



MOTOROLA

*WILLIAMSON COUNTY, TX
FLORENCE SITE ADDITION*

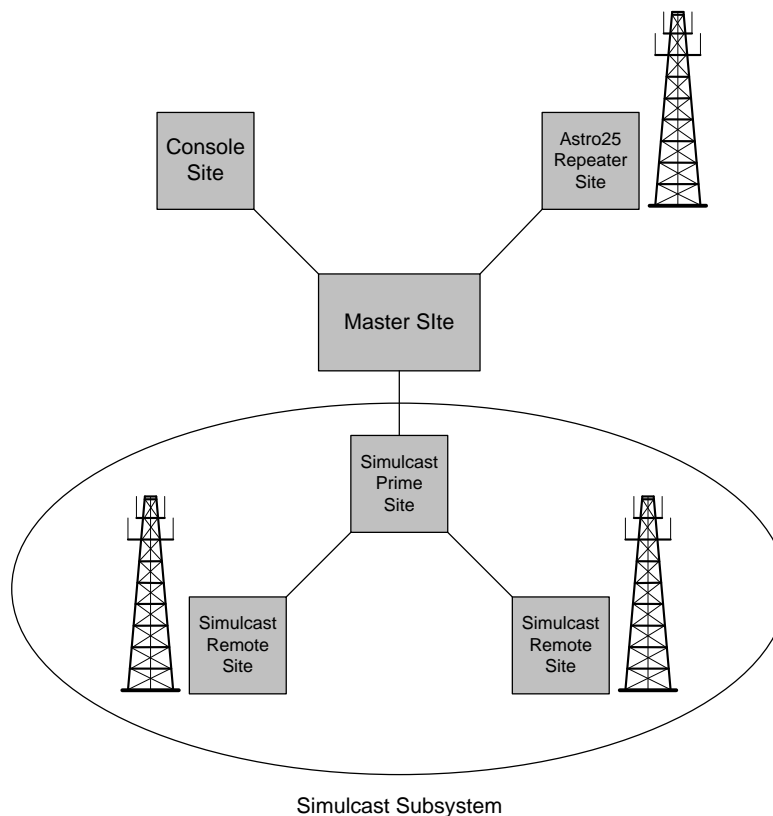
December 2008

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1. SYSTEM DESCRIPTION

The Williamson County Simulcast Subsystem is a simulcast radio system connected to the Austin/Travis County Astro25 Regional Radio System (RRS). A simulcast subsystem consists of a Prime Site and multiple Remote Sites, as shown in the following Astro25 network layout.



The Williamson County Simulcast Subsystem currently consists of a Prime Site and four fifteen-channel Remote Sites; the Florence Site Addition will add a fifth fifteen-channel Remote Site, effectively extending the coverage of the existing system using the same frequencies.

The Florence Site Addition involves three components that, together, integrate the Florence Remote Site into the existing simulcast subsystem:

- Florence Site equipment
- Prime Site equipment



- PTP6000 Point-to-Point Link

Florence Site Equipment

Each Remote Site in a simulcast subsystem transmits and receives on the same frequencies, thus creating a unified “Site” made up of individual sub-sites. Each of these Remote Sites requires trunking repeaters, radio frequency (RF) distribution systems to allow the repeaters to use the minimum quantity of antennas, and network connectivity equipment to send the audio and management information back to the Prime Site for processing. The Florence Remote Site thus contains equipment identical to the existing Remote Sites:

- (15) GTR 8000 Base Station Radios
- (1) TRAK Frequency Reference
- (1) TeNSr Channel Bank
- (1) S2500 Site Router
- (2) HP2626 Ethernet Switches
- (1) MOSCAD Remote Terminal Unit (RTU)
- (1) 250-Amp DC Power System with 1kVA Inverter

Equipment alarming is accomplished with the MOSCAD RTU, which accepts relay-operated inputs from the building-related alarms and DC breaker panels above the racks, as well as serial alarms from the Channel Bank, and TRAK.

The DC power system has been designed to provide full power to all listed equipment for 30 minutes in the event of loss of AC electrical service, which is meant to provide needed power during the “buffer time” when the generator is starting.

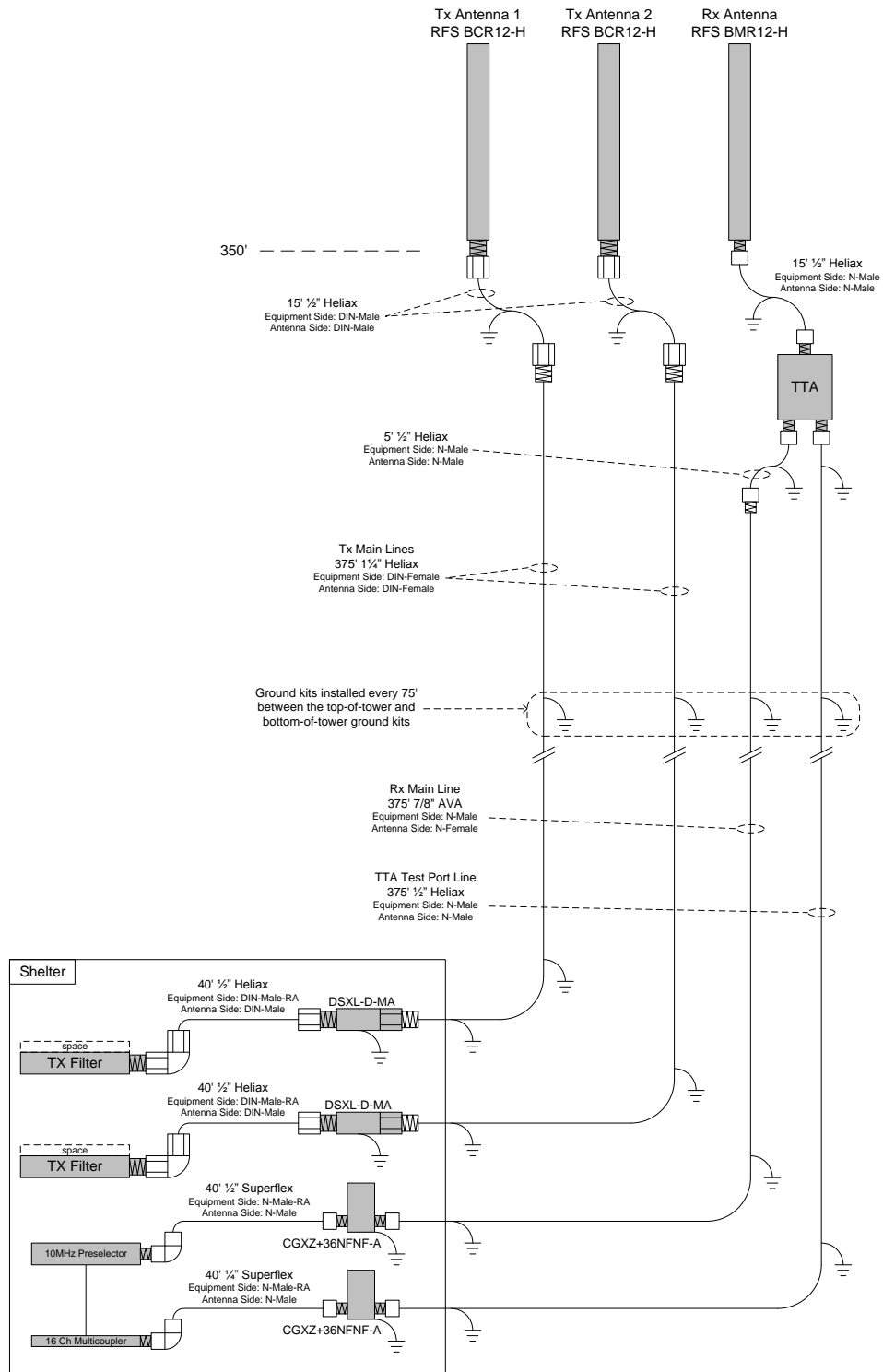
Motorola will install a new Motorola Standard Building (MSB) for the Florence Remote Site equipment. This is a 12’x 34’ pre-cast concrete building with 12’x 24’ equipment room and 12’x 10’ generator room with 70kW diesel generator.

The Florence Remote Site will utilize the existing 350’ self-supporting lattice tower, and all antennas will be placed at the top. The antenna system design mirrors the existing Remote Sites, with two transmit antennas to accommodate closely-spaced transmit frequencies and one receive antenna with tower-top amplifier (TTA). The complete antenna system is listed and shown below:

- (2) 10-Channel Transmitter Combiners with Transmit Filters
- (2) Transmit Antenna Systems
 - (2) RFS BCR12 Antennas
 - (2) 1 1/4” Coaxial Main Line Cables
 - (2) 1/2” Coaxial Antenna Jumpers

- (2) ½" Coaxial Combiner Jumpers
 - (2) Polyphaser Surge Arrestors
- (1) 16-Channel Receiver Multi-coupler with Preselector
- (1) Receive Antenna System
 - (1) RFS BMR12 Antenna
 - (1) Tower Top Amplifier (TTA)
 - (1) 7/8" Coaxial Main Line
 - (1) ½" Coaxial Test Line
 - (1) ½" Coaxial Antenna Jumper
 - (1) ½" Coaxial TTA Jumper
 - (1) ½" Coaxial Multi-coupler Jumper
 - (1) ¼" Coaxial Test Jumper
 - (2) Polyphaser Surge Arrestors





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Prime Site Equipment

All Remote Sites converge at the Prime Site, where received audio comes through the channel banks, is voted by the ASTRO-TAC Comparators, and the best quality audio is sent back through the channel banks to all Remote Sites for broadcast. To accommodate the Florence Remote Site, an additional Channel Bank is needed, and the existing ASTRO-TAC Comparators must be upgraded with an additional wireline port.

The Prime Site addition contains the following equipment:

- (1) TeNSr Channel Bank
- (15) ASTRO-TAC Comparator 2-Port wireline modules

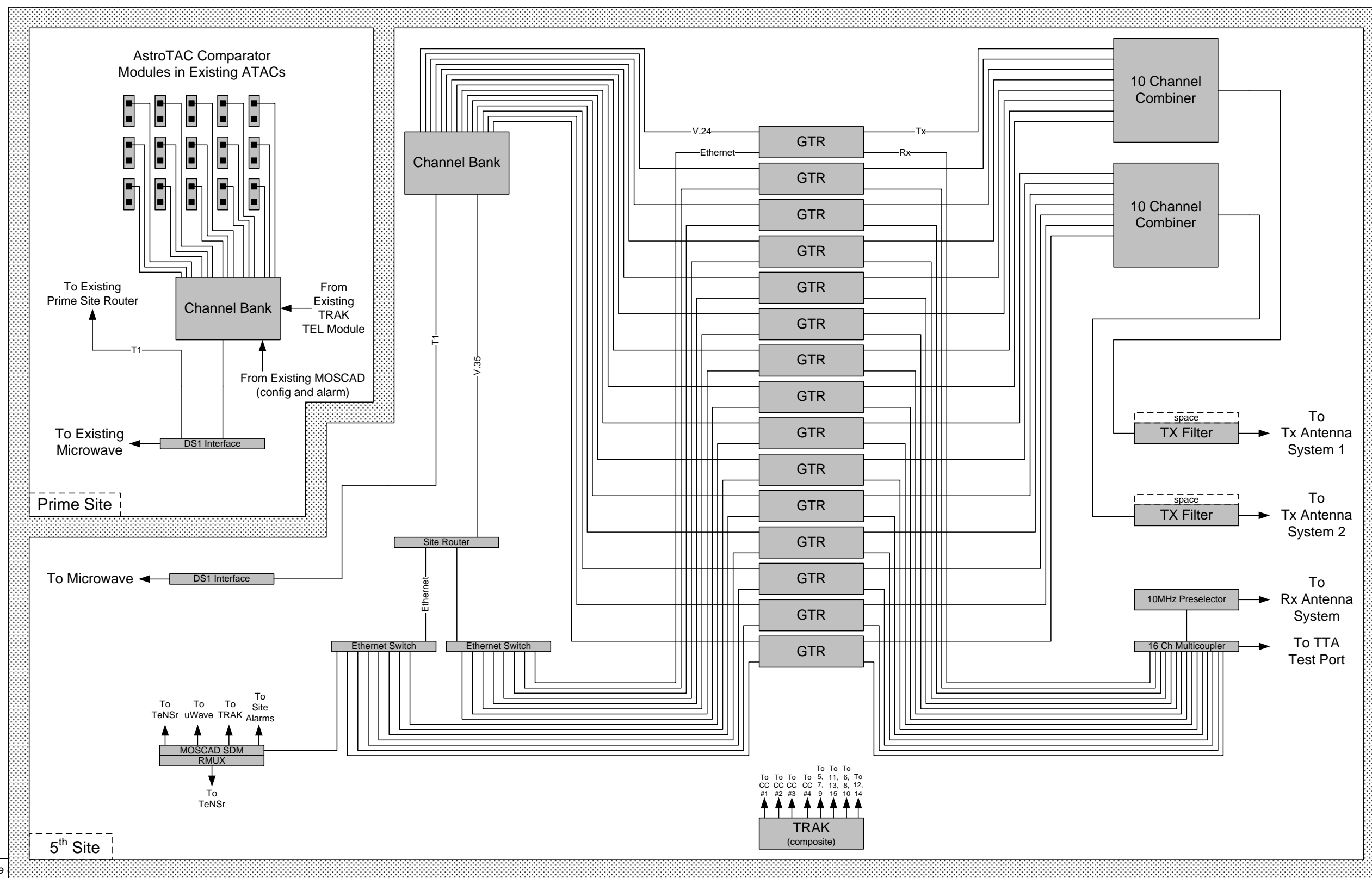
Block Diagram

The following block diagram shows all equipment and connectivity for the Florence Remote Site and Prime Site equipment.



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Site Connectivity

The Florence Simulcast remote site will be connected to the Prime Site via a Point-to-Point unlicensed microwave link. Although a preliminary path analysis has been performed, the PTP can only be installed if the link passes the detailed field path analysis. This Point-to-Point link is a leased T1 replacement and that acceptance will be based on the same tests that a T1 is accepted with.

Coverage

A coverage map has been generated to predict the 95% Covered Area Reliability for the Williamson County Simulcast Subsystem after the Florence Site Addition. For the service area of Williamson County plus one mile, the scenario modeled predicted Digital Audio Quality 3.4 coverage outdoors for a user of a portable radio (XTS 2500 or 5000) at belt-level with a swivel case (not a belt clip). Digital Audio Quality is a subjective measure of received audio, with DAQ 3.4 described as “speech understandable with repetition only rarely required; some noise/distortion.” See attached coverage map.

Acceptance Test

Acceptance of the Florence Site Addition is based partially on completion of a Functional Acceptance Test Plan (FATP) and a Coverage Acceptance Test Plan (CATP).

The FATP tests the function of all installed equipment to verify operation. Typical trunking features such as Talkgroup Call and Patch Call will be tested, as well as applicable failure scenarios such as Loss of Ethernet Switch and Loss of AC Service.

The CATP tests the reliability of the painted coverage area shown on the coverage map. The service area (Williamson County plus one mile) will be divided into one-square-mile grids, and two teams of a Motorola representative and a Williamson County representative will test each grid that is completely painted by the coverage map. Each grid test will consist of a subjective talk-and-listen test, in which outbound audio to the team from dispatch and inbound audio from the team to dispatch is compared against the DAQ 3.4 requirement. All grids in which inbound and outbound audio pass the DAQ 3.4 test on the first try are considered a pass. In the event that inbound or outbound audio does not pass on the first try, one retry is allowed, for which the Williamson County representative will turn and take one step in any direction and repeat the test process. Inaccessible painted tiles will be excluded from the test, meaning they will not be counted as pass or fail, and will not be included in the total number of tested tiles. The final reliability will be calculated by dividing the number of passed tiles by the total number of tiles tested; a result of 95% or better will be considered a passed CATP.

2. STATEMENT OF WORK

This Statement of Work (SOW) describes the documentation to be furnished to Williamson County, and the tasks to be performed by Motorola, its subcontractors, and Williamson County to implement the solution described in this proposal and within the body of this document. It describes the actual work involved in installation, identifies the installation standards to be followed, and clarifies the responsibilities for both Motorola and Williamson County during the project implementation. Specifically, this SOW provides:

- A summary of the phases and tasks to be completed within the project lifecycle
- A list of the documents associated with the project
- A description of the responsibilities for both Motorola and Williamson County
- The qualifications and assumptions taken into consideration during the development of this project

This SOW provides the most current understanding of the work required by both parties to ensure a successful project implementation. It is understood that this SOW is a working document, and that it will be revised as needed to incorporate any changes associated within the realm of contract negotiations, Design Review (DR), and any other change that may occur during the execution of the project.

Note: Unless otherwise indicated from the context in which it is used, the word “system” will be used herein to refer to the compilation of the subsystems identified in the paragraph above, associated interfaces, and associated ancillary systems.

2.1.11.4 **PHASES AND TASKS**

Based on many years of experience, Motorola has developed a project lifecycle methodology that identifies major project phases—Contract/Project Initiation, Design Review, Order Processing, Manufacturing and Staging, Civil Work, Installation, System Optimization, Training, Acceptance Testing, Subscriber Installation, and Project Finalization. Depending on the particular project, all or some of these phases may be required. A visual representation of these phases is shown in Figure 1. Each phase follows a Work Breakdown Structure (WBS) that clearly identifies the work to be performed during this project.



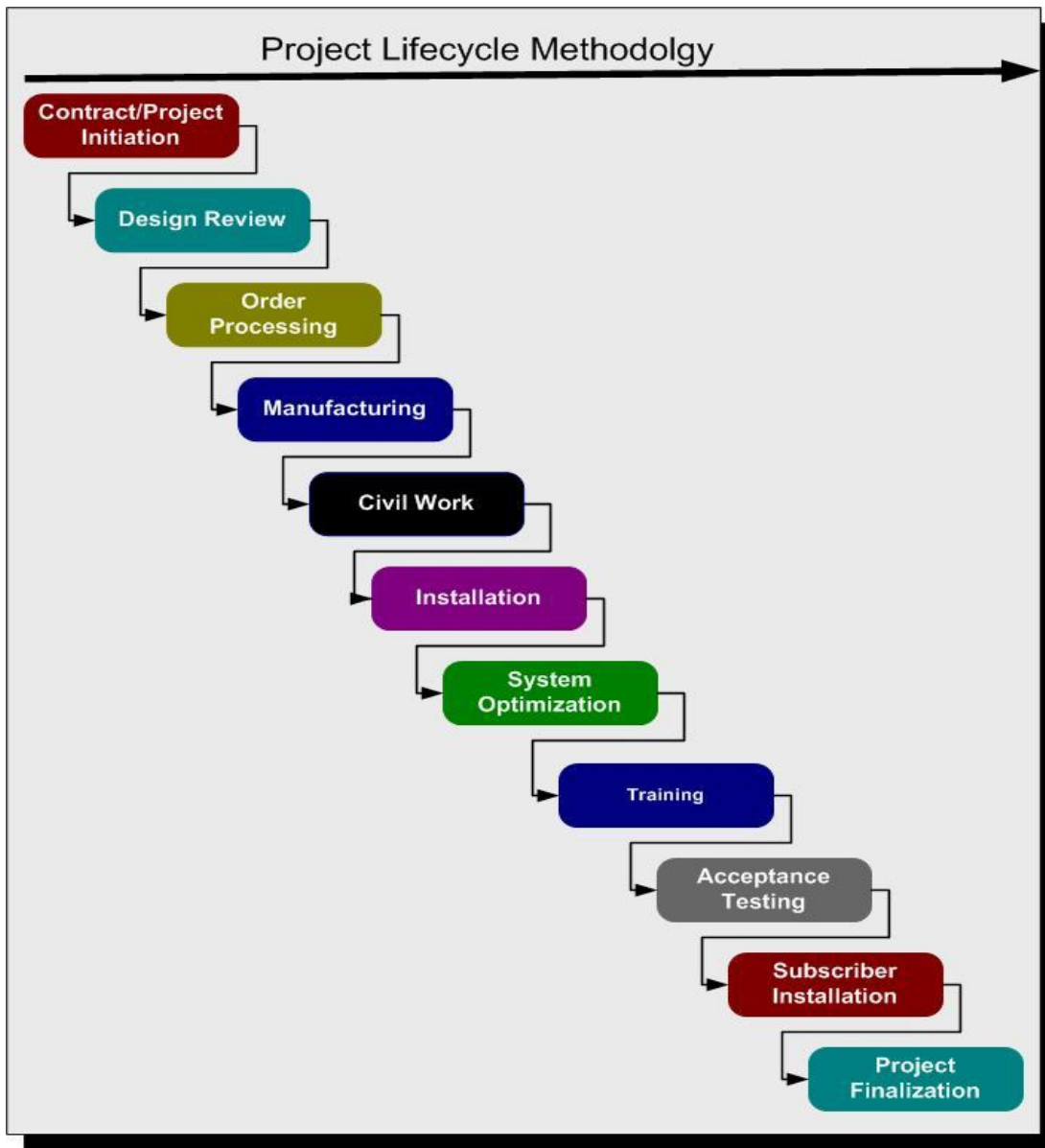


Figure 1: Project Lifecycle Methodology

Throughout the duration of this project, Motorola will provide the equipment and services within each phase as described within this SOW. Descriptions of the specific tasks associated with the individual phases are contained in the following sections.

2.1.1 Contract/Project Initiation

WBS Element	WBS Name
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The implementation process will begin with the Contract/Project Initiation Phase. During this phase, the project teams from Motorola and Williamson County will meet to begin the project.

This phase is considered complete when the Project Kickoff Meeting has been held with Motorola and Williamson County in attendance and the project scope, schedule, and roles/responsibilities are discussed, agreed upon, and documented.

2.1.1.1 Identify Team and Administer Project

As the systems integrator, Motorola provides the resources and processes necessary to complete the tasks within this project. Motorola will designate a single individual as the program manager whose primary responsibility and authority will be to manage and administer this project to successful completion as defined within the Communications System Agreement (CSA). This individual is the Motorola point of contact for the Williamson County Florence site addition project. The program manager will ensure that all objectives are met within schedule constraints, and provide timely reporting of the overall progress of the project via the refinement of the Project Schedule (DELIVERABLE 1), Project Status Reports (DELIVERABLE 2), Meeting Minutes (DELIVERABLE 3), and Action Item Logs (DELIVERABLE 4). In addition Motorola will ask that Williamson County identify a single point of contact to represent Williamson County and be responsible for all Williamson County's signature approvals.

2.1	Implementation Project
2.1.1	Contract/Project Initiation
2.1.2	Design Review
2.1.3	Order Processing
2.1.4	Manufacturing
2.1.5	Civil Work
2.1.6	Installation
2.1.7	System Optimization
2.1.8	Training
0	Acceptance Testing
2.1.10	Subscriber Installation
0	Project Finalization

2.1.1.2 Conduct Project Kickoff Meeting

The project will be initiated with a Project Kickoff Meeting that includes key Williamson County and Motorola project team participants. The date, time, and location of the meeting will be mutually agreed upon between Motorola and Williamson County. The objectives of this meeting include:

- ◆ Introduction of all project participants
- ◆ Review of the roles of the project participants to identify communication flows and decision-making authority between project participants
- ◆ Review of the overall project scope and objectives
- ◆ Review of the resource and scheduling requirements
- ◆ Review of the project schedule to address any upcoming milestones or events
- ◆ Review of the team interaction, meetings, reports, milestone acceptance, and Williamson County's participation in particular phases

Project schedules are integral to the management of the project and will be produced by the Motorola team to provide a timeline analysis for all phases of the project. The Project Schedule will emphasize all milestones and the critical path, which is essential for the successful completion of the project. The Williamson County and Motorola will mutually agree upon the Project Schedule to determine implementation tasks, priorities, and inter-dependences. This Project Schedule will provide the framework for task completion. Changes to the schedule outside of the mutually agreed upon tasks and completion dates can be accommodated through the change order process.

2.1.2 Design Review

After the Project Kickoff Meeting, Motorola and the Williamson County project teams will meet to review the proposed system design. The goal of this review is to achieve written agreement on the overall system design and deliverables. Various design documents will be presented for approval from Williamson County. These documents will form the basis of the system that will be manufactured, assembled, staged, and installed. This review is not intended to redesign the system architecture or to re-evaluate any specifications previously reviewed and approved. However, if in the course of design review discussions, changes to the design are identified that are determined to be outside of the proposal scope, the changes can be accommodated through the change order process.

This phase is considered complete when all documentation deliverables associated with this phase have been delivered to Williamson County and signed by the designated representative from Williamson County.

WBS Element	WBS Name
2.1.11.4	Implementation Project
2.1.1	Contract/Project Initiation
2.1.2	Design Review
2.1.3	Order Processing
2.1.4	Manufacturing
2.1.5	Civil Work
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2.1.2.1 Conduct Site Evaluations

Motorola will conduct site evaluations in order to capture the site details of the system design and to determine site readiness. These evaluations will capture the viability of using the site from a personnel safety, system design and installation standpoint, as well as from a physical capacity standpoint to ensure that the site is able to accommodate the proposed equipment. This task may include the testing of existing equipment that will interface with the proposed equipment and will include the performance of a preliminary suitability review for the site included in this proposal.

Motorola will prepare a Site Evaluation Report (DELIVERABLE 5) that summarizes the findings of the site evaluation. The report will include awareness of any personnel safety issues and any site preparation recommendations to Williamson County to aid in providing a suitable

environment for system installation. If corrective design action is required or recommended, Motorola can be contracted, through the change order process, to provide a suitable environment for system installation.

2.1.2.2 Conduct Design Review

A Design Review (DR) Meeting will be held with Williamson County to ensure that all customer requirements are shown in the necessary customer approved documents and that the design meets those requirements. During this meeting, Motorola and Williamson County will review the operational requirements and the impact of those requirements on various equipment configurations. The goals of this meeting are to establish a firm baseline for the system design, identify any special product requirements and their impact on system implementation, and review the Acceptance Test Plan (DELIVERABLE 6). The system design is “frozen” at this point, in preparation for the subsequent phases of the project such as Order Processing and Manufacturing.

The results of the DR Meeting will be documented in the Design Documentation (DELIVERABLE 7) that will include the updated System Description, updated Statement of Work, updated Equipment List, and system drawings or other documents applicable to the project.

2.1.3 Order Processing

The completion of the Design Review phase, resulting in a final design and equipment list that includes any modifications as identified during the DR Meeting, triggers the onset of the Order Processing Phase.

To ensure an accurate and complete order, the Equipment List goes through a validation process that checks for valid model numbers, valid versions, compatible options to main equipment, and delivery data. Validation is not complete until the system verifies that the Equipment List contains the correct model numbers, version, options, and delivery data.

As part of this process, Motorola also confirms with the Williamson County the secure storage location(s) for this equipment and creates Ship Views. Ship Views are the mailing labels that carry complete shipping information as supplied by the Williamson County. They direct the timing, method of shipment and ship path each item will take to reach their ultimate destination. This makes the tracking of the factory orders more manageable for the program manager and team.

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The final step within order processing is the creation of the orders for the equipment based on all the information gathered. Once the Equipment List has cleared all validation points, a Motorola Credit Analyst will reconcile the list(s) to the original purchase order or contract. The procurement of third party equipment also takes place during this phase of the project.

This phase will be deemed complete when the equipment order is bridged to the manufacturing facility.

2.1.4 Manufacturing

Based on the equipment order, Motorola will manufacture and/or procure the items necessary for the system. For Motorola manufactured equipment, the manufacturing facility will test each subsystem from its base kit or module level up to the complete subsystem at factory staging. In addition to the individual tests applied to all units shipped, Motorola's Product Quality Engineering Department performs additional tests on periodic samples. These additional tests include performance tests under environmental extremes (e.g., temperature, humidity, vibration, etc.).

This phase will be deemed complete when the equipment is either ready to be shipped to Williamson County for field installation and testing or is ready to be staged at Motorola's Customer Center for Solutions Integration (CCSi).

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2.1.4.1 Stage Equipment/Factory or Field Acceptance Test

This system will undergo a Factory Acceptance Test (FAT) at Motorola's Customer Center for Solutions Integration (CCSi). Specialized technical teams work with factory and field program managers, project engineers, and product group personnel to set up the system at CCSi. All cables with required connectors will be installed between the various system components to provide an operational system within the staging facility if possible. (Interfaces to field databases or some other field interfaces can not be staged at CCSi, and therefore those connections can not be duplicated within the CCSi facility). CCSi staff builds the system from approved drawings, configuring equipment, as it will be at its final destination. CCSi staff will run factory test procedures to ensure that the system is working per design. The intent of the FAT is to verify system functionality and to expedite the installation effort at the final installation location(s).

Additional testing will be performed in the field as identified in the System Description.

2.1.5 Civil Work

The Williamson County Florence site is to be located at the following coordinate:

N 30-52-44.33, W 97-43-27.3

This site has an existing 380 ft four leg self-supported tower in an existing fenced compound. Motorola proposes to install a 12' x 34' equipment concrete shelter with indoor generator, and diesel fuel tank. This equipment will be located in an expanded fenced compound with gravel surfacing. Antennas and lines will be installed on the existing tower structure.

General Assumptions

Following are General Assumptions for the Florence site:

- All work will conform to R56 specifications latest revision.
- It is assumed that all of the project will be completed over one continuous timeframe.
- Access to the sites will be unimpeded and that all supplied materials and permits/work by others will not delay work activities.
- Work will be performed during daylight hours.
- The Motorola provided shelter will be delivered to the site. All other provided material will be made available for pick up at a centralized facility in Williamson County.
- Fees do not include local FAA/FCC permitting unless specifically identified.
- Design and construction of tower structural upgrades that may be required at the existing site is not included.
- Utility permitting and hook –up fees will be handled by Williamson County.
- This proposal does not include elevated equipment/shelter pads that may be required in flood plains.
- This proposal does not include detention or water quality facilities.
- Assumes that crane can set up with in 10' of the proposed equipment location unless otherwise noted.
- The County/Electrical utility shall provide and install power to the meter can (with in 200' of the shelter).
- There will be no telco at the site
- For the purposes of this proposal it is assumed that a standard ground rod system is sufficient to achieve <10 ohms.
- The proposed generator is 70 KW and the new electrical service is 300 amps single phase

WBS Element	WBS Name
2.1.11.4	Implementation Project
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- No improvements are required for concrete trucks, drill rigs, shelter delivery, and crane access other than site access road.
- The Florence site is located outside the city limits and there is no zoning required
- The site is in the Edwards Aquifer contributing zone and a geological investigation will not be required

2.1.11.4 SITE REQUIREMENTS AND DESIGN ASSUMPTIONS

Motorola has developed a comprehensive solution contained within this proposal with the best intentions of satisfying the needs of Williamson County. Certain assumptions were made in order for Motorola to design this system. The following is a list of site requirements and design assumptions for the system.

Transient Voltage Surge Suppression

To increase personnel safety and allow Motorola to provide equipment warranty, the site shall meet the Transient Voltage Surge Suppression (TVSS) requirements of the NEC® and the Motorola document, Standards and Guidelines for Communication Sites (R56). Transient voltage surge suppression for telephone circuits, AC power, radio frequency (RF) cabling, and all other applicable external connections and utilities shall exist which are required to meet the Motorola document, Standards and Guidelines for Communication Sites (R56).

Equipment Space

Motorola will review equipment space requirements with the Williamson County to ensure sufficient installation space and compliance with the Motorola document, Standards and Guidelines for Communication Sites (R56).

Environmental Conditions

Sites shall have adequate environmental controls to meet the Heating, Ventilation, and Air Conditioning (HVAC), and humidity requirements, as defined in the Motorola document, Standards and Guidelines for Communication Sites (R56). The sites shall be free of hazardous materials such as flammables, combustibles, asbestos, etc. Motorola would be pleased to provide equipment specifications as required to the Williamson County for building environmental control sizing and design. Meeting environmental control requirements is necessary for the Motorola warranty as well as third party warranties.

Licenses and Certifications

Williamson County shall be responsible for all FCC licenses, building permits, electrical permits, environmental permits, licensed engineering drawings, and all other necessary approvals.

Interference

Motorola is not responsible for interference caused or received by the Motorola provided equipment except for interference that is directly caused by the Motorola provided transmitter(s) to the Motorola provided receiver(s). Should the Williamson County system experience interference, Motorola can be contracted to investigate the source and recommend solutions to mitigate the issue.

Williamson County will:

1. Assist Motorola with permitting for sites, as owner/lessee.
2. As applicable, coordinate, prepare, submit and pay for all required permits and inspections for the work that is customer's responsibility.
3. Pay for all utility connection, pole or line extensions and any easement or usage fees
4. Review and approve site design drawings within 7 calendar days of submission by Motorola or its subcontractors. Should a re-submission be required due to errors or omissions, the customer shall review and approve the re-submitted plans within 7 calendar days from the date of submittal.
5. Pay for the usage costs of power, leased lines and generator fueling both during the construction/installation effort and on an ongoing basis.
6. Application fees, taxes and recurring payments for lease/ownership of the property
7. Secure power connection to the site, associated permitting and installation of a meter and disconnect within 50 feet of the proposed shelter location

Motorola will provide:

SITE ENGINEERING

1. Prepare site construction drawings, showing the layout of various new and existing site components.
2. Conduct site walks to collect pertinent information from the sites (e.g., location of Telco, power, existing facilities etc.).
3. Perform a boundary and topographic survey for the property on which the communication site is located or will be located.



4. Prepare zoning drawings that can be used to describe the proposed site installation in sufficient detail.
5. Prepare record drawings of the site showing the as-built information
6. Perform construction staking around the site to establish reference points for proposed construction
7. Perform National Environmental Policy Act (NEPA) Threshold Screening including limited literature and records search and brief reporting, as necessary to identify sensitive natural and cultural features referenced in 47 Code of Federal Regulations (CFR) Chapter 1, subsection 1.1307 that may be potentially impacted by the proposed construction activity. This does not include the additional field investigations to document site conditions if it is determined that the proposed communication facility “may have a significant environmental impact” and thus require additional documentation, submittals or work. Regional Environmental Review (RER) report submittals if required by FEMA have not been included.
8. Conduct four point soil resistivity study
9. Conduct construction inspection of foundation steel prior to pour, materials testing of concrete and field density tests of backfill to ensure quality construction.
10. Perform inspection of the site and the work performed by the Contractor to document that the site is built in accordance with the “Site Plans” and document any deviations or violations.
11. Research permit requirements (building, utility, construction and FAA permits) for the construction of the proposed site, and determine if the permits are required. If a permit is required, the Motorola shall obtain the necessary permit forms and complete the necessary information on behalf of the customer.
12. Submit the completed application forms, to the local jurisdiction and apply for applicable permits.

SITE PREPARATION

13. Obtain the permits such as electrical, building and construction permits, and any inspections that may need to be coordinated with the local authorities to complete site development work.
14. One time mobilization costs for the construction crews. Any remobilization due to interruptions/delays that are out of Motorola's control will result in additional costs.
15. Medium clearing, grubbing and disposal of vegetation and shrub growth in the site compound area.
16. Grading of site compound to provide a level, solid, undisturbed surface for installation of site components.
17. Supply and install gravel surfacing to a depth of six inches, underlain with geotextile fabric within the fenced in site compound area.
18. Provide a 15-foot wide access road (not to exceed 200 feet in length), including surface grading and graveling

19. Construct swales around the compound to control soil erosion (not to exceed 200 linear feet).
20. Provide silt fence around the compound to control soil erosion (not to exceed 200 linear feet).
21. Supply and install 8' high chain link fencing with a ten-foot wide gate around the shelter compound (not to exceed 200 linear feet).
22. Site touchup (fertilize, seed and straw) disturbed areas not covered with gravel after completion of construction work. Landscaping, decorative fencing or any other aesthetic improvement required by local jurisdictions have not been included and will be handled through a negotiated contract change notice.

SITE COMPONENTS INSTALLATION:

23. Construct reinforced concrete foundation necessary for new shelter
24. Construct concrete slab for fuel tank.
25. Construct foundation for standby generator.
26. Install (1) prefabricated concrete shelter.
27. Install fuel tank, fill it with fuel and connect to generator.
28. Supply and install standby power generator including interconnection wiring between the generator, transfer switch, and site electrical service mains.
29. Supply and install fuel tank monitors on the tanks to monitor low fuel in tanks and run alarm wiring to the building located within 50 feet of the tank.
30. Coordinate the installation of electrical service to the site.
31. Provide all trenching, conduit, and cabling necessary for underground hookup of power to the shelter from nearby utility pole located within 200 cable feet of the shelter.
32. Supply and install grounding system around the shelter tied to the fence and other new metal structures within compound to meet Motorola's R-56 standards.
33. Supply and install one free standing 24 inches wide cable/ice bridge from tower to the shelter.

ANTENNA AND TRANSMISSION LINE INSTALLATION:

34. Install new antennas for the RF system.
35. Install transmission lines to the antennas.
36. Perform sweep tests on all transmission lines
37. Supply and install (1) ground buss bar at the bottom of antenna support structure for grounding RF cables before they make horizontal transition.

	Quantity
BMR12SHB1 antennas:	3 @ 380 ft
Tower top Amps	1 @ 380 ft
1/2" LDF cable (Ft.)	420 ft
7/8" LDF cable (Ft.)	420 ft
1-1/4" LDF cable (Ft.)	420 ft



2.1.6 Equipment Installation

Once the equipment is received at the secure location designated by the Williamson County, Motorola will install the equipment per the approved design documentation. During field installation of the equipment, any required changes to the installation will be noted and included with the final “as-built” documentation of the system. The “as-built” documents will be provided along with the maintenance and operator manuals upon project completion.

This phase will be deemed completed when all equipment has been installed at the location designated by Williamson County.

WBS Element	WBS Name
2.1.11.4	Implementation Project
2.1.1	Contract/Project Initiation
2.1.2	Design Review
2.1.3	Order Processing
2.1.4	Manufacturing
2.1.5	Civil Work
2.1.6	Equipment Installation
2.1.7	System Optimization
2.1.8	Training
0	Acceptance Testing
2.1.10	Subscriber Installation
0	Project Finalization

2.1.6.1 *Manage Receipt of Equipment*

Motorola will ensure that all equipment is sent to a customer secured storage location designated by Williamson County, coordinate the receipt of all equipment with the Williamson County point of contact, and inventory all equipment.

2.1.6.2 *Install Equipment*

Motorola will install the equipment included in this project in the equipment shelter provided by the Motorola. Motorola will interface network connections supplied by Williamson County from the established point(s) of demarcation into the Motorola supplied equipment as identified below. Examples of connections may include, but are not limited to, site links, and existing radio system interfaces. These interfaces will be done from a demarcation point located within the equipment room at a point not to exceed 50' from the supplied equipment. Specifically, Motorola

- Will bond the supplied equipment to the site ground system in accordance with the Motorola document Standards and Guidelines for Communication Sites (R56) (DELIVERABLE 8).
- Will install system equipment as specified by the Equipment List, System Description and system drawings
- Will Install the PTP 6000 unlicensed microwave link under the following conditions:

- The PTP can only be installed if the Prime Site and Florence towers pass the tower analysis with the PTP and dishes at 100' and 200', respectively
- The PTP can only be installed if the link passes the detailed field path analysis
- This is a leased T1 replacement and acceptance will be based on the same tests that a leased T1 is accepted with.

The installation pricing assumes that the building facility has sufficient heating, ventilation and air conditioning (HVAC), space, necessary power and back-up power, along with required cable routing facilities to interconnect the hardware. Facility improvements and/or temporary installations of equipment have not been included in this proposal. If desired, Motorola can provide Williamson County with such pricing after visiting the site to determine the scope of the additional work involved.

2.1.7 System Optimization

Prior to applying power to the equipment, a site evaluation report will be created to verify that the site meets or exceeds the requirements as defined in the Motorola document Standards and Guidelines for Communication Sites (R56).

Upon completion of the installation process, the system will have power applied and will then be optimized by Motorola personnel under the direction of the program manager.

This phase will be deemed complete when Motorola and Williamson County agree that the equipment is ready for acceptance testing.

WBS Element	WBS Name
2.1.11.4	Implementation Project
2.1.1	Contract/Project Initiation
2.1.2	Design Review
2.1.3	Order Processing
2.1.4	Manufacturing
2.1.5	Civil Work
2.1.6	Installation
2.1.7	System Optimization
2.1.8	Training
0	Acceptance Testing
2.1.10	Subscriber Installation
0	Project Finalization

2.1.7.1 Configure, Optimize, and Program Equipment

Motorola will verify that all equipment is operating properly and that all electrical and signal levels are properly set once installation in the field is complete. Motorola and its subcontractors will optimize each subsystem individually. Audio and data levels will be checked to verify factory settings. Communication interfaces between devices will be verified for proper operation. Features and functionality will be tested to ensure that they are functioning according to the manufacturer's specifications and per the final configuration established during Design Review.



2.1.7.2 **Remove/Dispose of Debris**

Motorola will remove and dispose of any packaging or debris that is a result of the delivery, installation, or site improvements provided by Motorola. Williamson County has the responsibility for the removal, transportation and disposal of any existing equipment unless specifically identified as a Motorola responsibility.

2.1.8 **Training**

Training is not included as part of this offering.
Therefore, no subtasks are associated with this task.

WBS Element	WBS Name
2.1.11.4	Implementation Project
2.1.1	Contract/Project Initiation
2.1.2	Design Review
2.1.3	Order Processing
2.1.4	Manufacturing
2.1.5	Civil Work
2.1.6	Installation
2.1.7	System Optimization
2.1.8	Training
0	Acceptance Testing
2.1.10	Subscriber Installation
0	Project Finalization

2.1.9 **Acceptance Testing**

WBS Element	WBS Name
2.1.11.4	Implementation Project
2.1.1	Contract/Project Initiation
2.1.2	Design Review
2.1.3	Order Processing
2.1.4	Manufacturing
2.1.5	Civil Work

All tests will be performed as described in the Acceptance Test Plan reviewed at the Design Review and the Acceptance Test Procedures mutually approved prior to the start of Acceptance Testing. During acceptance testing, the system will be tested and the results documented as defined in the Acceptance Test Plan. This phase is considered complete when the Williamson County acknowledges successful completion of the procedures by signing a System Acceptance Certificate.

2.1.6	Installation
2.1.7	System Optimization
2.1.8	Training
0	Acceptance Testing
2.1.10	Subscriber Installation
0	Project Finalization

2.1.9.1 Review Acceptance Test Procedures

Motorola and Williamson County will review the Acceptance Test Procedure(s) (ATP) (DELIVERABLE 9) that detail the steps to be run to confirm that the system provided by Motorola is complete and meets the acceptance test criteria. Motorola will review any system testing that Williamson County wants performed that is not specified in the Acceptance Test Plan and documented in the test procedures. Additional tests may represent a change in the project's scope and may result in a change order to address the supplemental costs to perform the extra tests.

2.1.9.2 Conduct Field Acceptance Test

Motorola will conduct field acceptance testing based upon the acceptance test documents approved prior to starting the test. This testing is meant to test the hardware, software, and functionality of the system. Williamson County representatives have the option to witness or to not witness the conducting of the field acceptance test. Williamson County representatives are encouraged to witness field testing in order to gain a better understanding of the system and test process.

Resolutions to any deficiencies found during testing will be agreed upon and documented. If the documented deficiencies do not prevent productive operational use of the system, then the test will be deemed complete. Motorola will remain responsible for the resolution of any documented deficiencies.

2.1.9.3 Conduct Coverage Acceptance Test

Motorola will conduct coverage acceptance testing based upon the test documents approved during the Design Review phase. Williamson County representatives have the option to witness or to not witness the conduct of the coverage acceptance test. Williamson County representatives are encouraged to witness coverage testing in order to gain a better understanding of the system and test process.



Resolutions to any deficiencies found during testing will be agreed upon and documented. If the documented deficiencies do not prevent productive operational use of the system, then the test will be deemed complete. Motorola will remain responsible for the resolution of any documented deficiencies.

2.1.9.4 *Accept System*

Upon successful completion of acceptance testing, the Williamson County and Motorola will sign a System Acceptance Certificate. Section 8 of the CSA describes System Acceptance. An example of the Systems Acceptance Certificate can also be found within the CSA.

2.1.10 *Subscriber Installation*

Subscribers are not included as part of this offering. Therefore, no tasks are associated with this phase.

WBS Element	WBS Name
2.1.11.4	Implementation Project
2.1.1	Contract/Project Initiation
2.1.2	Design Review
2.1.3	Order Processing
2.1.4	Manufacturing
2.1.5	Civil Work
2.1.6	Installation
2.1.7	System Optimization
2.1.8	Training
0	Acceptance Testing
2.1.10	Subscriber Installation
0	Project Finalization

2.1.11 *Project Finalization*

WBS Element	WBS Name
2.1.11.4	Implementation Project
2.1.1	Contract/Project Initiation
2.1.2	Design Review
2.1.3	Order Processing
2.1.4	Manufacturing

The Project Finalization phase ensures that all criteria for Final Project Acceptance have been met. During this phase, Motorola will provide Williamson County with an electronic System Manual (DELIVERABLE 10), software licenses and necessary software to read the electronic manuals (DELIVERABLE 11), and any equipment manuals supplied as part of the purchased equipment (DELIVERABLE 12).

2.1.5	Civil Work
2.1.6	Installation
2.1.7	System Optimization
2.1.8	Training
0	Acceptance Testing
2.1.10	Subscriber Installation
0	Project Finalization

This phase will be deemed complete when Motorola and Williamson County sign the Final Project Acceptance portion of the System Acceptance Certificate. Additional information regarding Final Project Acceptance can be found in Section 8 of the CSA.

2.1.11.1 *Resolve Punchlist Items*

Motorola will work with Williamson County to resolve punchlist items documented during the Acceptance Testing Phase and any other phase during project implementation to ensure that all the criteria for final acceptance have been met.

2.1.11.2 *Initiate Warranty/Post Warranty Support*

Motorola will review the items necessary for transitioning the project to Warranty support and service. Motorola will provide a Customer Support Plan (DELIVERABLE 13) detailing the warranty and post warranty support, if applicable, associated with the equipment supplied as part of this project. Additional information regarding post warranty support can be found within the Warranty/Post Warranty section of this proposal.

This task will be deemed complete when all service information has been delivered to the Williamson County.

2.1.11.3 *Conduct System and Project Readiness Review*

During this task, Motorola conducts a System and Project Readiness Review to obtain concurrence from all Motorola functional groups and the Williamson County that

- The factors and plans necessary for the high quality and reliability of the system, its components, installation, testing and training, have been addressed and successfully completed.
- The system is ready for beneficial use (cut-over).
- The project is evaluated and assessed to identify any issues that may affect the satisfaction of the end users of the system.

2.1.11.4 *PERFORM SYSTEM CUTOVER*

Motorola and Williamson County will develop a mutually agreed upon Cutover Plan (DELIVERABLE 14) based upon discussions held during the Design Review Phase that will be used to implement the cutover process. During cutover, the written plan will be followed and the defined contingencies will be implemented as required.

2.1.11.5 *Project Documentation*

Services, equipment, software and documentation are several types of project deliverables Motorola provides as part of this project. Services are specified within this SOW and the equipment is defined within the Equipment List. The documentation and drawings to be developed and delivered as part of this project are described below.

Motorola develops documentation and drawings of the system not only to assist with the implementation of the project, but also to provide Williamson County with reference materials that can be used for training, as a basis for future system upgrades, and even disaster recovery. For these reasons, Motorola creates and updates documentation and drawings during the implementation of the project.

Motorola provides a comprehensive “as-built” documentation package in the form of an electronic System Manual. The electronic System Manual contains a description of the system including drawings and equipment lists, screen configurations, site pictures, programming data sheets, final test plans, and warranty information. The Electronic System Manual is developed using a software application that creates interactive documentation that allows the user to easily visualize immense amounts of complex, interrelated data.

Table 1 lists each deliverable, describes its contents, states the quantity to be provided, and provides the delivery method

Table 1: Project Documentation.

#	Title	Description	Qty	Format Type/ Delivery
1.	Project Schedule	This is the schedule for the project that is completed in support of the Project Kickoff Meeting.	1	Electronic/Email

#	Title	Description	Qty	Format Type/ Delivery
2.	Project Status Reports/ Schedule Updates	These reports capture the status of the project and will be provided on a basis that is mutually agreed upon by Motorola and the Williamson County.	1	Electronic/Email
3.	Meeting Minutes	Meeting Minutes capture the results of the formal meetings held as part of this project such as the Design Review.	1	Electronic/Email
4.	Action Item Logs	Action Item Logs provide a description of outstanding items and the name of the individual responsible for resolving the action item.	1	Electronic/Email
5.	Site Evaluation Report	This report includes recommendations for site preparation so that a suitable environment for installation of the system can be obtained.	1	Electronic/Email
6.	Acceptance Test Plan	This plan describes the type of testing to be completed as part of the project.	1	Electronic/Email
7.	Design Documentation	The items included within this proposal are further refined and updated to reflect the "as-built" description of the system. This documentation may include documents such as System Description, system drawings, Equipment List, site connectivity, power requirements, etc. The final information is included as part of the System Manual.	1	Electronic/Email
8.	Standards and Guidelines for Communication Sites (R56)	This is a site standard recognized in the industry that is provided after contract award as reference for the Williamson County.	1	Electronic/Email

#	Title	Description	Qty	Format Type/ Delivery
9.	Acceptance Test Procedures	Acceptance Test Procedures plans will be created and presented the Design Review Phase. A mutually agreed plan will be developed and will include the results of the testing.	1	Electronic/ CD-ROM
10.	System Manual	A document that contains the final versions of the System Description, Equipment List, drawings, Acceptance Test Procedures, programming templates, and Customer Support Plan.	2	Electronic/CD ROM
11.	System Manual Licenses and Readers	The software required to view the electronic system manuals.	2	Electronic/CD ROM
12.	Equipment Manuals	These are the manuals provided by the manufacturer(s) for the equipment that was supplied as part of this project.	As received	As received
13.	Customer Support Plan	This document outlines the plan for customer support during the warranty period.	N/A	Electronic/CD ROM (provided as part of System Manual)
14.	Cut Over Plan	This plan describes the details associated with system cut over.	1	Electronic/ CD-ROM

Notes:

Hardcopy Format: Printed documentation that may be delivered in person, U.S. mail, Fed Ex, UPS, or any other carrier.

Electronic Format: Documentation that is in an electronic format and can delivered via Email, diskette, and/or CD ROM.

2.1.11.4 CUSTOMER RESPONSIBILITIES

A successful project requires responsibilities to be managed by both Motorola and the Williamson County. Motorola and the Williamson County responsibilities are outlined

throughout this proposal. The information contained within the Equipment List and work defined in this SOW is based on the understanding that certain tasks will be performed by Williamson County. These tasks are enumerated below to detail the tasks that are to be completed by the Williamson County in order to successfully complete the implementation.

1. ***Provide Notice to Proceed:*** Upon project award, Williamson County needs to officially grant Motorola the Contract.
2. ***Provide Primary Point of Contact:*** Williamson County needs to identify an individual as a primary point of contact who will work with the Motorola program manager.
3. ***Complete Project Scheduled Tasks:*** Williamson County needs to ensure that tasks assigned to them as agreed upon during the Project Kickoff Meeting are completed on a timely basis.
4. ***Provide Internal Grounding Requirements for Site Development and Preparation:*** The Williamson County shall provide Motorola with detailed electrical drawings of the internal grounding system. The electrical drawings shall contain enough detail for Motorola to accurately determine if the internal grounding system meets the necessary requirements.
5. ***Provide External Grounding Requirements for Site Development and Preparation:*** The Williamson County shall provide Motorola with detailed electrical drawings of the grounding electrode system. The electrical drawings shall contain enough detail for Motorola to accurately determine if the grounding electrode system meets the necessary requirements.
6. ***Perform Communication Site Upgrades:*** The Williamson County needs to ensure that site upgrades, as identified in the Site Evaluation Report, are completed within the Project Schedule time frame.
7. ***Upgrade Existing Communication Network and Equipment:*** Williamson County needs to ensure that recommendations to upgrade/modify existing legacy communication system networks and equipment are reviewed and are completed within the Project Schedule time frame. These recommendations are made to ensure compatibility with new equipment and optimal application performance.
8. ***Grant Site Access:*** Williamson County needs to provide a letter to all owners/managers of sites and provide any keys or other necessary items to allow Motorola or third party personnel to enter all sites within this proposal.
9. ***Ensure Personnel Safety:*** Williamson County needs to provide the Motorola program manager with safety rules during the Project Kickoff Meeting. These rules must be followed during the integration phase of this project. The Motorola program manager will also share Motorola's Safety Plan as found in Motorola's Field Operation Safety Manual. Motorola will conduct regular periodic inspections of all active job sites to ensure strict compliance with this Safety Plan as well as any safety rules set forth by Williamson County.

10. ***Assist with Site Access:*** Motorola may require assistance traveling to sites as a result of impassable roads or difficult to access sites such as those located at mountaintops. Williamson County needs to provide transportation to these sites if required.
11. ***Identify Location for Secure Equipment Storage:*** Williamson County will need to identify the secure location for equipment storage during the Project Kickoff Meeting. This secure location will be used as the “ship to” address for the equipment and will be used to warehouse the equipment as the sites are being prepared.
12. ***Provide Secure Storage of Equipment:*** Williamson County is responsible for the secure storage of all equipment.
13. ***Provide Documentation of Existing Equipment:*** Williamson County will need to provide documentation of existing system(s), sites, and interfaces. Documentation may be, but is not limited to, equipment manuals, drawings, and equipment lists.
14. ***Review Documentation:*** Williamson County needs to review project documentation as it is received to provide feedback for appropriate and timely discussions and or changes. Documentation includes the Project Schedule, System Design, Acceptance Test Plans, Acceptance Test Procedures, and other deliverables as listed in

Table 1.

17. ***Assume Responsibility for Third Party Equipment, Software, or Services:*** Third party services and/or equipment contracted by Williamson County are the responsibility thereof. Motorola has responsibility for all third party services provided by Motorola under this proposal.
18. ***Ensure Performance Standards of the Williamson County-provided Site Connectivity Equipment:*** The connectivity performance standards will be included in the Design Documentation developed during the Design Review Phase. Motorola may test for compliance of the connections prior to commencing installation.
19. ***Coordinate Schedule for Installation, Acceptance Tests, and Cutover:*** Williamson County will provide times and dates of availability to participate in these events.
20. ***Decommission and Remove Existing Equipment:*** Unless otherwise specified in this SOW, Williamson County has the responsibility for the decommission, removal, and transportation of the old system, if applicable.
21. ***Provide Permits, Licenses, and Structural Analyses:*** Williamson County needs to provide all current permits, licenses, and structural analyses related to frequencies, antenna installation, site upgrades and/or buildings.
22. ***Support Integration, Optimization, and Testing:*** Williamson County needs to provide and install all communication lines/equipment that are not Motorola-provided deliverables and needs to provide all required liaison support with the agencies and vendors under their jurisdiction.

23. **Communicate Project Changes:** Williamson County needs to communicate schedule changes for tasks or phase events, and/or changes to dates to the program manager to avoid additional costs.

3. MOTOROLA SYSTEM SUPPORT

Does this section need to be modified to reflect what we are selling, only an add-on site to an existing system? Perhaps George Richards can provide more appropriate verbiage. In addition to the Standard Commercial Warranty, Motorola provides Enhanced System Support (ESS) Services for one year during the warranty period. The Standard Commercial Warranty covers on-site response during normal business hours and provides for the repair or replacement of defective hardware components. ESS provides the following additional services:

- Software Subscription Agreement
- Infrastructure Software installation
- Software Upgrade Design
- Dispatch Services
- Network Monitoring Service
- Advanced Replacement of Infrastructure Board Components
- Technical Support
- On-Site Infrastructure Response after hours
- System Survey and Analysis
- Local Radio Support

4. PRICING SUMMARY
