

EXHIBIT A

FLORIDA DEPARTMENT OF TRANSPORTATION

TECHNICAL SPECIFICATIONS

FOR

**MODIFICATION & REFURBISHMENT OF
FTE SELF-SUPPORTING TOWERS**

March 31, 2017

**FLORIDA DEPARTMENT OF TRANSPORTATION
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1. PROJECT SCOPE

1.1 General

This document provides technical specifications and delineates the requirements for modifying and refurbishing five Florida Department of Transportation's (FDOT's) Florida's Turnpike Enterprise (FTE) telecommunications towers and radio antenna systems. This project will supply and install new LED tower lights, CCTV cameras with lowering devices, safety climb systems, and radio antenna systems. Three of the five self-supporting towers need structural modifications performed to the tower, and two of the five self-supporting towers need foundation repairs in accordance with these specifications and plans. The existing microwave and land mobile radio systems shall be cut-over from the existing radio antenna systems to the new radio antenna systems.

The main elements of this project include, but are not limited to:

- Submit proposed transportation Maintenance Of Traffic plans for review and approval of the FDOT.
- Submit proposed antennas, transmission lines, tower lighting, and grounding systems installation design plans for review and approval of the FDOT.
- Obtain required building permits and coordinate all FAA and FCC filings.
- Furnish and install the concrete drilled pier tower foundations.
- Perform tower modifications and repairs.
- Submit product data for all specified antennas, waveguides, coaxial cables, tower obstruction lighting system, CCTV cameras, camera lowering devices, safety climb systems, surge protective devices, required appurtenances and grounding systems.
- Furnish and install all specified antennas, waveguides, coaxial cables, tower obstruction lighting system, CCTV cameras, camera lowering devices, safety climb systems, surge protective devices, required appurtenances and grounding systems.
- Inspect all installation work.
- Perform waveguide air pressure leak tests. FDOT to witness.
- Perform antennas, waveguides, and coaxial cables time and frequency sweep measurements. FDOT to witness.
- Cut-over operational microwave and land mobile radio systems to the new antenna systems, including microwave antenna path alignments. FDOT to witness.
- Perform and verify microwave receive signal level performance measurements. FDOT to witness.

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- Dispose of all material and debris.
- Backfill holes, grade, and apply grass sod to compound.
- Final acceptance inspection.
- Entire job shall be in accordance with the Appendices.

1.2 Conduct of Work

The Successful Proposer (hereafter "Vendor") shall arrange with the FDOT for access to the sites and work areas. The Vendor shall provide security for his/her equipment as required by the FDOT, and shall conduct his/her operations so as to avoid interference with the FDOT's normal operations.

Work to be performed outside the scope of these specifications shall be referred to as "By others", or if by the State of Florida's designated representative then "By FDOT". The Vendor shall be responsible for coordinating his work with that of "others" or FDOT wherever an interface is required.

1.3 Drawings and Project Plans

The drawings and project plans are typically diagrammatic. They are as accurate as scale permits and the Vendor shall follow them as closely as possible. Any field conditions that change the required installation shall be reported to the FDOT. The Vendor shall verify all conditions and measurements relating to the work in the field prior to proceeding with installation. The Vendor shall verify all walls, rack profiles, cable trays, and conduit lengths at the existing facilities and include all conditions required to install equipment and systems as described herein and as shown on the drawings. All offsets required for installation of cabling and wiring systems shall be included in this project at no additional cost to the FDOT. The Vendor shall coordinate any modifications required by existing conditions to avoid conflicts of building systems and other building components.

The drawings, project plans, and specifications are complementary, and any work required by one and not the other shall be considered to be required by both. The FDOT Project Manager shall be the sole interpreter of the drawings and specifications.

The Vendor shall note that all drawings and details are diagrammatic in general and indicate the character of the work included. Work intended, but having minor details obviously omitted or not shown, shall be furnished and installed complete to perform the functions desired.

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1.4 Definitions

Department:	The Purchaser (or Owner) State of Florida Florida Department of Transportation (FDOT) Contact Person is the FDOT Project Manager (see below) in Tallahassee, Florida
Vendor:	The individual, firm, partnership, corporation, company, association, or other legal entity to whom the contract is awarded by the FDOT and who is subject to the terms thereof.
Vendor Project Manager	The Vendor's project contact person who has the project responsibility.
FDOT Project Manager:	Randy Pierce FDOT Traffic Engineering and Operations – ITS Section 605 Suwannee Street, MS 90 Tallahassee, Florida 32399-0450 V: (850) 410-5608, F: (850) 410-5501 randy.pierce@dot.state.fl.us
Project Consultant:	Danielle Morales, P.E., PMP Kapsch TrafficCom North America c/o FDOT Traffic Engineering and Operations – ITS 605 Suwannee Street, MS 90 Tallahassee, Florida 32399-0450 V: (850) 410-5617, M: (850) 294-1076 danielle.morales@dot.state.fl.us

1.5 Vendor's Responsibility

It is understood, and the Vendor hereby agrees, that the Vendor is solely responsible for all equipment, materials, and services proposed. Notwithstanding the details presented in these specifications, the Vendor is responsible for verifying the completeness of the materials required and suitability of devices to meet these specifications. The Vendor shall provide and install, without claim, any additional equipment required for operation in accordance with these specifications.

1.6 Changes in Work

FDOT may at any time, by written amendment to the contract, make changes within the general scope of the work, including, but not limited to, revisions, deletions or additions to

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portions of the work; or changes in the method of shipment or packaging and place of delivery, upon appropriate approvals as allowed by FDOT's procurement code.

If any change order initiated by the FDOT causes an increase or decrease in the cost or time required for the performance of any part of the work under the contract, an equitable adjustment shall be made by the FDOT in the contract price or delivery schedule, or both, and the contract shall be modified in writing accordingly. Adjustments to contract price for labor shall be based on the actual direct labor and burden reasonably incurred in the additional or unforeseen work, plus a mark-up not to exceed 10 percent. Adjustments to contract price for actual equipment and supplies shall be based on the actual cost of equipment and supplies incorporated into the work, including Vendor paid transportation charges, reasonably incurred in the additional or unforeseen work, plus a mark-up not to exceed 10 percent.

1.7 No Waiver of Contract

Changes made by the FDOT shall not be considered to waive any of the provisions of the contract, nor may the Vendor make any claim for loss of anticipated profits because of the changes, or by reason of any variation between the approximate quantities and the quantities of work actually performed. All work shall be performed as directed by the FDOT and in accordance with the contract documents.

1.8 Site Access and Security Requirements

The FDOT system addressed in this contract supports public safety applications such as Intelligent Transportation Systems and Highway Maintenance. To ensure security for the system, FDOT requires that Vendor or Sub-Vendor employees submit to security background checks performed by the Florida Department of Law Enforcement after award of contract. At any time that employees of the Vendor are working at an FDOT communications site, a minimum of one of those employees on the site shall possess this clearance.

1.9 Right to Remove Personnel from Project

The FDOT has the right to remove any Vendor or Sub-Vendor personnel from the project for any reason. The FDOT shall send a written notification to the Vendor, via fax, that a particular person shall be removed from the project. The Vendor shall remove the particular person from the project within 24 hours of transmission of the written notice.

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1.10 Warranty

All equipment and services furnished by the Vendor as part of this project shall be warranted to be free from defects in material and workmanship, and shall conform to this specification. In the event any such defects in equipment or services become evident within the warranty period, the Vendor shall correct the defect by, at its option, (1) repairing any defective component of the equipment; (2) furnishing and installing necessary replacement parts; or (3) redoing the faulty services. The Vendor is responsible for all charges incurred in returning defective parts to the Vendor's, Sub-Vendor's, or suppliers' plants, and in shipping repaired or replacement parts to FDOT. The Vendor shall provide labor to perform warranty services at no charge to FDOT during the warranty period.

The Vendor further warrants that during the warranty period equipment furnished under this contract shall operate under normal use and services as a complete system, which shall perform in accordance with this specification.

The warranty period shall be a period of at least 12 months from the date of final systems acceptance as defined herein. Claims under any of the warranties herein are valid if made within 30 days after termination of the warranty period. In addition, the following specific requirements apply to the Vendor's warranty:

- All equipment furnished by the Vendor hereunder shall be new and of current manufacture.
- FDOT shall notify the Vendor within a reasonable time after the discovery of any failure or defect occurring within the warranty period.

Should the Vendor fail to remedy any failure or defect within 30 consecutive days after receipt of notice thereof, or within time specified in the notice, FDOT shall have the right to replace, repair, or otherwise remedy such failure or defect at the Vendor's expense.

The Vendor shall obtain any warranties which Sub-Vendors or suppliers to the Vendor give in the regular course of commercial practice, and shall apply the same to the benefit of the FDOT.

The warranty shall be comprehensive. No deductibles shall be allowed for travel time, service hours, repair parts cost, etc.

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1.11 Material and Workmanship

All equipment and component parts furnished shall be new, meet or exceed the minimum requirements stated herein, and perform to manufacturer's specifications.

All parts shall be of high quality workmanship and utilize the most current technology available. No part or attachment shall be substituted or applied contrary to the manufacturer's recommendations and standard practices. At the time of delivery and installation, the most current revision model of each type of equipment meeting or exceeding the requirements of this contract shall be provided, regardless of the model offered in the proposal.

1.12 Kick-Off Conference

A kick-off conference and organizational meeting shall be held at a location to be determined by the FDOT. Required attendees shall be notified as to the location, date, and time of the meeting. Minutes of the meeting shall be prepared and distributed by the FDOT Project Manager.

1.13 Progress Reporting

The Vendor shall provide weekly progress reports on work schedules. The Vendor shall also provide progress reports against the approved weekly work schedule.

1.14 Submittals

1.14.1 General

This section specifies administrative and procedural requirements for submittals required for performance of the Work, including:

- Vendor's installation schedule.
- Product data.
- Special reports.

1.14.2 Coordination

The Vendor shall coordinate the preparation and processing of submittals with performance of installation activities. The Vendor shall transmit each submittal sufficiently in advance of performance of related installation activities to avoid delay.

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The Vendor shall coordinate each submittal with purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

The Vendor shall coordinate transmittal of different types of submittals for related elements of the Work so processing shall not be delayed by the need to review submittals concurrently for coordination.

FDOT reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

1.14.3 Processing

The Vendor shall allow sufficient review time so that installation shall not be delayed as a result of the time required to process submittals, including time for resubmittals.

The Vendor shall allow 10 business days for initial review. The Vendor shall allow additional time if processing shall be delayed to permit coordination with subsequent submittals. FDOT shall promptly advise the Vendor when a submittal being processed shall be delayed for coordination.

If an intermediate submittal is necessary, the Vendor shall process the submittal the same as the initial submittal.

The Vendor shall allow 10 business days for reprocessing each submittal.

No extension of contract time shall be authorized because of failure to transmit submittals to FDOT sufficiently in advance of the work to permit processing.

1.14.4 Submittal Preparation

The Vendor shall place a permanent label or title block on each submittal for identification. The Vendor shall indicate the name of the entity that prepared each submittal on the label or title block.

The Vendor shall provide a space approximately 4" x 5" on the label or beside the title block on drawings to record the Vendor's review and approval markings and the action taken.

Include the following information on the label for processing and recording action taken:

- Project name.
- Date.
- Name and address of Vendor.

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- Name and address of Sub-Vendor.
- Name and address of supplier.
- Name of manufacturer.
- Number and title of appropriate specification section.
- Drawing number and detail references, as appropriate.

1.14.5 Submittal Transmittal

The Vendor shall package each submittal appropriately for transmittal and handling. The Vendor shall transmit each submittal to FDOT using a transmittal form. Submittals received from sources other than the Vendor shall be returned without action.

The Vendor shall record relevant information and requests for data on the transmittal. The Vendor shall record deviations from contract document requirements, including all variations and limitations on the transmittal or on a separate sheet. The Vendor shall include the Vendor's certification that information complies with contract document requirements.

1.14.6 Vendor's Installation Schedule

1.14.6.1 General

The Vendor shall prepare a fully developed installation schedule. The Vendor shall submit its initial schedule within 10 days of receipt of Notice to Proceed.

The Vendor shall secure time commitments for performing critical elements of the work from all parties involved. The Vendor shall coordinate each element on the schedule with other installation activities; include minor elements involved in the sequence of the work. The Vendor shall show each activity in proper sequence.

The Vendor shall coordinate the installation schedule with Sub-Vendors, submittal schedule, payment requests and other schedules.

1.14.6.2 Distribution

The Vendor shall print and distribute copies to FDOT, Sub-Vendors, and other parties required to comply with scheduled dates.

When revisions are made, the Vendor shall distribute the updated schedule to the same parties. The Vendor shall remove parties from distribution when they have completed their assigned portion of the work and are no longer involved in installation activities.

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1.14.6.3 Schedule Updating

The Vendor shall revise the schedule after each meeting or activity, where revisions have been recognized or made. The Vendor shall issue the updated schedule concurrently with report of each meeting. The Vendor shall submit Notification of Work forms weekly, and as needed.

1.14.7 Drawings

The Vendor shall submit newly prepared information and, when required, drawn to accurate scale. The Vendor shall highlight, encircle, or otherwise indicate deviations from the contract documents.

When submitting drawings that do not meet all specified requirements, the Vendor shall clearly indicate on the drawings and the transmittal letter the proposed exceptions. Any drawings without clearly identifying specification exceptions shall be subject to the same provisions of a "rejected" submittal.

Drawings include, but are not limited to, site plans, fence details and notes, grounding plan, electrical one line diagram, alarm block details, underground LPG tank details, indoor and outdoor equipment wall mount details, generator pad foundation details, wiring diagrams, installation drawings, and similar drawings.

THE VENDOR SHALL SUBMIT FOUR SETS OF DRAWINGS FOR FDOT REVIEW. ONE SET SHALL BE RETURNED.

The Vendor shall not use drawings without a written approval from the FDOT Project Manager indicating action to be taken in connection with installation.

1.14.8 Product Data

The Vendor shall collect product data into a single submittal for each element of installation or the system. The product data shall include printed information such as manufacturer's installation instructions and performance specifications.

The Vendor shall mark each copy to show applicable choices and options. Where printed product data includes information on several products, some of which are not required, the Vendor shall mark copies to indicate the applicable information. The Vendor shall include the Vendor's certification that the product complies with contract document requirements.

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The Vendor shall submit an electronic copy of each required submittal. A copy shall be returned to the Vendor marked with action taken and corrections or modifications required.

The Vendor shall furnish copies of the final submittal to installers, Sub-Vendors, suppliers, manufacturers, and others required for performance of installation activities. The Vendor shall show the distribution on transmittal forms.

1.14.9 Submittal Actions

Except for submittals for record, information or similar purposes, where action and return is not required or requested, FDOT shall review each submittal and return comments to the Vendor.

The Vendor shall comply with FDOT's review comments.

1.14.10 Special Reports

Except when otherwise indicated, the Vendor shall submit special reports directly to FDOT within one day of occurrence requiring special report, with copies to others affected by the occurrence.

The Vendor shall prepare and submit reports of significant accidents at the site and anywhere else work is in progress to FDOT. The Vendor shall record and document data and actions, and shall comply with industry standards. For this purpose, a significant accident is defined to include events where personal injury is sustained, or property loss of substance is sustained, or where the event posed a significant threat of loss or personal injury.

1.15 Project Closeout

1.15.1 Substantial Completion

Substantial Completion is defined as the point at which the equipment is fully installed, operational, has successfully passed field acceptance testing of all elements, and inspections are completed.

Before requesting inspection for certification of Substantial Completion, the Vendor shall complete the following:

- In the application for payment that coincides with, or first follows, the date Substantial Completion is claimed, include supporting documentation for

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completion as indicated in these contract documents and a statement showing an accounting of changes in the contract sum.

- If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete installation, and reasons the work is not complete.
- Advise FDOT of pending insurance change-over requirements.
- Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
- Obtain and submit releases enabling FDOT unrestricted use of the work and access to services and utilities; include operating certificates and similar releases.

On receipt of a request for inspection for substantial completion, FDOT shall either proceed with inspection or advise the Vendor of unfulfilled requirements. FDOT shall prepare the Certificate of Substantial Completion following the inspection, or advise the Vendor of work that shall be completed or corrected before the certificate shall be issued.

FDOT shall repeat inspection when requested and assured that the work has been substantially completed.

1.15.2 Final Acceptance

Final Acceptance is defined as the point at which all work is completed, all closeout forms are completed and submitted, and equipment spares, manuals, and training have been provided.

- A. Before requesting inspection for Certification of Final Acceptance, the Vendor shall complete the following: Submit as-built documentation, maintenance manuals, final project photographs, ITS Facility Management System Attribute Forms, and similar final record information.
- B. Deliver spare parts and similar items.
- C. Complete final clean up requirements.
- D. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

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- E. Submit an updated final statement, accounting for final additional changes to the contract sum.
- F. Submit a copy of FDOT's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance. List any and all exceptions on this list.
- G. Submit all required inspection certificates, bonds, and written guarantees.
- H. Return all FDOT provided keys for access to the site. Include affidavit that duplications of keys have not occurred.

FDOT shall re-inspect the work upon receipt of notice that all the work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to FDOT. Upon completion of re-inspection, FDOT shall prepare a Certificate of Final Acceptance, or advise the Vendor of work that is incomplete or of obligations that have not been fulfilled but are required for Final Acceptance. If necessary, re-inspection shall be repeated.

1.15.3 Closeout Checklist

All items listed below, with the exception of the first item listed, shall be bound in individual heavy-duty 3-ring vinyl covered binders. The Vendor shall mark appropriate identification on front and spine of each binder.

All items shall be submitted in triplicate within fifteen days of Substantial Completion for the project:

- Application and Certification for Payment (Final). Four copies with original signatures and seals.
- Power of Attorney from Surety to make Final Payment.
- Warrantees as required by the specifications, in the name of FDOT.
- Verification that FDOT's personnel have been trained in the use of their new equipment. Submit a sign-in sheet signed by personnel receiving the training.
- As-built documentation of maintenance and operation manuals.
- Equipment Inventory List including manufacturer and serial numbers.

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- Completed ITS Facility Management System Attribute Forms
- Notarized affidavit of all Sub-Vendor payrolls, bills for materials/equipment and other indebtedness paid and satisfied.

2. SITES OF WORK

The Vendor shall visit and inspect the FTE communications facilities prior to submitting a quote. The Vendor shall submit a quote for equipment and facilities work required as delineated in the specification and Appendix A.

The FTE Orlando South communications facility is located at Mile Post 254 on Florida's Turnpike. The physical address is: 9601 Turnpike Lane, Orlando, FL 32809.

Latitude: 28° 25' 47.33" N Longitude: 81° 24' 06.42" W (NAD 83)

The FTE Kenansville communications facility is located at Mile Post 207 on Florida's Turnpike.

Latitude: 27° 51' 57.85" N Longitude: 81° 00' 56.78" W (NAD 83)

The FTE Delray Beach communications facility is located at Mile Post 81 on Florida's Turnpike.

Latitude: 26° 27' 23.78" N Longitude: 80° 10' 24.63" W (NAD 83)

The FTE McArthur communications facility is located at Mile Post 58 on Florida's Turnpike. The physical address is: 5100 West Sunrise Boulevard, Ft. Lauderdale, FL 33313.

Latitude: 26° 08' 15.00" N Longitude: 80° 13' 03.55" W (NAD 83)

The FTE Okeechobee communications facility is located at Mile Post 35.5 on Florida's Turnpike.

Latitude: 25° 54' 0.23" N Longitude: 80° 22' 57.38" W (NAD 83)

3. INSTALLATION

Installation of all tower and facilities equipment shall meet or exceed the design requirements of this Technical Specification and standards of good engineering practice. Any damage to the existing facilities shall be repaired by the Vendor at no additional cost to FDOT. The relative arrangement of operating equipment shall be consistent with the existing site installation and with good engineering practices.

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The Vendor shall refer to Contract Plans in Appendix A for installation details.

3.1 Elliptical Waveguide and Coaxial Cable Special Concerns

The Vendor shall be responsible for all elliptical waveguides, coaxial cables, tower lights cables, conduits, and respective hardware; as any bends, kinks, or deformation will render the elliptical waveguides and coaxial cables unusable. Splicing of the waveguide is not permitted. Any elliptical waveguides and coaxial cables damaged by the Vendor shall be replaced with new full-length waveguides and coaxial cables at the Vendor's cost, without claim.

The Vendor shall refer to Contract Plans in the Appendices for installation details.

3.2 Site Grounding

Lightning damage to equipment and structures and its prevention is a major consideration in the design of communications sites in Florida. The Vendor shall perform all facilities work in accordance with the installation requirements delineated herein to ensure that adequate grounding is installed at the FDOT Jupiter communications facilities site.

Work performed at the FDOT site must meet the requirements herein to ensure compliance with FDOT installation practices.

ANY VARIANCE FROM THE FDOT'S PRACTICES SHALL BE SUBMITTED IN WRITING AND MUST BE PRE-APPROVED IN WRITING BY THE FDOT PROJECT MANAGER OR IT WILL NOT BE ACCEPTED.

The Vendor shall refer to Contract Plans in the Appendices for installation details.

3.3 Antenna Systems Cut-Over

The radio antenna systems' Return Loss shall be commensurate with the system component return loss specifications of the manufacturer. **The radio antennas, waveguides, and coaxial transmission lines shall be swept in both frequency domain and time domain with appropriate laboratory-grade Vector Network Analyzer test equipment, and printed documentation of the test results shall be submitted to the FDOT for approval.**

All of the FDOT radio systems are in service and carrying critical communications traffic. Should the cut-over cause downtime to the existing system, the downtime must be coordinated with the FDOT prior to the downtime occurrence. All work classified as causing minor downtime requires a minimum of two days prior notice. All work classified

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as causing significant downtime requires a minimum of ten days prior notice and must be coordinated with the FDOT prior to occurrence.

Microwave link performance Receive Signal Levels (RSLs) measurements shall be performed by the Vendor and witnessed by the FDOT to verify proper antenna alignment. RSL measurements shall be recorded onto the FDOT approved RSL Measurements forms contained in Appendix A.

The Vendor shall refer to Contract Plans in the Appendices for cut-over details.

4. INSPECTION AND VERIFICATION

The FDOT's Project Manager or designated representative shall be present to oversee and inspect all installation activities. The Vendor shall notify the individuals listed below of the start of work a minimum of seven (7) working days in advance. The FDOT Project Manager or designated personnel has the authority to stop work at the site if the work is not being performed in a manner consistent with these specifications or if the work is being performed in an unsafe manner.

Name	Organization	Telephone Number
Randy Pierce	FDOT, Traffic Operations - ITS	(850) 410-5608
Danielle Morales, P.E., PMP	FDOT, Traffic Operations - ITS	(850) 410-5617

5. PERFORMANCE TESTING AND ACCEPTANCE

The Vendor shall notify the FDOT Project Manager and the FDOT's local personnel at least 10 days prior to completion of the installation activities. The Vendor, in conjunction with the FDOT's Project Manager or designated representative(s), shall verify that all equipment is correctly installed and functioning properly.

ALL TESTS SHALL BE WITNESSED BY THE FDOT PROJECT MANAGER OR DESIGNATED PERSONNEL. ALL TESTS RESULTS SHALL HAVE A WITNESS SIGNATURE OF THE DESIGNATED FDOT PERSONNEL OR THE TEST RESULTS WILL NOT BE ACCEPTED.

5.1 Performance Testing

Following the completion of all inspections and testing, elliptical waveguide and coaxial cable transmission lines, CCTV cameras and lowering devices, and obstruction lighting systems shall be subjected to a minimum 20 day performance period. A performance

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period of 20 consecutive calendar days of successful operation shall constitute a successful performance period.

For the purpose of the successful performance period, failure of operation is defined as the failure of a major component of the elliptical waveguides, coaxial cable transmission lines, CCTV cameras and lowering devices, and obstruction lighting systems. Degradation of microwave link performance is considered a failure.

The performance verification shall be accomplished and witnessed by the FDOT Project Manager or designated personnel. Upon acceptance of the criteria of the test by the FDOT Project Manager, the 20 day performance period shall begin. This requirement shall be accomplished during a period of time not to exceed 45 consecutive calendar days after equipment installation, inspection, and testing.

If a successful performance period cannot be accomplished within 45 consecutive calendar days after the equipment inspection and testing, the FDOT reserves the right to deem the Vendor in default and enforce the provisions set forth in the contract.

5.2 Acceptance

The Vendor shall provide an acceptance report at the conclusion of the testing for FDOT review and approval. Upon completion of the successful performance period the FDOT shall issue acceptance.

6. AS-BUILT DOCUMENTATION

The Vendor shall provide photographic documentation of all work performed at each site clearly showing the removal and installation of equipment, grounding, and installation hardware.

The Vendor shall provide a set of hard copy, as well as soft copy, as-built documentation as part of this project. The as-built documentation shall fully detail all work activities associated with this project.

The Vendor shall complete the ITS Facility Management System Attribute Forms in accordance with this specification. The forms included in this section are for diagrammatical purposes only. The Vendor shall download the actual forms from the following ITS Facility Management System web site address:

http://www.dot.state.fl.us/trafficoperations/ITS/Projects_Telecom/ITFSFM/ITFSFM.shtm

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It is important that the Vendor download and use the most current file versions prior to starting installation, survey, inventory, or feature import tasks because of the frequency of updates.

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6.1 Example ITS Facility Management System Attribute Forms



STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
**ITS Facility Management System
Tower Support Structure Attribute Form**



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Date: _____	Inspector: _____	Financial Project ID: _____	As-Built Drawing No: _____
Tower Support Structure (SIN) Site Name: _____ Owner: _____ County: _____		Latitude / Longitude (N/W) N = _____ W = _____	
Tower Support Structure			
Tower Information			
Facility Owner: _____ County: _____ Year Installed: _____ Tower Type: <input type="checkbox"/> Self-Support <input type="checkbox"/> Guyed <input type="checkbox"/> Mono Pole <input type="checkbox"/> Crank Up Tower Manufacture: _____ Tower Model: _____ Tower Finish: <input type="checkbox"/> Galvanized <input type="checkbox"/> Painted Tower Height (Ft): _____		Property ID# : _____ Safety Climbing Hardware: <input type="checkbox"/> Yes <input type="checkbox"/> No Tower Condition: <input type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/> Scrap Antenna Structure Registration: _____ Aeronautical Study Number: _____ Tower Structure Analysis Date: _____ Tower Inspection Date: _____	
Antenna Components		Communication Cables	
Year Installed: _____ Antenna Manufacture: _____ Antenna Model: _____ Origination SIN (A Side): _____ Destination SIN (Z Side): _____ <u>Antenna Type:</u> <input type="checkbox"/> Dish <input type="checkbox"/> Panel <input type="checkbox"/> Yagi <input type="checkbox"/> Omni <input type="checkbox"/> Folded Dipole <input type="checkbox"/> Unknown <input type="checkbox"/> Other: _____ <u>Antenna Polarization:</u> <input type="checkbox"/> Horizontal <input type="checkbox"/> Vertical <input type="checkbox"/> Circular <input type="checkbox"/> Dual Antenna Direction (Azimuth in Degrees) _____ <u>Antenna Mount:</u> <input type="checkbox"/> Direct <input type="checkbox"/> Pipe <input type="checkbox"/> Side Arm <input type="checkbox"/> Wall <input type="checkbox"/> Bridge <input type="checkbox"/> Cantilever Structure <input type="checkbox"/> Overhead Structure <input type="checkbox"/> Other: _____ <u>Antenna Installed Location (Tower Leg):</u> <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> Unknown Antenna Point of Attachment (Ft.): _____ Antenna Jumper Size (Pigtail): <input type="checkbox"/> 1/2" <input type="checkbox"/> 7/8" <input type="checkbox"/> 1 1/4" <input type="checkbox"/> EW63 <input type="checkbox"/> EW90 <input type="checkbox"/> WE65 <input type="checkbox"/> Other: _____ Antenna Jumper Length: _____		<u>Communication Cable Type:</u> <input type="checkbox"/> Coax – Corrugated <input type="checkbox"/> Coax – Braided <input type="checkbox"/> Waveguide <u>Communication Cable Size:</u> <input type="checkbox"/> 1/2" <input type="checkbox"/> 7/8" <input type="checkbox"/> 1 1/4" <input type="checkbox"/> EW63 <input type="checkbox"/> EW90 <input type="checkbox"/> WE65 <input type="checkbox"/> Other: _____ Communication Cable Length (Ft.): _____ <u>Communication Cable Connector Type:</u> <input type="checkbox"/> 7/16 DIN <input type="checkbox"/> BNC <input type="checkbox"/> N-Type <input type="checkbox"/> UHF <input type="checkbox"/> WG63 <input type="checkbox"/> Other: _____	
Warning Lights			
		Date Installed(yyyy-mm-dd): _____ Beacon Type: _____ Beacon Manufacture: _____ Beacon Model: _____ Light Controller Manufacture: _____ Light Controller Model: _____ Side Markers Installed: <input type="checkbox"/> Yes <input type="checkbox"/> No Side Markers Type: _____ Side Markers Manufacture: _____ Side Markers Model: _____ Side Markers Point-of-Attachment (Ft.): _____	

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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
**ITS Facility Management System
Wireless Communication Equipment Attribute Form**



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Date:	Inspector:	Site Identification Name:
Wireless Radio Components		
Radio Equipment #1	Associated Antenna	
Facility Owner: _____ County: _____ Date Installed(yyyy-mm-dd): _____ <u>Radio Type:</u> <input type="checkbox"/> Broadcast <input type="checkbox"/> DSRC <input type="checkbox"/> Highway Advisory Radio <input type="checkbox"/> Land Mobile Radio <input type="checkbox"/> Leased Cellular <input type="checkbox"/> Low Band <input type="checkbox"/> Microwave <input type="checkbox"/> Motorist Aid System <input type="checkbox"/> RF Amplifier <input type="checkbox"/> RFID Transceiver <input type="checkbox"/> Satellite <input type="checkbox"/> Spread Spectrum <input type="checkbox"/> UHF Receiver Multi Coupler <input type="checkbox"/> Other: _____ Frequency Band: _____ FCC Call Sign: _____ FCC License Expiration Date: _____ Manufacturer: _____ Model: _____ Serial Number: _____ IP Address: _____ MAC Address: _____ Firmware Version: _____ Output Ports: <input type="checkbox"/> Fiber: _____ <input type="checkbox"/> Copper: _____ Fiber Connector Type: _____ Input Voltage: _____ Load/Draw Amps: _____	Tower SIN: _____ <u>If Tower Support Structure Attribute Form Completed You Can Skip The Following Antenna Attributes</u> Origination SIN (A Side): _____ Destination SIN (Z Side): _____ Antenna is built-into the Radio Unit: <input type="checkbox"/> Yes <input type="checkbox"/> No Antenna Mount Type: <input type="checkbox"/> Direct <input type="checkbox"/> Pipe <input type="checkbox"/> Side Arm <input type="checkbox"/> Bridge <input type="checkbox"/> Cantilever STR <input type="checkbox"/> Overhead STR <input type="checkbox"/> Wall <input type="checkbox"/> Other: _____ Antenna Type: <input type="checkbox"/> Yagi <input type="checkbox"/> Panel <input type="checkbox"/> Omni <input type="checkbox"/> Dish <input type="checkbox"/> Other: _____ Polarization: <input type="checkbox"/> Vertical <input type="checkbox"/> Horizontal Year Installed: _____ Manufacturer: _____ Model: _____ Point of Attachment (Height): _____ Antenna Location on Tower: <input type="checkbox"/> A <input type="checkbox"/> AB <input type="checkbox"/> AC <input type="checkbox"/> B <input type="checkbox"/> BC <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> Unknown Antenna Direction (Azimuth-Degrees): _____ Antenna Jumper Size (Pigtail)(In): _____ Antenna Jumper Length (Ft): _____ Comm Cable Type: _____ Comm Cable Size (In): _____ Comm Cable Length (Ft): _____ Comm Cable Connector Type: _____	

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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
ITS Facility Management System
Closed Circuit Television Camera (CCTV) Attribute Form



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Date:	Inspector:	Site Identification Name:
Information for 1st CCTV Camera Installed at this Site		
Information for 1st CCTV		Information for 2nd CCTV
Facility Owner: _____	Facility Owner: _____	Facility Owner: _____
County: _____	County: _____	County: _____
Date Installed (yyyy-mm-dd): _____	Date Installed (yyyy-mm-dd): _____	Date Installed (yyyy-mm-dd): _____
CCTV Name: _____	CCTV Name: _____	CCTV Name: _____
CCTV Type: <input type="checkbox"/> Dome <input type="checkbox"/> Dome w/ Lowering Device <input type="checkbox"/> Tubular Fixed <input type="checkbox"/> Tubular w/ PTZ <input type="checkbox"/> Tubular w/PTZ	CCTV Type: <input type="checkbox"/> Dome <input type="checkbox"/> Dome w/ Lowering Device <input type="checkbox"/> Tubular Fixed <input type="checkbox"/> Tubular w/ PTZ <input type="checkbox"/> Tubular w/PTZ	CCTV Type: <input type="checkbox"/> Dome <input type="checkbox"/> Dome w/ Lowering Device <input type="checkbox"/> Tubular Fixed <input type="checkbox"/> Tubular w/ PTZ <input type="checkbox"/> Tubular w/PTZ
Mount Type: <input type="checkbox"/> Pole <input type="checkbox"/> Wall <input type="checkbox"/> Bridge <input type="checkbox"/> Cantilever Structure <input type="checkbox"/> Overhead Span Structure	Mount Type: <input type="checkbox"/> Pole <input type="checkbox"/> Wall <input type="checkbox"/> Bridge <input type="checkbox"/> Cantilever Structure <input type="checkbox"/> Overhead Span Structure	Mount Type: <input type="checkbox"/> Pole <input type="checkbox"/> Wall <input type="checkbox"/> Bridge <input type="checkbox"/> Cantilever Structure <input type="checkbox"/> Overhead Span Structure
Point of Attachment (Ft): _____	Point of Attachment (Ft): _____	Point of Attachment (Ft): _____
Manufacturer: _____	Manufacturer: _____	Manufacturer: _____
Model: _____	Model: _____	Model: _____
Serial Number: _____	Serial Number: _____	Serial Number: _____
<u>Lower Device Information:</u>	<u>Lower Device Information:</u>	<u>Lower Device Information:</u>
Manufacturer: _____	Manufacturer: _____	Manufacturer: _____
Model: _____	Model: _____	Model: _____
Controller for 1st CCTV		Controller for 2nd CCTV
The CCTV controller (<input type="checkbox"/> is or <input type="checkbox"/> is not) co-located at the same site as the camera. If not, include controller location below:	The CCTV controller (<input type="checkbox"/> is or <input type="checkbox"/> is not) co-located at the same site as the camera. If not, include controller location below:	The CCTV controller (<input type="checkbox"/> is or <input type="checkbox"/> is not) co-located at the same site as the camera. If not, include controller location below:
Site Identification Name: _____	Site Identification Name: _____	Site Identification Name: _____
Controller Type: <input type="checkbox"/> Internal <input type="checkbox"/> External	Controller Type: <input type="checkbox"/> Internal <input type="checkbox"/> External	Controller Type: <input type="checkbox"/> Internal <input type="checkbox"/> External
Manufacturer: _____	Manufacturer: _____	Manufacturer: _____
Model: _____	Model: _____	Model: _____
Serial Number: _____	Serial Number: _____	Serial Number: _____
IP Address: _____	IP Address: _____	IP Address: _____
MAC Address: _____	MAC Address: _____	MAC Address: _____
Firmware Version: _____	Firmware Version: _____	Firmware Version: _____