



**Installation, Maintenance and Repair Service for Radio Antennas and Towers’
Specifications for the
Tennessee Advance Communications Network (TACN),
a Division of the Tennessee Department of Safety and Homeland Security (TDOSHS)**

Purpose:

To establish a new five year contract to provide installation, maintenance and repair services, to include labor for ground work, for radio antennas and towers owned, leased or otherwise utilized by the Tennessee Department of Safety and Homeland Security (TDOSHS) statewide.

Agency Contact:

TDOSHS Wireless Communications Deputy Director (615) 365-1620

General Information:

Towers owned, leased or otherwise utilized by the TDOSHS include self-supporting and guyed towers, with some guyed towers being mounted on building rooftops or water towers. These towers range in height from twenty-five (25) feet to five hundred (500) feet.

The TDOSHS is currently building a statewide radio system, therefore some of the existing towers may have their height increased, be torn down or be disassembled and relocated. As the new radio system is upgraded and expanded, new towers may come online during the term of this contract. Any new towers coming online during the period of this contract shall be considered as part of this contract.

Scope of Services:

All installations, maintenance and repairs shall be scheduled and approved by a TDOSHS Radio Systems Analyst or their authorized representative in order to meet deadlines imposed upon the TDOSHS. After completion, the Contractor and the communications supervisor or their authorized representative shall inspect the completed work for approval.

The Contractor shall be required to furnish a ground crew, climbing crew and all necessary tools, specialty tools, parts, supplies and materials needed to complete the job task; to include transport of all required equipment to and from the site. Specialty tools to include furnishing microwave dish alignment equipment connector installation tools, guy tension measuring tools, etc.

Antennas/Towers:

The Contractor shall be required to install, maintain and/or repair land model radio (“LMR”)

and/or microwave radio antenna systems used for transmission of frequencies ranging from 1 megahertz to 23 gigahertz. Items in this system may consist of but not limited to: antennas, jumpers, transmission line, grounding kits, waveguide ladder snap INS, polyphasers, grounding bars, waveguide ladders and hoisting grips.

The Contractor shall perform all scheduled work between 0800 and 1630 Monday through Friday, excluding holidays; the time zone for the scheduled work shall be reflective (Central Standard or Eastern Standard time zones) of the location of the visit. In the event the State requests repairs outside of these hours, the State shall reimburse the Contractor for hours worked outside of these hours at a premium hourly rate.

Requests for response are categorized as either "Emergency Response" or "Maintenance Response". An Emergency Response requires the Contractor to be on site within twenty-four (24) hours of notification. The Contractor shall charge a flat-rate for any emergency responses; this flat rate shall be charged in addition to the hourly rate (regular and/or premium). Maintenance Responses require the Vendor to schedule the work with TACN within twenty-four (24) hours and work to commence within five (5) business days.

Locations for Tower Maintenance is included as Attachment A.

Tower Lights and Markers:

The Contractor shall be required to troubleshoot, repair and/or install lights/lighting systems consisting of the following: aircraft beacons, side marker lights and/or strobe tube LED and assemblies, and controllers. The on-site response time and completion for these repairs must be completed in compliance with the rules and regulations set forth by the Federal Aviation Administration ("FAA") and the Federal Communications Commission ("FCC").

Installations:

The Contractor shall be responsible for providing personnel and equipment necessary to install, align, and optimize LMR and microwave radio antenna systems. The system to be installed may consist of, but not limited to, the following: antennas, lines, grounding kits, connectors, mounting brackets, waveguide ladders, hoisting grips, jumpers, microwave dishes, and waveguides needed to provide a complete and functional antenna system. During the installation of a microwave dish, the Contractor is responsible for ensuring the dish is aligned and complies with the engineered receive strength levels provided by the manufacturer.

The Contractor is responsible for all installations complying with the latest standards to include R56 grounding and the industry standards set forth by common industry practices, national and local codes.

Materials and Parts:

The Contractor shall be responsible for providing all necessary parts, components, supplies and materials including but not limited to antennas, proper mounting hardware, hoist grips, coaxial ladder, cable clamps, structural steel guy wires, concrete, painting and replacing missing bolts or complete lighting system necessary to complete service projects requested by the TDOSHS. The Contractor must supply all materials to complete the job at a mark-up not to exceed 5% of the costs paid by the Contractor. The State has allocated a budget of \$123,800.00 for parts that shall be supplied by the Contractor during the Term of this Contract. The Contractor shall apply the percentage offered to this line of the bid (e.g., if the Contractor is offering the minimum 5% discount, the Contractor shall bid a price of \$117,610.00, which shall indicate to the State that the Contractor is offering the minimum 5% off).

If at any time the TDOSHS feels the price charged for parts, materials, or supplies is extreme, the Contractor may be requested to provide documentation to verify the cost of the materials. The TDOSHS reserves the right at its discretion to provide the items/materials to the Contractor to complete the repair and reduce the cost.

Warranty:

Parts and labor for new installations shall be covered under warranty for a period of one (1) year from the date of installation. Parts found to be defective shall be replaced by the Contractor at no additional costs to the TDOSHS.

Contractor's Personnel:

All personnel used to climb towers in the execution of this contract must be certified climbers. These climbers shall be required to wear the appropriate protective gear and follow safe climbing procedures. The Contractor shall assume all responsibility to assure the climbers/employees used in the tasks assigned by the TDOSHS are insured, properly trained and dressed, use protective equipment, and are competent to complete the task. A copy of each climber's certification shall be provided to the TDOSHS upon request.

The TDOSHS employees are not trained to climb towers; therefore the TDOSHS shall not assume any responsibility or provide a rescue climber. It shall be the sole responsibility of the Contractor to provide a rescue climber to be on site in the event of an emergency.

Documentation:

All visitations by the Contractor's service technicians shall be logged in on site by a TDOSHS Radio Systems Analysts or their authorized representative, as to date, time of arrival, number of technicians, work performed, and time of departure. It is required that all Contractor service technicians personally sign-in and sign-out to their presence and length of stay at the facility.

The Contractor shall provide a contact telephone number and have an employee available for the reporting of trouble or failure of a site during regular business hours, Monday through Friday. The Contractor shall also provide an emergency telephone number and have an employee available for the reporting of trouble or failure of a site for after hours, weekends and holidays.

Chargeable Time:

Hour or per hour – the Contractor shall be allowed to charge an hourly rate or per hour rate for personnel to begin after arrival at the specified site for which service, repair or installation is requested and to end when such service, repair or installation is completed at the specified site.

Payments for travel time shall be based upon hours driven for one vehicle, one-way, and shall not be multiplied to account for multiple employees. Hours shall be calculated by internet mapping application (by way of example only, Google maps) of the State’s choice and shall be based upon time calculated by using the “Fastest Route” option. Hours will be capped at five (5) hours maximum, for one way only not for round trip. Exception: If the Contractor cannot complete the service/repair due to the unforeseen need of a part, the Contractor may be allowed one (1) additional trip charge for the return trip to complete the task, at the discretion of the TDOSHS.

Within the scope of this contract, no additional travel, to include a trip charge, per-diem or lodging for the Contractor’s personnel may not be charged to the TDOSHS.

Invoices:

The Contractor shall be required to submit invoices to the TDOSHS no later than thirty (30) days after the completion of the service/repair. The invoice should include the location of the service, date of service, detailed description of work performed, and the purchase order number provided by the TDOSHS. Invoices should be broken down into lines to correspond with the lines in the awarded contract and should include an itemized list of parts and materials.

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Attachment A

Below is an example list of some of the radio towers sites TDOSHS owns, leases, or utilizes that may require maintenance and/or repairs:

Owner	Site Name	County	District	Tower Hgt	Tower Type
TDOS	Adams	Robertson	Nashville (3)	350 ft	Self-Supporting
TDOS	Arlington	Shelby	Memphis (4)	410 ft	Guyed
Sullivan	Bays Mountain	Sullivan	Fall Branch (5)	300 ft	
TDOC	BCCX	Bledsoe	Chattanooga (2)		
TDOC	BCCX Disp	Bledsoe	Chattanooga (2)		
TDOC	BCCX Disp 2	Bledsoe	Chattanooga (2)		
TDOS	Black Creek	Scott	Knox (1)	300 ft	
TVRCS	Black Road	Knox	Knox (1)	250 ft	
Knox	Black Road	Knox	Knox (1)		
BC	Blount County	Blount	Knox (1)		
BC	Blount County	Blount	Knox (1)		
Sullivan	Blountville Prime	Sullivan	Fall Branch (5)		
Sullivan	Blountville RF	Sullivan	Fall Branch (5)		
TDOS	Braden Mtn	Campbell	Knox (1)	180 ft	
Sullivan	Bristol 911	Sullivan	Fall Branch (5)		
Sullivan	Bristol RF	Sullivan	Fall Branch (5)		
BC	Broadway Towers	Blount	Knox (1)	165 ft	
Knox	Brushy Knob	Knox	Knox (1)		
Johnson City	Buffalo Mtn	Washington	Fall Branch (5)		
Johnson City	Buffalo Mtn	Washington	Fall Branch (5)		
Johnson City	Buffalo Ridge	Washington	Fall Branch (5)		
TVRCS	Buttermilk	Roane	Knox (1)	280 ft	
TDOS	Cane Ridge	Davidson	Nashville (3)	140 ft	
TVRCS	Catoosa Co	Catoosa	Chattanooga (2)		
TVRCS	Centerville	Loudon	Knox (1)	180 ft	
TDOS	Charlotte WTP	Dickson	Nashville (3)	325 ft	
TVRCS	Chatt Radio Shop	Hamilton	Chattanooga (2)		
TVRCS	Chatt Recorder	Hamilton	Chattanooga (2)		
TDOT	Chattanooga TMC	Hamilton	Chattanooga (2)		
TDOS	Chattanooga TMC	Hamilton	Chattanooga (2)	180 ft	
TDOS	Chestnut Grove	Haywood	Memphis (4)	195 ft	
TDOS	Chickasaw	Hardeman	Jackson (8)	320 ft	
TDOS	Chuck Swan	Union	Knox (1)	300 ft	
CLK	Clarksville Dispatch	Montgomery	Nashville (3)		
CLK	Clarksville NICE	Montgomery	Nashville (3)		
CLK	Clarksville uWave	Montgomery	Nashville (3)		
TDOS	College	Sequatchie	Chattanooga (2)	250 ft	
TVRCS	Collegedale	Hamilton	Chattanooga (2)	190 ft	
TDOS	Cookeville TDOT	Putnam	Cookeville (6)	250 ft	
TDOS	Crestview	Lawrence	Lawrenceburg (7)	340 ft	

TVRCS	Cross Mtn	Campbell	Knox (1)	92 ft	
TDOS	Cunningham	Montgomery	Nashville (3)	350 ft	
TVRCS	Dade North	Dade	Chattanooga (2)	180 ft	
TDOS	Dover	Stewart	Nashville (3)	270 ft	
TVRCS	Dug Gap	Whitfield	Chattanooga (2)	180 ft	
TVRCS	Dug Gap	Whitfield	Chattanooga (2)		
TDOS	English Mtn	Cocke	Fall Branch (5)	300 ft	
TVRCS	Erlanger	Hamilton	Chattanooga (2)		
TVRCS	Evensville Mtn	Rhea	Chattanooga (2)	180 ft	
TDOS	Fairview TDOT	Williamson	Nashville (3)	350 ft	
TDOS	Fall Branch	Washington	Fall Branch (5)	350 ft	
TDOS	Fall Branch Disp	Washington	Fall Branch (5)	180 ft	
TDOS	Franklin County	Franklin	Chattanooga (2)	290 ft	
CLK	FS5 - Prime	Montgomery	Nashville (3)		
CLK	FS5 - Remote	Montgomery	Nashville (3)		
TVRCS	GA Dade	Dade	Chattanooga (2)		
TVRCS	GA Walker	Walker	Chattanooga (2)		
TDOS	Gills Chapel	Marshall	Lawrenceburg (7)	250 ft	
TDOS	Gleason	Weakley	Jackson (8)	300 ft	
TVRCS	Green Top Mtn	Sevier	Knox (1)	300 ft	
Greeneville	Greene Co Disp	Greene	Fall Branch (5)		
Greeneville	Greenville	Greene	Fall Branch (5)		
TVRCS	Hamilton Co 911	Hamilton	Chattanooga (2)		
TVRCS	Hamilton Co SECURITY	Hamilton	Chattanooga (2)		
TVRCS	Hamilton County 911 Backup	Hamilton	Chattanooga (2)		
TVRCS	Hamilton County 911 Main	Hamilton	Chattanooga (2)		
TDOS	Hawkins Co	Hawkins	Fall Branch (5)	400 ft	
Knox	High Top	Knox	Knox (1)		
TDOC	Hinch 800 TDOC	Cumberland	Chattanooga (2)		
TDOS	Hinch VHF	Cumberland	Chattanooga (2)	140 ft	
TDOS	Hippie Town Farm	Grundy	Chattanooga (2)	400 ft	
TDOS	Holston Mtn	Sullivan	Fall Branch (5)	140 ft	
Sullivan	Holston Sullivan	Sullivan	Fall Branch (5)	180 ft	
TDOS	Hornbeak	Obion	Memphis (4)	350 ft	
TDOS	Horner Town	Hickman	Lawrenceburg (7)	270 ft	
TDOS	Huntersville	Madison	Jackson (8)	180 ft	
TDOS	Jackson Dispatch	Madison	Jackson (8)	180 ft	
TDOS	Jackson Shop RF	Madison	Jackson (8)	280 ft	
TDOT	Jackson TMC	Madison	Jackson (8)		
TDOS	Jasper	Sequatchie	Chattanooga (2)	310 f	
Bradley	Johnson Ave	Bradley	Chattanooga (2)		
Sullivan	Kingsport 911	Sullivan	Fall Branch (5)		
TDOS	Kingston Spr	Cheatham	Nashville (3)	300 ft	
TVRCS	Kittle Rd	Catoosa	Chattanooga (2)	180 ft	

TVRCS	Kittle Rd - Prime	Catoosa	Chattanooga (2)		
Knox	Knox Co 911 Disp	Knox	Knox (1)		
Knox	Knox Co Simulcast Prime	Knox	Knox (1)		
	Knox EOC	Knox	Knox (1)	295 f	
TDOT	Knox TMC	Knox	Knox (1)		
	Lawrenceburg Disp	Lawrence	Lawrenceburg (7)	180 ft	
TDOS	Leach FT	Carroll	Jackson (8)	190 ft	
TDOS	Lenoir City	Loudon	Knox (1)	280 ft	
TDOS	Lobelville	Perry	Lawrenceburg (7)	300 ft	
MTEMC	Long Ridge	Rutherford	Nashville (3)		
BC	Look Rock	Blount	Knox (1)	70 ft	
TVRCS	Lookout Mtn	Hamilton	Chattanooga (2)	96 ft	
TVRCS	Lookout Mtn	Hamilton	Chattanooga (2)		
TVRCS	Louisiana Ave	Anderson	Knox (1)		
TDOS	Lynch Hill	Rutherford	Nashville (3)	300 ft	
TDOS	Mace's Hill	Smith	Cookeville (6)	240 ft	
TVRCS	Madisonville	Monroe	Knox (1)	140 ft	
TDOC	Master Site TDOC	Davidson	Nashville (3)		
TDOS	McEwen	Humphreys	Nashville (3)	250 ft	
CLK	Medical Ct	Montgomery	Nashville (3)		
TDOS	Memphis	Shelby	Memphis (4)	300 ft	
TDOT	Memphis TMC		Memphis (4)		
TDOS	Millsfield	Dyer	Memphis (4)	250 ft	
TDOC	MLCC	Shelby	Memphis (4)		
TDOC	Morgan Co	Morgan	Knox (1)		
TDOC	Morgan Dispatch	Morgan	Knox (1)		
TDOS	Morgan Rd	Davidson	Nashville (3)	300 ft	
MTEMC	Mt Defiance	Wilson	Nashville (3)		
TDOS	Mt Peter	McNairy	Jackson (8)	180 ft	
MTEMC	MTEMC Central Disp	Rutherford	Nashville (3)		
MTEMC	MTEMC Lebanon Disp	Wilson	Nashville (3)		
MTEMC	MTEMC Short Mtn	Cannon	Cookeville (6)		
MTSU	MTSU	Rutherford	Nashville (3)	290 ft	
MTSU	MTSU Dispatch	Rutherford	Nashville (3)		
TDOS	Nashville Dispatch	Davidson	Nashville (3)	300 ft	
TDOS	Nashville Dispatch	Davidson	Nashville (3)		
TDOT	Nashville TMC	Davidson	Nashville (3)		
TDOS	Natchez Trace	Henderson	Jackson (8)	300 ft	Guyed
TDOC	NECX	Johnson	Fall Branch (5)		
TDOC	NECX - Command	Johnson	Fall Branch (5)		
TDOC	NECX - Control	Johnson	Fall Branch (5)		
TVRCS	Nopone Mtn	Meigs	Chattanooga (2)	140 ft	
TVRCS	North Bradley	Bradley	Chattanooga (2)	180 ft	
TVRCS	North Site	Whitfield	Chattanooga (2)		

TDOC	NWCX Disp 27		Memphis (4)		
TDOC	NWCX Disp 28		Memphis (4)		
TDOC	NWCX RF		Memphis (4)		
TVRCS	Oak Ridge Disp	Anderson	Knox (1)		
TVRCS	Oswald Dome	Polk	Chattanooga (2)	283 f	
MTEMC	Peytonsville	Williamson	Nashville (3)		
TDOS	Pulaski	Giles	Lawrenceburg (7)	400 ft	
TDOC	Rachel Jackson Dispatch	Davidson	Nashville (3)		
TDOS	Ripley	Lauderdale	Memphis (4)	250 ft	
TDOC	Riverbend RMSI	Davidson	Nashville (3)		
TVRCS	Roosevelt Mtn	Roane	Knox (1)	300 ft	
TVRCS	Sale Creek	Hamilton	Chattanooga (2)	140 ft	
TVRCS	Sale Creek Mtn	Hamilton	Chattanooga (2)		
TDOS	Savannah	Hardin	Jackson (8)	190 ft	
MTEMC	Sawyer Rd	Williamson	Nashville (3)		
Sullivan	SCSO Dispatch	Sullivan	Fall Branch (5)		
TVRCS	Sharps Ridge	Knox	Knox (1)	150 ft	
Knox	Sharps Ridge	Knox	Knox (1)		
TDOS	Short Mtn	Cannon	Cookeville (6)	250 ft	
TVRCS	Signal Mtn	Hamilton	Chattanooga (2)	100 ft	
TVRCS	Signal Mtn	Hamilton	Chattanooga (2)		
TVRCS	Signal Mtn Prime	Hamilton	Chattanooga (2)		
TDOS	Slayden	Dickson	Nashville (3)	350 ft	
SMY	Smyrna	Rutherford	Nashville (3)		
SMY	Smyrna	Rutherford	Nashville (3)		
TDOC	South Central Dispatch	Wayne	Lawrenceburg (7)		
TVRCS	South Site	Whitfield	Chattanooga (2)		
TDOS	Sparta	White	Cookeville (6)		
TDOC	Special Needs DSNF	Davidson	Nashville (3)		
TDOS	Springdale	Claiborne	Fall Branch (5)	180 ft	
TDOS	Standing Stone	Overton	Cookeville (6)	300 ft	
TVRCS	Starr Mtn	Sequatchie	Chattanooga (2)	178 ft	
Knox	Stock Creek	Knox	Knox (1)		
TDOS	Stone Mtn	Johnson	Fall Branch (5)	120 ft	
TDOS	Sullivan's Ridge	Davidson	Nashville (3)	320 ft	
TVRCS	Taylor's Ridge	Walker	Chattanooga (2)	180 ft	
TDOC	TDOC Master	Davidson	Nashville (3)	80 ft	
TDOC	TDOC Master	Davidson	Nashville (3)		
TDOC	TDOC Master	Davidson	Nashville (3)		
TDOC	TDOC Nashville	Davidson	Nashville (3)		
TEMA	TEMA Foster	Davidson	Nashville (3)		
TEMA	TEMA SWP Site 1	Davidson	Nashville (3)		
TEMA	TEMA SWP Site 2	Davidson	Nashville (3)		
TEMA	TEMA_EAST	Knox	Knox (1)		

TEMA	TEMA_WEST		Jackson (8)		
TDOS	Tennessee Tower	Davidson	Nashville (3)	420 ft	
TDOS	Theta	Maury	Lawrenceburg (7)	320 ft	
TDOS	THP Chatt	Hamilton	Chattanooga (2)		
TDOS	THP Fall Branch	Washington	Fall Branch (5)		
TDOS	THP Knox	Knox	Knox (1)	180 ft	
TDOS	THP Network Mngmt	Davidson	Nashville (3)		
TDOS	Tiger Hill	Rutherford	Nashville (3)	230 ft	
BC	Townsend	Blount	Knox (1)	140 ft	
TDOC	TPW Women's Prison	Davidson	Nashville (3)		
TDOS	Trenton Armory	Gibson	Jackson (8)	325 ft	
TDOC	Turney Center	Hickman	Lawrenceburg (7)		
TDOC	Turney Dispatch	Hickman	Lawrenceburg (7)		
TDOS	Twinton	Overton	Cookeville (6)	400 ft	
TDOS	Two Rivers	Cheatham	Nashville (3)	300 ft	
TWRA	TWRA Crossville	Cumberland	Cookeville (6)		
TWRA	TWRA Morristown	Hamblin	Knox (1)		
TWRA	TWRA Nashville	Davidson	Nashville (3)		
TWRA	TWRA R1 Jackson	Madison	Memphis (4)		
TDOS	UT Martin	Weakley	Jackson (8)	320 ft	
TDOS	Viking Mtn	Greene	Fall Branch (5)	180 ft	
TDOS	Walnut Mtn	Campbell	Knox (1)	250 ft	
WC	Washington Co 911	Washington	Fall Branch (5)		
TDOC	Wayne Co	Wayne	Lawrenceburg (7)		
TDOC	Wayne Dispatch	Wayne	Lawrenceburg (7)		
TDOS	Waynesboro	Wayne	Lawrenceburg (7)	300 ft	
TDOS	WEMA Franklin Rd	Wilson	Nashville (3)	180 ft	
TDOS	West Point	Lawrence	Lawrenceburg (7)	400 ft	
TDOS	West Tn Comm	Henry	Jackson (8)	300 ft	
TDOS	White House	Sumner	Nashville (3)	250 ft	
TVRCS	White Oak	Hamilton	Chattanooga (2)	180 ft	
TVRCS	White Oak	Hamilton	Chattanooga (2)		
TVRCS	White Oak Prime	Hamilton	Chattanooga (2)		
TDOS	Whiteville	Hardeman	Memphis (4)	280 ft	
CLK	Whitfield	Montgomery	Nashville (3)		
TVRCS	Whitfield Dispatch	Whitfield	Chattanooga (2)		
TVRCS	Whitfield_911 Prime	Whitfield	Chattanooga (2)		
TVRCS	Whitfield_911 RF	Whitfield	Chattanooga (2)		
TDOS	Williston	Fayette	Memphis (4)	260 ft	
TVRCS	Windrock Mtn	Anderson	Knox (1)	180 ft	
TDOC	WTSP - 700	Lauderdale	Memphis (4)		
TDOC	WTSP - 800	Lauderdale	Memphis (4)		
TDOC	WTSP - Max	Lauderdale	Memphis (4)		
TDOC	WTSP - Min	Lauderdale	Memphis (4)		

Knox	Zone 3 Master	Knox	Knox (1)		
TDOS	Zone 4 Master	Madison	Jackson (8)		