUE | OSU |
| WEST APTS S-82 | 504 N WALNUT STREET | OSU |
| WEST APTS S-83 | 508 N WALNUT STREET | OSU |
| WEST APTS S-84 | 608 N WALNUT STREET | OSU |
| WEST APTS S-85 | 1629 W McELROY ROAD | OSU |
| WEST APTS S-86 | 1647 W McELROY ROAD | OSU |
| WEST APTS S-87 | 1667 W McELROY ROAD | OSU |
| WEST APTS S-88 | 709 N McDONALD STREET | OSU |
| WEST APTS S-89 | 605 N McDONALD STREET | OSU |
| WHEAT PASTURE RESEARCH | 5822 W 6TH AVENUE | OSU |
| WHITEHURST | 1002 W WHITEHURST LANE | OSU |
| WILLARD | 1011 W WHITEHURST LANE | OSU |
| WILLIAMS APTS N-101 | 1618 W McELROY ROAD | OSU |
| WILLIAMS APTS N-102 | 1636 W McELROY ROAD | OSU |
| WILLIAMS APTS N-103 | 1650 W McELROY ROAD | OSU |
| WILLIAMS APTS N-104 | 1668 W McELROY ROAD | OSU |
| WILLIAMS APTS N-105 | 1682 W McELROY ROAD | OSU |
| WILLIAMS APTS N-12 | 806 N WALNUT STREET | OSU |
| WILLIAMS APTS N-13 | 900 N WALNUT STREET | OSU |
| WILLIAMS APTS N-14 | 902 N WALNUT STREET | OSU |
| WILLIAMS APTS N-15 | 904 N WALNUT STREET | OSU |
| WITCHER BARN - VMR | 14021 W 32ND STREET | OSU |
| YOUNG HALL | 612 N MONROE STREET | OSU |
| ZINK-ALLEN HALL | 1112 W SCOTT AVENUE | OSU |
| ZOOLOGICAL STRG FACIL | 1935 S CIMARRON ROAD | OSU |
| NORTHERN OKLAHOMA COLLEGE - STILLWATER | 615 N. MONROE | NOC |
| MERIDIAN TECHNOLGY CENTER | 1312 S. SANGRE RD. | School |
| CENTER FOR BUSINESS DEVELOPMENT | 1413 S. SANGRE RD. | School |
| OKLAHOMA DEPARTMENT OF CAREER AND TECHNO | 1500 W. 7TH | School |
| ADULT GASTROENTEROLOGY OF STILLWATER | 1301 W. 6TH AVE., SUITE 108 | SMC |
| CIMARRON MEDICAL SERVICES | 1200 S ADAMS ST. | SMC |
| DIABETES CARE SERVICES | 1815 W. 6TH AVE | SMC |
| DOROTHY BLACKWELL WOUND CARE AND HYPERBA | 1301 W. 6TH AVE., SUITE 102 | SMC |
| DRUMMOND EYE CLINIC | 420 S. KNOBLOCK ST. | SMC |
| INTERNAL MEDICINE RESIDENCY CLINIC | 809 S. WALNUT ST. | SMC |
| KARMAN KORNER | 819 S. MAIN ST. | SMC |
| KARMAN LEGACY HOSPICE | 1311 S. WESTERN RD. | SMC |
| NORTH CENTRAL OKLAHOMA INTERNAL MEDICINE | 608 S HESTER ST. | SMC |

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| ORTHO OKLAHOMA | 511 S. WINDSOR DR. | SMC |
| ORTHO OKLAHOMA PHYSCIAL THERAPY | 406 C STAR BOULEVARD | SMC |
| ORTHO OKLAHOMA SPINE AND SPECIALTY CLINIC | 1301 W. 6TH AVE., SUITE 201 | SMC |
| PSYCHIATRY AND COUNSELING | 406 E. HALL OF FAME, SUITE 300 | SMC |
| STILLWATER CANCER CENTER | 1201 W. 6TH AVE. | SMC |
| STILLWATER DIABETES AND ENDOCRINOLOGY | 610 S. WALNUT ST. | SMC |
| STILLWATER EYE CARE | 707 S. WESTERN RD. | SMC |
| STILLWATER INTERNAL MEDICINE | 1301 W. 6TH AVE., SUITE 206 | SMC |
| STILLWATER INTERNAL MEDICINE AND PEDIATRICS | 1201 S. ADAMS ST. | SMC |
| STILLWTAER MEDICAL CENTER | 1323 W. 6TH AVE. | SMC |
| STILLWATER MEDICAL CENTER CADRIOLOGY CLINIC | 1323 W. 6TH AVE. | SMC |
| STILLWATER MEDICAL HOME HEALTH | 1201 S. ADAMS ST. | SMC |
| STILLWATER MEDICAL PHYSICIANS CLINIC | 1815 W. 6TH AVE | SMC |
| STILLWATER MEDICAL URGENT CARE AND OCCUPAT | 518 E. LAKEVIEW RD. | SMC |
| STILLWTAER NEUROLOGY | 1201 S. ADAMS ST. | SMC |
| STILLWATER OTOLARYNGOLOGY | 1201 S. ADAMS ST. | SMC |
| STILLWATER PEDIACTRICS | 1201 S. ADAMS ST. | SMC |
| STILLWATER SURGERY CENTER | 5200 W. 6TH AVE. | SMC |
| STILLWTAER SURGICAL ASSOCIATES | 1301 W. 6TH AVE., SUITE 105 | SMC |
| STILLWATER UROLOGY SPECIALISTS | 1201 S. ADAMS ST. | SMC |
| STILLWATER WOMEN'S CLINIC | 1411 W. 7TH AVE. | SMC |
| SWAFFORD GASTROENTEROLOGY | 1301 W. 6TH AVE., SUITE 106 | SMC |
| THE REHAB CENTER | 1323 W. 6TH AVE. | SMC |
| TOTAL HEALTH FITNESS | 1810 N. PERKINS RD. | SMC |
| TOTAL HEALTH FITNESS AQUATICS | 901 W. 12TH ST. | SMC |
| TOTAL REHAB HEALTH | 1810 N. PERKINS RD. | SMC |
| URGENT CARE | 1815 W. 6TH AVE | SMC |
| WOMEN FIRST | 1411 W. 7TH AVE. | SMC |
| ACCESS MEDICAL CENTER | 275 S. PERKINS RD. | Health Care Facility |
| AMC URGENT CARE | 1909 W 6TH AVE. SUITE B | Health Care Facility |
| BROOKDALE STILLWATER | 1616 E. MCELROY RD. | Nursing Home |
| COMPASSION COMPANIONS | 139 S. MAIN ST., SUITE B | Nursing Home |
| GRACE LIVING CENTER | 1215 W 10TH AVE. | Nursing Home |
| LEGACY VILLAGE | 5601 N. WASHINGTON ST. | Nursing Home |
| PRIMROSE RETIREMENT COMMUNITY | 823 RANGE RD. | Nursing Home |
| SENIOR RESIDENCES | 1501 S. MAIN ST. | Nursing Home |
| STILLWATER CHRISTIAN VILLA | 1810 N. WASHINGTON ST. | Nursing Home |
| STILLWATER CREEK | 5505 W. 19TH AVE. | Nursing Home |
| THE RENAISSANCE OF STILLWATER | 1400 E. MCELROY RD. | Nursing Home |
| WESTHAVEN NURSING HOME | 1215 S. WESTERN RD. | Nursing Home |
| GRAND LAKES MENTAL HEALTH FACILITY | 604 S. WALNUT ST. | Health Care Facility |
| GRAND LAKES MENTAL HEALTH FACILITY - 24/7 URC | 1624 CIMARRON PLAZA | Health Care Facility |
| OKLAHOMA STATE DEPARTMENT OF HUMAN SERVI | 711 E. KRAYLOR AVE. | Health Care Facility |
| PAYNE COUNTY HEALTH DEPARTMENT | 1321 W. 7TH AVE. | Health Care Facility |
| AMC MOVIE THEATER | 1909 N. PERKINS RD. | Retail Space |
| ARMSTRONG WORLD INDUSTRIES | 4115 N. PERKINS RD. | Industrial Building |
| ASCO AEROSPACE USA LLC | 3003 N. PERKINS RD. | Industrial Building |
| ATWOODS | 2211 N. PERKINS RD. | Retail Space |
| FRONTIER ELECTRONICS | 4500 W. 6TH AVE. | Industrial Building |
| KICKER - STILLWATER DESIGNS | 3100 N. HUSBAND | Industrial Building |
| LOWE'S | 1616 N. PERKINS RD. | Retail Space |
| NATIONAL STANDARD | 3602 N. PERKINS RD. | Industrial Building |
| STILLWATER MILLING CO | 502 E. 6TH AVE. | Industrial Building |
| TELEDYNE FLIR | 1024 S. INNOVATION WAY | Industrial Building |
| TRACTOR SUPPLY | 3624 S. PERKINS RD. | Retail Space |
| TUMBLEWEED DANCE HALL | 5010 W. LAKEVIEW RD. | Industrial Building |
| USA RARE EARTH LLC | 100 W. AIRPORT RD. | Industrial Building |
| WALMART NEIGHBORHOOD MARKET | 2315 N. PERKINS RD. | Retail Space |
| WALMART SUPERCENTER | 111 S. PERKINS RD. | Retail Space |
| WALMART SUPERCENTER | 4545 W. 6TH AVE. | Retail Space |
| BRADFORD PLAZA | 600 BLOCK NORTH MAIN | Retail Space |
| CIMARRON PLAZA | 1600-1700 BLOCK N. BOOMER - NORTH OF H.S. | Retail Space |
| FOUNTAIN SQUARE | 1463-1567 SOUTH WESTERN RD | Retail Space |
| FRONTIER PLAZA | 217 BLOCK NORTH PERKINS RD | Retail Space |
| KOBY PLAZA | 3900 BLOCK W 6TH | Retail Space |
| LAKEVIEW PLAZA | 518 E. LAKEVIEW RD. | Retail Space |

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| LAKEVIEW POINTE | 2200 N. PERKINS RD. | Retail Space |
| PIONEER SQUARE | 700 BLOCK NORTH PERKINS RD | Retail Space |
| ROSEWOOD HILLS | 211 BLOCK NORTH PERKINS RD | Retail Space |
| STILLWATER PLAZA | DUCK & ESKRIDGE - ACROSS FROM HIGH SCHOOL | Retail Space |
| THE BULLS-EYE | 1717 N. PERKINS RD - ACROSS FROM LOWE'S | Retail Space |
| THE STRIP | WASHINGTON ST. IN BETWEEN 6TH & UNIVERSITY | Retail Space |
| WASHINGTON CENTER | 6TH & WASHINGTON - NEXT TO MCDONALDS | Retail Space |
| 3RD ST. GARAGE | 505 E. 3RD ST. | City of Stillwater |
| ANIMAL WELFARE | 1710 S. MAIN ST. | City of Stillwater |
| CITY HALL/POLICE DEPARTMENT | 701/723 S. LEWIS ST. | City of Stillwater |
| FIRE STATION 1 | 1510 S. MAIN ST. | City of Stillwater |
| FIRE STATION 2 | 600 W. UNIVERSITY AVE. | City of Stillwater |
| FIRE STATION 3 | 416 E. LAKEVIEW RD. | City of Stillwater |
| FIRE STATION 4 | 4501 W. 19TH AVE. | City of Stillwater |
| LIBRARY | 1107 S. DUCK ST. | City of Stillwater |
| PUBLIC WORKS | 815 E. 11TH AVE. | City of Stillwater |
| SOUTH GARAGE | 808 E. ALCOTT AVE. | City of Stillwater |
| STILLWATER COMMUNITY CENTER | 315 W. 8TH ST. | City of Stillwater |
| STILLWATER ENERGY CENTER | 2000 E. AIRPORT RD. | City of Stillwater |
| STILLWATER REGIONAL AIRPORT | 2020-1 AIRPORT RD. | City of Stillwater |
| STILLWATER SENIOR CENTER | 1015 E. 12TH AVE. | City of Stillwater |
| STILLWATER WASTE WATER TREATMENT PLANT | 2520 S. BRUSH CREEK RD. | City of Stillwater |
| STILLWATER WATER TREATMENT FACILITY | 1022 YOST RD. | City of Stillwater |
| APOSTOLIC'S OF STILLWATER | 410 S. BERRY ST. | Religious |
| BIBLE BAPTIST | 115 N. YOUNG ST. | Religious |
| CALVARY ASSEMBLY OF GOD | 2315 E. MCELROY RD. | Religious |
| CATHOLIC CHARITIES OF EASTERN OKLAHOMA | 601 S. WEST ST. | Religious |
| CHURCH OF CHRIST UNIVERSITY CENTER | 821 N. DUCK ST. | Religious |
| COMMUNITY OF CHRIST | 2124 N. HUSBAND ST. | Religious |
| CROSSPOINTE CHURCH | 1807 N. JARDOT RD. | Religious |
| EAGLE HEIGHTS BAPTIST CHURCH | 2617 N. JARDOT RD. | Religious |
| FIRST ASSEMBLY OF GOD | 1024 S. LEWIS ST. | Religious |
| FIRST BAPTIST CHURCH | 701 S. DUNCAN ST. | Religious |
| FIRST CHURCH OF THE NAZARENE | 1023 E. WILL ROGERS DR. | Religious |
| FIRST PRESBYTERIAN CHURCH | 524 S. DUNCAN ST. | Religious |
| FIRST UNITED METHODIST CHURCH OF STILLWATER | 400 W. 7TH AVE. | Religious |
| FIRST UNITED METHODIST CHURCH OF STILLWATER | 401-449 W. 7TH ST. | Religious |
| GRACE CHURCH STILLWATER | 1220 S. BLAKELY ST. | Religious |
| ISLAMIC SOCIETY OF STILLWATER - MOSQUE - MASJI | 616 N. WASHINGTON ST. | Religious |
| KOREAN BAPTIST CHURCH | 2015 E. VIRGINIA AVE. | Religious |
| NORTH JARDOT CHURCH OF CHRIST | 401 N. JARDOT. RD | Religious |
| REDEEMER CHURCH STILLWATER (OFFICES) | 701 S. DUNCAN ST., SUITE 307 | Religious |
| SALEM LUTHERAN CHURCH | 101 S. DUCK ST. | Religious |
| ST. ANDREW'S EPISCOPAL CHURCH | 516 W. 3RD AVE. | Religious |
| ST. FRANCIS XAVIER CATHOLIC CHURCH | 711 N. COUNTRY CLUB RD. | Religious |
| ST. JOHN CATHOLIC STUDENT CENTER | 201 N. KNOBLOCK ST. | Religious |
| STILLWATER CHURCH OF CHRIST | 821 N. DUCK ST. | Religious |
| SUNNYBROOK CHRISTIAN CHURCH | 421 E. RICHMOND RD. | Religious |
| UNIVERSITY HEIGHTS BAPTIST CHURCH | 323 S KNOBLOCK ST. | Religious |
| WORLD HARVEST CHURCH STILLWATER | 1718 W LAKEVIEW RD. | Religious |
| ZION LUTHERAN CHURCH | 504 S. KNOBLOCK ST. | Religious |

**Appendix E** **FCC Licenses**

The following provides the current known FCC licenses.

| Licensee | Call Sign | Radio Service | Expiration Date |
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| **Perkins, City of (Fire Department)** | WNDP969 | PW - Public Safety Pool, Conventional | 8/29/2015 |
| **Perkins, City of** | WQUT945 | PW: Public Safety Pool, Conventional | 10/10/2024 |
| **Ripley, City of** | WXT762 | PW - Public Safety Pool, Conventional | 1/17/2024 |
| **Payne, County of (Emergency Management)** | WQMR334 | PW: Public Safety Pool, Conventional | 10/27/2030 |
| **Yale, City of** | WQVJ273 | PW - Public Safety Pool, Conventional | 2/28/2025 |
| **Glencoe, City of** | WQRA440 | PW: Public Safety Pool, Conventional | 4/3/2023 |
| **Cushing, City of** | KKA840 | PW - Public Safety Pool, Conventional | 1/24/2032 |
| **Cushing, City of** | KKY586 | PW: Public Safety Pool, Conventional | 10/25/2024 |
| **Cushing, City of** | KBP750 | PW - Public Safety Pool, Conventional | 5/11/2032 |
| **Payne, County of (Sheriff)** | *WPXF754* | PW: Public Safety Pool, Conventional | *3/25/2023* |

**Appendix F: RFP Definition of Terms**

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| Additional Services | Service or deliverable within the scope of the Contract, but not specifically provided under any |
| AC 70/7460-1M | This Federal Aviation Administration (FAA) Advisory Circular (AC) describes the Federal Aviation Administration's standards for marking and lighting structures to promote aviation safety. |
| AES | Advance Encryption Standard. |
| Agency | User operable on The Customer's radio communications |
| AMBE | Advanced Multiband Excitation, P25 digital voice-coder. |
| ANSI/TIA-222-H | American National Standards Institute / Telecommunications Industry Association: "Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Structures" |
| APCO | Association of Public Safety Communications Officials. |
| ATP | Acceptance Test Plan. |
| BER | Bit Error Rate. |
| Computer Aided Dispatch (CAD) | A computer-based system, which aids PSAP Telecommunicators by automating selected dispatching and record keeping activities. |
| CATP | Coverage Acceptance Test Plan. |

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| Confidential Information | All tangible and intangible information and materials, including all Personally Identifiable Information, being disclosed in connection with this Contract, in any form or medium (and without regard to whether the information is owned by The Customer or by a third party), that satisfy at least one of the following criteria: (i) Personally Identifiable Information; (ii) Proprietary Information; (iii) non-public information related to The Customer's employees, The Customers, technology (including databases, data processing and communications networking systems), schematics, specifications, and all information or |
| Contract | The final version of any contractually binding agreement between The Customer and the Contractor relating to the subject matter of this RFP; references to the Contract include all exhibits, attachments, and other documents attached thereto or incorporated therein by reference. |
| Contract Term | The initial term of the Contract and any renewals and/or extensions. |
| Contracted Personnel | Contractor's employees or other personnel (including officers, agents, and Subcontractors) provided by the Contractor to perform work related to the |
| Contractor | A Vendor awarded a Contract. |
| CSSI | Radio Console Subsystem Interface. |
| The Customer Premises Equipment (CPE) | Communications or terminal equipment located in The Customer's |

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| | facilities – terminal equipment at a |
| DAQ | Delivered Audio Quality. |
| dB | Decibel, a unit of power. |
| DC | Direct Current. |
| Deliverable | All project materials, including goods, software licenses, data, and documentation created during the performance or provision of Services hereunder or identified as a Deliverable in an applicable Statement of Work of other contract |
| Department | A public safety subdivision utilizing The Customer radio network/system. |
| DHS | United States Department of Homeland Security. |
| Dispatch Console | A specialized computer with a software application through which calls are made to and received from radio users and radio dispatch |
| Division | A sub-unit of a County agency. |
| DVB | A state-certified Disabled Veteran-Owned Business. |
| Dynamic Dual Mode | A feature of a P25 land mobile radio system whereby call requests are assigned to P25 Phase 1 or Phase 2 channels based upon the capability of the radio users participating in the |
| Effective Date | The date the contract has been fully executed by the Contractor and The Customer. |
| Emergency Services Internet Protocol Network (ESIn | A managed Internet protocol network |

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| | that is used for emergency services and can be shared by all public safety answering points. It provides the IP transport infrastructure upon which independent application platforms and core functional processes can be deployed, including, but not restricted to, those necessary for providing NG9-1-1 services. ESInets may be contracted from a mix of dedicated and shared facilities. ESInets may be interconnected at local, regional, state, federal, national, and international levels to form an IP based inter-network (network of |
| ERP | Effective Radiated Power. |
| FCC | Federal Communications Commission. |
| FDMA | Frequency Division Multiple Access. |
| FEMA | Federal Emergency Management Agency. |
| FirstNet | The independent authority within the National Telecommunications & Information Administration (NTIA) created by the Middle-Class Tax Relief and Job Creation Act of 2012 to provide emergency responders with the first nationwide, high-speed, broadband network dedicated to |
| Form-C | Normally-open/normally closed relay contact arrangement. |

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| Geographic Information System (GIS) | A computer software system that enables one to visualize geographic aspects of a body of data. It contains the ability to translate implicit geographic data (such as a street address) into an explicit map location. It can query and analyze data to receive the results in the form of a map. It also can be used to graphically display coordinates on a map such as Latitude/Longitude from a wireless 9- |
| GHz | 1-billion cycles per second, Giga-Hertz (or microwave) |
| GPS | Global Positioning System. |
| Home Run Grounds | A dedicated and continuous electrical ground wire connection (green insulated) between an electrical device and the electrical circuit breaker panel. This connection is used for personnel safety as per the |
| HVAC | Heating, Ventilation and Air Conditioning. |
| Hz | 1 cycle per second, Hertz. |
| ID | Radio Unit Identifier. |
| IMBE | Improved Multiband Excited, P25 digital voice-coder. |
| IEEE | Institute of Electrical and Electronic Engineers. |
| Inter RF Sub- System Interface (ISSI) | An electronic gateway device used to link disparate P25 radio networks, thereby allowing radio user roaming across radio networks. |

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| Interoperability | The ability of public safety responders to share information via voice and data communications systems on demand, in real time, when needed, and as authorized. |
| Key Personnel | Contracted personnel who play leading and critical roles in provided Services during the contract term. |
| KHz | 1,000 cycles per second, Kilo-Hertz. |
| KMF | Key Management Facility. |
| kVA | Kilovolt-Ampere. |
| LCD | Liquid Crystal Display. |
| LMR | Land Mobile Radio. |
| LTE | Long Term Evolution. |
| MABAS | Mutual Aid Box Alarm System. |
| Mandatory | A requirement labeled as such must be present in the proposed solution, exactly as stated, or the solution will not be considered by The Customer. |
| MBE | A state-certified Minority Business Enterprise. |
| MHz | 1,000,000 cycles per second, Mega-Hertz. |
| Municipality | Any county, city, village, town, school district, board of school directors, sewer district, drainage district, vocational, technical and adult education district, or any other public body having the authority to award |
| NCC | Network Control Center. |

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| Next Generation 9-1-1 | An enhanced 9-1-1 system that incorporates the handling of all 9-1-1 calls and messages, including those using IP-enabled services or other advanced communications technologies in the infrastructure of |
| NMS | Network Management System. |
| NOC | Network Operations Center. |
| NPSTC | National Public Safety Telecommunications Council. |
| OSHA | Occupational Safety and Health Administration. |
| OTAP | Over the Air Programming. |
| OTAR | Over the Air Rekeying. |
| OTEK | Over the Ethernet Keying. |
| P25 | Project 25. |
| P25 Phase 1 | Project 25 radio system using FDMA and the IMBE voice-coder. |
| P25 Phase 2 | Project 25 radio system using TDMA and the AMBE voice-coder. |
| Parties | The County and the Contractor, collectively. |
| Party | Either the County or the Contractor, individually. |

| | |
|---|---|
| Personally Identifiable Information | An individual's last name and the individual's first name or first initial, in combination with and linked to any of the following elements, if the element is not publicly available information and is not encrypted, redacted, or altered in any manner that renders the element unreadable: (a) the individual's Social Security number; (b) the individual's driver's license number or state identification number; (c) the individual's date of birth; (d) the number of the individual's financial account, including a credit or debit card account number, or any security code, access code, or password that would permit access to the individual's financial account; (e) the individual's DNA profile; or (f) the individual's unique biometric data, including fingerprint, voice print, retina or iris image, or any other unique physical |
| Proposal | The complete response to this RFP submitted on the approved forms, in the required manner and setting forth the Vendor's prices for providing the products and services described in the RFP. |
| PTT | Push-to-Talk. |
| Public Information | Information that (i) is collected, assembled or maintained under a law or ordinance or in connection with the transaction of official business by a governmental body or for a governmental body; and (ii) the governmental body owns or to which it has a right of access. |

| | |
|---|---|
| Public Safety Answering Point (PSAP) | A facility to which a call on a basic or sophisticated system is initially routed for response, and on which a public agency directly dispatches the appropriate emergency service provider, relays a message to the appropriate emergency service provider or transfers the call to the appropriate emergency services |
| Response | A Vender's response to this RFP, also referred to as a Proposal. |
| RF | Radio Frequency. |
| RFP | This Request for Proposal. |
| SATP | Service Acceptance Test Plan. |
| Secondary PSAP | A PSAP equipped with automatic number identification and automatic location identification displays. It receives 9-1-1 calls only when they are transferred from the primary PSAP or on an alternative routing basis when calls cannot be completed |
| Services | All actions, recommendations, plans, research, customizations, modifications, documentation, maintenance, and support provided by the Contractor necessary to fulfill that which the Contractor is obligated to accomplish under the Contract. |
| SOW | Statement of Work. |
| State | The Customer's State identified in this RFP. |
| Subscriber Unit (SU) | Portable or Mobile Unit |

| | |
|---|---|
| Subcontract | Any contract, express or implied, between the Contractor and another party or between a Subcontractor and another party delegating or assigning, in whole or in part, the making or furnishing of any material or service requested for the performance of the Contract. |
| Subcontractor | A party to a Contractor, as included in the RFP Responder's Proposal. |
| System | The new radio communications network to be proposed by Vendors and installed by the Contractor. |
| TDMA | Time Division Multiple Access. |
| TIA | Telecommunications Industry Association |
| TIA-102 | Telecommunications Industry Association, P-25 Standards. |
| TIA-603E | Telecommunications Industry Association, Land Mobile FM and PM Communications Equipment Measurement and Performance Standards. |
| TIA TSB-88 | Telecommunications Industry Association, Technical Service Bulletin-88, Wireless Communications Systems Performance in Noise and Interference-Limited Situations. |
| TTA | Tower Top Amplifier |
| UHF | Ultra-High Frequency (i.e., 450-512MH |
| UPS | Uninterruptible Power Supply. |
| User | An entity or person that operates land |

| | |
|---|---|
| | mobile radio equipment. |
| User-Selectable | A radio feature that can be enabled/disabled by radio-equipped field personnel. |
| uV | micro volt. One-millionth of a Volt. |
| VAC | Volts Alternating Current. |
| Vendor | The entity that is responding to this RFP Specification. |
| VHF | Very-High Frequency (i.e., 136-174MH; |
| VPN | Virtual Private Network. |

## Appendix G: Network Management Requirements

This section provides additional requirements for the management and integration with The Customer's network.

### 1.0 Option 1: Vendor managed network

1.1. Radio vendor after reserving needed bandwidth will provide to the county an unmanaged RJ45 or Fiber connection to install our own routers and switches at each tower location. All remaining bandwidth will be consumed as the county's discretion.

1.2. All egress points into the county's production data networks require firewall or approved access control list for routing that must be approved by

1.3. All deployed vendor hardware and software well not be using the default login credentials from the manufacture and must use unique passwords. Passwords will use the minimum following criteria.

1.3.1. At least 12 characters—the more characters, the better.

1.3.2. A mixture of both uppercase and lowercase letters.

1.3.3. A mixture of letters and numbers.

1.3.4. Inclusion of at least one special character, e.g., ! @ # ? ]

1.4. Any remote access into the radio systems by devices such as computers, tablets, phones or any other devices will use VPN encryption when possible. Multifactor authentication is strongly recommended.

1.5. The Customer will perform a network penetration test looking for security vulnerabilities after the vendor has indicated the build out is complete and ready for production use. The vendor designed and implemented network must pass security review meaning any reasonable vulnerabilities closed and latest security patches applied to any software

1.6. Vendor will provide all security login credentials to the county for all equipment and software services configured for the radio system.

1.7. All router and switch configurations will be provided to be reviewed by the county but not managed by the country.

1.8. Any changes to firewall rules or access control list configurations will be

reviewed and approved by the country prior to implementation.

## 2.0 Option 2: County managed network

2.1. County will use either EIGRP or OSPF for ring routing collapse protocol based on vendor requirements.

2.4. County will provide vendor dedicated isolated VLAN and IP address allocations. All deployed vendor hardware and software will not be using the default login credentials from the manufacture and must use unique passwords. Passwords will use the minimum following criteria.

2.4.1. At least 12 characters—the more characters, the better.

2.4.2. A mixture of both uppercase and lowercase letters.

2.4.3. A mixture of letters and numbers.

2.4.4. Inclusion of at least one special character, e.g., ! @ # ? ]

2.5. All egress points into the county's production data networks require firewall or approved access control list for routing and must be approved by

2.6. Vendor will provide all security login credentials to the county for all equipment and software services configured for the radio system.

2.7. Any remote access into the radio systems by devices such as computers, tablets, phones or any other devices will use VPN encryption when possible. Multifactor authentication is strongly recommended.

Appendix H — Subscriber Radio List

| | | | Subscriber Counts | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total | Emergency Mgmt | Sheriff | Ripley Fire | Yale Fire | Yale Law | Yale EMS | Ingalls Fire | Cushing Fire | Cushing Law | Cushing EMS | Perkins Fire | Perkins Law | Perkins EMS | Glencoe Fire | Built-in Extras | |
| **Mobile** | | | | | | | | | | | | | | | | | | |
| Public Works/Schools - Dash Mount - w/ P25 - Single Band | Qty | 0 | | | | | | | | | | | | | | | | |
| Public Works/Schools - Remote Mount - w/ P25 - Single | Qty | 0 | | | | | | | | | | | | | | | | |
| Law/Fire/EMS - Remote Mount - w/ P25 - Single Band | Qty | 23 | 8 | | 8 | | | | 6 | 2 | | 3 | | | | 12 | 5 | |
| Law/Fire/EMS - Dual-Head Mount - w/ P25 - Single Band | Qty | 0 | | | | | | | | | | | | | | | | |
| Law/Fire/EMS - Remote Mount - w/ P25 - Multi-band | Qty | 132 | 6 | 52 | 4 | 12 | 8 | 2 | 7 | 28 | 28 | 4 | 25 | 15 | 6 | 2 | | |
| Law/Fire/EMS - Dual-Head Mount - w/ P25 - Multi-band | Qty | 4 | | | | | | | 1 | 4 | 4 | | | | | | | |
| **Options / Accessories** | | 182 | 14 | 52 | 12 | 12 | 8 | 2 | 14 | 34 | 32 | 7 | 25 | 15 | 6 | 14 | 5 | 0 |
| Lights and Siren Control | Qty | 0 | | | | | | | | | | | | | | | | |
| Status / Messaging Control Box | Qty | 0 | | | | | | | | | | | | | | | | |
| Undercover / Low Profile Handheld Controller | Qty | 10 | | 10 | | | | | | | | | | | | | | |
| In- Cab Headset (interface into existing systems) | Qty | 24 | | | | 6 | | | | 10 | | | 4 | | | 4 | | |
| Other: List Here | Qty | 0 | | | | | | | | | | | | | | | | |
| Other: List Here | Qty | 0 | | | | | | | | | | | | | | | | |
| Other: List Here | Qty | 0 | | | | | | | | | | | | | | | | |
| Other: List Here | Qty | 0 | | | | | | | | | | | | | | | | |
| **Portable** | | | | | | | | | | | | | | | | | | |
| Public Works/Schools - Limited/No Keypad - w/ P25 - Single Band | Qty | 0 | | | | | | | | | | | | | | | | |
| Law - Limited/No Keypad - w/ P25 - Single Band | Qty | 24 | 24 | | | | | | | | | | | | | | | |
| Law - Full Keypad - w/ P25 - Single Band | Qty | 33 | 0 | 15 | | | | | | | | | | | | | 18 | |
| Fire/EMS - Limited/No Keypad - w/ P25 - Single Band - C1D2 | Qty | 0 | | | | | | | | | | | | | | | | |
| Fire/EMS - Full Keypad - w/ P25 - Single Band - C1D2 | Qty | 0 | | | | | | | | | | | | | | | | |
| Law - Limited/No Keypad - w/ P25 - Multi-Band | Qty | 11 | | 70 | | | 11 | | | | 10 | | | | | | | |
| Law - Full Keypad - w/ P25 - Multi-Band | Qty | 25 | 10 | | | | 2 | | | | 20 | | | 15 | | | | |
| Fire/EMS - Limited/No Keypad - w/ P25 - Multi-Band - C1D2 | Qty | 0 | | | | | | | | | | | | | | | | |
| Fire/EMS - Full Keypad - w/ P25 - Multi-Band - C1D2 | Qty | 113 | 4 | | 24 | 25 | | 5 | 24 | 17 | | 10 | 30 | | | 27 | | |
| | | 207 | 38 | 85 | 6 | 7 | 13 | 5 | 24 | 13 | 30 | 4 | 10 | 15 | 10 | 3 | 18 | 0 |
| **Options/Accessories** | | | | | | | | | | | | | | | | | | |
| Carry Case - Hard Shell - with Belt Loop - D-swivel | Qty | 29 | 4 | | 4 | | | | 6 | | | | | | | | | |
| Carry Case - Nylon Shell - with Belt Loop - D-swivel | Qty | 85 | | 70 | | | | | | | 25 | | | 15 | | | | |
| Carry Case - Leather Shell - with Belt Loop - D-swivel | Qty | 1 | | | | | | | | | | 1 | | | | | | |
| Carry Case - Hard Shell - with Shoulder Strap | Qty | 0 | | | | | | | | | | | | | | | | |
| Carry Case - Nylon Shell - with Shoulder Strap | Qty | 0 | | | | | | | | | | | | | | | | |
| Carry Case - Leather Shell - with Shoulder Strap | Qty | 1 | | | | | | | | | | | | | | | | |
| Belt Clip | Qty | 1 | | | | | | | | | | 1 | | | | | | |
| Single Bank Desktop Charger | Qty | 178 | 38 | | 30 | 32 | 13 | 5 | 24 | 30 | 30 | 14 | 46 | 15 | | 30 | 18 | |
| Single Bank Vehicular Charger | Qty | 117 | 10 | 70 | 6 | 7 | 13 | | 6 | 30 | 30 | 6 | 26 | 15 | 10 | 5 | | |
| Multi-Unit Charger (6 bay) | Qty | 27 | 4 | | | 1 | | | | 4 | 5 | 2 | 20 | | | 1 | | |
| Multi-Unit Charger Wall Mounting Bracket | Qty | 27 | 5 | 8 | 4 | 4 | 1 | 1 | 3 | 3 | 2 | 2 | 6 | 1 | 2 | 4 | 3 | |
| Speaker Mic - Basic - w/ Emergency Button | Qty | 71 | | 70 | | | | | | | | | 3 | 1 | | | | |
| Speaker Mic - Rugged - w/ Emergency Button (Law) | Qty | 47 | 14 | | | | | | | 2 | 30 | 2 | | 15 | | | | |
| Speaker Mic - Rugged - High Temp - w/ Emergency Button (Fire) | Qty | 166 | | | | | 13 | | | | | 12 | | | 10 | | | |
| Spare Battery | Qty | 258 | | | 30 | 32 | | 5 | 24 | 28 | | | | | | | | |
| Spare Antenna | Qty | 93 | 38 | 70 | 6 | 7 | 13 | | 6 | 15 | 10 | 4 | 46 | 15 | | 30 | | |
| Other: Wireless mic w/ earpiece | Qty | 0 | | 20 | | | | | | | | | 46 | | | 5 | 18 | |
| Wired Earpiece | Qty | 0 | | | | | | | | | | | 20 | 5 | | | | |
| Other: List Here | Qty | 0 | | | | | | | | | 25 | | | | | | | |
| Other: List Here | Qty | 0 | | | | | | | | | | | | | | | | |
| Other: List Here | Qty | 0 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| **Control Station** | | | | | | | | | | | | | | | | | | |
| Control Station / Desktop Radio | Qty | 20 | 2 | 16 | 1 | 2 | | | 1 | 6 | 0 | | 2 | 2 | 2 | 1 | | |
| Antenna System (1 per control Station) | Qty | 20 | 2 | 16 | 1 | 2 | 0 | 0 | 1 | 6 | 0 | 0 | 2 | 2 | 2 | 1 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | |
| **Paging** | | | | | | | | | | | | | | | | | | |
| Unication Pager | Qty | 0 | | | | | | | | | | | | | | | | |

# NONCOLLUSION AFFIDAVIT

**PROPOSAL INVALID IF THIS AFFIDAVIT IS NOT SIGNED AND NOTARIZED AND SUBMITTED WITH THE PROPOSAL**

**State of** _____

**County of** _____

I _____ of lawful age, being first duly sworn, on oath says that:

1 (S)he is the duly authorized agent of the vendor and/or contractor submitting the competitive proposal and/or procuring the contract which is attached to this statement, for the purpose of certifying the facts pertaining to the existence of collusion among proposers and between proposers and county/city officials or employees, as well as, facts pertaining to the giving or offering of things of value to government personnel in return for special consideration in the letting of any contract pursuant to the request for proposals to which this statement is attached;

2 (S)he is fully aware of the facts and circumstances surrounding the making of the proposal and/or the procurement of the contract to which this statement is attached and has been personally and directly involved in the proceedings leading to the submission of such proposals;

3 Neither the vendor/contractor nor anyone subject to the vendor/contractor's direction or control has been a party;

a to any collusion among proposers in restraint of freedom of competition by agreement to propose at a fixed rate or to refrain from submitting;

b to any collusion with any county/city official or employee as to quantity, quality or price in the prospective contract, or as to any other terms of such prospective contract, nor

c in any discussions between proposers and any county/city official concerning exchange of money or other thing of value for special consideration in the letting of a contract;

d to paying, giving, donating or agreeing to pay, give or donate to any officer or employee of the city of Bentonville, any money or other thing of value, either directly or indirectly, in procuring the contract to which his/her statement is attached.

**Signature:** _____ **Title:** _____

**Subscribed and sworn before me this:** _____ **day of** _____, **20**_____

**Notary Public:** _____ **My commission expires:** _____

## Contractor/Vendor Disclosure

THIS DOCUMENT MUST BE COMPLETED AND INCLUDED IN ANY SUBMISSION

**Company Name:** _____

Identify each employee of The Customer or the incorporated cities within The Customer to whom you, any of your employees owning more than 5% interest in your Company, or are a Director/Executive/Decision Maker of your Company are immediately related.

**Immediate Relation includes:**

- Spouse/Domestic Partner
- Parents-Natural or Legal/Step/In Laws
- Children/Step, Siblings-Whole/Half/Step/ In Laws
- Grandchildren/Step, Great Grandchildren.

_____

_____

_____

_____

OR

☐ Check this box if you there are no applicable relationships to disclose.

Failure to disclose shall be considered a material breach and grounds for immediate termination of this contract. **Note: Any change in circumstances resulting in a conflict or appearance of a conflict shall be reported within 30 days of change of circumstance.**

**Name:** _____

**Signature:** _____ **Title:** _____

## 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 any addenda, and I (or we) have a clear understanding of said Specifications, and shall provide the required communications equipment and the necessary tools, machinery, apparatus, and other means of construction/installation, 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 |