AGREEMENT BETWEEN THE COUNTY OF SAN MATEO AND MOTOROLA, INC.

THIS AGREEMENT, entered into this _____ day of _____ ,

20_____, by and between the COUNTY OF SAN MATEO, hereinafter called "County,"

and MOTOROLA, INC., hereinafter called "Contractor";

W I T N E S S E T H:

WHEREAS, pursuant to Government Code Section 31000, County may contract with independent contractors for the furnishing of such services to or for County or any Department thereof;

WHEREAS, it is necessary and desirable that Contractor be retained for the purpose of designing, building and implementation/migration of an ANSI/EIA/TIA-102 compliant P25/700MHz Interoperable Radio Communications System (SMIRC).

NOW, THEREFORE, IT IS HEREBY AGREED BY THE PARTIES HERETO AS FOLLOWS:

1. Exhibits and Attachments

The following exhibits and attachments are included hereto and incorporated by reference herein:

Exhibit A—Services
- A-1 Statement of Work
- A-2 System Design Description
- A-3 Acceptance Test Plan
- A-4 Performance Schedule
- A-5 Enhanced System Support Statement of Work

Exhibit B—Payment Schedule and Pricing Summary
Appendix 1 – Software License Agreement
Appendix 2 – Master Purchase Agreement

2. Services to be performed by Contractor

In consideration of the payments set forth herein and in Exhibit “B,” Contractor shall perform services for County in accordance with the terms, conditions and specifications set forth herein and in Exhibit “A.”

3. Payments

In consideration of the services provided by Contractor in accordance with all terms, conditions and specifications set forth herein and in Exhibit "A," County shall make payment to Contractor based on the rates and in the manner specified in Exhibit "B." The County reserves the right to withhold payment if the County determines that the quantity or quality of the work performed is unacceptable. In no event shall the County's total fiscal obligation under this Agreement exceed FOUR MILLION FIVE HUNDRED FORTY FOUR THOUSAND NINE HUNDRED SIX DOLLARS ($4,544,906).

4. Term and Termination

Subject to compliance with all terms and conditions, the term of this Agreement shall be from APRIL 28, 2010 through APRIL 27, 2013, with the option to extend the Agreement by two additional one-year terms.

This Agreement may be terminated by Contractor, the Sheriff or his/her designee at any time without a requirement of good cause upon thirty (30) days' written notice to the other party.

In the event of termination, all finished or unfinished documents, data, studies, maps, photographs, reports, and materials (hereafter referred to as materials) prepared by Contractor under this Agreement shall become the property of the County and shall be promptly delivered to the County. Upon termination, the Contractor may make and retain a copy of such materials.

If the County terminates the Agreement without cause, it will be liable to pay Contractor for (1) the portion of the contract price attributable to the equipment and/or software delivered, and all services performed, on or before the effective date of the termination; and (2) reasonable costs and expenses that Contractor incurs as a result of the termination of the Agreement.

5. Availability of Funds

The County may terminate this Agreement or a portion of the services referenced in the Attachments and Exhibits based upon unavailability of Federal, State, or County funds, by providing written notice to Contractor as soon as is reasonably possible after the County learns of said unavailability of outside funding.

If the County terminates for non-appropriation it will be liable to pay Contractor for (1) the portion of the contract price attributable to the equipment and/or software delivered, and all services performed, on or before the effective date of the termination; and (2) reasonable costs and expenses that Contractor incurs as a result of the termination of the Agreement.

County shall have no right to terminate this Agreement for the purpose of procuring any of the same or substantially similar equipment, software, or services from another vendor, or if Contractor has given County a notice of default and such default has not been cured. However, the County is permitted to purchase radios and other equipment from other sources if the County (1) has not terminated for purposes of procuring any of the same or substantially similar equipment, software, or services from another vendor or (2) has not failed to cure a default**.**

6. Relationship of Parties

Contractor agrees and understands that the work/services performed under this Agreement are performed as an independent Contractor and not as an employee of the County and that Contractor acquires none of the rights, privileges, powers, or advantages of County employees.

7. Hold Harmless

Contractor shall indemnify and save harmless County, its officers, agents, employees, and servants from all claims, suits, or actions of every name, kind, and description, brought for, or on account of: (A) injuries to or death of any person, including Contractor, or (B) direct damage to any tangible property of any kind whatsoever and to whomsoever belonging, (C) any sanctions, penalties, or claims of damages resulting from Contractor's failure to comply with the requirements set forth in the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and all Federal regulations promulgated thereunder, as amended, or (D) any other loss or cost, resulting from the negligent performance of any work required of Contractor or payments made pursuant to this Agreement, provided that this shall not apply to injuries or damage for which County has been found in a court of competent jurisdiction to be solely liable by reason of its own negligence or willful misconduct.

The duty of Contractor to indemnify and save harmless as set forth herein, shall include the duty to defend as set forth in Section 2778 of the California Civil Code.

8. Assignability and Subcontracting

Contractor may subcontract any of the work, but subcontracting will not relieve Contractor of its duties under this Agreement. Except as provided herein, Contractor may assign this Agreement or any of its rights or obligations hereunder without the prior written consent of the County, which consent will not be unreasonably withheld.

Notwithstanding the foregoing, Contractor may assign this Agreement to any of its affiliates, or its right to receive payment without the prior consent of County. In addition, in the event Contractor separates one or more of its businesses (each a "Separated Business"), whether by way of a sale, establishment of a joint venture, spin-off or otherwise (each a "Separation Event"), Contractor may, without the prior written consent of the County and at no additional cost to Contractor, assign this Agreement such that it will continue to benefit the Separated Business and its affiliates (and Contractor and its affiliates, to the extent applicable) following the Separation Event.

9. Insurance

The Contractor shall not commence work or be required to commence work under this Agreement unless and until all insurance required under this paragraph has been obtained and such insurance has been approved by Risk Management, and Contractor shall use diligence to obtain such insurance and to obtain such approval. The Contractor shall furnish the County with certificates of insurance evidencing the required coverage, and there shall be a specific contractual liability endorsement extending the Contractor's coverage to include the contractual liability assumed by the Contractor pursuant to this Agreement. These certificates shall specify or be endorsed to provide that thirty (30) days' notice must be given, in writing, to the County of any pending change in the limits of liability or of any cancellation or modification of the policy.

(A) **Worker's Compensation and Employer's Liability Insurance** The Contractor shall have in effect during the entire life of this Agreement Workers' Compensation and Employer's Liability Insurance providing full statutory coverage. In signing this Agreement, the Contractor certifies, as required by Section 1861 of the California Labor Code, that it is aware of the provisions of Section 3700 of the California Labor Code which requires every employer to be insured against liability for Worker's Compensation or to undertake self-insurance in accordance with the provisions of the Code, and I will comply with such provisions before commencing the performance of the work of this Agreement.

(B) **Commercial General Liability Insurance** The Contractor shall take out and maintain during the life of this Agreement such Bodily Injury Liability and Property Damage Liability Insurance as shall protect him/her while performing work covered by this Agreement from any and all claims for damages for bodily injury, including accidental death, as well as any and all claims for property damage which may arise from contractors operations under this Agreement, whether such operations be by himself/herself or by any sub-contractor or by anyone directly or indirectly employed by either of them. Such insurance shall be combined single limit bodily injury and property damage for each occurrence and shall be not less than the amount specified below.

Such insurance shall include:

(1)	Commercial General Liability	$1,000,000
(2)	Motor Vehicle Liability Insurance	$1,000,000

County and its officers, employees and servants shall be named as additional insured on any such policies of insurance, which shall also contain a provision that the insurance afforded thereby to the County, its officers, employees and servants shall be primary insurance to the full limits of liability of the policy, and that if the County or its officers and employees have other insurance against the loss covered by such a policy, such other insurance shall be excess insurance only.

In the event of the breach of any provision of this section, or in the event any notice is received which indicates any required insurance coverage will be diminished or canceled, the County of San Mateo at its option, may, notwithstanding any other provision of this Agreement to the contrary, immediately declare a material breach of this Agreement and suspend all further work pursuant to this Agreement.

10. Compliance with laws; payment of Permits/Licenses

All services to be performed by Contractor pursuant to this Agreement shall be performed in accordance with all applicable Federal, State, County, and municipal laws, including, but not limited to, Health Insurance Portability and Accountability Act of 1996 (HIPAA) and all Federal regulations promulgated thereunder, as amended, and the Americans with Disabilities Act of 1990, as amended, and Section 504 of the Rehabilitation Act of 1973, as amended which prohibits discrimination on the basis of handicap in programs and activities receiving any Federal or County financial assistance. Such services shall also be performed in accordance with all applicable ordinances and regulations, including, but not limited to, appropriate licensure, certification regulations, provisions pertaining to confidentiality of records, and applicable quality assurance regulations.

In the event of a conflict between the terms of this Agreement and State, Federal, County, or municipal law or regulations, the requirements of the applicable law will take precedence over the requirements set forth in this Agreement. If an applicable law is changed after contract execution that affects the cost to implement the System, Contractor will be entitled to seek a Change Order to compensate Contractor for the additional cost, however any such Change Order will be subject to and limited by the not-to-exceed amount of this Agreement.

Contractor will timely and accurately complete, sign, and submit all necessary documentation of compliance.

11. Non-Discrimination and Other Requirements

A. *Section 504 applies only to Contractor who are providing services to members of the public.* Contractor shall comply with § 504 of the Rehabilitation Act of 1973, which provides that no otherwise qualified handicapped individual shall, solely by reason of a disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination in the performance of this Agreement.

B. *General non-discrimination*. No person shall, on the grounds of race, color, religion, ancestry, gender, age (over 40), national origin, medical condition (cancer), physical or mental disability, sexual orientation, pregnancy, childbirth or related medical condition, marital status, or political affiliation be denied any benefits or subject to discrimination under this Agreement.

C. *Equal employment opportunity.* Contractor shall ensure equal employment opportunity based on objective standards of recruitment, classification, selection, promotion, compensation, performance evaluation, and management relations for all employees under this Agreement. Contractor's equal employment policies shall be made available to County of San Mateo upon request.

D. *Violation of Non-discrimination provisions.* Violation of the non-discrimination provisions of this Agreement shall be considered a breach of this Agreement and subject the Contractor to penalties, to be determined by the County Manager, including but not limited to
   i) termination of this Agreement;
   ii) disqualification of the Contractor from bidding on or being awarded a County contract for a period of up to 3 years;
   iii) liquidated damages of $2,500 per violation;
   iv) imposition of other appropriate contractual and civil remedies and sanctions, as determined by the County Manager.

To effectuate the provisions of this section, the County Manager shall have the authority to set off all or any portion of the amount described in this paragraph against amounts due to Contractor under the Contract or any other Contract between Contractor and County.

E. *Compliance with Equal Benefits Ordinance.* With respect to the provision of employee benefits, Contractor shall comply with the County Ordinance which prohibits contractors from discriminating in the provision of employee benefits between an employee with a domestic partner and an employee with a spouse.
F. The Contractor shall comply fully with the non-discrimination requirements required by 41 CFR 60-741.5(a), which is incorporated herein as if fully set forth.

12. Compliance with Contractor Employee Jury Service Ordinance

Contractor shall comply with the County Ordinance with respect to provision of jury duty pay to employees and have and adhere to a written policy that provides that its employees shall receive from the Contractor, on an annual basis, no less than five days of regular pay for actual jury service in San Mateo County. The policy may provide that employees deposit any fees received for such jury service with the Contractor or that the Contractor deduct from the employees' regular pay the fees received for jury service.

13. Retention of Records, Right to Monitor and Audit

(a) Except for Contractor's confidential or proprietary information, such as, but not limited to cost data, Contractor shall maintain all required records for three (3) years after the County makes final payment and all other pending matters are closed, and shall be subject to the examination and/or audit of the County, a Federal grantor agency, and the State of California.

(b) Reporting and Record Keeping: Contractor shall comply with all program and fiscal reporting requirements set forth by appropriate Federal, State and local agencies, and as required by the County.

(c) Contractor agrees to provide to County, to any Federal or State department having monitoring or review authority, to County's authorized representatives, and/or their appropriate audit agencies upon reasonable notice, access to and the right to examine all records and documents necessary to determine compliance with relevant Federal, State, and local statutes, rules and regulations, and this Agreement, and to evaluate the quality, appropriateness and timeliness of services performed.

14. Merger Clause

This Agreement, including the Exhibits and Attachments attached hereto and incorporated herein by reference, constitutes the sole Agreement of the parties hereto and correctly states the rights, duties, and obligations of each party as of this document's date. In the event that any term, condition, provision, requirement or specification set forth in this body of the Agreement conflicts with or is inconsistent with any term, condition, provision, requirement or specification in any Exhibit and/or Attachment to this Agreement, the provisions of this body of the Agreement shall prevail. Any prior Agreement, promises, negotiations, or representations between the parties not expressly stated in this document are not binding. All subsequent modifications shall be in writing and signed by the parties.

15. Controlling Law and Venue

The validity of this Agreement and of its terms or provisions, as well as the rights and duties of the parties hereunder, the interpretation, and performance of this Agreement shall be governed by the laws of the State of California. Any dispute arising out of this Agreement shall be venued either in the San Mateo County Superior Court or the United States District Court for the Northern District of California.

16. Debarment and Suspension

As required by Executive Order 12549, Debarment and Suspension and implemented at 21 CFR Part 1404, Contractor hereby acknowledges that prior to execution of this Agreement, County shall research and certify that Contractor:

a. Is not presently debarred, suspended, proposed for debarment, declared ineligible, sentenced to a denial of Federal benefits by a State or Federal court, or voluntarily excluded from the covered transactions by any Federal department or agency; or
b. Has not within a three-year period preceding this Contract been convicted of or and a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain or performing a public transaction violation of Federal or State antitrust statures or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property; or
c. Is not presently indicted for or otherwise criminally or civilly charged by a government entity terminated for cause or default.

17. Limitation of Liability

Except for personal injury or death, Contractor's total liability, whether for breach of contract, warranty, negligence, strict liability in tort, indemnification, or otherwise, will be limited to the direct damages recoverable under law, but not to exceed the price of the Equipment, Software, or services with respect to which losses or damages are claimed. Although the parties acknowledge the possibility of such losses or damages, they agree that Contractor will not be liable for any commercial loss, inconvenience, loss of use, time, data, good will, revenues, profits or savings, or other special incidental, indirect, or consequential damages in any way related to or arising from this Agreement, the sale or use of the equipment or software, or the performance of services by Contractor pursuant to this Agreement. This limitation of liability provision survives the expiration or termination of the Agreement and applies notwithstanding any contrary provision. No action for contract breach or otherwise relating to the transactions contemplated by this Agreement may be brought more than one (1) year after the accrual of the cause of action, except for money due upon an open account.

18. No Relationship Between Eligible Purchasers and the County

To the extent that any "Eligible Purchasers," as defined in Appendix 2 hereto (the Master Purchase Agreement), makes any purchases under the Master Purchase Agreement, the County of San Mateo bears no responsibility either to the Eligible Purchasers or to the Contractor (or the "Reseller" or "Manufacturer", as defined in Appendix 2, if different than the Contractor) in relation to such purchases. Any payments for purchases and related contractual obligations shall be made as between the Eligible Purchasers and Contractor, Reseller or Manufacturer, as appropriate, and the County of San Mateo does not have any financial or other obligation with respect to such purchases made under the Master Purchase Agreement. The County of San Mateo has no contractual relationship with such Eligible Purchasers in relation to any such purchase from Contractor, Reseller, or Manufacturer, and accordingly has no obligations whatsoever as to those purchases and makes no warranty, express or otherwise, in relation to any such purchases. The sole purpose of the Eligible Purchaser's involvement with the Master Purchase Agreement is for that entity, the County of San Mateo, and other Eligible Purchasers to obtain access to Volume Pricing as described in the Master Purchase Agreement, and each such Eligible Purchaser is solely responsible for its own contractual relationship with the Reseller or Manufacturer, as outlined in that Agreement. To the extent that Contractor, Reseller, or Manufacture performs any services for an Eligible Purchaser in relation to such purchase, those services are also performed as between those parties; and the County of San Mateo is not a party to any such services.

19. Patent and Copyright Infringement

Infringement Claim means a third-party claim alleging that the Equipment manufactured by Contractor or the Contractor's Software infringes upon the third-party's United States patent or copyright.

Contractor will defend at its expense any suit brought against County to the extent it is based on an Infringement Claim, and Contractor will indemnify County for those costs and damages finally awarded against County for an Infringement Claim. Contractor's duties to defend and indemnify are conditioned upon: County promptly notifying Contractor in writing of the Infringement Claim; Contractor having sole control of the

defense of the suit and all negotiations for its settlement or compromise; and County providing to Contractor cooperation and, if requested by Contractor, reasonable assistance in the defense of the Infringement Claim.

If an Infringement Claim occurs, or in Contractor's opinion is likely to occur, Contractor may at its option and expense procure for County the right to continue using the Equipment or Contractor Software, replace or modify it so that it becomes non-infringing while providing functionally equivalent performance, or grant County a credit for the Equipment or Contractor Software as depreciated and accept its return. The depreciation amount will be calculated based upon generally accepted accounting standards for such Equipment and Contractor Software.

Contractor will have no duty to defend or indemnify for any Infringement Claim that is based upon (1) the combination of the Equipment or Contractor Software with any software, apparatus or device not furnished by Contractor; (2) the use of ancillary equipment or software not furnished by Contractor and that is attached to or used in connection with the Equipment or Contractor Software; (3) any Equipment that is not Contractor's design or formula; (4) a modification of the Contractor Software by a party other than Contractor or its subcontractors; or (5) the failure by County to install an enhancement release to the Contractor Software that is intended to correct the claimed infringement. However, each of the following five limitations is applicable only where the infringement claim is solely based on equipment, software, or other modifications attributable to a third party. To the extent any Infringement Claim contains a mix of claims, some attributable to equipment manufactured by Contractor or the Contractor's Software and some attributable to equipment or software of other third parties, Contractor will defend the portion of the Infringement Claim relating to Contractor's equipment or software. The foregoing states the entire liability of Contractor with respect to infringement of patents and copyrights by the Equipment, Contractor Software, or any of their parts.

20. Motorola Software and Non-Motorola Software

Any Motorola Software furnished will be licensed to the County solely according to the terms and restrictions of the Software License Agreement, attached as Appendix 1. County hereby accepts all of the terms and restrictions of the Software License Agreement.

Any non-Motorola Software furnished by Contractor will be subject to the terms and restrictions of its copyright owner unless such copyright owner has granted to Contractor the right to sublicense such non-Motorola Software, in which case the Software License Agreement (including any addendum to satisfy such copyright owner's requirements) shall apply.

21. Amendments

The Sheriff or his designee will be authorized to execute contract amendments and Change Orders for modifications to the terms, scope and conditions up to the standard contract amount, so long as the modified term or services is/are within the current or revised fiscal provisions.

22. Notices

Any notice, request, demand, or other communication required or permitted hereunder shall be deemed to be properly given when both (1) transmitted via facsimile to the telephone number listed below and (2) either deposited in the United Sates mail, postage prepaid, or when deposited for overnight delivery with an established overnight courier that provides a tracking number showing confirmation of receipt for transmittal, charges prepaid, addressed to:

In the case of County, to:
San Mateo County Sheriff's Office
Attn: Sheriff
400 County Center
Redwood City, CA 94063
Fax: 650-599-1536

In the case of Contractor, to:
Motorola, Inc.
Blair Vincent, Project Manager
6450 Sequence Drive
San Diego, CA 92121

In the event that the facsimile transmission is not possible, notice shall be given both by United States mail and an overnight courier as outlined above.

IN WITNESS WHEREOF, the parties hereto, by their duly authorized representatives, have affixed their hands.

COUNTY OF SAN MATEO

By:_____
Richard S. Gordon, President, Board of Supervisors, San Mateo County

Date:_____

ATTEST:

By:_____
Clerk of Said Board

MOTOROLA, INC.

_____
Contractor's Signature

Date:_____

EXHIBIT A - SERVICES
AGREEMENT BETWEEN COUNTY OF SAN MATEO AND MOTOROLA, INC.

In consideration of the payments set forth in Exhibit "B", Contractor shall provide the following services:

A-1. Statement of Work

Contractor will assist the County in the design, build and integration of an ANSI/EIA/TIA-102 compliant P25/700MHz Interoperable Radio Communications System (SMIRC), for the County. Contractor will provide, assemble and integrate the Equipment and Software, and deliver, install and test the System at designated sites.

This Statement of Work defines the principal activities and responsibilities of all parties for the implementation of the San Mateo Interoperable Radio Communications System (SMIRC), a countywide Project 25 700 MHz Communications System for the County. Deviations and changes to this Statement of Work are subject to mutual agreement between Contractor and the County, and will be addressed in accordance with the Change Order provisions of the Agreement.

The major subsystems included as components* are the Project 25 (P25) Master Site (existing Master Site) and the simulcast subsystem.

*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, interfaces and ancillary systems listed above.

The initial scope of work will include the build out of a simulcast cell consisting of five (10 channel) 700MHz R.F sites and two (6 channel) repeater sites. These radio sites will be integrated with the County's existing P25 Master Site and legacy trunked radio system. The seven radio sites are:

Hall of Justice (Prime Site)
North Peak
San Bruno Nike
Pise
Huddart Park
Brisbane (Ice House Hill)
Towne Ridge

Contractor will perform/provide the following:

A. Project Initiation and Kick Off - The project will be initiated with a Project Kickoff meeting that includes key County and Contractor project participants. The objectives of the Kickoff Meeting include the following:

- Introduction and exchange of contact information of all project participants
- Review of key participant roles and project review procedures
- Establishment of a clear chain of communication and authority
- Review of overall project scope and objectives
- Review of resource and scheduling requirements

- Review of preliminary Project Schedule

During the Project Initiation Phase, Contractor will review and work with the County to finalize the following project processes and procedures:

- Detailed Project Schedule
- Risk Management Plan
- Change Control Plan
- Issues Document and Action Item Log

Project Initiation and Kick Off Responsibility Matrix

Task	Responsibility	Deliverable
Initiate the SMIRC project with a Kick Off meeting.	Contractor/County	Documented project personnel names, responsibilities, contacts, and project review procedures
Begin creating Risk Management Plan.	Contractor	Initial Risk Management Plan
Define format of the Issues Document and Action Item Log.	Contractor	Initial Issues and Action Item Log
Review Change Control procedures with County's Project Manager.	Contractor	Initial Change Control Plan
Work with Contractor's personnel in finalizing and approving the Change Control Plan.	County	Approved initial Change Control Plan
A Communication Plan will be developed to address the types of communication that will be established, such as the weekly status meetings and status reports. The Communication Plan will also indicate the appropriate points of contact for different types of communication.	Contractor/County	Communications Plan
Provide current system documentation.	Contractor	County Existing System Documentation

Completion Criteria: This task is considered complete when the Project Kickoff meeting has been held with Contractor and County representatives in attendance, and when the Project Scope, Schedules, Procedures, Roles and Responsibilities have been documented and agreed upon.

B. Design Review – Contractor has provided a preliminary design, which serves as a baseline for the Design Review. The Design Review encompasses the design finalization of the major subsystems, such as finalization of the site locations, Coverage Design, and Intermodulation Studies. The County and Contractor will review the SMIRC design through analysis of the system functionality, interface requirements and end-user requirements, as mutually agreed between Contractor and County. During this Phase of the project, the Project Plan will be developed. Also, during this review, Contractor will work closely with the County to develop a high-level Cutover Plan to transition to the new SMIRC. The detailed Cutover Plan will be finalized prior to cutover. At the end of the Design Review Phase, detailed design documents will be provided to the County.

The County's approval will finalize the Design Review process.

Design Review Responsibility Matrix

Task	Responsibility	Deliverable
Finalize Coverage Design and Sites: Contractor and County will work together to develop a final Coverage Design based on the final sites selection. *In order for Contractor to finalize the Coverage Design, County must have finalized all sites within the system. In addition, space on existing towers must be finalized to complete coverage predictions. Contractor's coverage guarantee is based on the final coverage predictions created during the Design Review.*	Contractor/County	Final Coverage Design
Contractor will provide a final Frequency Plan once the Coverage Design is finalized. Contractor will also provide the technical inputs required for licensing, including contour maps and system parameters.	Contractor	700 MHz Voice Frequency Plan
Contractor will conduct computer-based Intermodulation (IM) studies and provide information from the IM studies that the County should take into account in the finalization of the Frequency Plan. Should the IM studies indicate that additional filtering is required to eliminate or reduce interference, Contractor will design the most optimal solution within the scope of this project.	Contractor	Intermodulation Studies (IM)
Equipment for sites that require additional filtering to mitigate potential interference will be added to the Agreement as part of the Final Design and represent a change in scope.	County	Filtering to mitigate interference
Contractor and County will finalize the Project Schedule.	Contractor/County	Project Schedule
-Contractor will deliver a Design Document that reflects changes in design and scope, as well as definition of details determined during the Design Review. -Contractor will update the Equipment List as necessary to accommodate the specifics of the Design Review. -Contractor will update the System Description to reflect changes in the System Design. -Contractor will update the System Drawings and Documentation to reflect changes in System Design. -Contractor will update the SOW to reflect changes in the Implementation Scope. -Contractor and County will finalize the Project Schedule. -Contractor will submit a final Design Document to the County through the Change Order process. This document will be baselined by the System Description, SOW, Project Schedule, and other documentation provided prior to Design Document approval.	Contractor	Equipment List System Description System Drawings, work breakdown structure with narrative Project Schedule Change Orders (as necessary)
County will review the work performed by Contractor and sign an approval document for the Design Review.	County	Approval Statement

Completion Criteria: This task is considered complete when the subtasks listed below are all completed.

Coverage Design: Contractor and County will work together to finalize sites for inclusion in SMIRC. Contractor will analyze the coverage and evaluate frequency compatibility to aid the County in finalizing radio sites and radio site configurations.

Coverage Design Responsibility Matrix

Task	Responsibility	Deliverable
Contractor and County will review the coverage and site locations.	Contractor/County	Agreement of site location and configuration
County will identify all assets that should be considered within the Coverage Design, including: Existing and Potential Sites, Frequencies, and Existing Microwave and Planned Microwave.	County	Finalized County Assets
County will lease or purchase radio sites suitable for the System.	County	Site acquisition or leases on suitable property
County will provide the facilities required to accommodate the RF site equipment and antennas.	County	Approval for Site RF Equipment location and space and antenna locations on the towers
Contractor will incorporate design limitations based on County requirements for FCC licensing.	Contractor	Incorporate licensing input to RF Design
Coverage Design: -Contractor and County will define the coverage and site requirements as defined below: -Contractor will create coverage maps for the RF System for presentation to County that illustrates the predicted coverage. -Contractor's Project Team will review all of the coverage predictions with County team.	Contractor	Finalize Coverage Maps for the System

Completion Criteria: This task is considered complete when final Coverage Maps have been submitted to the County.

Frequency Plan and Intermodulation Analysis: Contractor and County will work together to finalize the Frequency Plan for the System. Contractor will evaluate frequency compatibility, based on the frequency assets identified for use within the system and on the desired coverage and loading. These steps will be an iterative process to aid the County in finalizing the system configurations.

Frequency Plan and Intermodulation Analysis Responsibility Matrix

Task	Responsibility	Deliverable
County will confirm the list of frequencies for use within the System.	Contractor/County	Agreement on the Frequency List
Contractor will evaluate each site within the Coverage Design for its compatibility with the identified frequencies. Frequency compatibility with the identified sites will drive the configuration of the System's simulcast cells.	Contractor	Evaluation of Frequency Compatibility with sites
Site Information: The County will provide site frequency information regarding existing equipment at the radio sites so that Contractor can conduct IM studies.	County	Site Frequency Information
Contractor will execute intermodulation analysis, based on a computer model, and identify any IM hits based on that analysis. Contractor will make	Contractor	Computer-based Intermodulation Analysis and other County Frequency recommendations

recommendations to the County to alleviate IM problems that are discovered through this process.		
Contractor will provide the System Frequency Plan.	Contractor	Frequency Plan for SMIRC
-County will prepare all documents and perform all engineering for the modification of the FCC licenses necessary for the new system. -County will obtain all FCC licenses and authorizations required for installation and use of the system prior to the scheduled installation of the equipment.	County	FCC Licenses

Completion Criteria: This task is considered complete when the Frequency Plan is finalized.

Develop Cutover Plan: The implementation of the 700 MHz Trunked Radio System (SMIRC) will require a detailed Cutover Plan for a smooth transition from the existing radio system to the new Radio System. During the Design Review Phase, a high-level Cutover Plan will be developed. As the implementation proceeds, further detail will be provided to the Cutover Plan during the preparation for Cutover.

Contractor has made the following assumptions for the Cutover Plan:

- Space is available at each RF site for the installation of the new 700 MHz equipment
- Cutover will occur as shown in the Project Schedule, after acceptance testing and training have occurred
- Dispatchers on the new consoles will still be able to dispatch on the SmartZone 4.1 System during the cutover period via SmartX

Deviations from these assumptions will represent a change in scope.

Cutover Plan Responsibility Matrix

Task	Responsibility	Deliverable
The high level 700 MHz Trunked Radio System (SMIRC) Cutover Plan will be developed taking into account the need to minimize the impact to users migrating to SMIRC.	Contractor	Cutover Plan
Contractor will develop a Fall Back Plan that will be approved by the County to determine what actions will be necessary in the event that there is a need to return to the use of the existing system.	Contractor	Fallback Plan

Completion Criteria: This task is considered complete when the high level Cutover Plan is mutually agreed upon by the County and Contractor.

Finalize Project Schedule: The objective of this task is to finalize the preliminary Project Schedule, based upon the requirements identified and the associated project objectives, plans, schedules, approvals, priorities and inter-dependencies among tasks. The Project Schedule will be finalized through the Change Order Process and mutually agreed upon between the parties, during the Design Review, following the Project Kickoff Meeting. The resulting document defines the specific project tasks to be completed and documents the final Project Schedule for each subsystem to be implemented.

Project Schedule Responsibility Matrix

Task	Responsibility	Deliverable
-Review with County personnel the identified implementation tasks, priorities, inter-dependencies and other requirements needed to establish the final Project Schedule. -The final Project Schedule is dependant on the finalization of radio sites and cannot be complete with a high degree of certainty until the radio sites are secured and permitted for construction, where necessary. Leases for sites where the County will be a tenant are also required. -The Project Schedule will identify key project milestones, in addition to tasks that will require interruption of existing communications in order to move the new system into live operations.	Contractor	Project Schedule Review
Secure radio site leases.	County	Site Acquisition
Analyze, with Contractor project personnel, the identified requirements and make such implementation decisions as are reasonably required to finalize the Project Schedule.	County	Project Schedule Review
Prepare the final Project Schedule document and deliver it to the County as a deliverable of the Design Review. Review the Project Schedule with County personnel and make changes and/or corrections that are mutually agreed upon through the Change Order process.	Contractor	Project Schedule Finalization
Review the final Project Schedule and identify, in writing, any specific deficiencies found within ten business days of receipt.	County	Project Schedule Approval

Completion Criteria: This task is considered complete, upon mutual agreement of the parties, to implement in accordance with the final Project Schedule that has been developed within the Design Review. This final Project Schedule will become the governing Project Schedule incorporated into the Agreement, and is only subject to change upon mutual agreement of Contractor and County.

Acceptance Test Procedures: Contractor will develop Acceptance Test Procedures "ATP" documents to provide an understanding of procedures used for testing the functionality and performance of the system. The ATPs establish a framework for system acceptance. The tests will validate the functional performance of the System.

The ATPs will be finalized for the SMIRC project as a part of the Design Review process. The ATPs include the acceptance criteria to ensure the equipment operates in accordance with the specifications identified in the Agreement.

Final System Acceptance Responsibility Matrix

Task	Responsibility	Deliverable
-Contractor will work with the County in finalizing the ATPs. -Review the overall approach to testing including hardware, software and final system acceptance criteria. -The review will be based on the Acceptance Test Plan.	Contractor	Finalize/Review ATPs and Methodology
-County will work with Contractor in finalizing the	County	Review ATPs, provide written

ATPs, using the ATPs submitted as a baseline. -Provide related information requested by Contractor to assist Contractor in completing the ATPs. -Review the baseline ATP documents and identify, in writing, any specific deficiencies found within ten business days. Contractor ATP Review.		information and feedback
Submit final ATPs documents to County for approval.	Contractor	Final ATPs
Review and approve the final ATPs.	County	Approval of final ATPs

Completion Criteria: This task is considered complete upon the County's acceptance and approval of the ATPs.

Site Survey/Preparation: Site inspections will be conducted during this Phase of the project. All equipment locations will be audited for site-ready purposes and Contractor will prepare a Site Audit Report for each location. The County is responsible for site readiness. Site Surveys are executed as an integral part of installation preparation. The following identifies Contractor's approach to site readiness. (This Section addresses the facilities where the County is responsible for site readiness.)

Site Preparation: The County is responsible for delivering sites for the SMIRC project; all sites must meet Contractor's Communications Site Standards.

Contractor will begin work at a site only after mutual agreement by the County and Contractor that the site is deemed ready. At a minimum, for a site to be considered "Site Ready," it must have adequate room in an existing building or shelter to accommodate the equipment to be installed, and electrical service and internal distribution in place. In addition, network testing must have been satisfactorily completed.

Sites are required to meet or exceed the requirements as defined in the Contractor's document "Fixed Network Equipment Installations" ("R56 Standard"). Detailed Site Ready audits will be performed by Contractor after Agreement execution. Contractor will provide a detailed site report identifying any site deficiencies. All site upgrades not identified specifically as a Contractor deliverable are the responsibility of the County.

Contractor understands that it is the County's intent to provide site construction and site upgrades through a separate contract that will be awarded to the Physical Facilities Contractor. Site improvements must be completed prior to installation of system equipment. The Project Schedule is dependent upon timely delivery of sites that meet Site Readiness conditions.

The following is a list of some of the specific Site Readiness requirements for this project.

Single Point Grounding (Leased Shelters)

Requirement – The single point ground system is comprised of both internal and external components, which are bonded together, along with all other grounds at the site, to form the overall site grounding system.

- Internal – County shall provide a single point ground system to be used on all fixed equipment supplied under this Agreement. The ground system must include an internal master ground point and sub-system ground points when applicable, located within three feet of the Contractor-supplied equipment.
- External – County shall provide an external grounding electrode system that is designed and installed in accordance to the document "Standards and Guidelines for Communications Sites – R56". The grounding electrode system shall have a design goal of five ohms or less and shall be met whenever possible and/or practical. The grounding electrode system shall include an interconnection to all other grounding electrode systems and utility grounds at the site.

Transient Voltage Surge Suppression
Requirement – Transient voltage surge suppression for telephone circuits, AC power, Radio Frequency (RF) cabling, and all other applicable external connections and utilities are required to meet or exceed the standards found in Contractor's "Standards and Guidelines for Communications Sites – R56".

Electrical
Requirement – Sites must have electrical service and electrical wiring that meets all applicable city, county, state and National Electrical Codes (NEC) requirements.

Equipment Space
Requirement – Sites must have sufficient floor and desk space for the Contractor-supplied equipment, as identified, in the approved Detailed Design - Equipment Installation document.

Environmental Conditions
Requirement – Sites must have adequate environmental controls to meet the heating, ventilation, cooling, and humidity requirements for all equipment that will be installed at the sites. The sites must be free of hazardous materials such as fuels, asbestos, etc. Contractor can provide specific equipment specifications required for building environmental control sizing and design.

Back-up Power
Requirement – County shall supply, as required, sufficient back-up power through Uninterruptible Power Supplies "UPS's" and generators.

Heating, Ventilating, and Air Conditioning "HVAC"
Requirement – County shall supply, as required, adequate HVAC at the sites to support the new equipment, in addition to all other existing site equipment.

Earthquake Bracing
Requirement – County shall supply, as required, building modifications to accommodate earthquake bracing to meet all applicable city, county, state and national requirements.

Site Access
Requirement – County shall provide site access for scheduled site walks, installation, optimization, system troubleshooting and completion of the ATPs. County shall use its

best efforts to provide site access including transportation to sites that are not accessible by regular four-wheel drive vehicles. County shall be responsible for coordinating and scheduling, with the Contractor's Project Manager, access to sites not directly controlled by the County.

Access to Sites – County will provide all necessary construction and building permits, zoning variances, licenses, and any other approvals that are necessary to develop or use the sites; and access to the work sites as reasonably requested by Contractor, so that it may perform its duties in accordance with the Performance Schedule and Statement of Work. If the Statement of Work so indicates, Contractor may assist County in the local building permit process.

Site Conditions – County will ensure that all work sites it provides will be safe, secure, and in compliance with all applicable industry and OSHA standards. To the extent applicable and unless the Statement of Work states to the contrary, County will ensure that these work sites have adequate: physical space, air conditioning and other environmental conditions, electrical power outlets, distribution and equipment, and telephone or other communication lines (including modem access and adequate interfacing networking capabilities), all for the installation, use and maintenance of the System. Before installing the Equipment or Software at a work site, Contractor will inspect the work site and advise County of any apparent discrepancies or non-conformities with the requirements of this Section. This Agreement is predicated upon normal soil conditions as defined by the version of E.I.A. Standard RS-22 in effect on the Effective Date.

If a party determines that the sites identified in this Exhibit are no longer available or desired, or if subsurface, structural, adverse environmental or latent conditions at any site differ from those indicated in Exhibit A, the parties will promptly investigate the conditions and will select replacement sites or adjust the installation plans and specifications as necessary. If a change in sites or adjustment to the installation plans and specifications causes a change in the cost or time to perform, the parties will equitably amend the Agreement price, Performance Schedule, or both, by a Changer Order.

Site Access and Readiness Responsibility Matrix

Task	Responsibility	Deliverable
Site Access: -County will assure site access for inspections of equipment installations, finalization of equipment locations and determination if any course of action is necessary to handle installation constraints. -County will provide existing site and system drawings.	County	-Site Access -Existing System Documentation
Site Readiness Audits: -Contractor will perform an R56 site audit to verify site readiness of all sites where Contractor is not providing site upgrades or new site construction. -Contractor will prepare a report that includes recommendations detailing site preparation required to provide a suitable environment for installation of the equipment. This report will become part of the final system documentation.	Contractor	Site Audit Reports

-Contractor's site audits will not include a civil assessment, excluding items such as generator and HVAC testing and assessment, and tower structural analysis from the site audit.		
-County is responsible for the structural integrity of towers where new antennas will be installed. -Sites where the existing tower cannot support the new loading will require either new towers or enhancements to the existing towers, which can be provided by the Physical Facilities Contractor or by Contractor under the Change Order process.	County	Structurally Sound Towers
County will prepare all sites for the equipment implementation, based on the recommendations in the Site Walk Reports.	County	Sites Meeting Site Readiness Conditions
County will pursue all building permits and licenses required for construction.	County	Approved Licenses and Permits

Completion Criteria: This Phase is considered complete when all necessary site improvements have been implemented by the County and verified as complete.

C. Civil Review – While the Design Review progresses, Contractor will work in parallel to perform site audits to identify any site issues associated with the implementation of the new system. (The County will be responsible for site preparation and site development. Site work should commence as early in the project as possible, so that the sites are ready when the equipment arrives.)

D. Order Processing, Manufacturing and Factory Testing: Contractor will place factory orders for the system hardware that is being purchased for the SMIRC. Contractor will place orders for required third-party equipment and execute major subcontracts.

Order Processing Responsibility Matrix

Task	Responsibility	Deliverable
Factory orders placed for all Contractor-manufactured equipment.	Contractor	Orders for Contractor-manufactured equipment
Order placed for all third-party equipment.	Contractor	Third-party equipment orders
Contractor will execute major subcontracts.	Contractor	Subcontracts in place

Completion Criteria: This Phase is considered complete when all equipment orders have been placed.

Manufacturing and Factory Testing – During this Phase, all equipment for SMIRC is manufactured, factory staged, and shipped. Equipment manufacturing and factory staging of the radio infrastructure will be done at Contractor's Customer Center for Solutions Integration (CCSI) in Schaumburg, Illinois. Factory staging provides for initial assembly and testing of all radio system components. Factory staging will allow complete testing of the functional capabilities of the System. The new system will be a combination of new and existing equipment, including the integration of the existing County Project 25 Master Site. Contractor will stage all new equipment, which will allow for verification of the new equipment's system functionality. This process will allow the County to witness factory testing in a controlled environment, and provide for a smooth and easy field installation.

Manufacturing Responsibility Matrix

Task	Responsibility	Deliverable
Manufacture equipment and track third-party equipment orders.	Contractor	SMIRC Hardware

Factory Testing: Radio System Manufacturing is followed by staging the radio infrastructure at CCSI. Staging includes assembly and testing of all major radio system components. The System will be configured as it will be in the field for this Factory Testing, which will exercise the functional capabilities of the System. This process will allow County personnel to witness factory testing in a controlled environment, as well as provide for a smooth and easy installation in the field. Contractor will provide functional testing at the site trunking level, since the Master Site exists in the field. Contractor assumes that the system will not be remotely interfaced to the Master Site.

Factory Testing Responsibility Matrix

Task	Responsibility	Deliverable
Functional Performance Testing: -Contractor will perform a Functional Performance Test in order to verify the functionality of the Communications System. The Functional Performance Test will include the following: -Physical Inspection -Thorough exercise of the hardware and software -Testing of the voice communications features -Verification of device and system recovery from failures	Contractor	Functional Performance Tests
County will sign written Acceptance documents at the successful completion of the Factory Acceptance Testing Period.	County	Written Approvals of Factory Acceptance Test

Completion Criteria: This task is considered complete when the County signs a Certificate of Acceptance of the Factory Acceptance Test.

E. Installation and Upgrades – Contractor's local implementation team will install and optimize the System at the County's sites as staged at CCSI. Contractor's implementation includes the integration of all agreed upon subsystems to provide an end-to-end solution. To verify the delivered system's functionality, Contractor will execute Acceptance Testing according to an Acceptance Test Plan (ATP). The ATP will include Functional Performance Tests and Coverage Performance Test.

Installation of Fixed Network Equipment (FNE): Installation of the Fixed Network Equipment (FNE) consists of the Radio Communications infrastructure and computer equipment at the dispatch and control centers.

Installation of Fixed Network Equipment Responsibility Matrix

Task	Responsibility	Deliverable
Site Ready: County will prepare the sites for equipment installation, resolving site deficiencies identified in the Site Audit Reports. Sites will be ready according to the Project Schedule for equipment	County	Sites meeting Site Preparation Requirements for Installation

installation.		
General Installation Responsibilities: -Contractor will install the new system equipment that is provided in the Equipment List. -Contractor will ground and bond the site equipment to the ground system, in accordance with R56 Site Installation Standards. -Contractor will remove and dispose of any debris that is a result of the project activities from the sites. -Contractor will create "As Built" documentation of the prime site installation for inclusion in the final Project Documentation.	Contractor	New equipment installations per Contractor's Site Quality Standards
Contractor will install Simulcast **Prime** Site equipment in accordance with the Design Review System Description and Equipment Lists.	Contractor	Radio System Installation Audit
Simulcast **Remote** Site Equipment: Contractor will install remote simulcast equipment in accordance with the Design Review System Description and Equipment Lists.	Contractor	Radio System Installation Audit
County will remove decommissioned equipment.	County	Decommissioned Equipment removals
County will sign Installation Acceptance Certificates after inspection and check out of FNE on a site-by-site, system-by-system basis.	County	Signed Installation Acceptance Documents

Completion Criteria: This task is considered complete when the County reviews FNE installations with Contractor and approves by signing the Installation Check Sheets. The installation of each FNE subsystem must be completed for this phase of the project to be considered complete.

System Integration and Optimization: During this Phase of the project, Contractor will configure, optimize, and program all system equipment. Contractor will integrate all of the Contractor-provided subsystems, as well as integrate County-provided subsystems into the System. At least one of Contractor's Systems Technologist will be onsite for this phase and will prepare the System for acceptance testing.

Contractor's System Technologist will maintain a punchlist of items that need resolution. During this Phase, the County will be responsible for directing the activities of non-Contractor subcontractors and supporting agencies. The County is also responsible for coordinating all onsite integration activities including assisting Contractor with system testing requiring participation from non-Contractor subcontractors.

Contractor and County will each ensure that any of their subcontractors perform in accordance with the Implementation Schedule.

System Integration and Optimization Responsibility Matrix

Task	Responsibility	Deliverable
Provide and install all communication lines and equipment that are not Contractor-provided deliverables. -Provide all required liaison support with the agencies and vendors required to support the solution. -Ensure that the necessary technical support is made available for installation and testing with third-	County	County-provided equipment and interfaces required for integration

party vendors and interfaces.		
Install, integrate and test the hardware, software and interfaces as specified in the Agreement.	Contractor	Installation and integration of equipment.
-Maintain a punchlist of items that need resolution. -Manage the resolution of punchlist items.	Contractor	Punchlist resolution

Completion Criteria: This task is considered complete when the system is ready for acceptance testing.

F. Acceptance Testing: Contractor is proposing a multi-level acceptance testing procedure. This process provides multiple checkpoints for the County to oversee the overall progress that is being made as the SMIRC implementation progresses. This testing is composed of Equipment Installation Acceptance, Functional Acceptance Tests, Coverage Acceptance Tests, and a Thirty-Day Performance Period.

Contractor will submit the draft Acceptance Test Plan defined during the Design Review for approval 60 calendar days prior to the beginning of Acceptance Testing. Once the draft plan is approved, any system testing that the County wants performed that is not specified in the ATP must be reviewed by Contractor for feasibility and acceptability. Any additional tests may represent a change in the project's scope.

System Acceptance: Contractor will provide to County at least ten (10) days notice before the Acceptance Tests commence. System testing will occur only in accordance with the Acceptance Test Plan.

System Acceptance will occur upon successful completion of the Acceptance Tests. Upon System Acceptance, the parties will memorialize this even by promptly executing a System Acceptance Certificate. If the Acceptance Test Plan includes separate tests for individual subsystems or phases of the System, acceptance of the individual subsystem or phase will occur upon the successful completion of the Acceptance Tests for the subsystem or phase, and the parties will promptly execute an Acceptance Certificate for the subsystem or phase. If County believes the System has failed the completed Acceptance Tests, County will provide to Contractor a written notice that includes the specific details of the failure. If County does not provide to Contractor a Failure Notice within thirty (30) days after completion of the Acceptance Tests, System Acceptance will be deemed to have occurred as of the completion of the Acceptance Tests. Minor omissions or variances in the System that do not materially impair the operation of the System as a whole will not postpone System Acceptance or subsystem Acceptance, but will be corrected according to a mutually agreed schedule.

Beneficial Use: County acknowledges that Contractor's ability to perform its implementation and testing responsibilities may be impeded if the County begins using the System before System Acceptance. Therefore, the County will not commence Beneficial Use before System Acceptance without Contractor's prior written authorization, which will not be unreasonably withheld. Contractor is not responsible for System performance deficiencies that occur during unauthorized

Beneficial Use. Upon commencement of Beneficial Use, County assumes responsibility for the use and operation of the System.

Final Project Acceptance: Final Project Acceptance will occur after System Acceptance when all deliverables and other work have been completed. When Final Project Acceptance occurs, the parties will promptly memorialize this final even by so indicating on the System Acceptance Certificate.

Equipment Installation Acceptance: Equipment installations will be inspected to ensure adherence to quality standards. Equipment installation acceptance will occur on a site-by-site, system-by-system basis.

Equipment Installation Acceptance Responsibility Matrix

Task	Responsibility	Deliverable
Control Site Installation Inspection	Contractor	Installation Inspection Audit
Fixed Equipment Subsystem Installation Inspections	Contractor	Installation Inspection Audit
Dispatch Site Installation Inspections	Contractor	Installation Inspection Audit

Completion Criteria: This task is considered complete when the installation inspections are complete and signed off by the County and Contractor.

Functional Tests: System Functional Acceptance Tests will be performed when System optimization is complete.

The Functional Acceptance Tests verify the functionality tested at Factory Testing. These tests will verify system operation. Successful completion, with open items, will constitute system acceptance. Final Project Acceptance will be granted when all open items are closed.

If deficiencies are found during the testing, both the deficiencies and resolutions to the deficiencies shall be documented and agreed upon. If the documented deficiencies do not prevent productive operational use of the System, as determined by the County, then the test will be deemed complete. Contractor will, however, remain responsible for the resolution of the documented deficiencies using a punchlist as a controlling document for resolution planning.

Upon completion of the acceptance testing, the County will acknowledge system acceptance by signing the System Acceptance document per the terms of this Agreement.

Functional Tests Responsibility Matrix

Task	Responsibility	Deliverable
Contractor will perform functional ATPs for the System. During each test, test results will be recorded for review and approval of the test.	Contractor	Execution of Functional Acceptance Testing
Upon successful completion of each Acceptance Test on a site-by-site and system-by-system level, County and Contractor will sign acceptance certificates documenting acceptance.	County	Written Approval of Successful Functional Acceptance Testing

Coverage Acceptance Tests: Coverage Acceptance Tests will be performed when the RF site and control equipment installations and optimization are complete. The Coverage Acceptance Tests will verify the coverage performance of the System, as agreed upon in the Design Review.

The cost and schedule are based on the County providing four mobile teams for testing and a single team at the dispatch center.

Coverage Acceptance Tests Responsibility Matrix

Task	Responsibility	Deliverable
Contractor will perform Coverage ATPs for the Countywide SMIRC system. During each test, test results will be recorded for review and approval of the test.	Contractor	Execution of Coverage Acceptance Tests
Upon successful completion of each Coverage Acceptance Test, the County and Contractor will sign acceptance certificates documenting acceptance.	County	Written approval of successful Coverage Acceptance Testing

Completion Criteria: This task is considered complete upon the County's approval and sign-off of the Equipment Installation Acceptance, Functional Test and Coverage Acceptance Test.

The successful completion of the Acceptance Tests constitutes acceptance of the software and hardware provided by Contractor. Upon completion of this Acceptance Test Plan, County representatives participating in and observing the tests will sign off on the ATP, signifying acceptance of the System. If no punchlist items are identified during the Acceptance Testing process, and Contractor has completed all other project deliverables, the County's authorized signature will represent Final System Acceptance. If a punchlist of unresolved issues is created as a result of the Acceptance Testing, Final System Acceptance will occur upon resolution of all items on the punchlist.

30-Day Performance Test: A 30-Day Performance Test will be conducted upon completion of the cutover and successful completion of the Coverage Acceptance Test. The 30-Day test will provide an opportunity for the System to be exercised under load. A test procedure is included with the Acceptance Test Plans.

System Reliability Test: The purpose of the System Reliability Test is to demonstrate that the System will perform as described in the Design documents and verify the Equipment and Software components provided by Contractor will operate without a material system failure for an extended period of time.

Upon successful completion of the Functional ATP and Coverage ATP, Contractor will conduct a 30-calendar-day test of the Radio System in accordance with this System Reliability Test Plan. During the test period, the Trunked Radio Infrastructure, Dispatch Console System and the components within these systems must be operational and available for testing. The functionality and reliability of all systems and subsystems that comprise the System will be represented by this test.

Once the Reliability Test is successfully completed, the County will sign the Certificate of Completion.

Test Methodology: The operation and functionality of the System will be monitored for a 30-calendar-day period. All disruptions of system operation and failures of the Equipment, Software, RF Coverage, and Interfaces will be reported and investigated. Routine preventative maintenance will be permitted during the 30-calendar-day test period. The test is considered successfully completed when the System operates for 30-calendar-days without a major failure, as defined below:

Timing: In order to proceed with the 30-calendar-day test, the following conditions must be satisfied:

- Installation and optimization of the System must be successfully completed including the P25 Trunked Radio System, Dispatch Consoles, and the subsystems associated with the network.
- All applicable functional and coverage acceptance tests of the System must be completed.

Contractor will submit a letter to the County indicating that the System is ready for the 30-calendar-day test and Contractor will proceed with testing.

Conditions: For purposes of the System Reliability Test only, the System is defined as all Equipment and Software provided by Contractor during the term of this Agreement. A successful performance period of 30 continuous days must be completed. This test must no overlap any other testing procedures. The System must be available for one hundred percent (100%) of the County's operational hours. Operational hours are defined as 24 hours per day, seven days per week. The County and Contractor will each maintain an Operations Log.

Failure Reporting: During the 30-calendar-day test period, disruptions in performance and/or failures in equipment shall be immediately reported. Contractor-provided products, under this Agreement, shall be repaired at Contractor's expense during this test period. Each repair shall be documented in writing to the County. Disruptions caused by the following shall not impact the 30-calendar-day test:

- Acts of God, such as lightning, flood, fire or earthquake
- Willful or accidental abuse or damage caused by any person or group of persons
- Loss of adequate power for a period longer than provided for by the DC battery/UPS backup power systems
- Any failure related to scheduled preventive maintenance at the sites
- Failures due to environmental conditions not related to site preparation instructions
- Failures due to the County's staff (operator) error
- Failures which do not materially affect the County's operations or system performance

Contractor will notify the County in advance of any planned interruptions necessary during System expansion or due to preventative maintenance. Planned interruptions shall be agreed to by both Parties.

Any channel, site or subsystem failures caused by equipment not provided under this Agreement shall not constitute a system failure and a restart of the 30-calendar-day test. If it is determined that a system failure is a result of equipment not covered by this Agreement, and the System Products performed properly in response to such failures, testing shall resume and shall include all accrued test time prior to the failure.

Failure Definitions: Disruptions of the System shall be classified in one of four categories and shall be assigned one of two severity levels. The County and Contractor will perform a failure review of each failure and determine the criticality of the failure.

Failure Categories

Equipment Failure: An equipment failure is defined as any Equipment, which fails for a duration greater than 60 seconds.

Non-Equipment Failure: A non-equipment failure may be RF interference which prohibits the use of a channel. Each reported incident, which prohibits the use of a channel, shall be evaluated by the County and Contractor during the Failure Review process.

Intermittent disruption to operations: To be defined as intermittent disruption, the fault must have occurred at least twice. This includes but is not limited to: audio, erroneous alarm reports, irregularities in talk group and channel affiliation, and zone assignment.

Non-System Operational Failure: Disruptions in system or channel operation due to scheduled or preventative maintenance, leased circuit disruptions, out of fuel generators, failure of County-provided equipment, natural causes, or any other failure outside of Contractor's control shall not be considered a failure.

Severity Levels

Non-Major Failure: Failures that are due to installation issues and Equipment problems that are correctable within 24 hours and considered to be non-repeatable during normal operations will be considered as non-major. This would include such things as loose connectors and individual equipment failures. A non-major failure can include one entire radio channel, or one dispatch position, or one piece of a redundant equipment configuration. Non-major failures do not materially impact system operations.

Major Failure (Re-Start 30-Calendar-Day Test): Major failures are defined as:

- Inability to operate a radio transmission site
- Any operationally impacting failure of the System's controlling points implemented by Contractor, under this Agreement
- Loss of simulcast alignment/synchronization on one or more channels for more than one hour on equipment implemented by Contractor, under this Agreement

- Failure of a DACS provided by Contractor, under this Agreement, even if momentary Intermittent documented disruption to operations. To be defined as an intermittent disruption, the fault must have occurred at least twice. This includes, but is not limited to, intermittent audio, erroneous alarms, irregularities in talk group and channel affiliation, and zone assignment

Any major failure shall be cause to stop the testing until repairs are made. After repair of the failure, by Contractor, a new 30-calendar-day test period shall begin. Each repair shall be documented in writing to the County. Any failure that does not materially impact system operation shall not result in a re-start of the 30-calendar-day test.

30-Day Performance Test Responsibility Matrix

Task	Responsibility	Deliverable
Contractor will perform a 30-Day Performance Test for the System. During each test, test results will be recorded for review and approval of the test.	Contractor	Execution of 30-Day Performance Test
Upon successful completion of the 30-Day Performance Test, County and Contractor will sign acceptance certificates documenting acceptance.	County	Written approval of successful 30-Day Performance Test

Completion Criteria: This task is considered complete upon the County's approval and sign-off of the Equipment Installation Acceptance, Functional Test, Coverage Acceptance Test, and 30-Day Performance Test.

H. Cutover to New System Operations: Following the successful completion of the Functional Acceptance Tests, Contractor will cutover the users to the new System. This Phase will follow the approved Cutover Plan. In developing the Cutover Plan, Contractor will work with the County to develop a transition to the new system that minimizes the operational impact to the County.

Cutover to New System Operations Responsibility Matrix

Task	Responsibility	Deliverable
Contractor will review the Communications System Acceptance Status, Cutover Plan, and schedule system cutover with the County.	Contractor	Completed Cutover Checklist
County will review the Cutover Checklist and request any modifications for approval.	County	Written approval of Cutover Check List
Contractor and County will execute the Cutover Plan.	Contractor/County	Cutover to new SMIRC operations
Where an existing system is being taken out of service, the County will reconfigure the system as necessary to delete access to the old equipment.	County	Post Cutover Reconfiguration
The County will remove equipment being taken out of service as required.	County	Equipment Removal

Completion Criteria: This task is considered complete when users are fully cutover to operation on the new system.

I. Final Acceptance and Documentation Delivery – The final steps to full system implementation are the delivery of system documentation, punchlist resolution, and final acceptance. The Contractor's Project Team and the Post-Acceptance Service Team will work with the County during this Phase to ensure a smooth transition to the Post-Acceptance support period (Warranty Support).

System Documentation: Contractor will provide documentation of the system configurations, physical installation, and System testing. Documentation is created and updated during the project. Electronic versions of custom documentation will be provided both in a viewable format and in the document's standard format. Additional documentation beyond what is stated may represent a change in scope.

Design Documentation: Contractor will create or update the following standard documents during the Design Phase:

- Documentation Index
- System Description
- Site Planning and Preparation Manuals
- Block and Level diagrams for System and Sites
- Floor Plans
- Radio Communication System Technical Data
- Coverage Maps
- System Administrator Documentation
- Installation and Cutover Plan
- Acceptance Test Procedures
- Programming Parameters

Factory Staging Documentation: Contractor will create or update the following documents of System Staging:

- Programming Templates
- Interconnection Drawings
- Interconnection Charts
- Manufacturer's Standard Operator Manuals
- Re-assembly Instructions
- Interconnection Cable Description and Inventory
- Printout of Equipment Parameters
- Inventory with Serial Numbers and Installation Reference
- Software/Firmware Version Numbers
- Manufacturer's Standard Technical Manuals

System Manual – "As-Built" Documentation: Contractor will supply "As-Built" documentation for the System. The documentation will consist of:

- Standard Equipment Manuals
- System Drawings
- Fixed Equipment Documentation
- Plan and Elevation Views of the Equipment Installation at the Radio Site
    - Equipment inter-cabling diagrams for each site
- Demarcation Wiring Lists
- Programming and Level Setting Data Sheets
- Equipment by Site
    - Key Access Procedures
    - Site Inventory Lists
    - Remote Sign-on Procedures and Passwords

    - Software Versions and Equipment Wiring by Equipment Site
- Radio Licenses
- Field ATP Test Sheets and Results
- R56 Site Audit
- Maintenance Records
- Warranty Information
- Service Provider

Equipment Manuals: Contractor will provide Equipment Manuals covering both standard and optional features. The content of these manuals is standardized and may not be specific to the County.

Project Finalization: The Finalization Phase of the project consists of ensuring that all criteria for Final Project Completion have been met.

Project Finalization Responsibility Matrix

Task	Responsibility	Deliverable
Contractor will resolve punchlist items documented at System Acceptance.	Contractor	Approved Punchlist Resolution
Contractor will ensure that the Project Team and the Service Organization work closely together to provide a seamless transition to the Warranty Phase of the project.	Contractor	Service Transition Certificate and Customer Support Plan
All documents listed in System Manual – "As-Built" Documentation Section will be submitted, as they become ready.	Contractor	System Manual – "As-Built" documents
Final approvals of all System Manual – "As-Built" Documents.	County	Written Approval Statements
County will acknowledge Final Project Completion upon completion of the criteria for Final Project Completion for the SMIRC.	County	Signed Final Acceptance Documents

Completion Criteria: This task is considered complete when the County and Contractor have signed the Final Project Completion Certificate, representing the completion of the System and acknowledgment of system acceptance as described in the Acceptance Test Plan.

System Performance: System Performance is composed of many elements, including: system coverage, system traffic and equipment performance. Contractor will be responsible for the performance of all equipment as provided by Contractor under this Agreement. The County will assume responsibility for the performance of all other equipment necessary for completion of this project, not provided by Contractor described in the Responsibility Matrices. Some of the system issues that can impact system performance are listed below with descriptions of Contractor and County responsibilities in those areas.

Equipment Performance: The project implementation requires the integration of existing County equipment with equipment provided under this Agreement.

Contractor-provided Equipment: Contractor is responsible for the performance of all new Contractor-provided hardware. This hardware must operate functionally as described in the System Description, when operating within environmental

specifications and in an RF environment that complies with the Contractor R56 Specification. When the hardware environment is outside of electromechanical and environmental specifications, performance is no longer guaranteed.

County-provided Equipment: The County is responsible for the performance of all County-provided hardware that will be interfaced with or integrated into the various subsystem implementations for this project. This provision excludes the existing County Master Site equipment, which Contractor proposes to integrate into the System.

J. Warranty Period: A warranty will be provided for one (1) year from the date of System Acceptance or Beneficial Use, whichever occurs first.

Warranty Period: The services provided through the System Warranty are delivered in this Phase of the project.

Warranty Support Responsibility Matrix

Task	Responsibility	Deliverable
Warranty Transition Certificate	Contractor/County	Agreed Warranty Start Date
Documented Customer Support Plan	Contractor/County	Agreed upon service procedures and expectations document

Completion Criteria: This task is considered complete when the warranty period expires.

System Functionality: Contractor represents that the System will perform in accordance with the Specifications in all material respects. Upon System Acceptance or Beneficial Use, whichever occurs first, this system functionality representation is fulfilled. Contractor is not responsible for System performance deficiencies that are caused by ancillary equipment not furnished by Contractor, which is attached to or used in connection with the System or for reasons or parties beyond Contractor's control, such as natural causes; the construction of a building that adversely affects the microwave path reliability or Radio Frequency Coverage; the addition of frequencies at System sites that cause RF interference or intermodulation; or County changes to load usage or configuration outside the Specifications.

Equipment Warranty: During the Warranty Period, Contractor warrants that the Equipment under normal use and service will be free from material defects in materials and workmanship. If System Acceptance is delayed beyond six (6) months after shipment of the Equipment by events or causes within the County's control, this warranty expires eighteen (18) months after the shipment of the Equipment.

Contractor's Software Warranty: Unless otherwise stated in the Software License Agreement (Appendix 1), during the Warranty Period, Contractor warrants the Contractor Software in accordance with the terms of the Software License Agreement and the provisions of this Warranty Support Section that are applicable to the Contractor Software. If System Acceptance is delayed beyond six (6) months after shipment of the Contractor Software by events or causes within the County's control, this warranty expires eighteen (18) months after the shipment of the Contractor Software.

Parts Availability: Contractor's policy is to commit replacement parts support for infrastructure equipment for seven years from date of cancellation, and five years for subscriber equipment.

Where OEM parts are used, Contractor will make every effort to provide the same level of commitment and at a minimum will notify the County of the time when there is a last-time build of parts for a final purchase of parts.

Exclusions to Equipment and Contractor Software Warranties: These warranties do not apply to: (i) defects or damage resulting from: use of the Equipment or Contractor Software in other than its normal, customary, and authorized manner; accident, liquids, neglect, or acts of God; testing, maintenance, disassembly, repair, installation, alteration, modification, or adjustment not provided or authorized in writing by Contractor; County's failure to comply with all applicable industry and OSHA standards; (ii) breakage of or damage to antennas unless caused directly by defects in material or workmanship; (iii) Equipment that has had the Serial Number removed or made illegible; (iv) batteries (because they carry their own separate limited warranty) or consumables to include magnetic tapes, upgrading or reprogramming equipment, accessories – belt clips, battery chargers; (v) repair and maintenance of any transmission line, antenna, microwave equipment, tower or tower lighting, duplexer, combiner, or multicoupler, any transmission medium – telephone lines, computer networks, the Internet or the Worldwide Web, or for Equipment malfunction caused by the transmission medium; (vi) freight costs to ship Equipment to the repair depot; (vii) scratches or other cosmetic damage to Equipment surfaces that does not affect the operation of the Equipment; and (viii) normal or customary wear and tear.

Warranty Claims: To assert a Warranty Claim, the County must notify Contractor in writing of the claim before the expiration of the Warranty Period. Upon receipt of this notice, Contractor will investigate the Warranty Claim. If this investigation confirms a valid warranty claim, Contractor (at its option and at no additional charge to County) will repair the defective Equipment or Contractor Software, replace it with the same or equivalent product, or refund the price of the defective Equipment or Contractor Software. That action will be the full extent of Contractor's liability for the Warranty Claim. If this investigation indicates the warranty claim is not valid, then Contractor may invoice the County for responding to the claim, on a Time and Materials basis using Contractor's then current labor rates. Repaired or replaced product is warranted for the balance of the original applicable warranty period. All replaced products or parts will become the property of Contractor.

Original End User is Covered: These express limited warranties are extended by Contractor to the original user purchasing the System for commercial, industrial, or governmental use only, and are not assignable or transferable.

Disclaimer of Other Warranties: These warranties are the complete warranties for the Equipment and Contractor Software provided under this Agreement and are given in lieu of all other warranties. Contractor disclaims all other warranties or conditions**,** express or implied, including the implied warranties of merchantability and fitness for a particular purpose.

Maintenance Service: During the Warranty Period, maintenance services and software support are provided pursuant to the terms of this Agreement, Exhibits "A" and "B", Appendices, and Attachments incorporated herein. Such services are included in the "Amount Not to Exceed" cost. After the Warranty Period, County may purchase maintenance services and software support for the System pursuant to a separately executed service agreement or software subscription agreement.

Contractor's System Support Warranty Service: During the Warranty Period, Contractor will provide System Support as a bundled package of "System Level" services designed to support both the software and hardware components of SMIRC. These services are complementary during the Warranty Period and work together to enable the most effective delivery of technical support, diagnostic assistance and restoration services during the Warranty Period.

Contractor's goal as a post-implementation service provider is to provide a consistent, integrated support process that will assure optimal system availability during the Warranty Period after system acceptance. System Support provides the following services:

- **Infrastructure Repair:** Infrastructure Repair will provide repair management for Contractor's and third-party infrastructure equipment. Equipment such as boards and power supplies are shipped to the Contractor's System Support Center. Services and testing are performed at the component level by a highly trained technical staff, utilizing state-of-the-art Automated Test Equipment, and post-repair system testing.
- **On-Site Infrastructure Response:** Onsite Infrastructure Response provides for on-site technician response as determined by diagnostic requirements, pre-defined severity levels and response times. Onsite Infrastructure Response includes the onsite response of a knowledgeable system technician to affect any necessary repairs that might be required. Typically this response in onsite within four (4) hours or less.
- **Technical Support:** Technical Support Operation at Contractor's System Support Center provides system access to the Contractor's technical staff, centralized remote support for technical issues that require a high-level of communications systems expertise or troubleshooting. The Technical Support Operation is staffed with technical consultants who specialize in the diagnosis and resolution of system performance issues.
- **Network Management Service:** Network Management Service electronically monitors the Contractor System(s) for Events and when alarms are detected, forwards a notification to the System Support Center. The System Support Center is staffed with trained technologists, who acknowledge the Event, run available diagnostic routines, initiate an appropriate response and will notify the County of the actions taken. In many cases, Contractor is able to remotely affect the required repairs to restore communications without the intervention of an onsite system technician.
- **Dispatch Service:** The Call Center Operation at Contractor's System Support Center, provides a 24-hour continuous central point of contact for technical customer service requests. The Call Center Operation is staffed with customer support representatives who receive calls and the appropriate resource to

address the issue. Service Requests are tracked and monitored from creation to close through an Electronic Case Number process.

- **Radio Repair:** Radio Repair provides the component or board-level service for eligible portable and mobile radio units. Services are performed at the Contractor's Radio Support Center (RSC).
- **Local Radio Support:** Local Radio Support provides an operational check of equipment. An operational check is an analysis of the equipment to identify external or internal defects.

If the equipment has an external defect, or can be restored without opening the radio case, the equipment will be restored and returned to the County. If the equipment has an internal defect, or is not serviceable without opening the radio case, then the equipment will be shipped to Contractor's Radio Support Center (Radio Repair).

In addition to the above described services, the County has the option to purchase the following services that may provide value to the on-going support effort of the System:

- System Survey and Analysis: Contractor's System Survey and Analysis will provide one (1) annual operational test on the County's infrastructure equipment to ensure the equipment meets original manufacturer's specifications. Contractor will perform the survey and analysis service at each site. At a minimum, Contractor shall perform such survey and analysis as recommended by the manufacturer(s) of the specific system components. Contractor will work with the County to mutually agree on the scheduling of preventive maintenance service in order to minimize interruptions of normal operations activities.
- Security Network Service: Due to the IP technology employed in today's systems, and to address the threat of intrusion by unauthorized hacking of the County's System, Contractor provides a 24-Hour monitoring of intrusion detection and response. In addition, Contractor pre-tests all software prior to loading it onto systems to insure compatibility.
- Software Subscription Agreement: Contractor provides software support by means of a Software Subscription Agreement ("SSA"). Contractor will provide the County with periodic bulletins which announce and explain available Enhancement Releases and Core Releases for Motorola Software for use with upgrade-capable Motorola Equipment covered by the SSA. The County is generally encouraged to upgrade the Software operating on the System to the most current Enhancement Release and Core Release.
- Infrastructure Software Installation: Infrastructure Software Installation provide the onsite technical resources to install, test, and activate software enhancements and releases on the County's System per the processes and procedures defined as a result of the Software Upgrade Design Service. Infrastructure Software Installation is only available in conjunction with Software Upgrade Design Service.
- System Software Upgrade Design: Contractor's Upgrade Operations ("UO") will review the System(s) audit data along with a field-generated equipment list to ensure there will be no Software incompatibilities between equipment that is not being upgraded versus equipment which is being upgraded. UO will identify additional equipment and engineering

that is required as a result of the upgrade and create a process for installation of the upgrade.

Pricing for box level maintenance support has been provided for five (5) years as requested by the County. Post-warranty Contractor support services are flexible and scaleable. They can be customized to fit the support strategy, service level and budget that best meet the County's requirements.

Project Responsibilities: The following general project responsibilities, not defined by specific tasks, include:

Contractor Responsibilities: Contractor will designate a Project Manager who will direct Contractor's efforts and serve as the primary point of contact for the County. The Project Manager will have significant authority to make certain decisions relative to the project on behalf of the Contractor, and will have direct access to Contractor's executive management for resolving problems beyond his immediate authority. The responsibilities of the Project Manager include:

- Participating with the County in progress review/status meetings every week, issuing a mutually agreed upon agenda for each call or meeting, and submitting status reports that identify the activities of the previous review period (including project status, milestones achieved, tasks behind schedule, actual and potential problems); as well as activities planned for the upcoming review period, including an updated Project Schedule (measuring, evaluating, and reporting the progress against the Project Schedule).
- Working with the County's Project Manager in designing and approving the format of an Action Item Log to be used in conjunction with the Project Schedule. The purpose of the log is to identify outstanding issues, provide continual status updates on specific tasks and to identify responsibilities of the parties.
- Maintaining project communications with the County Project Manager and project team members. Contractor will provide a record of correspondence as part of the progress reports provided prior to each progress meeting.
- Managing the efforts of Contractor staff and coordinate Contractor activities with the County project team members.
- Resolving deviations from the Project Schedule.
- Monitoring and managing risks via a Risk Management Plan.
- Maintaining a documentation schedule that identifies and shows the status of documents to be transmitted for review during the next two reporting periods.
- Monitoring the project to ensure that support resources are available as scheduled and as identified in the Agreement.
- Assuming accountability for all Contractor and subcontractor-supplied tasks within the Project Schedule.
- Coordinating and overseeing the installation of all licensed Contractor application software.
- Issuing, reviewing and administering change control procedures, commonly referred as a "Project Change Request" (PCR), through the County's Project Manager.
- Providing timely responses to issues related to project progress raised by the County's Project Manager.

- In the event that Contractor must replace or substitute a Project Manager, Contractor will immediately notify the County of such a change and will provide the County with a résumé of the person Contractor intends to substitute or change.

County Responsibilities: The County will designate a Project Manager who will direct the County's efforts and serve as the primary point-of-contact for the County. The County's Project Manager will have significant authority to make certain decisions relative to the project on behalf of the County, and will have direct access to the County executive management for resolving problems beyond the Project Manager's immediate authority. The responsibilities of the County's Project Manager include:

- Maintaining project communications with Contractor's Project Manager.
- Identifying the efforts required of the County's staff to meet the County task requirements and milestones in the Agreement and Project Schedule.
- Reviewing the preliminary Project Schedule with Contractor's Project Manager and assisting Contractor in developing a Project Schedule to define the detailed tasks and timelines for the completion of Contractor's and County's responsibilities.
- Interfacing with members of the County's team and Executive Committee to ensure appropriate participation in meetings and timely decisions.
- Measuring and evaluating progress against the Project Schedule.
- Monitoring the project to ensure that support resources are available as scheduled.
- Participating in weekly conference meetings/calls.
- Providing timely responses to issues related to project progress raised by Contractor's Project Manager.
- Acting as liaison for and coordinating with other State agencies, other governmental agencies and County vendors, contractors and other common carriers.
- Reviewing and administering change control procedures, hardware and software certification, and all related project tasks required to maintain the implementation schedule.
- Approving and releasing payments in a timely manner predicated on project deliverables.
- Ensuring that all appropriate County personnel attend and actively participate in Progress Reviews, conference calls and other project meetings.
- Assigning one or more personnel who will work with Contractor's staff as needed for the duration of the project, including at least one system administrator.
- Ensuring acceptable Standard Change Requests and Approval Letters are approved by authorized signatures.
- Working with Contractor's personnel in designing and approving the format of an Action Item Log to be used in conjunction with the Project Schedule.
- Providing building access to Contractor personnel to all facilities where the system is to be installed during the project. Temporary identification cards (Cardkeys) should be issued to Contractor's personnel if required for access to the County's facilities. Access must be available after business hours where required by Contractor, or as necessary to meet the Project Schedule.

- Providing any required parking permits to Contractor personnel for restricted access entry and/or parking.
- Obtaining all Federal Communications Commission “FCC”, zoning and site access permits necessary for this project and any other Agreements required to gain use of sites.
- Providing the appropriate fire inspection and building inspection certificates.
- Providing adequate space, electrical, communications lines and environmental appropriations for the communications equipment to be installed by Contractor.
- Providing all travel accommodations for factory testing visits to Contractor’s CCSI.
- Reviewing and approving or revising delivered design documents within ten days of submission.

The methods and techniques used to provide services to the County are within the Contractor’s discretion, but subject to County Information Services Department’s technology policies, guidelines, and requirements. The amount of time, specific hours, and location of the performance of Contractor’s services is also left to the Contractor’s discretion provided that Contractor coordinates with County departments as needed.

A-2. System Design Description
Contractor will employ a phased approach to implement the County's 700 MHz P25 trunking system. The first phase will provide mobile coverage throughout most of the County using the following sites:

- San Bruno Nike
- Pise
- North Peak
- Hall of Justice
- Huddart Park
- Brisbane (Ice House Hill)
- Towne Ridge

This phase provides the Master Site upgrades and infrastructure required to implement the 700 MHz P25 simulcast RF subsystem using the seven sites identified above. Additionally, this phase provides simulcast optimization test equipment and network control base stations. The County has the option to activate subsequent phases per Appendix 2 (Master Purchase Agreement). These phases include ; adding RF sites to the System to eventually provide portable in building coverage, dispatching upgrades to the new IP based MCC7500, a four channel 800 MHz P25 conventional system, logging solution, and Integrated Voice and Data infrastructure and text messaging application.

Voice Infrastructure
Contractor will address the technical aspects of the System that will meet the County's needs today—with the flexibility to adapt and grow to meet the future needs of the County.

System Design Overview
The System Description provides a solution overview and a description of the infrastructure and capabilities for Phase 1 of this project.

In order to develop this Phase 1 design for the County, the following criteria were taken into consideration:

- Compliance to the RFP Requirements
- Infrastructure Cost
- Site Development Cost
- Frequency Availability
- Interoperability within the County and with neighboring counties

Proposed Voice Infrastructure Solution
This final solution is a 700 MHz P25 Phase 1 compliant system using one simulcast cell with twelve RF sites, eight ASR sites, MCC 7500 dispatch center, Harris/Stratex microwave, Contractor's APX subscribers, and a mutual aid conventional network. This solution will deliver the coverage, capacity, and interoperability required by the County's public safety agencies.

A key component of the System Design is the master site which is responsible for processing all call requests. Contractor is in the process of implementing this Master

Site as part of the Project 25 upgrade solution for the County. The Project 25 upgrade will replace the existing SmartZone 4.1 master site with a new Project 25 master site. Each of the existing SmartZone 4.1 radio cells will be interfaced to the new master site via SmartX Site Controllers. These SmartX Site Controllers connect the existing SmartZone 4.1 radio cells to the Project 25 Master Site, enabling communication between the legacy radio system and the new 700 MHz Project 25 radio cells that will be connected to the Master Site with the SMIRC project.

Architecture of the Proposed Solution
The final 700 MHz radio system design for the County consists of radio and console elements intended to interface to Contractor's P25 trunking system. The components of the solution include the existing P25 master site, one 10 channel Simulcast subsystems, a console subsystem, conventional subsystem, and eight 6-channel 700 MHz ASTRO 25 repeater sites.

Each radio site associated with the P25 radio infrastructure will be equipped to operate from a 48VDC power source provided by the County.

Master Site
The P25 master site for the new system is already being implemented with the SmartX P25 upgrade project and is located at County Office Building 2 "COB-2". This master site will serve as the core network center for the entire trunked radio system. It will process the audio routed from the ASTRO 25 repeater sites and route the audio to the appropriate locations within the network.

The Master Site in its final configuration contains the core network equipment (controllers, servers, network routing devices, management terminals) and console equipment to support the countywide radio system.

Simulcast Cell
This solution consists of one simulcast cell, controlled by the prime site located at the Hall of Justice. Audio from the simulcast remote sites is received at these locations and forwarded to the master site core.

The Simulcast Cell in its final configuration consists of 12 RF sites. The sites within Phase 1 are identified within this list.

- Hall of Justice (Co-located with the prime site) – Phase 1
- Foster City
- Half Moon Bay PD
- Mills Hospital
- North Peak – Phase 1
- Pise Lookout – Phase 1
- Rolph Hill
- San Bruno Nike – Phase 1
- San Carlos Site 60
- Skylawn

- Sweeney Ridge
- Huddart Park - Phase 1

The simulcast prime site contains network equipment (a controller and routers) and audio processing equipment (GCM 8000 IP comparators) to support the simulcast remote sites. Microwave T1 links provided by the County provide the primary connectivity between the prime site and interface to each of the simulcast remote sites. Each site has been designed with a redundant router. Contractor recommends that San Mateo County implement an alternate technology such as leased line T1s or 4.9 GHz Point-to-Point links to provide the redundant links between sites.

Simulcast Remote Sites
Each of the simulcast remote sites will look similar from a design standpoint. Each location will utilize the trunked GTR 8000 ESS 700 MHz simulcast transceivers connected together on a LAN via a redundant ethernet switch connected to site routers to interface the voice and network information to the Simulcast Prime site.

ASTRO 25 Repeater Sites
The final configuration also contains eight ASTRO 25 repeater sites. The sites within Phase 1 are identified within this list:

- Brisbane Ice – Phase 1
- Hostel Sam
- Pescadero
- Pigeon Point
- Town Ridge – Phase 1
- La Honda Verizon
- Star Hill
- Pomponio

Each ASTRO 25 repeater site contains GTR 8000 repeaters, Ethernet switches, routers, and controllers. Each site provides GTR 8000 repeaters capable of transmitting Project 25 Phase 1 compliant signals. Additionally, each site contains the required antenna subsystem to provide coverage throughout the service area.

Features of San Mateo's ASTRO 25 System
ASTRO 25 is a feature-rich, modular platform that has been configured to maximize the system's utility to the County's unique needs. Some of the key Astro25 IP System Infrastructure features are:

- Simulcast operation
- Voice coverage and capacity
- Interoperability
- System reliability
- Integrated voice and data
- Encryption capabilities
- Spectrum analysis
- Migration to Phase 2 TDMA

- System expansion

Coverage Maps
Coverage maps that have identified the areas that provide 95% covered area reliability from the system have been provided to the County. Contractor created these coverage maps using a tool developed by Contractor called Hydra. Hydra integrates RF coverage prediction and traffic engineering into a single simulation, and utilizes Monte Carlo as well as discrete event simulation techniques to provide a tool that accurately predicts wireless network system performance.

Table 1-1 below lists the sites and data that were used to create the coverage maps for the ASTRO 25 system. The sites in bold represent the sites in Phase 1 of this Agreement. Contractor is providing the following coverage maps for the County at 95% Covered Area Reliability DAQ3.4 Trunking:

- Mobile talk in
- Mobile talk out

Contractor's proposed Coverage Acceptance Test Plan is documented in the Acceptance Test Plan Section of Exhibit A.

Table 1-1: ASTRO 25 System Site Data

Site Name	Latitude (N)	Longitude (W)	Antenna Type/ Gain	Antenna Height / AZ	Elect. Downtilt / Mech. Downtilt	RF TX Power	TX ERP	HAAT (TX)
Huddart Park	37º26’ 19”	122º 17’ 35”	SE414 TX / 11 dBd	20’ / 255°	0° / 0°	49.0 dBm	54.0 dBm	961 Feet
			SC412 RX / 11.5 dBd	30' / 0°	0° / 0°			
Foster City	37º 34’ 10.66”	122º 16’ 25.76”	BCD7509 TX / 9 dBd	55’ / 0°	1.3° / 0°	50.0 dBm	52.5 dBm	-144.7 Feet
			BCD7509 RX / 9 dBd	70' / 0°	1.3° / 0°			
Mills Hospital	37º 33’ 53.66”	122º 19’ 34.76”	BCD7509 TX / 9 dBd	75’ / 0°	1.3° / 0°	50.0 dBm	52.4 dBm	-187.8 Feet
			BCD7509 RX / 9 dBd	75' / 0°	1.3° / 0°			
San Bruno / Nike	37º 41’ 31.65”	122º 26’ 53.78”	LPA70063 TX / 13 dBd	20’ / 190°	6° / 0°	48.8 dBm	45.8 dBm	846.2 Feet
			SC412 RX / 11.5 dBd	30' / 0°	0° / 0°			
San Carlos / Site 60	37° 29’ 23.67”	122° 17’ 24.75”	LPA70063 TX / 13 dBd	50’ / 105°	14° / 0°	45.4 dBm	52.0 dBm	527.5 Feet
			LPA70063 RX / 13 dBd	60' / 105°	14° / 0°			
Sweeney Ridge	37° 36’ 31.65”	122° 27’ 26.78”	LPA70063 TX / 13 dBd	30’ / 100°	14° / 0°	49.5 dBm	56.4 dBm	1083.4 Feet
			SE419 RX / 10 dBd	40' / 120°	0° / 0°			
Hall Of Justice	37° 29’ 17.67”	122° 13’ 49.75”	SE414 TX / 9 dBd	150’ / 170°	0° / 0°	50.0 dBm	51.6 dBm	-198.8 Feet
			SE414 RX / 9 dBd	160' / 170°	0° / 0°			
Half Moon Bay PD	37º 27’ 56.67”	122º 25’ 54.77”	SC412 TX / 11.5 dBd	47’ / 0°	0° / 0°	50.0 dBm	55.1 dBm	-289.1 Feet
			SC412 RX / 11.5 dBd	70’ / 0°	0° / 0°			
North Peak	37º 33’ 40.66”	122º 28’ 39.78”	SE419 TX / 10 dBd	29’ / 165°	0° / 0°	50.0 dBm	53.9 dBm	1647 Feet
			SE419 RX / 10 dBd	40’ / 165°	0° / 0°			
Pise Lookout	37º 27’ 19.67”	122º 20’ 26.76”	LPA70063 TX / 13 dBd	70’ / 230°	0° / 0°	48.9 dBm	55.4 dBm	1622.5 Feet
			SE419 RX / 12.5 dBd	80’ / 230°	0° / 0°			
Rolph Hill	37º 19’ 50.68”	122º 12’ 49.74”	LPA 70063 TX / 13 dBd	30’ / 240°	10° / 0°	50.0 dBm	56.9 dBm	1494 Feet
			SE419 RX / 12.5 dBd	40’ / 240°	0° / 0°			
Skylawn	37º 30’ 13.67”	122º 22’ 14.76”	SE419 TX / 11.5 dBd	59’ / 230°	0° / 0°	50.0 dBm	55.0 dBm	806.1 Feet
			SE419 RX / 11.5 dBd	70’ / 230°	0° / 0°			

Site Name	Latitude (N)	Longitude (W)	Antenna Type/ Gain	Antenna Height / AZ	Elect. Downtilt / Mech. Downtilt	RF TX Power	TX ERP	HAAT (TX)

Standalone ASTRO 25 Site Repeaters

Hostel SAM	37º 32’ 3.66”	122º 31’ 5.78”	BCD7509 TX / 9 dBd	25’ / 0°	1.3° / 0°	50.0 dBm	52.9 dBm	-61.1 Feet
			SC412 RX / 11.5 dBd	40’ / 0°	0° / 0°			
La Honda Verizon	37º 19’ 21.42”	122º 16’ 44.42”	BCD7509 TX / 9 dBd	15’ / 0°	1.3° / 0°	50.0 dBm	53.0 dBm	-101.8 Feet
			SC412 RX / 11.5 dBd	30’ / 0°	0° / 0°			
Pigeon Point	37º 11’ 34.69”	122º 22’ 5.75”	BCD7509 TX / 9 dBd	25’ / 0°	1.3° / 0°	50.0 dBm	52.9 dBm	144.1 Feet
			SC412 RX / 11.5 dBd	40’ / 0°	0° / 0°			
Towne Ridge	37º 17’ 16.68”	122º 14’ 48.74”	BCD7509 TX / 9 dBd	35’ / 0°	1.3° / 0°	50.0 dBm	52.7 dBm	291 Feet
			SC412 RX / 11.5 dBd	50’ / 0°	0° / 0°			
Brisbane Ice	37º 41’ 31.65”	122º 24’ 11.78”	SE419 TX / 10.5 dBd	29’ / 250°	0° / 0°	45.4 dBm	49.8 dBm	89.4 Feet
			SC412 RX / 11.5 dBd	40’ / 0°	0° / 0°			
Pescadero	37º 14’ 38.68”	122º 24’ 0.75”	BCD7509 TX / 9 dBd	25’ / 0°	1.3° / 0°	50.0 dBm	52.9 dBm	-30.4 Feet
			BCD7509 RX / 9 dBd	40’ / 0°	1.3° / 0°			
Pomponio	37º 18’ 34.4”	122º 22’ 45.4”	BCD7509 TX / 9 dBd	25’ / 0°	1.3° / 0°	50.0 dBm	52.9 dBm	311.5 Feet
			BCD7509 RX / 9 dBd	40’ / 0°	1.3° / 0°			
Star Hill	37º 21’ 58”	122º 20’ 42.6”	BCD7509 TX / 9 dBd	25’ / 0°	1.3° / 0°	50.0 dBm	52.9 dBm	-30.4 Feet
			BCD7509 RX / 9 dBd	40’ / 0°	1.3° / 0°			

Results of Coverage Analysis
Contractor will provide the final results of the coverage analysis with the configuration as listed in Table 1-1 (please refer to the coverage maps for Phase 1 identified in bold) during the Design Review.

The coverage map results assume that the antenna heights specified in the ASTRO 25 System Site Data above, and are higher than the surrounding clutter, including trees, water tanks, buildings, etc. If the local clutter is higher than the antennas, then the coverage results listed above are invalid and will have to be modified. A modification to the design may be required to provide acceptable coverage results, including raising the towers, or choosing different sites.

System Reliability
Contractor has designed the System with multiple levels of redundancy and the ability to provide the County with continued communications should failures occur. Because of the extremely high importance of maintaining a level of communications at all times, the system is designed to withstand multiple failures and still provide full-featured trunked communications.

To ensure that the System functions even in the event of multiple component failures, Contractor employs three proven design techniques: redundancy, fault tolerance, and fault distribution. By incorporating these design techniques within every subsystem, Contractor provides for a graceful degradation of system performance even in the event of major failures.

Redundancy is defined as two independent components with one in an active mode and one in a hot standby mode. If a component fails, the redundant component immediately comes on line. A typical master site is equipped with two Motorola Zone Controllers in a redundant configuration such that if the first Zone Controller fails, the second Zone Controller assumes system-wide control. Similarly, the ASTRO 25 repeater sites contain two GCP 8000 Controllers each in a redundant configuration such that if the first controller fails, the second controller assumes simulcast control.

Fault tolerance incorporates alternate subcomponents within a main component. If a subcomponent fails, the redundant subcomponent comes on line immediately and the main component remains in operation unaffected by the subcomponent failure. An example of fault tolerance can be found in Motorola’s Zone Controller. If a power supply fails, an alternate power supply with that Zone Controller will back-up the component.

Fault distribution is a design approach where multiple components are incorporated such that a failure of any one component does not disable the system but rather reduces the available resources.

In the event of multiple system failures, Contractor has designed into the system two reduced feature operational modes: site trunking and failsoft. Site trunking provides full trunking operation that is contained within the RF site or simulcast cell. Dispatch operation is maintained through wireless links into the site. Failsoft is a conventional wide-area operation.

Spectrum Analysis

The requested channel count for this new configuration is 10 channels in the simulcast RF cell, and 6 channels in the 8 Astro25 Repeater Sites. This design requires 58 - 12.5 kHz channels within the system. With only 41 channels available to the County, Contractor is proposing a solution that is as spectrum efficient as possible in order to meet the capacity requirements. Contractor will complete the frequency analysis for this new configuration during the design review process. This analysis will incorporate the Region 6 – 700 MHz rules and will take advantage of any spectrum efficiencies available.

700 MHz Spectrum Efficiency

Contractor has evaluated the 700 MHz spectrum available to the County for use within the design. The goals of this process were to provide the required spectrum for the system while meeting the 700 MHz rules defined by the Region 6 plan. The Region 6 - 700 MHz plan identifies 41 - 12.5 kHz channels for San Mateo County agencies. The rules associated with the 700 MHz frequencies regarding interference are:

- Co Channel Interference: 5 dBu contour cannot overlap the 40 dBu contour of a co channel user
- Adjacent Channel Interference: 60 dBu contour cannot overlap the 40 dBu contour of an adjacent channel user
- Service Area: 40 dBu contour defines the service area and cannot extend beyond three miles from the jurisdictional boundary

In addition to these interference rules, the FCC has set rules regarding Effective Radiated Power compared to the HAAT.

These rules are identified in Table1-2 below.

Table1- 2: 700 MHz ERP vs HAAT

HAAT in Feet			
Lower Height	Upper Height	ERP Watts	ERP dBu
4500	- - -	65	48.1
4000	4500	70	48.5
3500	4000	75	48.8
3000	3500	100	50
2500	3000	140	51.5
2000	2500	200	53
1500	2000	350	55.4
1000	1500	600	57.8
500	1000	1000	60
	500	1000	60

Coverage System Design

Contractor completed an extensive coverage analysis for the County. The goals of this analysis were to provide the coverage required, while minimizing the number of required frequencies. Contractor was able to successfully design a system that uses only one simulcast cell without delay spread issues that impact coverage. This solution requires only 10 channels to provide the coverage and capacity for the simulcast system. The results of

implementing only one simulcast cell are a reduction of 10 frequencies from the originally proposed system required within the system.

Frequency Reuse
Contractor will evaluate the frequency reuse possibilities during the design review. Based on the analysis completed for the proposed solution, Contractor expects frequency reuse to be possible for some cells within the system.

Phase 2 TDMA
Contractor can propose a migration path to a Project 25 Phase 2 TDMA solution. This solution provides two talkpaths for every 12.5 kHz voice channel. This solution essentially doubles the number of talkpaths available over a Phase 1 solution.

Frequency Plan Results
Contractor will present a final frequency plan during the design review.

Migration to P25 Phase 2 TDMA
The solution is built upon the proven ASTRO 25 platform. This solution is migrateable to Project 25 Phase 2 TDMA. Phase 2 TDMA operation leverages 2:1 TDMA channel efficiency to double voice path capacity as compared to a Phase 1 FDMA channel. This enhanced capacity provides agencies the flexibility to implement fewer channels at each site and therefore save money. Phase 2 TDMA operation also improves the Grade of Service (GoS) compared to Phase 1, leading to fewer busied calls and faster callbacks. If additional voice path capacity is not required, the RF spectrum can be re-deployed for packet data services at the same site or be redeployed at another site that needs more voice path capacity. Phase 2 TDMA also provides 6.25e (6.25 “equivalent”) operation for satisfying future FCC spectral efficiency requirements. These requirements are 6.25e operation in the 700 MHz spectrum by the year 2017.

System Expansion
This system is designed with expandability and future migration in mind. ASTRO 25 is an IP Standards Based scalable platform. The ASTRO 25 platform can support the maximum number of zones, sites, and channels shown in Table 1-3.

Table 1-3: ASTRO 25 System Expandability

ASTRO 25 System	Proposed master site	Multi-Zone Capacity
Zones	1	1-8
RF Subsystems	24	100/zone
Channels	300	700/zone
Simulcast Cells	24	64/zone
Sites per Cell	15	15
Dispatch Sites	24	55/zone
Unit IDs	16,000	64,000
Affiliated Users	16,000	64,000
Talkgroup	4,000	16,000
Data Users	5,000	20,000

ASTRO 25 System	Proposed master site	Multi-Zone Capacity
Dispatch Positions	50	2,000

The system supports required expansions to the system as the system grows.
Talkgroups: New talkgroups are added simply by programming the master site and the required subscriber units and consoles with the required talkgroup.

Frequencies: New frequencies are added by adding a base station(s) at each site and addressing the antenna system components and programming the new frequency into the master site. The subscriber units do not require a programming touch with the addition of a new frequency. Depending on the number of frequencies added, additional racks may be required for this expansion. The existing power systems have been designed with additional 10% capacity.

Coverage Expansion: Coverage expansion is accomplished by adding an additional site ASTRO 25 repeater site, or by implementing a simulcast cell within the coverage area. Adding another site to the system requires programming the master site including the fault management system as well as programming the subscriber units. The subscriber units can be programmed via PoP25.

ASTRO 25 System Functionality
This subsection describes the functionality of the system in the following areas:

- System access functionality
- User talkgroup functionality
- Individual call functionality
- Network management functionality
- Network monitoring
- Reporting
- Radio registration
- Radio roaming

System Access Functionality
Busy Queuing/Call Back: This system has been designed to maximize availability to the end user. In the unlikely event that all the channels are busy, a user depressing their Push-To-Talk (PTT) will be given a busy signal, and placed into a busy queue. When a channel becomes available, the system assigns the users to a channel via pre-assigned priority levels. Once a channel is assigned, the system notifies the user with a call back tone. This feature makes it unnecessary for the radio operator to waste valuable time rekeying their radio in an effort to gain channel access.

Automatic Retry: If a channel request is not received at the Zone Controller, the individual radio unit continues sending channel requests until the Controller acknowledges the request, or until a total of 16 automatic retries occur. This feature eliminates the need for the operator to continually key and de-key their radio, or to keep their radio keyed in an effort to gain system access.

Recent User Priority: To ensure uninterrupted communications, a recent radio user priority provides those users who have been recently assigned a voice channel priority over the other system users. Recent user priority ensures that a talkgroup engaged in a conversation receives priority system access for up to 10 seconds between transmissions.

Misdirected Radio Protection: To ensure that a radio from one talkgroup cannot accidentally be assigned to a voice channel being used by a different talkgroup, the system utilizes embedded signaling. If a unit from a different talkgroup is accidentally assigned the same channel, the radio will recognize that it has been assigned incorrectly, and will automatically revert to the control channel.

Continuous Assignment Updating: Once a talkgroup is assigned a voice channel, the control channel continues to transmit the channel assignment for as long as that talkgroup is using the channel. This ensures that a radio just coming into service will be sent to the appropriate voice channel to join the rest of its talkgroup.

Talk Prohibit Tones: In the event that a user attempts to perform an unauthorized function as defined by system permissions, a talk prohibit tone is given.

Dynamic Network Access Code (DNAC): The dynamic network access code is used to reduce co-channel and co-site interference. The radio decodes the Network Access Code (NAC) associated with the control channel at a site and uses it for both transmit and receive on the ASTRO 25 voice channel at that particular site. NAC serves as the ASTRO 25 equivalent of connect tone. Each site can have one of the 16 unique NACs allowed within the system. Interference protection is provided from nearby systems as well as between sites in the customer system.

User Talkgroup Functionality: To enhance user functionality, the ASTRO 25 platform has many talkgroup features, as described below. These features are configurable by the System Administrator.

Emergency Alarm/Call: Emergency alarm/call provides users the capability to inform dispatch personnel of a life-threatening situation. By pressing the radio’s emergency alarm button, an audible and visible alarm and the user’s ID are sent to the dispatcher, and optionally all talkgroup members.

In emergencies, the dispatch center is notified immediately, regardless of whether the system is busy. If one or more voice channels are available, one of those channels will be assigned immediately to the emergency call when the user presses the PTT switch. The duration of the emergency call can be defined by the system administrator.

In the event that the system is busy, two alternatives are provided for handling emergency traffic:

- Top of the Queue—when an emergency is initiated and no channel is available, the emergency user is put at the top of the busy queue. As soon as the first user on any channel de-keys, the emergency caller is assigned that channel. The major advantage to this approach is that there is no contention for the channel.

- Ruthless Preemption—when an emergency is initiated and no channel is available, the Zone Controller selects the channel assigned to the lowest priority user and assigns it to the emergency caller – a feature unique to Contractor's trunking systems.

Multiple Priority Levels: The system provides 10 priority levels, allowing administrators to segment their users according to their communications needs. Priority 1 is always reserved for emergencies. Priorities 2 through 10 can be assigned by the System Manager on a per radio or talkgroup basis. These priorities are only applicable when the system is busy.

Multi-Group Call: Multi-group call is used to make a simultaneous call to multiple talkgroups, and allow all units to be configured for talk back capability. The System Manager can program this call to operate in one of two ways:

- The requesting user waits for all requested talkgroups to finish all calls in progress.
- The requested call immediately interrupts other conversations in progress without waiting for active users to de-key. Radio users who are transmitting on a voice channel will not hear the call until they de-key.

Dispatch Console/Talkgroup Merge: Talkgroup merge is a dispatch function that allows multiple talkgroups to operate together on one voice channel, improving channel efficiency. This is a standard feature of Contractor's wireline consoles.

Non-Priority Scan: Non-priority scan allows the radio user to scan between multiple systems, talkgroups, or conventional channels.

Priority Monitor: Priority monitor allows the radio user to scan talkgroups in their system, and mark up to two talkgroups in their scan list as Priority. A non-priority conversation will be interrupted by Priority 1 or Priority 2 talkgroup activity.

Individual Call Functionality: To further enhance user functionality, the ASTRO 25 platform has individual call features in addition to user talkgroup features, as described below. These features are configurable by the system administrator.

Call Alert: Call Alert allows a dispatcher or radio user to selectively page an individual's radio. Call Alert signaling is conducted over the control channel and does not affect voice channel capacity. The Call Alert produces an audible and visual alert on the receiving radio. Indicators on the initiating radio acknowledge delivery of the Call Alert. If the receiving unit has a display, it will show and store the sending unit's ID.

In-Call User Alert: In-Call User Alert is a feature that builds upon Call Alert. When In-Call User Alert is enabled on the system, radios will be able to receive Call Alerts even when involved in voice and data services.

Radio Talkgroup Muting: Radio Talkgroup Muting is a feature that utilizes the Call Alert feature. Radio Talkgroup Muting allows the radio user to mute all voice traffic for the currently selected talkgroup.

The radio can be automatically unmuted by the console dispatcher or another radio user by sending the muted radio a Call Alert. With In-Call User Alert enabled, the Call Alert will reach the muted radio when it is on the voice channel or a data channel, as well as if it is idle on the control channel.

Private Call: Private Call allows a radio user or console dispatcher to selectively call and carry on a private conversation with another individual radio, as long as that unit is not already engaged in another Private Call. The calling unit will receive an acknowledgment of a successful Private Call. If the receiving radio has a display, it will show the calling party's unit ID.

Network Management Functionality

Security Partitioning: This feature allows the creation of security groups in order to limit access to selected database records. It allows system administrators to control access to network management data by department, geography, or individual user.

Basic Radio Control Manager: The Radio Control Manager (RCM) application provides the ability to generate radio commands and to display radio events. Users also have the capability to generate RCM reports.

Dynamic Regrouping: Dynamic Regrouping enables a system manager to dynamically program an affiliated radio user to a particular talkgroup. The radio will generate an audible noise indicating to the user that the radio has been regrouped. Dynamic regrouping is processed by the system as a talkgroup call. Dynamic regrouping, which is initiated from the Radio Control Manager (RCM), takes individual user equipment that normally do not communicate with each other, and groups them into a talkgroup reserved for specific events. The operation is transparent to the radio user; the subscriber responds to the regrouping command, joins the dynamic talkgroup specified in the Outbound Signaling Packet (OSP), and receives notification, through a tone and its display, that communication from that point forward will take place with the dynamic talkgroup and not the talkgroup indicated by the selector position.

Dynamic Regrouping - Individual Units: Individual radio units, operating in different talkgroups, may have a unique need to communicate, requiring the group of individual radios to be consolidated into a temporary talkgroup.

The Dynamic Regrouping command is transmitted to all the individual units over the control channel, by the RCM, and is sent to the Zone Controller through the network management system. Dynamic Regrouping commands are easily deactivated by the network management clients via the Radio Control Manager (RCM) application. The RCM user can send a single command to up to 100 individual radios.

Dynamic Regrouping - Storm Plans: Storm Plans represent any number of preprogrammed Dynamic Regrouping combinations constructed in advance to anticipate a unique need, such as a disaster, or to make a needed adjustment for an infrequent yet repeated event, like a parade or election. When implemented, a Storm Plan will automatically construct a new

talkgroup, containing the radios specified by the stored Dynamic Regrouping command. Storm Plans are deactivated as regular Dynamic

Regrouping commands and is done through the RCM application.

RCM User Access: The way that the Radio Control Manager (RCM) user is configured in the User Configuration Manager (UCM) determines which RCM users can issue radio commands to a radio user, and from which radio users the RCM user can receive radio events. An RCM user's ability to communicate with radios is based on talkgroup attachments and security group assignments.

Selective Radio Inhibit denies system access to lost or stolen radios. When a radio is reported missing, a network management terminal operator can send a Selective Radio Inhibit command to the system controller, rendering the radio unit inoperable. Once found, the radio can be reactivated and restored to normal operations over the air.

Zone Watch: ZoneWatch provides customizable displays and graphs to monitor real-time communications activity and network health. It is a set of diagnostic tools allowing individuals to make more efficient system management decisions. An administrator defined display of information can be created down to individual unit or talkgroup activity.

- At a glance, provides a real-time snapshot of the system
- Color coded display allows for quick network status indications
- Enables faster identification and resolution of potential issues

Affiliation Display: Affiliation Display provides a dynamic view of the sites to which all operating units are currently affiliated, making it easy to track and troubleshoot radios in the system. It provides a dynamic view of sites, talkgroups, and individual radios

- Sites
- Talkgroups
- Individual Radios

Computer-Aided Dispatch Interface: Computer-Aided Dispatch Interface (CADI) provides access to radio traffic information and some control functions. This capability provides a method for a Computer-Aided Dispatch (CAD) host to interface to the network.

SNMP Trap Forwarding (Optional): Forwards alarms received by the Unified Event Manager (UEM) application to the SNMP management system, allowing your existing network to actively monitor alarm conditions within the radio network.

Northbound Interface (Optional): Forwards alarms from the Unified Event Manager (UEM) application allowing the existing network to actively monitor alarm conditions within the radio network.

Email Alerting: Email alerting sends notifications for system alarms in the Unified Event Manager (UEM) to a specified email address. Alarms can also be forwarded to a mobile device such as a cell phone or PDA.

Flexible Air Traffic Information Access (ATIA) (Optional): The Flexible ATIA interface feature provides an access point for air traffic call information. Customers can generate detailed billing reports or management reports with third-party products or services.

Channel Partitioning (Optional): The Channel Partitioning feature provides agencies or departments, with exclusive use of specific RF channels. The use of this feature allows the segregation of one set of users from another to ensure dedicated resources for a specific group.

Dynamic Frequency Blocking (Optional): When frequencies are sparse, Dynamic Frequency Blocking allows you to reuse frequencies within cells in close proximity within the system. This feature automatically allows the system to dynamically block the frequency at site A while transmitting the same frequency at Site B.

Network Monitoring Functionality: The ASTRO 25 platform's suite of network monitoring applications continuously monitors the health and status of all network devices and applications, providing network managers instant visibility to status changes throughout the network. The applications include:

- Hardware Element Monitoring – The radio system monitors and reports the status of all the hardware elements in the network.
- Software Process Monitoring – The system monitors and reports the status of all the critical software processes running on the various hardware elements. If a change in a software process is detected, self-healing actions may be initiated to correct the process. Refer to the Self-Healing Actions feature for more information.
- Network Link Integrity Monitoring – Any changes in the network links are reported to the radio system's fault manager.
- Self-Healing Actions – The system automatically takes actions to remedy errors detected by its fault management routines to ensure continuation of critical communications.

Reporting Functionality: ASTRO 25 provides users with numerous reports including:

- Historical Reports
- Dynamic reports
- Custom reports
- Affiliation User Reports
- Radio Control Manager Reports

These reports provide historical and real-time traffic data to aid in system optimization, allow system managers to view real time call activity to be proactive in making resource planning decisions, and monitor system usage by identifying the sites that are used the most and determining where radio users are located throughout the system.

Historical Reports: ASTRO 25 allows users to manually or automatically generate historical performance reports through the use of standard templates contained.
The Historical Reports application generates reports of statistical data that is gathered at specific, predefined time intervals. Users can then create reports from this data to monitor and

analyze information about zones, sites, channels, talkgroups, and users. This data is displayed using predefined report templates and parameters

Dynamic Reports User Licenses: ASTRO 25 allows users to generate near real-time graphical reports showing system utilization for talk group, private, and interconnect calls. Dynamic Reports provides several predefined report templates that can be used to display statistics for a zone, site, or a console site (but not for a system) in near real time. Some of these include:

- Templates for Zone-Level Reports – Dynamic Reports allows you to create and run reports to capture statistics across a zone. For example, the Zone Call Activity report provides statistics for determining the levels of different call activities within the zone, such as call rejects or call terminations.
- Templates for Site-Level Reports – Dynamic Reports allows you to create and run reports to capture statistics across a site. For example, the Site Busy Count report provides statistics for determining the number of busies caused by lack of resources at this site or the number of busy calls originating at this site.
- Templates for Console Site-Level Reports – Dynamic Reports allows you to create and run reports to capture statistics across a console site. For example, the Console Site Link Bandwidth Usage report provides the percentage of bandwidth to a console site consumed by trunking calls in the time interval.

Custom Reports: Custom Reports will let the County create or modify reports to meet specific needs using the statistical data elements supported by the Performance Reports application. This can be applied for either Historical or Dynamic Reports. The Custom Report is created using the Crystal Reports® application and is an optional feature of the ASTRO 25 platform.

Affiliation User Reports: Affiliation User Reports allows a user to observe selected real time affiliations in the zone for sites, talkgroups, or individual radio users. Also provides graphing capabilities.

Radio Control Manager Reports: Radio Control Manager (RCM) Reports enable the creation and viewing of standard reports from the following categories:

- Emergency Alarms Reports - Provides a historical listing of all Emergency Alarms received by the RCM in a selected period of time. The report can display all Emergency Alarms in the active or historical events queues. These reports include:
    - Emergency Alarms by Radio Report
    - Emergency Alarms by Talkgroup Report
    - Emergency Alarms in the Deleted State Report
    - Emergency Alarms in the Responded State Report
- Current Login Sessions Reports - Provides information about the RCM users currently logged into the system.
- Radio Command Reports - Shows the commands that have been sent to radio users, such as Regroup, Inhibit, and Selector Lock. These reports include:
    - Radio Commands by Command Report
    - Radio Commands by User Report

- Radio Commands by Radio Report

Site Registration and Radio Deregistration Functionality

Site Registration: On power up, or selection of a new system, the radio must do a Full Registration. Once completed, a procedure is used by the radio to inform the Fixed Network Equipment (FNE) of its current location upon roaming to a new site. The system tracks the location of each radio user making site switching more efficient and reducing system traffic overhead.

Automatic Site Registration is the automatic registration process that takes place when a radio roams from one site to another, which is transparent for the user.

Radio Deregistration: Deregistration of a radio unit occurs in two forms:

Radio activated deregistration is a radio function that sends in a deregistration signal to the system when turning off power or going to another trunking system or conventional personality.

Timeout activated deregistration occurs when no activity has been seen from a radio for a pre-selected time. When the timeout occurs, the radio is deregistered. Radios are polled after timeout occurs. If the radio responds to the polling, the timer is restarted. The period is programmable by talkgroup, allowing the Zone Controller to conserve channels for future calls.

Radio Roaming Functionality: This solution provides seamless mobility between the two cells proposed in this system. As users travel throughout the coverage area, the user equipment will automatically affiliate and deaffiliate with the sites. The APX multi-band radios will be able to automatically roam throughout the entire coverage area provided by 700 MHz and UHF spectrum.

Adjacent Control Channel Outbound Signaling Packet: Radio units maintain a list of the adjacent sites. Each RF site in wide area trunking mode transmits a series of Outbound Signaling Packets (OSPs) containing the following:

- The zone/site identification.
- The active control channel of adjacent sites.
- The alternate control channels at the current site.
- The channel resource capabilities.

When a radio is registered with a site, the adjacent site list is updated with the information obtained from the Adjacent OSPs on the Control Channel (CC) and Link Controls (LCs) on assigned channels from that site.

User Initiated Site Search: This radio feature allows the user to manually search for the site with the next best signal quality.

Site Lock/Unlock: This radio feature allows the radio to lock onto a specific site and not roam among wide-area talkgroup sites.

Preferred Site: Preferred Site Operation allows a radio to use an additional site ranking criteria to select an alternative, pre-programmed preferred site in trunking mode. Signal quality measured by the radio is used to determine what the radio should do in preferred site operation. The combination of the signal quality reading and the preferred site status results in the "site ranking" for that site. Preferred status allows a system administrator to better manage the capacity and traffic of their system, increasing availability of system resources to users in the field.

There are four variations of preferred site status:

- Always preferred – In all modes, the radio unit remains affiliated, always using this site if it has an acceptable signal quality.
- Preferred – In wide area trunking, the radio unit uses this site if it has an acceptable signal quality rating.
- No preference site - The radio unit uses the site with the best signal. This is the default setting for radios.

Least preferred - The radio unit only uses this site when no other sites with an acceptable signal quality are available for use.

A-3. Acceptance Test Plan:

The ATPs will be used by Contractor and the County to ensure that the ASTRO 25 Trunking System is complete and operational. The combination of the tests will allow for a detailed and documented procedure to examine the network and overall system performance. The four levels of system acceptance testing consist of: Staging, Site Testing, System Functional Testing and Coverage.

Upon completion of each Acceptance Test, a County representative will be asked to sign a Statement of Acceptance that the test passed successfully.

Acceptance tests will be performed by Contractor and witnessed by a County representative during the installation and testing phases. Each test will be performed independently using detailed procedures. If a deficiency is found during a test, the deficiency, the appropriate resolution and party responsible for resolution shall be identified and documented in a “punch list”. In cases such that the defined deficiencies do not prevent productive operational use of the System, the County representative will grant conditional acceptance to Contractor, and the test will be accepted as successfully completed. Conditional acceptance shall also be granted if the County derives beneficial use of the System. Conditional acceptance will not relieve County or Contractor from resolving the identified deficiencies as agreed to prior to Conditional Acceptance.

A signature on a Test Verification Acceptance Form shall indicate that a test has been successfully completed. Signatures on all of the tests, and resolution of the deficiencies punch list, constitutes unconditional acceptance of the System.

Staging Acceptance Testing: Contractor will utilize a detailed implementation procedure to implement the new System. Staging is an integral part of this implementation procedure. During the staging process, the entire System will be installed and cabled according to the rack and floor plan diagrams provided in the Design Review Document. Additionally, the equipment will be configured to operate as specified in the Design Review Document. The overall System and each subsystem will be functionally tested, including failure modes of the System, using the functional test scripts provided in the System Functional Test Section of the Design Review Document. The functional tests that Contractor will perform at staging are:

Wide Area Trunking: FDMA-Only Sites

- Talkgroup Call
- Multigroup Call in Wait Mode
- Multigroup Call in Interrupt Mode
- Continuous Assignment Updating
- Emergency Alarm and Call with Talkgroup Revert
- Site Access Control/"Either" Site Access Denial
- Busy Queuing and Callback with Ten Talkgroup Priority Levels
- Priority Monitor/Priority Scan

Site Trunking: FDMA – Only Sites

- Site Trunking Talkgroup Call
- Site Trunking Emergency Call and Alarm 1
- Site Trunking Busy Queuing and Callback

System Reliability Features

- Multiple Control Channels
- Site Failsoft
- Base Station Identification
- Station Failure
- Redundant Site Controller Switching/User Initiated Switchover
- Receiver Interference Shutdown
- Transmitter Power Failure Shutdown

This Test Plan is intended to test installed equipment at the final installation sites. Site construction and installation techniques are also observed for contract completion. This Phase is performance-oriented, not oriented towards features. It verifies that all equipment is performing as designed and specified to ensure a usable system.

R56 Audits: Contractor will perform Fixed Network Equipment (FNE) quality audits on all sites, utilizing Contractor's R56 Standards. A copy of the audit will be provided to the County, along with any recommendations for the County to improve items under its direct control.

Equipment Specifications: Contractor will test and provide documentation that the installed equipment meets or exceeds the equipment specifications. The equipment tested and the results of the tests are identified in Site Data Logs. These tests are not scheduled to be formally witnessed by the County. The tests are completed as equipment is installed. The

County is encouraged to participate in the testing and to re-check any measurements it deems appropriate.

This information will also be included in the “As-Built” documentation. If a failure is encountered during the tests, Contractor will take corrective action. Failure or deficiencies requiring corrective action which are not resolved during the testing process will be tracked on a punch list. Contractor will coordinate the punch list resolution with the County.

Site Testing: This Test Plan is intended to test installed equipment at the final installation sites. Site construction and installation techniques are also observed for contract completion. This Phase is performance-oriented, not oriented toward features. It verifies that all equipment is performing as designed and specified to ensure a usable system.

- R56 Audits: Contractor will perform Fixed Network Equipment (FNE) quality audits on all sites, utilizing Contractor’s stringent R56 Standards. A copy of the audits will be provided to the County, along with any recommendations for the County to improve items under its direct control.
- Equipment Specifications: Contractor will test and provide documentation that the installed equipment meets or exceeds the equipment specifications. The equipment tested and the results of the test are identified in Site Data Logs. These tests are not scheduled to be formally witnessed by the County. The tests are completed as equipment is installed. The County is encouraged to participate in the testing and to re-check any measurements it deems appropriate.

This information will also be included in the “As-Built” documentation. If a failure is encountered during the test, Contractor will take corrective action. Failure or deficiencies requiring corrective action which are not resolved during the testing process will be tracked on a punch list. Contractor will coordinate the punch list resolution with the County.

System Functional Testing: Once the System has been implemented in the field and each site has been tested using the Site Testing procedure, Contractor will perform functional tests to verify that the System operates as required by the County. This test will test the overall functionality of the System, including various failure modes such as site trunking and failsoft. The Functional Test Scripts will be provided during the Design Review Phase. The Functional Tests are:

Wide Area Trunking: FDMA-only Sites

- Talkgroup Call within P25 System
- Talkgroup Call including users on the P25 System and users on the SmartX System
- Multigroup Call in Wait Mode
- Multigroup Call in Interrupt Mode
- Continuous Assignment Updating
- Emergency Alarm and Call with Talkgroup Revert
- Site Access Control/”Either” Site Access Denial
- Busy Queuing and Callback with Ten Talkgroup Priority Levels

- Priority Monitor/Priority Scan

Site Trunking: FDMA-only Sites

- Site Trunking Talkgroup Call
- Site Trunking Emergency Call and Alarm 1
- Site Trunking Busy Queuing and CallBack

System Reliability Features

- Multiple Control Channels
- Site Failsoft
- Base Station Identification
- Station Failure
- Redundant Site Controller Switching/User Initiated Switchover
- Receiver Interference Shutdown
- Transmitter Power Failure Shutdown

Coverage Acceptance Testing: The Coverage Acceptance Test Plan (CATP) is designed to verify that the System implemented by Contractor meets or exceeds the required coverage reliability within the County's service area as indicated on Contractor's Coverage Maps. The CATP defines the coverage testing method and procedure, the coverage acceptance criterion, the test documentation, and the responsibilities of both Contractor and the County. One CATP has been included. Due to the phased implementation approach, additional CATP's may be required and will be handled with a Change Order.

Coverage Acceptance Testing is based upon a coverage prediction that accurately represents the implemented infrastructure and parameters that are consistent with the objectives of this project. If the implemented system varies from the design parameters, then a revised Coverage Map will be prepared. New Test Maps will reflect the measured losses and gains associated with the implemented infrastructure and subscribers. These will be used to define the test configuration and potential areas from which test locations may be included in the evaluation process.

To verify that the radio coverage reliability is met, the indicated coverage area within the County's operating area will be divided into equally sized test tiles.

CATP Definitions: Several definitions are needed to accurately describe the Coverage Test Method. Where cited, these terms or methods are defined in TIA TSB-88.1-C[1] or TSB-88.3-C[2].

Coverage Area: The Coverage Area is the geographical region in which communications will be provided that meets or exceeds the specified Channel Performance Criterion at the specified reliability for the specified equipment configuration(s). Radio systems are typically designed to maximize the coverage area within the County's service area (County's operational area, jurisdictional boundaries, etc.) {TSB-88.1-C, §5.1}. The predicted mobile coverage area for this System is indicated on the Contractor's Coverage Map(s).

Channel Performance Criterion (CPC): The CPC is the specified minimum design performance level in a faded channel. {TSB-88.1-C, §5.2}. For this System, the CPC is a Delivered Audio Quality of DAQ-3.4. The DAQ definitions are provided in the table below. {TSB-88.1-C, §5.4.2, Table 2}. Given the static reference sensitivity of a receiver, the faded performance threshold for the specified CPC is determined by using the projected CPC requirements for different DAQs listed in TSB-88.1-C, Annex A, Table A-1. For digital voice systems, the faded performance threshold is for a Bit Error Rate (BER) that provides the specified CPC. The CATP Pass/Fail criterion for each test location is the faded performance threshold, plus any adjustments for antenna performance and in-building or in-vehicle losses. {TSB-88.1-C, §5.4.2, Figure 5}.

DAQ Delivered Audio Quality	Subjective Performance Description
1	Unusable, speech present but unreadable.
2	Understandable with considerable effort. Frequent repetition due to noise/distortion.
3	Speech understandable with slight effort. Occasional repetition required due to noise/distortion.
3.4	Speech understandable with repetition only rarely required. Some noise distortion.
4	Speech easily understood. Occasional noise/distortion.
4.5	Speech easily understood. Infrequent noise/distortion.
5	Speech easily understood.

Reliability: The reliability is the percentage of locations within the Coverage Area that meet or exceed the specified CPC. Contractor's Coverage Map(s) indicate the area within which this system is predicted to provide at least 95% reliability of meeting or exceeding the CPC of DAQ-3.4 {TSB-88.1-C, §5.3.2; **not** regulatory contour reliability.}

Equipment Configurations: These types and configurations of radio network and field unit equipment upon which Coverage Acceptance is based. Contractor's Coverage Map(s) for this System indicate(s) the coverage area for the following equipment configurations:

- Simulcast coverage to 10 Watt mobiles using Linear Simulcast Modulation (LSM) and a 3dB gain antenna.

CATP Method: The method used to test coverage is statistical sampling of the predicted coverage area to verify that the CPC is met or exceeded at the required reliability for each of the defined equipment configurations. It is impossible to verify every point within a coverage area, because there are infinite points; therefore, coverage reliability will be verified by sampling a statistically significant number of randomly selected locations, quasi-uniformly distributed throughout the predicted coverage area.

This CATP provides an objective, quantitative method of measurement using Contractor's Voyager^{SM} software tool. The method follows TIA TSB-88.3-C §5.0 "Performance Confirmation", and has direct correlation with Contractor's coverage prediction methodology.

Determine the required number of test tiles in the Coverage Area: The predicted Coverage Area shown on Contractor's Coverage Maps will be divided into a tile pattern to produce at least the number of uniformly sized test locations (or tiles) required by the Estimate of Proportions formula. [TSB-88.3-C, §5.2.1, Equation 2}. The minimum number of test tiles required varies for different systems, from a hundred to many thousands, depending on the size of the coverage area, desired confidence in results, type of coverage test, and the predicted versus required reliability.

Constraints on Test Tile Sizes: The minimum outdoor tile size is 100 by 100 wavelengths; however, the minimum practical test tile size is typically about 400 by 400 meters (about 0.25 by 0.25 miles). The minimum practical tile size for any system is determined by the distance traveled at the speed of the test vehicle while sampling, GPS error margin, and availability of road access within very small test tiles. A related consideration is the time, resources, and cost involved in testing very large numbers of very small tiles. The maximum test tile size is 2 by 2 km (1.25 by 1.25 miles). {TSB-88.3-C, §8.5.1}. In some wide-area systems, this constraint on maximum tile size may dictate a greater number of test tiles than the minimum number required by the Estimate of Proportions formula.

Accessibility to Test Tiles: Prior to testing (if possible) or during the test, Contractor and the County will determine whether any test tiles are inaccessible for the coverage test (due to lack of roads, restricted land, etc.) Inaccessible tiles will be eliminated from the Acceptance Test calculation. {TSB-88.3-C, §5.5.4}.

Randomly Select a Test Location within Each Tile: Using Voyager^{SM}, the actual test location within each test tile will be randomly selected by the test vehicle crossing into the tile at an arbitrary point, with an arbitrary speed and direction. If the selected test location is in an underground parking garage, the test location must be marked as invalid and a replacement test location must be selected.

Perform Measurements in Each Tile: In each test tile, a series of sequential measurements (subsamples) will be made. This test location measurement, containing a number of subsamples, constitutes the test sample for this location. The test sample will establish the local mean BER within the test title. The distance over which the subsamples are measured will be 40 wavelengths. A mean of multiple BER subsamples is used rather than a single measurement to ensure that the measurement is not biased by taking a single sample that might be at a peak or null point on the radio wave.

Determine if each Test Tile Passes or Fails the CPC Requirement [For Each Equipment Configuration]: For each test tile, the pass/fail criterion is the Bit Error Rate (BER) that provides the specified CPC.

Coverage Acceptance Testing will be performed in the talk-out direction, to a test receiver in a vehicle. The propagation path loss is the same for talk-out and talk-in; therefore, coverage for the talk-in direction will be verified for acceptance by attenuation of the test receiver for talk-out BER measurements. The attenuator value will be the difference in system gain between talk-out and talk-in. {TSB-88.3-C, §5.7.3.4}.

Determine the Coverage Area Reliability for Acceptance: After all accessible tiles in the Coverage Area have been tested; the Coverage Area Reliability (percentage) will be determined by dividing the number of tiles that pass by the total number of tiles tested. {TSB-88.3-C, §5.1, Equation 63}. The Coverage Test Acceptance criterion for each equipment configuration is that the tested coverage area reliability must be equal to or greater than the required reliability.

Responsibilities and Preparation: Coverage Acceptance testing will be performed in the portions of the County's operating area predicted by Contractor to provide the required reliability as indicated on the Coverage Maps. Contractor will determine the minimum number of test tiles required, as described in the Method Section of this CATP. Contractor and County will plan the route for the test vehicle(s) through the coverage test area, to ensure that at least the minimum required numbers of tiles are tested. If possible, any tiles not accessible to the test vehicle(s) will be identified while planning the route.

No acceptance testing will be performed in locations on Contractor's Coverage Map(s) predicted to be below the required reliability. Contractor and County may agree to perform "information only" tests in such locations; however, these "information only" test results will not be used for coverage acceptance. Any "information only" test locations must be defined before starting the test. If the added locations require significant additional time and resources to test, a Change Order will be required and Contractor may charge the County on a Time-and-Materials basis.

County Responsibilities - The County will provide the following for the duration of the Coverage Test:

- At least one test vehicle that is representative of the vehicles to be installed with mobile radios, including antenna location
- At least one County representative to drive each test vehicle and/or to be the County representative(s) for the test team(s)

Contractor Responsibilities – The Contractor will provide the following for the duration of the Coverage Test:

- Calibrate the test receiver(s) used with the Voyager^{SM} coverage testing package. Depending on the system, the test receiver(s) may be provided by either Contractor or County.
- Provide the attenuator values required to evaluate each equipment configuration from the outbound BER measurements. Contractor will conduct this test only once. If any portion of the test is determined to be unreliable because of proven equipment malfunctions or failures, Contractor will repeat the portion of the test affected by the equipment malfunction or failure. The County will have the option to accept the coverage at any time prior to completion of the Coverage Test.

Before starting the test, the County and Contractor will agree upon the timeframe for Contractor's submission of a report containing the coverage test results.

CATP Procedures: A quantitative Coverage Acceptance Test will be performed using Contractor's Voyager[SM] package, to provide objective verification that the system provides the faded performance threshold for the specified CPC in each equipment configuration.

Voyager[SM] consists of the following:

- A calibrated digital voice test receiver, connected to an antenna installed in a representative location on the test vehicle. The test receiver will monitor transmissions from the Fixed Network Radio Site(s)
- A Global Positioning System (GPS) receiver, which will provide the computer with the location and speed of the test vehicle
- A laptop computer with Voyager[SM] software and a mapping database, which includes highways and local streets [political boundaries, rivers, and railroads]
- The Voyager[SM] package will be installed in a test vehicle. County personnel will drive the test vehicle over a route planned to cover the accessible tiles within the Coverage Test Area. Contractor personnel will operate the Voyager[SM] package
- During the Coverage Test, the laptop computer will display the vehicle's location on a map of the coverage test area overlaid with the test grid. Voyager[SM] will automatically initiate signal level and BER measurements when the GPS receiver indicates that a test tile has been entered. The computer will provide a visual indication that a measurement has been completed in a tile. Voyager[SM] will manage outbound reference signal levels measured in each tested tile
- Attenuation of the test receiver will be used to evaluate whether each tile passes or fails the required BER for each equipment configuration. The tile pass/fail evaluations will be used to determine the coverage area reliability
- Coverage acceptance will be based on demonstrating that at least 95% of the tiles in the coverage test area for each equipment configuration are measured to provide a mean level of [2.0%] BER or better at the test receiver input. The system coverage acceptance criterion will be the successful passing of each of the equipment configurations
- Any tile that fails the objective Voyager[SM] BER test described above will be re-tested using a subjective Delivered Audio Quality (DAQ) test. Any tile that fails the objective test, but passes the subjective re-test will be declared passed
- Contractor reserves the right to review any test tiles that fail both the objective BER and subjective DAQ tests, versus the signal strength samples taken for the same test tiles
- If a Coverage Test, or a portion thereof, is suspected by Contractor to have failed due to external interference, those tiles suspected of being affected by an interferer may be re-tested. If the test tiles re-tested are confirmed to have failed due to interference, those test tiles will be excluded from all acceptance calculations and Contractor will work with the County to identify potential solutions to the interference issues

CATP Documentation and Coverage Acceptance: During the Coverage Acceptance Test, Voyager[SM] generates computer files that include the Reference Tile Levels for each test tile. A copy of this raw data will be provided to the County at the conclusion of the Coverage Test.

Contractor will process this data to determine whether the Coverage Test was passed for each equipment configuration, and to produce a map detailing the coverage test results.

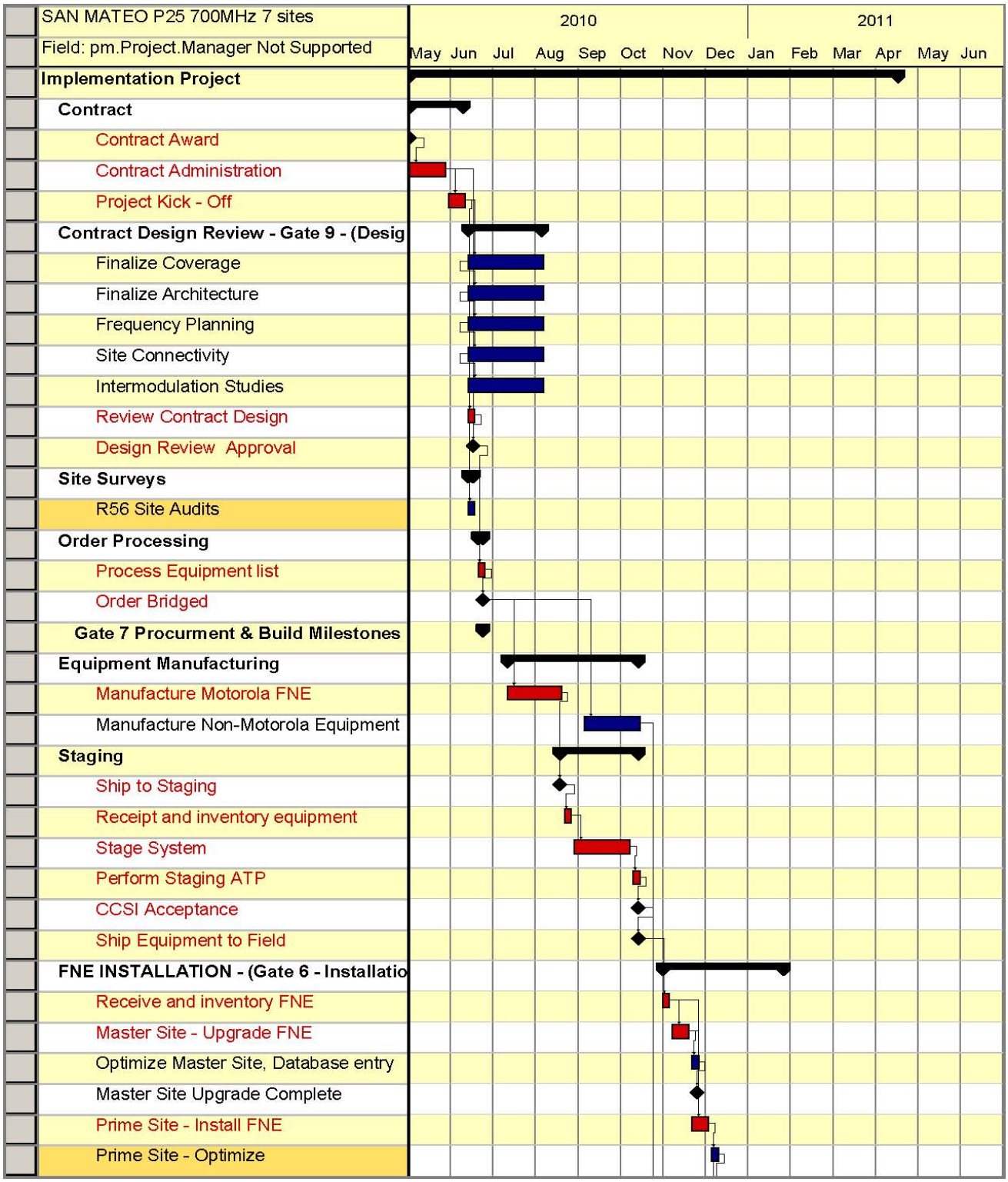
Contractor will submit to the County a report detailing the Coverage Test results. This report will include a document, which is to be signed by both the County and Contractor, indicating the test was performed in accordance with this CATP and the results of the test indicate the acceptance or non-acceptance of the coverage portion of the System. The County will have the option to accept the coverage at any time prior to completion of the coverage test or documentation process.

Punchlist Items for Resolution: During the installation and testing of the System, a punchlist will be maintained that tracks items or features that need to be corrected prior to final system acceptance.

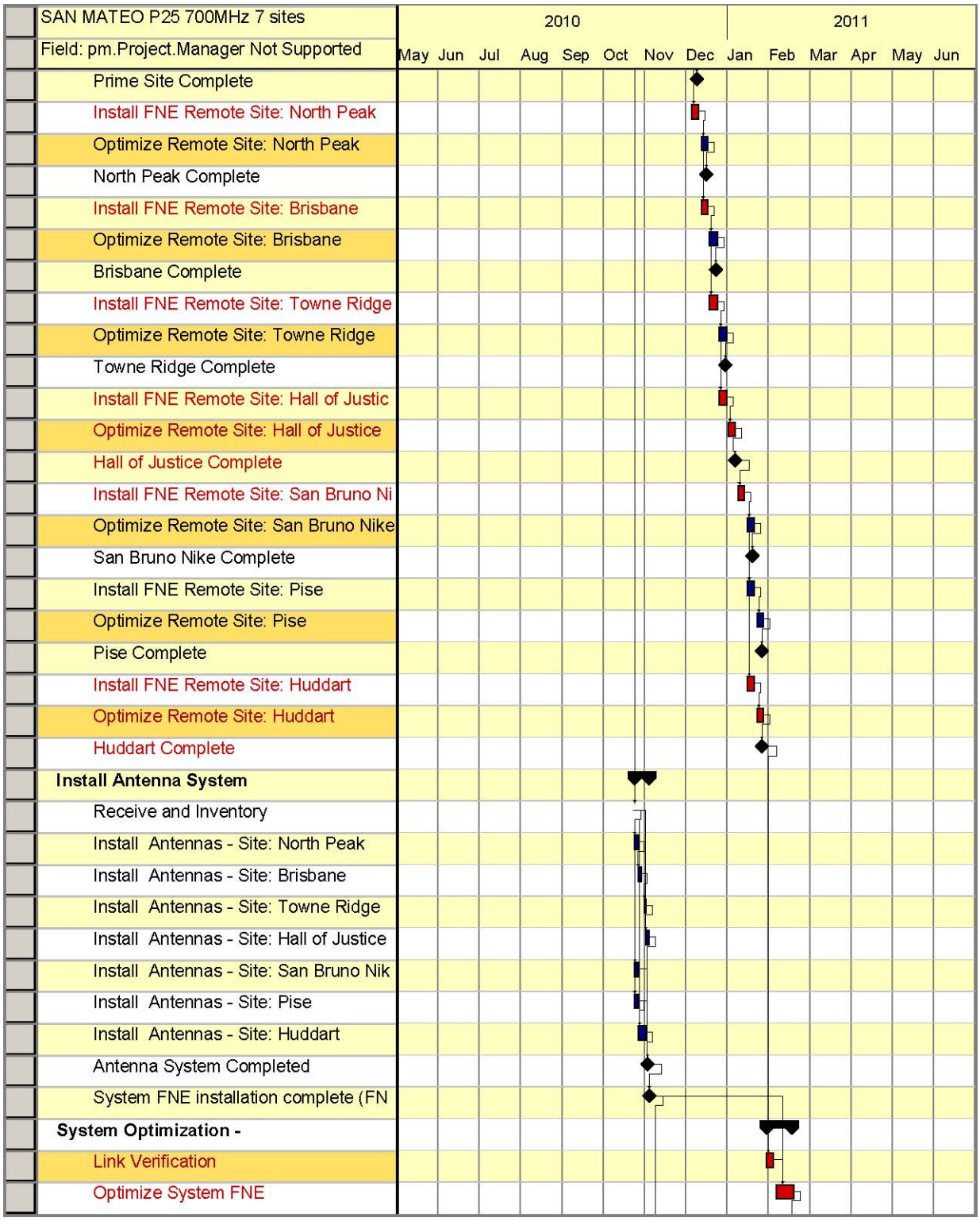
Items included on the punchlist are individual items or features that fail a particular acceptance test, improperly installed equipment, and/or other items that the County and Contractor agree to include on the list. All punchlist items will be resolved or waived by the County before final system acceptance is granted.

Final System Acceptance: There are two levels of acceptance – System Acceptance and Final Project Acceptance. When all test phases have been completed per the Agreement and approved by both the County and Contractor, a System Acceptance Certificate will be presented to the County for approval and signature. Final Project Acceptance will occur after System Acceptance and once all Agreement deliverables have been completed.

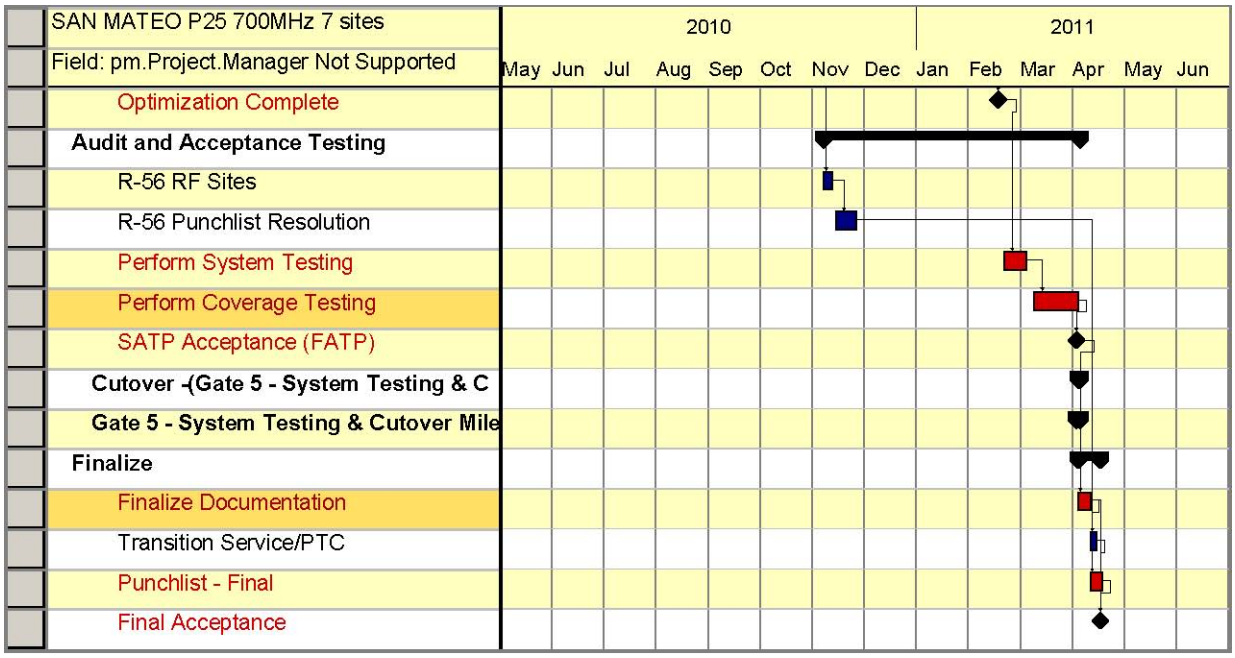
A-4. Performance Schedule



Performance Schedule



Performance Schedule



A-5. Enhanced System Support Statement of Work

1.0 Definitions

These defined terms might not apply to every section of this Statement of Work. Capitalized terms used in this Statement of Work and not otherwise defined within the Statement of Work, or in the Communications System Agreement or other applicable agreement (collectively, “Agreement”) have the following meanings:

1.1 Case: Electronic tracking document for requests for service through the Contractor System Support Center.
1.2 Case Status: Identifier of the status of a Case from beginning to end.
1.3 Component(s): New or refurbished parts of equal quality.
1.4 Configuration Change Support: A change in a user-defined parameter, which may include a change in the placement of a dispatch console talkgroup window. Fleetmapping is not included in Configuration Change Support.
1.5 Connectivity: Remote access to the System via dial up or dedicated links
1.6 Continuously/Continuous: Seven (7) days per week, twenty four (24) hours a day, including holidays.
1.7 County: The end-user Customer as identified in the Agreement.
1.8 County Support Plan: A document mutually developed by Contractor and the County that provides information about the County and the System and describes the specific processes by which Contractor will deliver and the County will receive the services described in this Statement of Work.
1.9 Elements: Those device types present on the County's System whose status may be communicated to the SSC.
1.10 Equipment: The equipment specified in the Equipment List as set forth in the Agreement, including any additions to the Equipment List during the Warranty Period.
1.11 Enhanced System Support (ESS) Period: The 12 month period commencing at the start of the Warranty Period for Equipment and Software as defined by the Agreement.
1.12 Event: An alarm or informational notification received by Contractor through the Network Management tools.
1.13 Feature: A Software functionality.
1.14 Firmware: Software in object code form that is implanted or embedded in hardware.
1.15 FRU: Field Replaceable Unit, typically a board or module, contained within the Infrastructure.
1.16 Infrastructure: The fixed Equipment excluding mobiles, portables, and accessories.
1.17 Infrastructure Depot Operations or IDO: A Contractor facility which serves as Contractor's centralized location for infrastructure repair.
1.18 Loaner: Infrastructure that is owned by Contractor and serves as a temporary replacement while the County’s Infrastructure is being repaired.
1.19 Maintenance: The process for determining the cause of Equipment failure, removing, repairing, or replacing Components necessary to conform the Equipment with the manufacturer’s specifications along with system-specific

specifications, delivering and reinstalling the Components and placing the Equipment back into operation.

1.20 MCNS: Mission Critical Network Services

1.21 Contractor Software: Software whose copyright is owned by Contractor or its affiliated company.

1.22 Non-Contractor Software: Software whose copyright is owned by a party other than Contractor or its affiliated company.

1.23 Notification: The point in time when the County contacts Contractor and requests service.

1.24 Optional Feature: An additional Feature issued with a Core Release that is available to County at additional cost.

1.25 Response: The event when a technician, a remote systems technologist or a remote network specialist begins to actively work on the technical issue, remotely or on-site, as determined by Contractor.

1.26 Restore/Restoration: The effort required to bring Equipment to the level for which it was designed, engineered and adjusted for performance in accordance with the manufacturer's published specifications, although such Equipment may not necessarily be malfunctioning.

1.27 Servicer: a Contractor Authorized Service Station or Contractor Field Service personnel.

1.28 Severity Level: The degree of adverse impact of an issue or Event.

1.29 Software: The Software furnished with the System including any Contractor Software and Non-Contractor Software.

1.30 Software License Agreement: The agreement or portion of an agreement pursuant to which Contractor licenses Software to County, including System Releases.

1.31 Special Product Feature: A Feature that is specially developed for County and which contains a functionality that is unique to County.

1.32 Standard Business Day: Monday through Friday, 8:30 a.m. to 4:30 p.m., local time, excluding Contractor holidays.

1.33 Standard Feature: A software functionality for components of County's System that is available to County in the standard software release.

1.34 Start Date: Effective start date as listed on the Agreement.

1.35 System: The communications system as defined in the Communications System Agreement or other applicable Agreement.

1.36 System Acceptance: Unless otherwise defined in the Communications System Agreement, the date upon which Contractor has successfully completed all of the System tests as described in the acceptance test plan.

1.37 System Release: One software version release on a particular platform. ASTRO 25 8.3 example is where 8 is the platform indicator and .3 is software version release indicator.

1.38 System Support Center or SSC: a Contractor facility which serves as Contractor's centralized system support facility to compliment the field support resources.

1.39 Systemic: A recurring Software or hardware defect that significantly affects the operation of the System.

1.40 Technical Support Operations or TSO: A centralized telephone support help desk that provides technical support for Contractor Customers who have

purchased products from Contractor (Network & Enterprise) or who have a contract for technical support.

1.41 Vendor: Any manufacturer (other than Contractor) or third party that services or repairs Infrastructure or subscriber equipment.

1.42 Verification: Contacting the appropriate designated person to verify the System is operational (original problem resolved) and closing the Case.

1.43 Work-around: A change in the followed procedures or data supplied by Vendor to avoid error without substantially impairing use of the Equipment.

1.44 Work Flow: A step-by-step process including instruction or direction for routing, handling, and processing information at a given agency.

2.1 Description of Services

Enhanced System Support (ESS) is a service support package designed to support both the software and hardware components of a new System during the ESS Period. During the ESS Period, ESS services supplement and complement the warranty as described in the Communications System Agreement. The ESS services are included in the price of the System. After the ESS Period expires, these services are available for purchase under a separate agreement. ESS services will be provided in accordance with the terms and conditions set forth herein. If any conflict exists between the Statement of Work provisions and the terms and conditions, the terms and conditions shall prevail. All services described in the ESS Statement of Work will be provided in accordance with the terms of the Agreement and will cover only the Equipment and related Contractor Software.

Contractor Enhanced System Support is comprised of the following services that are described in greater detail in this Statement of Work:

2.1.1 Network & Security Monitoring – Section 3.0 Network and Security Monitoring bundles the following services:

- Network Monitoring,
- Security Monitoring,
- Pre-tested Software Subscription Agreement,
- Onsite Infrastructure Response,
- Dispatch Service.

2.1.2 Performance Management Reports - Section 4.0

2.1.3 Technical Support – Section 5.0

2.1.4 Network Preventative Maintenance - Section 6.0

2.1.5 Advanced Replacement - Section 7.0

2.1.6 Software Subscription - Section 8.0

2.1.7 Infrastructure Software Installation - Section 9.0

2.1.8 System Audit - Section - 10.0

2.2 Expansion, Replacement, or Phased Implementation Equipment

After System Acceptance, if new Equipment is being integrated with an existing System to expand the System (either as a subsequent phase of a multi phase project or expansion due to another entity joining the System) , or to replace a major part of the System, then such new Equipment will be covered as follows:

If the existing System is covered under its original ESS program, the new Equipment will be covered as if it were part of the original System for the remainder of the ESS Period.

If the existing System is not covered under its original ESS program but is covered under a service agreement with Contractor to provide services, then the new Equipment will be covered at the same level of service for the remainder of the term of that service agreement and the price for the service agreement will be increased to cover the additional Equipment.

If the existing System is not covered under either its original ESS program or a service agreement with Contractor, the new Equipment is covered only by the Equipment warranty and not by ESS.

2.3 MCNS and Plant Exclusion

The ESS program originated from and was designed to support Contractor's radio systems business. Neither the ESS program nor the Software Subscription services covers the software, hardware, or services provided by MCNS or by PlantCML Equipment, Inc. ("Plant"), Contractor's E911 solution subcontractor.

2.4 General Description of ESS Statement of Work

2.4.1 Contractor has the following responsibilities:

2.4.1.1 Prepare a County Support Plan in conjunction with the County, preferably before System Acceptance.

2.4.1.2 Respond in accordance to pre-defined Response times upon receipt from County of County managed passwords required for proper access to the County's System.

2.4.1.3 Apply additional support charges above and beyond the contracted service agreements that may apply if it is determined that System faults were caused by the County making changes to critical System parameters.

2.4.2 County has the following responsibilities:

2.4.2.2 Prepare a County Support Plan in conjunction with Contractor, preferably before System Acceptance. The County must provide all information necessary to complete the County Support Plan.

2.4.2.3 Cooperate with Contractor and perform all acts that are reasonable or necessary to enable Contractor to provide the ESS services to County.

2.4.2.4 Provide all County managed passwords required to access the County's System to Contractor upon request or when opening a Case to request service support or enable Response to a technical issue.

3.0 Network & Security Monitoring Statement of Work

3.1 Description of Services

Overview: Network & Security Monitoring is a bundled service offering that provides Network Monitoring, Security Monitoring, Pre-tested Software Subscription (PTSS), Dispatch Service and Onsite Infrastructure Response services to the County. This service is applicable only for the following system types: ASTRO 25 current shipping System Release and three prior System Releases.

Network & Security Monitoring includes the monitoring of radio system infrastructure as well as monitoring Contractor security equipment if present on the County's System. Monitoring security equipment requires County to purchase a Core Security Management Server with County's System. Contractor will monitor Elements of a System for Events, as set forth in the Monitored Elements Table in Appendix 1.

When the Contractor System Support Center (SSC) detects an Event, trained technologists will acknowledge the Event, run remote diagnostic routines, and initiate an appropriate Response. Appropriate responses could include, but are not limited to, continuing to monitor the Event for further development, attempting remote Restoral, or transferring the Event by opening a Case for dispatch of a Servicer. If dispatched, the Servicer will respond at the County location based on pre-defined Severity Levels and Response times in order to Restore the System (see the Severity Definitions Table and the Response Time Table in Appendix 1).

Contractor will provide Case Management as set forth herein. The SSC maintains contact with the on-site Servicer until System Restoral occurs and Case is closed. The SSC will continuously track and manage Cases from open to close through an automated Case tracking process. This Case management allows Contractor to provide activity and performance reports as well as ensures timely resolution of issues.

Pre-Tested Software Subscription provides the latest anti-virus definitions, intrusion detection sensor (IDS) signature updates (only for IDS supplied to County by Contractor), Microsoft and Solaris operating system security patches that have been pre-tested on a Contractor test system to verify compatibility with the ASTRO 25 System. County is notified when pre-tested updates are available electronically.

Additional Provisions for County Systems with a Core Security Management Server: Contractor will proactively manage the security Elements present on the System as needed to mitigate the risk of vulnerability such as a virus, worm or other intrusive attack on the System. This may include periodically deploying the latest release of pre-tested anti-virus definitions to the anti-virus management server and updating the intrusion detection sensor signature files (for IDS if present on the System and only supplied to County by Contractor) as determined by Contractor. Contractor will also modify

intrusion sensor settings and update firewall settings as determined by Contractor and will notify County of such modifications.

County may elect to "Opt-Out" of the monitoring portion of Network & Security Monitoring service by notifying Contractor in writing. Upon receipt of such notification, Contractor will not perform further System monitoring. If the County elects out of monitoring, the County will need to deploy pre-tested security software updates to its network. County may choose to "Opt Back In" to the monitoring portion of Network & Security Monitoring Service for the remainder of the current term of the applicable agreement by notifying Contractor in writing, provided that (i) County is responsible for any equipment, engineering, testing, installation and other charges required to enable Network & Security Monitoring Service; and (ii) County and Contractor execute a written change order to enable Network & Security Monitoring Service.

If County receives Network & Security Monitoring Service, certain equipment that is necessary to enable Contractor to provide this service (e.g., modem, server) will be connected to the County's system on a loaned basis. Such equipment is referred to as "Contractor owned equipment" and Contractor retains title to this equipment. If County Opts-Out of the Network & Security Monitoring Service during the time period which is the ESS Period plus three years (the "Loan Period), Contractor may remove its Contractor owned equipment from County's System. If County maintains Network & Security Monitoring Service during the Loan Period, title to this equipment will automatically pass to County without further action on the part of either party at the end of the Loan Period.

3.2 Contractor responsibilities:

- 3.2.1 Provide dedicated Connectivity through a private network connection necessary for monitoring ASTRO 25 System. The Connectivity Matrix set forth in Appendix 1, further describes the Connectivity options.
- 3.2.2 If determined necessary by Contractor, provide Contractor owned server for monitoring ASTRO 25 security elements.
- 3.2.3 Verify Connectivity and Event monitoring prior to System Acceptance or Start Date.
- 3.2.4 Coordinate with County to maintain Contractor service authentication credentials.
- 3.2.5 Continuously receive service requests.
- 3.2.6 Perform Continuous monitoring of System Elements as set forth in the Monitored Elements Table.
- 3.2.7 Interpret System Events and determine appropriate Response. An appropriate Response could include the following actions: notify County of activity, continue monitoring the Event for further development, review System log files or transfer the Event information via a Case for dispatch of a Servicer.
- 3.2.8 Remotely access the County's System to perform remote diagnostics as permitted by County pursuant to section 3.3.1.

3.2.9 Attempt remote Restoral, as appropriate. Some System functions may be disrupted as necessary to maintain System integrity until further validation of the Event occurs. This may include shutting down applications, applying security tools, resetting box, or instructing Servicer to reload applications and operating system software as necessary.

3.2.10 Create a Case as necessary when service requests are received. Gather information to perform the following:

3.2.10.1 Characterize the issue

3.2.10.2 Determine a plan of action

3.2.10.3 Assign and track the Case to resolution.

3.2.11 Dispatch a Servicer, as required, by Contractor standard procedures and provide necessary Case information collected in section 3.2.10.

3.2.12 Ensure the required personnel have access to County information as needed.

3.2.13 Disable and enable System devices, as necessary, for Servicers.

3.2.14 Servicer will perform the following on-site:

3.2.14.1 Run diagnostics on the Infrastructure or FRU.

3.2.14.2 Replace defective Infrastructure or FRU, as applicable. County, Servicer or Contractor may provide Infrastructure or FRU.

3.2.14.3 Provide materials, tools, documentation, physical planning manuals, diagnostic/test equipment and any Security requirements necessary to perform the Maintenance service.

3.2.14.4 If a third party Vendor is needed to Restore the System, the Servicer may accompany that Vendor onto the County's premises.

3.2.15 Verify with County that Restoration is complete or System is functional, if required by County's repair Verification preference described in the County Support Plan required by section 3.3.5 If Verification by County cannot be completed within 20 minutes of Restoration, the Case will be closed and the Servicer will be released.

3.2.16 Escalate the Case to the appropriate party upon expiration of a Response time.

3.2.17 Close the Case upon receiving notification from County or Servicer, indicating the Case is resolved.

3.2.18 Notify County of Case Status, as described in the County Support Plan required by section 3.3.6 at the following Case levels:

3.2.18.1 Open and closed; or

3.2.18.2 Open, assigned to the Servicer, arrival of the Servicer on site, deferred or delayed, closed.

3.2.19 Obtain anti-virus definitions for the Microsoft Windows platform, intrusion detection sensor (IDS) signatures for Contractor supplied IDS and Microsoft, and Solaris operating system security patches, as available, from Contractor selected commercial suppliers.

3.2.20 Evaluate anti-virus definitions classified as Category 4 (Severe, difficult to contain) and Category 5 (Very Severe, very difficult to contain) by Contractor selected commercial supplier to determine if a high-priority release is required. Contractor in its discretion will

determine the urgency of the update based on the impact to the System.

3.2.21 Test anti-virus definitions, intrusion detection sensor signatures for Contractor supplied IDS, Microsoft, and Solaris operating system security patches by deploying them on a dedicated test System with the standard supported configurations, which include Contractor's then current approved cohabitated applications for current System Release and three previous System Releases.

3.2.22 Confirm that tested anti-virus definitions, intrusion detection sensor signatures for Contractor supplied IDS, and operating system software patches do not degrade or compromise System functionality on dedicated test System within the standard supported configurations.

3.2.23 Address issues identified during testing to support functionality under the procedures specified in 3.2.21 above by working with Contractor selected commercial supplier or Contractor product development engineering team.

3.2.24 Contractor will deploy pre-tested updates to anti-virus management server and intrusion detection sensor for Contractor supplied IDS, if present on the System and System includes a Core Security Management Server, on a weekly basis or as determined necessary by Contractor. High-priority anti-virus definition releases identified in 3.2.20 will be made available within 24 hours of commercial supplier release or at Contractor's discretion. If County "opts out" of monitoring or does not have a Core Security Management Server in the System, County will need to deploy pre-tested security software updates to its network.

3.2.25 Notify County when anti-virus definition updates and intrusion detection sensor signatures are available or have been deployed on County System.

3.2.26 Release and notify County when Microsoft and Solaris operating system security patches are certified and available with instructions for obtaining patches for County deployment on the County System. Microsoft operating system security patches will be released monthly. Solaris operating system security patches will be released quarterly or at Contractor's discretion.

3.2.27 Maintain annual County licenses for anti-virus definitions and intrusion detection sensor signatures for IDS supplied to County by Contractor with Contractor selected commercial supplier.

3.2.28 Provide the following reports, as applicable:

3.2.28.1 Case activity reports to County.

3.2.28.2 Network Security Monitoring Service reports for County System(s).

3.2.28.3 Network Activity/Availability Reports

3.3 County responsibilities:

3.3.1 Allow Contractor Continuous remote access to obtain System availability and performance data.

3.3.2 Allow Contractor to access System if firewall has been installed: provide permanent/dedicated access for SNMP traps (outbound) and ZDS polling (inbound).
3.3.3 Maintain and manage any equipment outside of the System.
3.3.4 Deploy pre-tested operating system software patches on the System.
3.3.5 Provide Contractor with pre-defined County information and preferences prior to Start Date necessary to complete County Support Plan.
3.3.5.1 Provide 7/24 security contact and escalation list
3.3.5.2 Case notification preferences and procedures
3.3.5.3 Repair Verification preference and procedure
3.3.5.4 Database and escalation procedure forms.
3.3.5.5 Submit changes in any information supplied in the County Support Plan to the County Support Manager.
3.3.6 Provide the following information when initiating a service request:
3.3.6.1 Assigned System ID number
3.3.6.2 Problem description and site location
3.3.6.3 Other pertinent information for Contractor to open a Case.
3.3.7 Notify the SSC when County performs any activity that impacts the System. (Activity that impacts the System may include, installing software or hardware upgrades, performing upgrades to the network, or taking down part of the System to perform maintenance.)
3.3.8 As necessary, upgrade System to supported System Release as specified in paragraph 3.2.21.
3.3.9 Allow Servicers access to Equipment (including any Connectivity or monitoring equipment) if remote service is not possible.
3.3.10 Allow Servicers access to remove Contractor owned server upon cancellation of service as set forth in paragraph 3.2.2.
3.3.11 Supply Infrastructure or FRU, as applicable, in order for Contractor to Restore the System as set forth in paragraph 3.2.14.2.
3.3.12 Maintain and store in an easily accessible location System backups and any/all Software needed to Restore the System.
3.3.13 Verify with the SSC that Restoration is complete or System is functional, if required by the Repair Verification Preference provided by County in accordance with section 3.3.5.
3.3.14 Comply with the terms of the applicable license agreements between County and the Non-Contractor Software copyright owners.

3.4 WARRANTIES AND DISCLAIMER:

Contractor warrants that its services will be free of defects in materials and workmanship for a period of ninety (90) days following completion of the service. Your sole remedies are to require Contractor to re-perform the affected service or at Contractor's option to refund, on a pro-rata basis, the service fees paid for the affected service.

During the applicable Warranty Period, Contractor warrants that the tested anti-virus definitions, intrusion detection sensor signatures, and operating system security updates/patches do not degrade or compromise System

functionality, and that after incorporation of the tested Software updates, the System Software, when used properly and in accordance with the Documentation, will be free from a reproducible defect that eliminates the functionality or successful operation of a feature critical to the primary functionality or successful operation of the Software. Product and Software documentation that specifies technical and performance features and capabilities, and the user, operation and training manuals for the Software (including all physical or electronic media upon which this information is provided) are collectively referred to as "Documentation." Whether a defect occurs will be determined solely with reference to the Documentation. Contractor does not warrant that County's use of the Software or Products will be uninterrupted or error-free or that the Software or the Products will meet County's particular requirements.

CONTRACTOR DISCLAIMS ALL OTHER WARRANTIES WITH RESPECT TO PRE-TESTED ANTI-VIRUS DEFINITIONS, OPERATING SYSTEM SOFTWARE PATCHES, AND INTRUSION DETECTION SENSOR SIGNATURE FILES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. FURTHER, CONTRACTOR DISCLAIMS ANY WARRANTY CONCERNING THE NON-CONTRACTOR SOFTWARE AND DOES NOT GUARANTEE THAT COUNTY'S SYSTEM WILL BE ERROR-FREE OR IMMUNE TO VIRUSES OR WORMS AS A RESULT OF THESE SERVICES.

4.0 Performance Management Reports

4.1 Description of Services

Performance Management Reports are a set of documents that report on the operational performance of a County's System. The reports transform raw System data into actionable information. Using the information provided by the reports, the County can guide network activities for effective capacity planning, trend analysis, and network performance optimization. Performance Management Reports enable County to evaluate the critical system load parameters of their system to show where and when system bottlenecks occur and to allow for future system growth planning. Network Monitoring Service is required for the Performance Management Reports Service.

4.2 Contractor responsibilities:

4.2.1 Collect and store performance data via Connectivity in place for Contractor's Network Monitoring Service. Completed Performance Management Reports will be stored on a Contractor web site for County access. Contractor is not responsible for any lost performance data that occurs through System or Connectivity failures. Contractor will generate reports with the data that is collected and note any lost data intervals on the reports.

4.2.2 Generate detailed performance reports.

4.2.3 Deliver one set of Performance Management Reports to the County during the ESS Period. These reports will be delivered upon a schedule mutually agreed upon by the County and Contractor.

4.3 County responsibilities:

4.3.1 Provide Connectivity to enable Contractor to monitor the County System. Failure to provide Connectivity may prevent Contractor from rendering the Performance Management Reports service described in this section.

4.3.2 Allow Contractor Continuous access to retrieve performance data from the County's System.

5.0 Technical Support Statement of Work

5.1 Description of Services

Technical Support service provides centralized remote telephone support for technical issues that require a high level of communications systems expertise or troubleshooting on Equipment. The SSC's Technical Support Operation is staffed with technologists who specialize in the diagnosis and resolution of system performance issues. Technical Support Service (i) does not include software upgrades that may be required for issue resolution; (ii) does not include County training; and (iii) is only available for those system types that are supported and approved by Technical Support Operations.

5.2 Contractor responsibilities:

5.2.1 Respond to requests for Technical Support for the Restoration of failed Systems and diagnosis of operation problems in accordance with the response times set forth in the Remote Technical Support Response Times table and the Severity Level defined in the Severity Definitions Table in Appendix 1.

5.2.2 Advise caller of procedure for determining any additional requirements for issue characterization and Restoration, including providing a known fix for issue resolution when available.

5.2.3 Attempt remote access to the System for remote diagnostics, when possible.

5.2.4 Maintain communication with the Servicer or County in the field until close of the Case, as needed.

5.2.5 Coordinate technical resolutions with Vendor(s), as needed.

5.2.6 Escalate and manage support issues, including Systemic issues, to Contractor engineering and product groups, as applicable.

5.2.7 Escalate the Case to the appropriate party upon expiration of a Response time.

5.2.8 Provide Configuration Change Support and Work Flow changes to a System that has remote access capability.

5.2.9 Determine, in its sole discretion, when a Case requires more than the Technical Support services described in this SOW and notify County of an alternative course of action.

5.3 County responsibilities:

5.3.1 Provide Contractor with pre-defined information prior to Start Date necessary to complete the County Support Plan.
5.3.1.1 Submit changes in any information supplied in the County Support Plan to the County Support Manager.
5.3.2 Contact the SSC in order to access the Technical Support Operation, provide name of caller, name of County, System ID number, Service Agreement number, site(s) in questions, and brief description of the problem.
5.3.3 Supply on-site presence when requested by SSC.
5.3.4 Validate issue resolution prior to close of the Case.
5.3.5 Allow Contractor remote access to the System by equipping the System with the necessary Connectivity.
5.3.6 Acknowledge that Cases will be handled in accordance with the times and priorities as defined in Remote Technical Support Response Times Table and the Severity Level defined in the Severity Definitions Table

6.0 Network Preventative Maintenance Statement of Work

6.1 Description of Service

Network Preventative Maintenance will provide an operational test and alignment on the County's Infrastructure Equipment (infrastructure or fixed network equipment only) to ensure the Infrastructure meets original manufacturer's specifications, as set forth in the applicable attached Tables(s) in Appendix 1. Network Preventative Maintenance will be performed during Standard Business Days. If System or County requirements dictate this service must occur outside of Standard Business Days, an additional charge may apply and Contractor will provide an additional quotation. County is responsible for any charges associated with helicopter or other unusual access requirements or expenses.

6.2 Contractor responsibilities:
6.2.1 Notify the County of any possible System downtime needed to perform this service.
6.2.2 Physically inspect the Infrastructure Equipment in the system (equipment cabinets, general circuitry, fault indicators, cables, and connections).
6.2.3 Remove any dust, and/or foreign substances from the Infrastructure.
6.2.4 Clean filters, if applicable.
6.2.5 Measure, record, align, and adjust the Infrastructure Equipment parameters in accordance with the manufacturer's service manuals and the Rules and Regulations of the Federal Communications Commission (FCC), where applicable.

6.3 County responsibilities:
6.3.1 Provide preferred schedule for Network Preventative Maintenance to Contractor.
6.3.2 Authorize and acknowledge any scheduled System downtime.
6.3.3 Maintain periodic backup of databases, Software applications and Firmware.

6.3.4 Establish and maintain a suitable environment (heat, light, and power) for the Equipment location and provide the Servicer full, free, and safe access to the Equipment so that the Servicer may provide services. All sites shall be accessible by standard service vehicles.

7.0 Advanced Replacement Statement of Work

7.1 Description of Services

When available, Contractor will provide County with an Advanced Replacement unit(s) or FRU(s) in exchange for County's malfunctioning FRU(s). Non-standard configurations, County-modified Infrastructure and certain third party Infrastructure are excluded from Advanced Replacement service. Malfunctioning FRU(s) will be evaluated and repaired by IDO and returned to IDO FRU inventory upon completion of repair. In cases where Advanced Replacement is not available or when a County requires the exact serial number to be returned, a FRU may be available on a Loaner basis.

7.2 Contractor responsibilities:

7.2.1 Use commercially reasonable efforts to maintain an inventory of FRU.

7.2.2 Provide new or reconditioned units as FRU to County or Servicer, upon request and subject to availability. The FRU will be of similar kit and version, and will contain like boards and chips, as the County's malfunctioning Infrastructure.

7.2.3 Program FRU to original operating parameters based on templates provided by County as required in Section 7.3. If County's template is not provided or is not reasonably usable, a standard default template will be used.

7.2.4 Properly package and ship Advanced Replacement FRU from IDO's FRU inventory to County's specified address.

7.2.4.1 During normal operating hours of Monday through Friday 7:00am to 7:00pm CST, excluding holidays FRU will be sent next day air via Federal Express Priority Overnight or UPS Red unless otherwise requested. Contractor will pay for such shipping, unless County requests shipments outside of the above mentioned standard business hours and/or carrier programs, such as NFO next flight out. In such cases, County will be subject to shipping and handling charges.

7.2.4.2 When sending the Advanced Replacement FRU to County, provide a return air bill in order for County or Servicer to return the County's malfunctioning FRU. The County's malfunctioning FRU will become property of IDO and the County will own the Advanced Replacement FRU.

7.2.4.3 When sending a Loaner FRU to County, IDO will not provide a return air bill for the malfunctioning Infrastructure. The County is responsible to arrange and pay for shipping the malfunctioning Infrastructure to IDO. IDO will repair and return the County's Infrastructure and

will provide a return air bill for the County to return IDO's Loaner FRU.

7.2.5 Receive malfunctioning Infrastructure from County and document its arrival, repair and return.

7.3 County responsibilities:

7.3.1 Contact or instruct Servicer to contact the SSC and request an Advanced Replacement or Loaner FRU prior to shipping the malfunctioning Infrastructure or third party Infrastructure.

7.3.1.1 Provide model description, model number, serial number, type of System and Firmware version, symptom of the problem and address of site location for FRU or Infrastructure.

7.3.1.2 Indicate if the Infrastructure being sent in for service was subjected to physical damage or lightning damage.

7.3.1.3 Follow Contractor instruction regarding inclusion or removal of Firmware and Software applications from Infrastructure being sent in for service.

7.3.1.4 Provide County purchase order number to secure payment for any cost described herein.

7.3.2 Pay for shipping of Advanced Replacement or Loaner FRU from IDO if County requested shipping outside of standard business hours or carrier programs set forth in section 7.2.4.

7.3.3 Within five (5) days of receipt of the Advanced Replacement FRU from IDO's FRU inventory, properly package County's malfunctioning Infrastructure and ship the malfunctioning Infrastructure to IDO for evaluation and repair. County must send the return air bill, referenced in 7.2.4.3 above back to IDO in order to ensure proper tracking of the returned Infrastructure. County will be subject to a replacement fee for malfunctioning Infrastructure not properly returned.

7.3.4 If received, County must properly package and ship Loaner FRU back to IDO within five (5) days of receipt of County's repaired FRU.

7.3.5 Maintain templates of Software/applications and Firmware for reloading of Infrastructure.

8.0 <u>Software Subscriptions Statement of Work</u>

8.1 Description of Service

Contractor will provide to County Software Subscription services in accordance with this Statement of Work. Contractor will provide periodic software bulletins to County at the address provided by County in writing. These software bulletins announce and explain System Release for Contractor and Non-Contractor Software that are available to Software Subscription County for use with their upgrade-capable Contractor Equipment covered by these services. Contractor will provide applicable System Releases as ordered by County.

Software Subscription consists of design services for System Release and review System audit data. Contractor will review System audit data along

with an Equipment list to avoid potential Software incompatibilities between Equipment that is being upgraded versus Equipment, which is not upgraded with the System Release. Contractor will identify additional Equipment and engineering, (if applicable) for the System that is required as a result of the upgrade and will recommend a plan for installation of this additional Equipment. Implementation of this installation plan is not included with the Software Subscription.

Additional Provisions for Software Subscription services that begin after December 31, 2008, concerning ASTRO 25 Trunking Systems: Contractor recommends that County maintains continuity in receiving Software Subscription services until County decides to no longer install additional System Release. If, County discontinues Software Subscription services and later decides to retroactively pay and reinstitute Software Subscription services, then Contractor will provide those Software Subscription services from the date such services were reinstituted.

Exclusions

The Software Subscription program was designed to support Contractor's radio systems business. The Software Subscription program does not cover the following: Subscriber/Data Devices non-Contractor software, Radio Service Software and related services; Data Solution Operations; equipment, software, and services supplied to Contractor or County by PlantCML – (Contractor's E911 solution subcontractor); any hardware or software supplied to County by any Contractor business sector other than Networks & Enterprise; and software purchased by County from a third party.

Software Subscription services do not, cover software support for virus attacks, games or other applications that are not part of the System, unauthorized modifications or misuse of the covered Software. Unless otherwise expressly provided in this ESS Statement of Work, Contractor is not responsible for management of anti-virus or other security applications (such as Norton).

8.2 Contractor responsibilities:

8.2.1 Provide to County the software bulletins announcing System Release.

8.2.2 Provide to County (in response to a County order) those Features included in a System Release that apply to the Contractor Software in County's existing System components.

8.2.3 Perform the following Software upgrade design:

8.2.3.1 Review Infrastructure System audit data as needed.

8.2.3.2 Identify additional System equipment needed to implement a System Release, if applicable.

8.2.3.3 Complete a proposal defining the System Release, Equipment requirements, installation plan, and impact to System users.

8.2.3.4 Advise County of probable impact to System users during the actual field upgrade implementation.

8.2.4 Optional Features issued with a System Release are not included under this SSA but are available to County, under a separate agreement at a discount from current list price (20% for voice System Optional Features and 15% for data System Optional Features).

8.3 County responsibilities:

8.3.1 County must contact its Contractor representative to order an available System Release as directed in the County Support Plan.

8.3.2 Contact Contractor upon receiving a bulletin to engage the appropriate Contractor resources for a System Release.

8.3.3 Cooperate with Contractor and perform all acts that are reasonable or necessary to enable Contractor to provide these services to County

8.4 Special provisions: the following provisions apply to the Software Subscription services

8.4.1 County acknowledges that if its System has a Special Product Feature, additional engineering may be required to prevent an installed System Release from overwriting the Special Product Feature. Upon request, Contractor will determine whether a Special Product Feature can be incorporated into a System Release and whether additional engineering effort is required.

8.4.2 County is encouraged to periodically install System Releases because they may include minor performance enhancements and will keep the System current. In addition, System releases may contain updated versions of third party software enabling County to obtain optimal support for these products. County is encouraged to migrate the Contractor Software to the most current System Release because Releases are available for a limited time. If County's System is not maintained to a currently supported Equipment and Software version, future System Releases may not be compatible with County's existing System.

8.4.3 Additional hardware, software, or engineering services may be required if County desires to upgrade or migrate to a particular System Release other than the one being offered. Depending on the size and complexity of County's System, Contractor may, pursuant to a separate agreement, provide consultation services to determine the technological, operational and financial impact of installing a particular System Release on the System. Such consulting services, additional engineering services, and any additional hardware, and software are available for an additional fee.

8.4.4 County may use the Software (including any System Release) only in accordance with the applicable Software License Agreement. Nothing in this Statement of Work or caused by Contractor rendering these Software Subscription services is intended to modify the Software License Agreement or to alter Contractor's intellectual property rights in and to its Software.

8.4.5 Software Subscription services do not include repair or replacement of hardware or Software caused by defects that are not corrected by the System Release, nor does it include repair or replacement of

defects resulting from any nonstandard or improper use or conditions or from unauthorized installation of Software.

9.0 Infrastructure Software Installation Statement of Work

9.1 Description Of Service

Infrastructure Software Installation provides the technical resources to install and activate one (1) System Release per SSA during the ESS Period.

Exclusion

This service excludes the Software installation for the ASTRO 25 master site or any Subscriber software installation.

9.2 Contractor responsibilities:

9.2.1 Install System Release on infrastructure equipment only that has been provided pursuant to the Software Subscription Statement of Work.

9.2.2 Install additional hardware and software as required by the System Release.

9.3 County responsibilities:

9.3.1 Purchase additional Equipment needed to implement an System Release.

9.3.2 If applicable, purchase a Software upgrade for the ASTRO 25 master site.

9.3.3 If the Servicer is required to travel beyond two (2) hours or one hundred twenty (120) miles by vehicle from the prime site to a remote site to deliver this service, the County is responsible for incremental travel and expenses incurred.

9.3.4 Inform System users of upgrade plans and scheduled System downtime. Perform appropriate system backups and make them readily available during the installation of the System Release.

9.3.5 Properly store and make available purchased software and hardware needed for installation of the System Release.

10.0 System Audit Statement of Work

10.1 Description of Service

A System Audit provides the technical resources to gather System configuration information. Depending on the specific requirements for the audit, information such as Software versions, hardware versions, model and serial numbers, equipment distribution and System layout/architecture is gathered and retained by Contractor. Contractor will provide a copy of the audit data to County.

10.2 Contractor responsibilities:

10.2.1 Determine information to be collected in the audit, as described above.

10.2.2 Contact County to schedule a mutually acceptable date and time for the audit, and inform County of scheduled System down-time in order to complete the audit.

10.2.3 Service will be performed during a Standard Business Day.

10.2.4 Collect System audit data.
10.2.5 Provide County a copy of the audit data collected.
10.2.6 Notify County if malfunctioning Equipment is discovered during the audit and whether that Equipment cannot be audited due to the malfunction.

10.3 County responsibilities:
10.3.1 Provide Contractor full, free, and safe access to the Equipment so that the Servicer may collect the audit data.
10.3.2 If subscriber units are to be audited:
10.3.2.1 Provide a central location for the Servicer to receive the radio units and collect audit data.
10.3.2.2 Communicate to all County subscriber users the audit schedule and location to bring the units.
10.3.3 If Contractor is unable to collect audit data on Equipment due to either Equipment malfunction or Equipment unavailability/access, County may be responsible for additional time and travel charges for the second attempt to obtain the audit information for that Equipment.
10.3.4 If travel is required beyond two (2) hours or one hundred twenty (120) miles by vehicle from the prime site to a remote site to deliver this service, the County is responsible for incremental travel and expenses incurred.

Appendix 1

Connectivity Matrix

Private Network Connection IP VPN	Public Internet Connection IP VPN
Standard solution for real time Connectivity	Non Standard solution for Connectivity
Dedicated bandwidth configuration provided to monitor County	No dedicated bandwidth provided to monitor County
Protected from unauthorized intrusion	Low risk of unauthorized intrusion
Encryption available	Encryption is required
Connectivity available through Contractor	County provides Connectivity to the internet via an internet service provider selected by County.

Monitored Elements Table

System Type	Equipment
ASTRO 25	Packet Routing Network; Zone Controllers; Database Server; FullVision Server; Zone Statistical Server; Air Traffic Router; System Statistics Server; User Configuration Server; Packet Data Gateway Server; PBX; Interconnect Server; Contractor Gold Elite Gateway (MGEG); AEB; CEB; Conventional Channel Gateway (CCGW); Simulcast RF Site (Site Controllers, Comparators, Stations); Intelli Repeater RF Site (Stations); Intelli Site Repeater RF Site (Site Controllers, Stations); Core, Exit, Gateway, Peripheral, Border, and Site routers, HP Switches master, prime, console and repeater sites switches, GGSN; CWR MOSCAD Overlay (TenSr, Station, Channel Banks, TRAK GPS, Site Power, Microwave) DOES NOT INCLUDE MONITORING OF ANY MOSCAD ALARM POINTS THAT DO NOT DIRECTLY IMPACT THE PERFORMANCE OF THE RADIO NETWORK. DOES NOT INCLUDE MONITORING OF ANYTHING OUTSIDE OF THE RADIO NETWORK UNLESS SPECIFICALLY STATED
SECURITY ELEMENTS (Monitoring and managing Security Elements is dependent on County purchasing Core Security Management Server as Equipment with the County System)	Core Security Management Server, Intrusion Detection Sensor, Firewall, Anti-virus Application, Servicer Authentication, Centralized Logging Server

Severity Definitions Table

Severity Level	Problem Types
Severity 1	▪ **Response is provided Continuously** ▪ Major System failure ▪ 33% of System down ▪ 33% of Site channels down ▪ Site Environment alarms (smoke, access, temp, AC power.) as determined by SSC. ▪ This level is meant to represent a major issue that results in an unusable system, sub-system, Product, or critical features from the County's perspective. No Work-around or immediate solution is available.
Severity 2	▪ Response during Standard Business Day ▪ Significant System Impairment not to exceed 33% of system down ▪ System problems presently being monitored This level is meant to represent a moderate issue that limits a County's normal use of the system, sub-system, product, or major non-critical features from a County's perspective
Severity 3	▪ Response during Standard Business Day ▪ Intermittent system issues ▪ Information questions ▪ Upgrades/preventative maintenance ▪ This level is meant to represent a minor issue that does not preclude use of the system, sub-system, product, or critical features from a County's perspective. It may also represent a cosmetic issue, including documentation errors, general usage questions, recommendations for product enhancements or modifications, and scheduled events such as preventative maintenance or product/system upgrades.

OnSite Infrastructure Response Times Table

SEVERITY	RESPONSE
Severity 1	Within 4 hours from receipt of Notification Continuously offered
Severity 2 *	Within 4 hours from receipt of Notification on a Standard Business Day
Severity 3 *	Within 24 hours from receipt of Notification on a Standard Business Day

*Standard Business Day

Remote Technical Support Response Times

SEVERITY	RESPONSE
Severity 1	Within 1 Hour from receipt of Notification, Continuously
Severity 2*	Within 4 Hours from receipt of Notification, Standard Business Day
Severity 3*	Within next Business Day, Standard Business Day

*Standard Business Days

Advanced Replacement Table

ASTRO 25 6.3.-6.9 Infrastructure Exhibit	Inclusions, Exclusions, Exceptions and Notes for Infrastructure Repair (all items are subject to availability)
Antenna Systems	Excludes all Equipment such as bi-directional amplifiers, multicouplers, combiners, tower top pre-amplifiers, antennas, cables, towers, tower lighting, and transmission lines
Base Station(s) and Repeater(s)	Includes Quantar, STR3000, GTR8000, GTR8000 HPD, IntelliRepeater/ISR. Quantar high power booster power amplifier, power supply and control board Excludes Fan Modules, Dual Circulator Tray, Site RMC Tray
Central Electronics Bank(s)	Includes Logging Recorder Interface and Network Hub.
Channel Bank(s)	Includes Premisys, Telco, IMACS models 600, 800 . Excludes Siemens
Comparator(s)	Includes Astro-tac 9600, GMC8000, Comparators.
Computer(s)/Workstations/ Management Terminals	Includes Pentium computers that directly interface with or control the communications System, including SiteLens and Systemwatch II, PT800 tablet HP x1100, HPx2100, HP xw4400-4600, HP VL600, HP VL800, ML850 laptop, MW800, ML900, ML910 laptop. Includes keyboards, mice and trackballs. Excludes non-Contractor branded laptop computers and all 286, 386, 486 computers; defective or phosphor-burned cathode ray tubes CRT(s) and burned-in flat panel display image retention.
Console(s)	Includes consoles (Centracom Gold series, MGEG, MCC5500, MCC7500) Includes headset jacks, dual footswitches, gooseneck microphones and Console Interface Electronics (CIE). Excludes Centracom I.
Controller - trunking	Includes GCP8000, Site Controller PSC9600, MTC9600, MZC5000, Sun Netra 240.
Dictaphones and Recording Equipment	Excludes all types and models.
Digital Interface Unit(s)	Included
Digital Signaling Modem(s)	Included upon modem model availability
Digital Voice Modem(s)	Included upon modem model availability
Embassy Switch	Includes AEB, AIMI, ZAMBI, AMB
Firewall	Includes Alteon Firewall L3351A, L3428A. Juniper Firewalls SSG520, SSG1000. Excludes all other technologies
Keyload Variable Loader	Included
Logging Recorder	Includes NICE Excludes all other technologies
MBEX(s) or NOVA Interconnect	Only have Avaya Telephone Interconnect in 6.x/7.x (DTI1000). Hardware for DTI1000 - Intel Server TSRL-T2, TIGPR2U, and Avaya Difinity PBX, S8300, S8500.
Microwave Equipment.	Excluded
Monitor(s)	Includes all Contractor certified monitors connected to computers that directly interface with or control the communications System. Excludes defective or phosphor-burned cathode ray tubes CRT(s) and burned-in flat panel displays image retention. Monitors not shipped by Contractor and/or cannot be confirmed by a Contractor factory order number.
Moscad	Includes FSA4000 (7.4 only), Only NFM (Network Fault Management), as part of communication System only, RTU, ACE3600 RTU, SDM Site Manager RTU. Standalone MOSCAD and System Control and Data Acquisition (SCADA) must be quoted separately. Excludes Fire alarming systems.

Network Fault Management	Includes Full Vision. User Configuration Manager (UCM), Zone Configuration Manager (ZCM), Unified Event Manger (UEM), Unified Network Configurator (UNC). Excludes NMC
Packet Data Gateway	Includes Non-Redundant, High Performance Data
Printer(s)	Includes printers that directly interface with the communications System.
Receiver(s)	Includes Quantar, GTR8000, GTR8000 HPD Receivers. Excludes Fan Modules, Dual Circulator Tray, Site RMC Tray
Routers	Includes ST5500, ST5598, S2500-S6000, ASTRO Switch Routing Center (CWR) ST6200A. Excludes all other technologies
Servers	Includes Netra 240, cPCI, HP DL360, HP ML370, hp ML110,, HP InfoVista Server. IR8000 series, LX4000 series, Intel Server TSRL-T2, TIGPR2U, Proventia 201 Linux IDSS, Proventia GX4002C,Trak9100. Network Management Server includes cPCI Chassis, Power Supply, Fan Tray, Controller Hard Drive, CD ROM Drive, Tape Drive, CPU, Client PC's, Excludes Core security Management Server, Firewall Servers, Intrusion Detection Sensor Server, Monitors, Memory Module 0182915Y02, Rear Fan RLN5352, Central Process Card 0182915Y01
Simulcast Distribution Amplifier(s)	Included
Switch	Avaya Difinity PBX, S8300, S8500. Nortel Passport 7480, Cisco Catalyst 6509, HP 5308 LAN switch, HP ProCurve Switch 2524, 2650, 2626, SS1100
Text Messaging Services	HP DL360 Server
Universal Simulcast Controller Interface(s)	Included
UPS Systems.	Excluded
Workstation	Included

Network Preventative Maintenance

ASTRO 25	Operational Check
CO-LOCATED/REMOTE SITE	
Repeater(s), Control Station(s)	TX Frequency in Hz
	TX Power Output of Station (Forward/Reflected)
	TX Power Output out of Combiner (Forward/Reflected)
	TX Low Speed Deviation
	TX Test Pattern Deviation
	TX BER
	RX Tower/Rack Mounted Amplifier
	RX RF Level at 5% BER at Receiver and Through Multi-Coupler
	Receiver Desense/ Degradation do to Site Noise and TX Desense
Site Controllers	Wireline Audio Input & Output Levels
	Check Lights/Fan Operation
	Check/Align Frequency Standard
	Roll to Redundant Controller
Router/Switches	Test Site Trunking/Failsoft Modes (if possible)
	Multiple Control Channel Switching
All Equipment	
	Check Lights/Fan Operation
	Check Diagnostics/Alarms
	Power Supply Voltages
MASTER/PRIME SITE (RF Equipment)	
Master/Prime Site Controllers	Check Lights/Fan Operation
	Roll to Redundant Controller
Router/Switches	Check Lights/Fan Operation
ASTRO-TAC Comparators	Check for receiver to Comparator audio path
	ACTAC 9600 Comparator All sites on line? V.24 link health- link delays
Channel Bank	
	Channel Bank/ transport health for all sites (diagnostics/alarms)
	Roll to Redundant Power Supply
MASTER/PRIME SITE (Servers)	Master Site Servers health (diagnostics/alarms)
	Complete backup of databases
	Roll to Redundant Zone Controller (if possible)
Misc Equipment	Remote Access Test
	Check all modems for proper levels & synchronization
	MBX/Other telco interface common equipment
GPS	Roll to Redundant Receive Reference Module
	Frequency Standards (check 1 PPS, 5 MPPS, composite)
	Check Power Supply Voltages
POWER	Check Diagnostics/Alarms
UPS	AC/DC Voltages/Batteries

Generator AC to DC Power Unit (RF equipment) All Equipment	Switch-Over Operations
	Switch to Generator Power
	Switch to Battery Power
	Check Diagnostics/Alarms
CONSOLES POSITIONS/REMOTES	Audio Input & Output Level
	Ethernet Operation
	CEB/MCC Power Supply Voltage, and AC Ripple
	Switches, Lights, CRT
	CEB/MCC Signal Levels
	Wiring and Grounding for each Position
	Check and Clean keyboards, CPU. CRT's
	CEB/AEB/MCC diagnostics
TRUNKING TEST (Completed at all sites)	Talkgroup Test
	Multigroup Call
	Private Call
	Secure Call

Terms and Conditions for ESS

SECTION 1 SERVICE DESCRIBED

A. Contractor will provide ESS services for the Equipment in accordance with the following standards: (i) Contractor parts or parts of equal quality will be used; (ii) the Equipment will be serviced at levels set forth in Contractor's product manuals; and (iii) routine service procedures that are prescribed by Contractor will be followed.
B. At County's request, Contractor may provide additional services at Contractor's then applicable rates for such services.
C. County must maintain, and upon reasonable request by Contractor, provide a complete equipment list indicating serial numbers, model numbers, and location of Infrastructure Equipment.
D. County must specifically identify any Equipment that is labeled intrinsically safe for use in hazardous environments.
E. County must immediately notify Contractor in writing when any Equipment is added, lost, damaged, or stolen, or taken in or out of service.
F. County must notify Contractor immediately of any Equipment failure.

SECTION 2 EXCLUDED SERVICES

A. ESS Services exclude the repair or replacement of Equipment that has become defective or damaged from use in other than the normal, customary, intended, and authorized manner; use not in compliance with applicable industry standards; excessive wear and tear; or accidents, liquids, power surges, neglect, acts of God, or other force majeure events.
B. Contractor has no obligation for any transmission medium, such as telephone lines, computer networks, or the worldwide web, or for Equipment malfunction caused by such transmission medium.
C. Unless specifically included in a writing executed by Contractor, Service of

Equipment excludes items that are consumed in the normal operation of the Equipment, such as batteries, magnetic tapes, and computer supplies; upgrading or reprogramming of Equipment (unless part of an System Release or replacement); accessories, belt clips, battery chargers, custom or special products, or modified units; or repair or maintenance of any transmission line, antenna, microwave equipment, tower or tower lighting, duplexer, combiner, or multicoupler.

SECTION 3 RIGHT TO SUBCONTRACT/ASSIGNMENT Contractor may assign its rights and obligations and may subcontract any portion of Contractor's performance under the ESS program.

SECTION 4 TIME AND PLACE OF SERVICE ESS Services will be provided at the location specified in the ESS Statement of Work. When Contractor performs service at the County's location, County will provide Contractor, at no charge, a non-hazardous and secure work environment with adequate shelter, heat, air conditioning, light, and power, and with full and free access to the Equipment. County will provide all information pertaining to the hardware and software elements of any system with which the Equipment is interfacing so that Contractor may perform its services. Unless otherwise specified in the ESS Statement of Work, the hours of service will be 8:30 a.m. to 4:30 p.m., local time, excluding weekends and holidays. County will pay any charges associated with helicopter or other unusual access requirements or expenses.

SECTION 5 WARRANTY Contractor warrants that its services under this ESS program will be free of defects in materials and workmanship for a period of ninety (90) days from the date of performance of the services. CONTRACTOR DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Contractor's P25 Compliance: Contractor's P25 Phase 1 ASTRO 25 System complies with all the P25 Phase 1 CAI Trunked Mandatory features called out in TSB-102A which are: Group Voice Call, Individual Voice Call, Broadcast Voice Call, Roaming, and Registration. Phase 2 TDMA Mandatory features have not been defined or updated in the TSB-102A document.

The list below, reflects P25 Phase 1 FDMA Trunking only. The list indicates which P25 Phase 1 FDMA Trunking features are tested as part of Contractor's ongoing System Release Process. ASTRO 25 is an evolving platform; not all features are available in all devices and system release versions.

M = Mandatory, SO-R = Standard Option Required, SO = Standard Option

Feature Name	Requirement Level	Standards Documents	Compliance	Alternative	Contractor Comments
Voice Calls					
Group Voice Call (May also be referred to as Unit to Group Call)	M	102A, AABC-B, AABD	Compliant		Group Voice Call is a feature tested as part of the P25 Ph1 CAI Trunking Interoperability Test Suite and is currently part of the P25 CAP Program. Contractor hosted a P25 Ph1 CAI Trunking Interoperability Event prior to DHS Lab recognition where this feature was successfully demonstrated and issued SCoCs and Summary Test Reports as part of this event at www.motorola.com/project25. Contractor had a P25 Ph1 CAI Trunking Interoperability Event scheduled for July 2009 which was conducted in Contractor's DHS-recognized lab, following this event SDoCs and Summary Test Reports were made available to the public. For conventional operation, Contractor's MCC 7500 only supports a single talkgroup on a conventional channel, Contractor currently does not support multiple conventional talkgroups.
Individual Voice Call (May also be referred to as Unit to Unit Call)	M	102A, AABC-B, AABD	Compliant		Unit-to-Unit Call is a feature tested as part of the P25 Ph1 CAI Trunking Interoperability Test Suite and is currently part of the P25 CAP Program. Contractor hosted a P25 Ph1 CAI Trunking Interoperability Event prior to DHS Lab recognition where this feature was successfully demonstrated and issued SCoCs and Summary Test Reports as part of this event at www.motorola.com/project25. Contractor had a P25 Ph1 CAI Trunking Interoperability Event scheduled for July 2009 which was conducted in Contractor's DHS-recognized lab, following this event SDoCs and Summary Test Reports were made available to the public.

Broadcast Voice Call	M	102A, AABD	Compliant		Broadcast Voice Call is a feature tested as part of the P25 Ph1 CAI Trunking Interoperability Test Suite and is currently part of the P25 CAP Program. Contractor hosted a P25 Ph1 CAI Trunking Interoperability Event prior to DHS Lab recognition where this feature was successfully demonstrated and issued SCoCs and Summary Test Reports as part of this event at www.motorola.com/project25. Contractor had a P25 Ph1 CAI Trunking Interoperability Event scheduled for July 2009 which was conducted in Contractor's DHS-recognized lab, following this event SDoCs and Summary Test Reports were made available to the public.
Discreet Listening	SO	102A	Partially Comply- See Reply		Contractor can support Discreet Listening for Group Calls (a user can select a TG, affiliates to it and receive audio) but is not supported for Individual Calls (the radio or console cannot monitor individual traffic of another radio).
Call Interrupt	M	102A	Non-Compliant	Console Priority	Contractor does offer the ability for a wireline console to take priority over SU audio.
Announcement Group Call	SO	AABC-B, AABD	Compliant		Announcement Group Call is a feature tested as part of the P25 Ph1 CAI Trunking Interoperability Test Suite and is currently part of the P25 CAP Program. Contractor hosted a P25 Ph1 CAI Trunking Interoperability Event prior to DHS Lab recognition where this feature was successfully demonstrated and issued SCoCs and Summary Test Reports as part of this event at www.motorola.com/project25. Contractor had a P25 Ph1 CAI Trunking Interoperability Event scheduled for July 2009 which was conducted in Contractor's DHS-recognized lab, following this event SDoCs and Summary Test Reports were made available to the public.

System Call (May also be referred to as (ALL) System Call, System wide TG Call)	SO	AABC-B, AABD, CABA, BAAD	Non-Compliant	Contractor Announce-ment Group Call Can reach a large audience of users.	Contractor believes that system call in trunking is disruptive to the end customer because the system denies new calls while waiting for the system call to be established.
Mobility Management					
Roaming	M	102A, AABC-B, AABD			
Intra-System Roaming (May also be referred to as Roaming)	M	102A, AABC-B, AABD	Compliant		
Inter-System Roaming (Manual) (May also be referred to as Intra-WACN Roaming)	M	102A, AABC-B, AABD	Compliant		
Inter-System Roaming (Automatic) (May also be referred to as Intra-WACN Roaming)	SO	102A, AABC-B, AABD	Non-Compliant	Contractor does offer manual Inter-system roaming for trunked operation	
Inter-WACN Roaming (May also be referred to as Roaming)	SO	102A, AABC-B, AABD, AABF-A-2	Non-Compliant	Contractor does offer manual Inter-WACN roaming for trunked operation	
Registration	M	102A, AABC-B, AABD	Compliant		Registration is a feature tested as part of the P25 Ph1 CAI Trunking Interoperability Test Suite and is currently part of the P25 CAP Program. Contractor hosted a P25 Ph1 CAI Trunking Interoperability Event prior to DHS Lab recognition where this feature was successfully demonstrated and issued SCoCs and Summary Test Reports as part of this event at www.motorola.com/project25. Contractor had a P25 Ph1 CAI Trunking Interoperability Event scheduled for July 2009 which was conducted in Contractor's DHS-recognized lab, following this event SDoCs and Summary Test Reports were made available to the public.
Link Layer Authentication	SO	AACE	Available in Systems Release 7.9 and Higher		

Affiliation (May also be referred to as Group Affiliation)	M	102A, AABC-B, AABD	Compliant		Affiliation is a feature tested as part of the P25 Ph1 CAI Trunking Interoperability Test Suite and is currently part of the P25 CAP Program. Contractor hosted a P25 Ph1 CAI Trunking Interoperability Event prior to DHS Lab recognition where this feature was successfully demonstrated and issued SCoCs and Summary Test Reports as part of this event at www.motorola.com/project25. Contractor had a P25 Ph1 CAI Trunking Interoperability Event scheduled for July 2009 which was conducted in Contractor's DHS-recognized lab, following this event SDoCs and Summary Test Reports were made available to the public.
De-Registration	M	AABC-B	Compliant		
Encryption					
Block Encryption (May also be referred to as Encryption or Encrypted Audio)	SO	AAAD, AACA	Compliant		
DES-OFB Encryption of Voice (For Backward compatibility only. Not encouraged for new systems)	SO	102A, AAAD	Not available with DES-OFB	AES Encryption of Packet Data will be available in 2010	
DES-OFB Encryption of Packet Data (For Backward compatibility only. Not encouraged for new systems)	SO	102A, AAAD			
AES Encryption of Voice	SO-R	AAAD	Compliant		Call privacy is a feature tested as part of the P25 Ph1 CAI Trunking Interoperability Test Suite and is currently part of the P25 CAP Program. Contractor hosted a P25 Ph1 CAI Trunking Interoperability Event prior to DHS Lab recognition where this feature was successfully demonstrated and issued SCoCs and Summary Test Reports as part of this event at www.motorola.com/project25. Contractor had a P25 Ph1 CAI Trunking Interoperability Event scheduled for July 2009 which was conducted in Contractor's DHS-recognized lab, following this event SDoCs and Summary Test Reports were made available to the public.
AES Encryption of Packet Data	SO-R	AAAD	Compliant		This is a purchasable option that is not included in this Agreement.

Type 1 Encryption	SO	102A, NSA Spec 0N618551, 0N618536			Type 1 Encryption is not available to customers outside of the Department of Defense.
Multiple Encryption Algorithms	SO	AAAD, AACA	Compliant		
Multiple Encryption Keys	SO	AAAD	Compliant		
Encryption Key Update (May also be referred to as Encryption Update)	SO	102A	Compliant		
Over The Air Rekeying (OTAR) (Contains 23 sub-options listed in AACA)	SO	102A, AACA, AACB, AACD	Compliant		Contractor supports all of the P25 OTAR mandatory features with the exception of delete key message in the Contractor KMF. The delete key message is supported in the Contractor Subscriber and the Contractor KMF can delete keys using other P25 OTAR messages.
Manual Rekeying Features 12 sub-options listed in AACD. Also referred to as Physical Key Management)	SO	102A, AACD	Compliant		
Supplementary Services					
Call Alerting (May also be referred to as Call Alert, Unit Page)	SO	102A, AABC-B, AABD, AABG, BACD	Compliant		
Pre-programmed Data Messaging / Short Message (May also be referred to as Short Message, Short Data Message, Message)	SO	102A, AABD, AABC-B, AABF-A, AABG, AABA-A, BACD	Non-Compliant		Pre-programmed data messaging/short message is in the trunking standard but something Contractor does not offer it at this time. Contractor does offer P25 Status in trunking as an equivalent capability for short message.
Silent Emergency	SO	102A, CABA	Compliant		Silent Emergency is achieved by programming the SU user interface and not by an over-the-air command.
Radio Unit Monitoring (May also be referred to as Radio Unit Monitor)	SO	102A, AABG, AABC-B, BACD	Compliant		Contractor will support remote unit monitor for talkgroup calls however does not support the Unit-to-Unit version of remote unit monitor.
Emergency Alarm (May also be referred to as EmergencyAlert, Emergency Indications, Emergency)	SO	102A, AABC-B, AABD, AABG, BACD	Compliant		Emergency Alarm is a feature tested as part of the P25 Ph1 CAI Trunking Interoperability Test Suite and is currently part of the P25 CAP Program. Contractor hosted a P25 Ph1 CAI Trunking Interoperability Event prior to DHS Lab recognition where this feature was successfully demonstrated and issued SCoCs and Summary Test Reports as part of this event at www.motorola.com/project25. Contractor had a P25 Ph1 CAI Trunking Interoperability Event scheduled for July 2009 which was conducted in Contractor's DHS-recognized lab, following this event SDoCs and Summary Test Reports were made available to the

					public.
Emergency Call (May also be referred to as Emergency Group Call)	SO	BAAD, AABF-A	Compliant		Emergency Call is a feature tested as part of the P25 Ph1 CAI Trunking Interoperability Test Suite and is currently part of the P25 CAP Program. Contractor hosted a P25 Ph1 CAI Trunking Interoperability Event prior to DHS Lab recognition where this feature was successfully demonstrated and issued SCoCs and Summary Test Reports as part of this event at www.motorola.com/project25. Contractor had a P25 Ph1 CAI Trunking Interoperability Event scheduled for July 2009 which was conducted in Contractor's DHS-recognized lab, following this event SDoCs and Summary Test Reports were made available to the public.
Extended Functions					
Radio Unit Inhibit* / Disable	SO	102A, AABC-B, AABD, AABG	Compliant		
Radio Unit Uninhibit* / Re-enable	SO	102A, AABC-B, AABD, AABG	Compliant		
Radio Check	SO	AABD, AABC-B, AABG	Compliant		
System Services					
Network Status	M	AABC-B, AABD	Compliant		
System Status	M	AABC-B, AABD	Compliant		
Channel Identifier	M	AABC-B, AABD	Compliant		
System Service	SO	AABC-B, AABD		N/A	System Service Broadcast is an optional message not used or needed by Contractor system as control is provided on an individual basis.
Adjacent Site Status	SO	AABC-B, AABD	Compliant		

Secondary Control Channel	SO	AABC-B, AABD	Compliant		Contractor's trunked system meets this need by advertising back up control channel frequencies.
Composite Control Channel (Also referred to as Single Station Sites or Traffic on Control)	SO	AABA-A, AABB-A, AABC-B, AABD	N/A	N/A	The current P25 standard does not include procedures for this feature in P25 Trunking.
Backup Control Channel	SO	AABC-B, AABD	Compliant		
Miscellaneous					
Talking Party Identification (May also be referred toas Caller Identification or Caller-ID)	SO	102A	Compliant		
Call Restriction	SO	102A, AABC-B	Compliant		Contractor's Network Management provides the capability to provision the services available to both the subscriber radios and talkgroups for trunking.
Priority Call (May also be referred to as Priority)	SO	102A, AABC-B, AABD	Compliant		
Preemptive Priority Call	SO	102A	Compliant		Contractor understands the feature to mean Emergency Priority will Pre-Empt a Non-Emergency Call.
Queuing (May also be referred to as Queue)	M	AABC-B, AABD	Compliant		
Call Routing (Efficient) (May also be referred to as "Efficient Use of RF Resources)	SO	102A	Compliant		
Message Trunking	SO	AABA-A	Compliant		
Transmission Trunking	SO	AABA-A	Compliant		
SU Electronic Serial Number (ESN)	M	102A, AABD	Compliant		
Common Air Interface (U_m)		AABA-A			
CAI	M	102A, BAAA-A	Compliant		
Phase 1					
Enhanced Full Rate Vocoder (May also be referred to as P25 Defined Vocoder: Enhanced Version required in new products)	M	102A, BABA	Compliant		Enhanced Full Rate Vocoder only offered with APX radios.
12.5 kHz Channel Bandwidth	M	102A, BAAA-A	Compliant		
Frequency Division Multiple Access (FDMA)	M	102A, BAAA-A, AABA-A	Compliant		
C4FM and CQPSK Modulation (Older products may have only C4FM)	M	102A, BAAA-A	Compliant		
9.6 kbps Gross Bit Rate	M	102A, BAAA-A	Compliant		
Backwards Compatibility (Analog FM Operation)	M	102A, ANSI/TIA/EIA-603 Compliance	Compliant		
Inter RF Sub-System Interface (G)		AABA-A			
ISSI	SO	102A, BACA, BACA-1, BACA-3, BACD			The ISSI.1 Network Gateway is the very first ISSI product on the market. It supports the following services among and between P25 trunked RFSSs: ISSI

					Group Call, ISSI Encrypted Group Call, ISSI Emergency Call and Manual Inter-System Roaming. While future ISSI features and products are planned, this is the feature set that is being committed to.
Voice Services					
Group Voice Service	SO-R	BACA, BACA-1	Compliant		Contractor complies with the Unconfirmed Group Call Operation with today's ISSI.1 product.
SU-to-SU Voice Service	SO-R	BACA, BACA-1	Non-Compliant		
Mobility Management Functions			Non-Compliant		
SU Registration	SO-R	BACA, BACA-1	Non-Compliant		
SU Tracking	SO-R	BACA, BACA-1	Non-Compliant		
Group Affiliation	SO-R	BACA, BACA-1	Compliant		
Group Tracking	SO-R	BACA, BACA-1	Compliant		
Authentication Credential Distribution	SO-R	BACA, BACA-1	Non-Compliant		
Supplementary Data Services (Include) (May also be referred to as Supplementary Services)			Non-Compliant		
Emergency Alarm (Also referred to as Emergency Alert)	SO-R	BACD-A	Non-Compliant		
Emergency Alarm Cancellation	SO-R	BACD-A	Non-Compliant		
Group Emergency Cancellation	SO-R	BACD-A	Non-Compliant		
Call Alert	SO-R	102A, BACD-A	Non-Compliant		
Short Message / Pre-programmed Data Messaging	SO-R	102A, BACD-A	Non-Compliant		
Status Query	SO-R	BACD-A	Non-Compliant		
Status Update	SO-R	BACD-A	Non-Compliant		
Radio Unit Monitor	SO-R	102A BACD-A	Non-Compliant		
Radio Check	SO-R	BACD-A	Non-Compliant		
Radio Inhibit	SO-R	102A, BACD-A	Non-Compliant		
Radio Uninhibit	SO-R	102A, BACD-A	Non-Compliant		
Data Interfaces (A and E_d) and Services					
Data Interfaces (A and E_d)	SO	102A	Compliant		
Data Configuration - Radio to FNE (May also be referred to as Mobile to Fixed Host Service (FNE Data))	SO	BAEB-A	Compliant		
Data Configuration - Radio to Radio (Direct) (May also be referred to as Mobile to Mobile Service (Direct))	SO	BAEB-A	N/A	N/A	Contractor has responded N/A because the Data Configuration Radio to Radio (direct) feature is currently not specified within the P25 standard for trunking operation.
Data Configuration - Radio to Radio (Repeated) (May also be referred to as Mobile to Mobile Service (Repeated Data)	SO	BAEB-A	N/A	N/A	Contractor has responded N/A because the Data Configuration Radio to Radio (direct) feature is currently not specified

					within the P25 standard for trunking operation.
Packet Switched Confirmed Delivery Data	SO	BAEB-A	Compliant		
Packet Data Registration	SO	BAAD-1. BAEB-A	Compliant		
SU Registration	SO	BAAD-1. BAEB-A	Compliant		
SU Deregistration	SO	BAAD-1. BAEB-A	Compliant		
SU Location Tracking	SO	BAAD-1. BAEB-A	Compliant		
Packet Data Scan Mode	SO	BAAD-1. BAEB-A	N/A	N/A	Contractor has responded N/A because the Packet Data Scan Mode feature is currently not specified within the P25 standard for trunking operation.
Packet Switched Data Network Access	SO	BAEB-A	Compliant		
RCP (Radio Control Protocol) (Used for Radio Management Protocol)	SO	BAEE-A, BAEB-A		SNMP	RCP is an optional feature in P25. Instead of RCP, Contractor has chosen to implement the newer SNMP method of providing radio control. See SNMP comments below.
SNMP (Simple Network Management Protocol) Used for Radio Management Protocol	SO	BAEE-A, BAEB-A	Partially Compliant		SNMP (Simple Network Management) feature is an optional feature in the P25 standard and Contractor supports a subset of the SNMP functionality that Contractor has defined as critical for Contractor's customer base.
SCEP (Simple CAI Encapsulation Protocol)	SO	BAEB-A	N/A	N/A	Today in the P25 Standards SCEP data is only defined for conventional operation.
SNDCP (Subnetwork Dependent Convergence Protocol)	SO	BAEB-A	Compliant		
Link Layer and Physical Layer Protocols	SO	BAEA-A, BAEB-A	Compliant		
Telephone Interconnect Interface (E_t)					
Telephone Interconnect	SO	102A, BADA	Compliant		Contains 33 sub-options listed in BADA. May also be referred to as Voice Telephone Interconnect. ASTRO 25 P25 Ph1 CAI Trunking (Contractor's Telephone Interconnect solution complies with all the mandatory P25 requirement however it does not support Landline-to-talkgroup which is an optional feature)
Fixed Station Interface (E_f)					
TBD			N/A	N/A	
Console Sub-System Interface (E_c)					

Console Sub-System Interface	SO	102A, BACA-2	Non-Compliant		The ISSI.1 Network Gateway is the very first ISSI product on the market. It supports the following services among and between P25 trunked RFSSs: ISSI Group Call, ISSI Encrypted Group Call, ISSI Emergency Call and Manual Inter-System Raomaing. While future ISSI features and products are planned, this is the feature set that is being committed to.
Voice Services	SO-R	BACA-2	Non-Compliant		
Mobility Management Functions	SO-R	BACA-2	Non-Compliant		
Supplementary Data Services (See ISSI) (May also be referred to as Supplementary Services)	SO-R	BACD, BACA-3	Non-Compliant		
Console Priority (Includes Dispatcher Audio Takeover and Call Interrupt)	SO-R	BACA-2	Non-Compliant		
Network Management Interface (E_n)					
TBD			N/A	N/A	

EXHIBIT B – PAYMENT SCHEDULE AND PRICING SUMMARY

AGREEMENT BETWEEN COUNTY OF SAN MATEO AND MOTOROLA, INC.

In consideration of the services provided by Contractor in Exhibit "A", County shall pay Contractor based on the following fee schedule:

1. Payment Schedule.
County will make payment to Contractor according to the following payment schedule:

10% Upon Completion of the Contract
50% Upon Delivery of Equipment
20% Upon Completion of Installation
5% Upon Completion of the Acceptance Testing Plan (ATP)
15% Upon Final Acceptance

HARDWARE (P25 SYSTEM AND MASTER SITE)	**$2,583,401**
SERVICES (P25 SERVICES AND MASTER SITE)	**$533,205**
SYSTEM INTEGRATION SERVICES	**$1,663,222**
SYSTEM DISCOUNT (@10%)	**($477,983)**
TAX (@ 9.25%)	**$216,104**
SHIPPING	**$26,956**
TOTAL	**$4,544,906**

Unless alternative payment terms are stated, Contractor will invoice the County, in advance, for each payment period. All other charges will be billed monthly. The County will submit payment within thirty (30) days of receipt of invoice upon the approval of work performed during the billing cycle.

Each invoice will include the following:

- Agreement Number
- Purchase Order Number
- Actual Services performed/hardware provided, amount billed and amount billed in total
- The net amount for which payment is due

Contractor will pre-pay and add all freight charges to the invoices. Title and risk of loss to the Equipment will pass to the County upon delivery to County's site (FOB Destination). Title to Software will not pass to the County at any time. Contractor will pack and ship all Equipment in accordance with good commercial practices

The Agreement price does not include any excise, sales, lease, use, property, or other taxes, assessments or duties, all of which will be paid by the County except as exempt by law. If Contractor is required to pay any of these taxes, Contractor will send an invoice to the County and the County will pay to Contractor the amount of the taxes within 30 days after the date of the invoice.

In no event shall total payment under this Agreement exceed FOUR MILLION FIVE HUNDRED FORTY FOUR THOUSAND NINE HUNDRED SIX DOLLARS ($4,544,906). The County will have the right to withhold payment if the County determines that the quantity or quality of work performed is unacceptable.

Contractor agrees that the requirements of this Agreement pertaining to the protection of proprietary rights and confidentiality shall survive termination of this Agreement.

APPENDIX 1 – SOFTWARE LICENSE AGREEMENT

BETWEEN COUNTY OF SAN MATEO AND MOTOROLA, INC.

This Attachment 1 Software License Agreement ("Agreement") is between Motorola, Inc., ("Motorola"), and the County of San Mateo ("Licensee").

For good and valuable consideration, the parties agree as follows:

Section 1: Definitions

1.1 "Designated Products" means products provided by Motorola to Licensee with which or for which the Software and Documentation is licensed for use.

1.2 "Documentation" means product and software documentation that specifies technical and performance features and capabilities, and the user, operation and training manuals for the Software (including all physical or electronic media upon which such information is provided).

1.3 "Open Source Software" means software with either freely obtainable source code, license for modification, or permission for free distribution.

1.4 "Open Source Software License" means the terms or conditions under which the Open Source Software is licensed.

1.5 "Primary Agreement" means the agreement to which this Attachment is attached.

1.6 "Security Vulnerability" means a flaw or weakness in system security procedures, design, implementation, or internal controls that could be exercised (accidentally triggered or intentionally exploited) and result in a security breach such that data is compromised, manipulated or stolen or the system damaged.

1.7 "Software" (i) means proprietary software in object code format, and adaptations, translations, decompilations, disassemblies, emulations, or derivative works of such software; (ii) means any modifications, enhancements, new versions and new releases of the software provided by Motorola; and (iii) may contain one or more items of software owned by a third party supplier. The term "Software" does not include any third party software provided under separate license or third party software not licensable under the terms of this Agreement.

Section 2: Scope

Motorola and Licensee enter into this Agreement in connection with Motorola's delivery of certain proprietary Software or products containing embedded or pre-loaded proprietary Software, or both. This Agreement contains the terms and conditions of the license Motorola is providing to Licensee, and Licensee's use of the Software and Documentation.

Section 3: Grant of License

3.1 Subject to the provisions of this Agreement and the payment of applicable license fees, Motorola grants to Licensee a personal, limited, non-transferable (except as permitted in Section 7) and non-exclusive license under Motorola's

copyrights and Confidential Information (as defined in the Primary Agreement) embodied in the Software to use the Software, in object code form, and the Documentation solely in connection with Licensee's use of the Designated Products. This Agreement does not grant any rights to source code.

3.2 If the Software licensed under this Agreement contains or is derived from Open Source Software, the terms and conditions governing the use of such Open Source Software are in the Open Source Software Licenses of the copyright owner and not this Agreement. If there is a conflict between the terms and conditions of this Agreement and the terms and conditions of the Open Source Software Licenses governing Licensee's use of the Open Source Software, the terms and conditions of the license grant of the applicable Open Source Software Licenses will take precedence over the license grants in this Agreement. If requested by Licensee, Motorola will use commercially reasonable efforts to: (i) determine whether any Open Source Software is provided under this Agreement; (ii) identify the Open Source Software and provide Licensee a copy of the applicable Open Source Software License (or specify where that license may be found); and, (iii) provide Licensee a copy of the Open Source Software source code, without charge, if it is publicly available (although distribution fees may be applicable).

Section 4: Limitations on Use

4.1 Licensee may use the Software only for Licensee's internal business purposes and only in accordance with the Documentation. Any other use of the Software is strictly prohibited. Without limiting the general nature of these restrictions, Licensee will not make the Software available for use by third parties on a "time sharing," "application service provider," or "service bureau" basis or for any other similar commercial rental or sharing arrangement.

4.2 Licensee will not, and will not allow or enable any third party to: (i) reverse engineer, disassemble, peel components, decompile, reprogram or otherwise reduce the Software or any portion to a human perceptible form or otherwise attempt to recreate the source code; (ii) modify, adapt, create derivative works of, or merge the Software; (iii) copy, reproduce, distribute, lend, or lease the Software or Documentation to any third party, grant any sublicense or other rights in the Software or Documentation to any third party, or take any action that would cause the Software or Documentation to be placed in the public domain; (iv) remove, or in any way alter or obscure, any copyright notice or other notice of Motorola's proprietary rights; (v) provide, copy, transmit, disclose, divulge or make the Software or Documentation available to, or permit the use of the Software by any third party or on any machine except as expressly authorized by this Agreement; or (vi) use, or permit the use of, the Software in a manner that would result in the production of a copy of the Software solely by activating a machine containing the Software. Licensee may make one copy of Software to be used solely for archival, back-up, or disaster recovery purposes; *provided* that Licensee may not operate that copy of the Software at the same time as the

original Software is being operated. Licensee may make as many copies of the Documentation as it may reasonably require for the internal use of the Software.

4.3 Unless otherwise authorized by Motorola in writing, Licensee will not, and will not enable or allow any third party to: (i) install a licensed copy of the Software on more than one unit of a Designated Product; or (ii) copy onto or transfer Software installed in one unit of a Designated Product onto one other device. Licensee may temporarily transfer Software installed on a Designated Product to another device if the Designated Product is inoperable or malfunctioning, if Licensee provides written notice to Motorola of the temporary transfer and identifies the device on which the Software is transferred. Temporary transfer of the Software to another device must be discontinued when the original Designated Product is returned to operation and the Software must be removed from the other device. Licensee must provide prompt written notice to Motorola at the time temporary transfer is discontinued.

4.4 When using Motorola's Radio Service Software ("RSS"), Licensee must purchase a separate license for each location at which Licensee uses RSS. Licensee's use of RSS at a licensed location does not entitle Licensee to use or access RSS remotely. Licensee may make one copy of RSS for each licensed location. Licensee shall provide Motorola with a list of all locations at which Licensee uses or intends to use RSS upon Motorola's request.

4.5 Licensee will maintain, during the term of this Agreement and for a period of two years thereafter, accurate records relating to this license grant to verify compliance with this Agreement. Motorola or an independent third party ("Auditor") may inspect Licensee's premises, books and records, upon reasonable prior notice to Licensee, during Licensee's normal business hours and subject to Licensee's facility and security regulations. Motorola is responsible for the payment of all expenses and costs of the Auditor. Any information obtained by Motorola and the Auditor will be kept in strict confidence by Motorola and the Auditor and used solely for the purpose of verifying Licensee's compliance with the terms of this Agreement.

Section 5: Ownership and Title

Motorola, its licensors, and its suppliers retain all of their proprietary rights in any form in and to the Software and Documentation, including, but not limited to, all rights in patents, patent applications, inventions, copyrights, trademarks, trade secrets, trade names, and other proprietary rights in or relating to the Software and Documentation (including any corrections, bug fixes, enhancements, updates, modifications, adaptations, translations, de-compilations, disassemblies, emulations to or derivative works from the Software or Documentation, whether made by Motorola or another party, or any improvements that result from Motorola's processes or, provision of information services). No rights are granted to Licensee under this Agreement by implication, estoppel or otherwise, except for those rights which are expressly

granted to Licensee in this Agreement. All intellectual property developed, originated, or prepared by Motorola in connection with providing the Software, Designated Products, Documentation or related services, remains vested exclusively in Motorola, and Licensee will not have any shared development or other intellectual property rights.

Section 6: Limited Warranty; Disclaimer of Warranty

6.1 The commencement date and the term of the Software warranty will be a period of ninety (90) days from Motorola's shipment of the Software (the "Warranty Period"). If Licensee is not in breach of any of its obligations under this Agreement, Motorola warrants that the unmodified Software, when used properly and in accordance with the Documentation and this Agreement, will be free from a reproducible defect that eliminates the functionality or successful operation of a feature critical to the primary functionality or successful operation of the Software. Whether a defect occurs will be determined by Motorola solely with reference to the Documentation. Motorola does not warrant that Licensee's use of the Software or the Designated Products will be uninterrupted, error-free, completely free of Security Vulnerabilities, or that the Software or the Designated Products will meet Licensee's particular requirements. Motorola makes no representations or warranties with respect to any third party software included in the Software.

6.2 Motorola's sole obligation to Licensee and Licensee's exclusive remedy under this warranty is to use reasonable efforts to remedy any material Software defect covered by this warranty. These efforts will involve either replacing the media or attempting to correct significant, demonstrable program or documentation errors or Security Vulnerabilities. If Motorola cannot correct the defect within a reasonable time, then at Motorola's option, Motorola will replace the defective Software with functionally-equivalent Software, license to Licensee substitute Software which will accomplish the same objective, or terminate the license and refund the Licensee's paid license fee.

6.3 Warranty claims are described in Exhibit A to the Agreement between the County of San Mateo and Motorola, Inc., above.

6.4 The express warranties set forth in this Section 6 are in lieu of, and Motorola disclaims, any and all other warranties (express or implied, oral or written) with respect to the Software or Documentation, including, without limitation, any and all implied warranties of condition, title, non-Documentation, including, without limitation, any and all implied warranties of condition, title, non-infringement, merchantability, or fitness for a particular purpose or use by Licensee (whether or not Motorola knows, has reason to know, has been advised, or is otherwise aware of any such purpose or use), whether arising by law, by reason of custom or usage of trade, or by course of dealing. In addition, Motorola disclaims any warranty to any person other than Licensee with respect to the Software or Documentation.

Section 7: Transfers
Licensee will not transfer the Software or Documentation to any third party without Motorola's prior written consent. Motorola's consent may be withheld at its discretion and may be conditioned upon transferee paying all applicable license fees and agreeing to be bound by this Agreement. If the Designated Products are Motorola's radio products and Licensee transfers ownership of the Motorola radio products to a third party, Licensee may assign its rights to use the Software (other than RSS and Motorola's FLASHport® software) which is embedded in or furnished for use with the radio products and the related Documentation; *provided* that Licensee transfers all copies of the Software and Documentation to the transferee, and Licensee and the transferee sign a transfer form to be provided by Motorola upon request, obligating the transferee to be bound by this Agreement.

Section 8: Term and Termination
8.1 Licensee's right to use the Software and Documentation will begin when the Primary Agreement is signed by both parties and will continue for the life of the Designated Products with which or for which the Software and Documentation have been provided by Motorola, unless Licensee breaches this Agreement, in which case this Agreement and Licensee's right to use the Software and Documentation may be terminated immediately upon notice by Motorola.

8.2 Within thirty (30) days after termination of this Agreement, Licensee must certify in writing to Motorola that all copies of the Software have been removed or deleted from the Designated Products and that all copies of the Software and Documentation have been returned to Motorola or destroyed by Licensee and are no longer in use by Licensee.

8.3 Licensee acknowledges that Motorola made a considerable investment of resources in the development, marketing, and distribution of the Software and Documentation and that Licensee's breach of this Agreement will result in irreparable harm to Motorola for which monetary damages would be inadequate. If Licensee breaches this Agreement, Motorola may terminate this Agreement and be entitled to all available remedies at law or in equity (including immediate injunctive relief and repossession of all non-embedded Software and associated Documentation unless Licensee is a Federal agency of the United States Government).

Section 9: United States Government Licensing Provisions
This Section applies if Licensee is the United States Government or a United States Government agency. Licensee's use, duplication or disclosure of the Software and Documentation under Motorola's copyrights or trade secret rights is subject to the restrictions set forth in subparagraphs (c)(1) and (2) of the Commercial Computer Software-Restricted Rights clause at FAR 52.227-19 (June 1987), if applicable, unless they are being provided to the Department of

Defense. If the Software and Documentation are being provided to the Department of Defense, Licensee's use, duplication, or disclosure of the Software and Documentation is subject to the restricted rights set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 (October 1988), if applicable. The Software and Documentation may or may not include a Restricted Rights notice, or other notice referring to this Agreement. The provisions of this Agreement will continue to apply, but only to the extent that they are consistent with the rights provided to the Licensee under the provisions of the FAR or DFARS mentioned above, as applicable to the particular procuring agency and procurement transaction.

Section 10: Confidentiality
Licensee acknowledges that the Software and Documentation contain Motorola's valuable proprietary and Confidential Information and are Motorola's trade secrets, and that the provisions in the Primary Agreement concerning Confidential Information apply.

Section 11: Limitation of Liability
Except for personal injury or death, Contractor's total liability, whether for breach of contract, warranty, negligence, strict liability in tort, indemnification, or otherwise, will be limited to the direct damages recoverable under law, but not to exceed the price of the Equipment, Software, or services with respect to which losses or damages are claimed. Although the parties acknowledge the possibility of such losses or damages, they agree that Contractor will not be liable for any commercial loss, inconvenience, loss of use, time, data, good will, revenues, profits or savings, or other special incidental, indirect, or consequential damages in any way related to or arising from this Agreement, the sale or use of the equipment or software, or the performance of services by Contractor pursuant to this Agreement. This limitation of liability provision survives the expiration or termination of the Agreement and applies notwithstanding any contrary provision. No action for contract breach or otherwise relating to the transactions contemplated by this Agreement may be brought more than one (1) year after the accrual of the cause of action, except for money due upon an open account.

Section 12: Notices
Notices are described in Section 22 of the Agreement between the County of San Mateo and Motorola, Inc., above.

Section 13: General
13.1 Copyright Notices. The existence of a copyright notice on the Software will not be construed as an admission or presumption of publication of the Software or public disclosure of any trade secrets associated with the Software.

13.2 Compliance with Laws. Licensee acknowledges that the Software is subject to the laws and regulations of the United States and Licensee will comply with all applicable laws and regulations, including export laws and regulations of the

United States. Licensee will not, without the prior authorization of Motorola and the appropriate governmental authority of the United States, in any form export or re-export, sell or resell, ship or reship, or divert, through direct or indirect means, any item or technical data or direct or indirect products sold or otherwise furnished to any person within any territory for which the United States Government or any of its agencies at the time of the action, requires an export license or other governmental approval. Violation of this provision is a material breach of this Agreement.

13.3 Assignment and Subcontracting. Motorola may assign its rights or subcontract its obligations under this Agreement, or encumber or sell its rights in any Software, without prior notice to or consent of Licensee.

13.4 Governing Law. This Agreement is governed by the laws of the State of California.

13.5 Third Party Beneficiaries. This Agreement is entered into solely for the benefit of Motorola and Licensee. No third party has the right to make any claim or assert any right under this Agreement, and no third party is deemed a beneficiary of this Agreement. Notwithstanding the foregoing, any licensor or supplier of third party software included in the Software will be a direct and intended third party beneficiary of this Agreement.

13.6 Survival. Sections 4, 5, 6.3, 7, 8, 9, 10, 11 and 13 survive the termination of this Agreement.

13.7 Order of Precedence. In the event of inconsistencies between this Attachment and the Primary Agreement, the parties agree that the primary Agreement prevails, only with respect to the specific subject matter of this Agreement, and not the Primary Agreement or any other Exhibit as it applies to any other subject matter.

13.8 Security. Motorola's Information Assurance Policy addresses the issue of security. Motorola uses reasonable means in the design and writing of its own Software and the acquisition of third party Software to limit Security Vulnerabilities. While no software can be guaranteed to be free from Security Vulnerabilities, if a Security Vulnerability is discovered, Motorola will take the steps set forth in Section 6 of this Agreement.

APPENDIX 2 – Master Purchase Agreement

1. Definitions

1.1 "Eligible Purchaser" means the State of California or any State or local governmental agency, body, district, city, county or other political subdivision within the State of California. Any private company providing ambulance, emergency response, or other public safety or similar services under contract with County will be deemed to be a non-governmental Eligible Purchaser, but only with respect to the performance of such services. In addition to the requirements above, an entity must be approved in writing by both the County and Motorola before the entity will be considered to be an Eligible Purchaser.

1.2 "Equipment" means the equipment specified in the Equipment List.

1.3 "Motorola Software" is software whose copyright is owned by Motorola.

1.4 "Non-Motorola Software" is software whose copyright is owned by a party other than Motorola.

1.5 "Software" includes Motorola and any Non-Motorola Software that may be furnished with the Communications System.

2. General Terms

2.1 County of San Mateo ("County") is a political subdivision of the State of California. The terms defined herein shall be extended in full to any and all departments and administrative bodies as defined by San Mateo County or otherwise created by action of the Board of Supervisors, or any governmental entity for which the Board of Supervisors is the governing board, and to all other "Eligible Purchasers".

2.2 Motorola desires to provide products and services that are added by mutual agreement by the County and Motorola.

Motorola agrees that for five (5) years from System Acceptance, the County and any Eligible Purchaser may purchase additional Motorola manufactured Equipment off this Agreement, in which case the terms and conditions set forth in this Agreement and the Software License Agreement shall apply. During the first year, the pricing for additional Equipment will remain firm, plus applicable freight charges; thereafter, for the remaining four (4) years, the pricing will be Motorola's then current published list price

Motorola agrees that for five (5) years from System Acceptance, County and any Eligible Purchaser may purchase services related to the additional purchase of Equipment. The parties will negotiate in good faith the description and pricing of such services at the time of that transaction and, to the extent applicable to the transaction, jointly develop system descriptions, equipment lists, Statements of

Work, acceptance test plans, and such other documents as are reasonable and appropriate for the particular transaction.

2.3 The rights set forth herein shall be valid for the same term as listed in the Agreement between the County of San Mateo and Motorola, Inc.

2.4 These terms are extended to all Eligible Purchasers, as defined in Section 1.1 of this Master Purchase Agreement.

2.5 Should the County or any Eligible Purchasers desire to purchase any new, additional, and/or renewal hardware, software, and/or services (maintenance, technical support, training, professional services, etc.) from Motorola, they shall be extended the Master Purchasing pricing as set forth below based on the then-current rates.

2.7 Motorola agrees that the County or Eligible Purchaser, that purchases training, shall be allowed to duplicate training materials in reasonable quantities exclusively for the County's or Eligible Purchaser's internal use. Motorola and the County agree that such duplication will be at the expense of the County or Eligible Purchaser.

2.8 Section 18 of the Agreement between the County and Motorola indicates that no contractual relationship exists between the County of San Mateo and the Eligible Purchaser's contractual relationship with Motorola, in relation to any purchase by an Eligible Purchaser under this Master Purchase Agreement. The language of that paragraph is stated below and expressly incorporated into the terms of this Master Purchase Agreement:

> To the extent that any "Eligible Purchasers," as defined in Appendix 2 hereto (the Master Purchase Agreement), makes any purchases under the Master Purchase Agreement, the County of San Mateo bears no responsibility either to the Eligible Purchasers or to the Contractor (or the "Reseller" or "Manufacturer", as defined in Appendix 2, if different than the Contractor) in relation to such purchases. Any payments for purchases and related contractual obligations shall be made as between the Eligible Purchasers and Contractor, Reseller or Manufacturer, as appropriate, and the County of San Mateo does not have any financial or other obligation with respect to such purchases made under the Master Purchase Agreement. The County of San Mateo has no contractual relationship with such Eligible Purchasers in relation to any such purchase from Contractor, Reseller, or Manufacturer, and accordingly has no obligations whatsoever as to those purchases and makes no warranty, express or otherwise, in relation to any such purchases. The sole purpose of the Eligible Purchaser's involvement with the Master Purchase Agreement is for that entity, the County of San Mateo, and other Eligible Purchasers to obtain access to Volume Pricing as described in the Master Purchase

Agreement, and each such Eligible Purchaser is solely responsible for its own contractual relationship with the Reseller or Manufacturer, as outlined in that Agreement. To the extent that Contractor, Reseller, or Manufacture performs any services for an Eligible Purchaser in relation to such purchase, those services are also performed as between those parties; and the County of San Mateo is not a party to any such services.

2.9 Any Motorola Software furnished will be licensed to the County or Eligible Purchaser solely according to the terms and restrictions of the Software License Agreement as attached as Appendix 1 to the main Agreement. County and Eligible hereby accept all of the terms and restrictions of the Software License Agreement.

Any non-Motorola Software furnished by Motorola will be subject to the terms and restrictions of its copyright owner unless such copyright owner has granted to Motorola the right to sublicense such non-Motorola Software, in which case the Software License Agreement (including any addendum to satisfy such copyright owner's requirements) shall apply.

2.10 Maintenance and Support shall be by, and the responsibility of, each Eligible Purchaser. The terms of maintenance and support shall be governed by Motorola's Standard Service Agreement.

2.11 As part of the support and services from Motorola, the County shall not be required to submit/return any component that may contain County data, such as hard drives, as solely determined by the County, and the County shall not be charged or penalized for withholding that component. Similar requirements/restrictions may apply for other Eligible Purchasers.

2.12 Services provided by Motorola, in connection with any purchase by the County or an Eligible Purchaser, through this Master Purchase Agreement will be based on a mutually agreed upon Statement of Work.

2.13 Motorola will use commercially reasonable efforts to have applicable parts for Motorola-manufactured Equipment available for five (5) years and seven (7) years from the date of last manufacture for subscriber equipment and fixed infrastructure equipment, respectively; County and any Eligible Purchaser may purchase additional parts for Motorola-manufactured Equipment at the published list price less applicable discounts (plus applicable freight charges); the methodology for ordering additional parts, delivery times, and applicable terms will be Motorola's then standard provision.

2.14 Each subsequent purchase off this Agreement will be a separate transaction. Payment terms for the purchase of additional Equipment or parts shall be Net 30 days from the date of invoice as shipped or as otherwise agreed. Payment terms for the purchase of additional Services will be Net 30 days from

the date of invoice as performed or as otherwise agreed. If County or any Eligible Purchaser wishes to purchase additional Equipment or additional Services off this Agreement as permitted in Sections 2.3 and 2.4 above, it must issue a Purchase Order or similar purchasing document that specifically states:

“By issuing this Purchase Order, issuer agrees that the applicable provisions, terms and conditions of the Agreement, as well as the Software License Agreement (Appendix 1) to the Agreement, govern this purchase.”

3. Price List

P25 Infrastructure Description	Quantity	Unit Price	Extended Price
S2500 MULTIPROTOCOL WAN ROUTER	2	$0	$0
ADD: BASE ROUTER W/ ETHERNET MODULE	2	$3,040	$6,080
GTR 8000 EXPANDABLE SITE SUB-SYSTEM	1	$4,800	$4,800
ADD: 700/800 MHZ MID POWER	1	$5,040	$5,040
ADD: QTY (2) GTR 8000 BASE RADIOS	1	$19,040	$19,040
ENH: ASTRO 25 SITE REPEATER SW	6	$8,560	$51,360
ADD: CABINET RMC W/ CAPABILITY OF 6 BRS	1	$560	$560
ADD: PRIMARY 6 PORT CAVITY COMBINER	1	$6,720	$6,720
ADD: 700 MHZ TX FILTER W/ PMU	1	$800	$800
ADD: QTY (1) SITE CONTROLLER	2	$4,000	$8,000
ENH: ASTRO 25 SITE REPEATER SITE CONTROLLER SW	2	$4,000	$8,000
ADD: 7.5 FT OPEN RACK, 48RU	1	$396	$396
SEVEN AND A HALF FOOT RACK	1	$396	$396
POWER DIST. UNIT SURGE PROTECT 120V	2	$792	$1,584
RACK MOUNTING PLATE ADAPTER, DSOP820A AND DSNSOP820A 19 INCH RACK	2	$81	$162
EIGHT WIRE PROTECTION MODULE WITH RJ-48 PASS THROUGH AND MECH GRD CONN	2	$123	$246
HORIZONTAL RACK BUS BAR FOR TSJ AND WPH SERIES NETWORK PROTECTOR	2	$70	$141
C&M UNIT FOR TTA W/O MULT, -48 VDC, 792-824MHZ	1	$2,176	$2,176
TTA, COMPACT AUTO QUAD 792-824 MHZ TOWER BOX	1	$6,477	$6,477
GCM 8000 COMPARATOR	1	$2,400	$2,400
ADD: GCM 8000 COMPARATOR	1	$4,000	$4,000
ADD: IP BASED MULTISITE OPERATION	1	$7,200	$7,200
ADD: RACK MOUNT HARDWARE	1	$40	$40
ADD: POWER CABLE, DC	1	$0	$0
RUBY ROUTER	1	$4,640	$9,280
ADD: BASE ROUTER W/ ETHERNET MODULE	2	$0	$0
REMOTE SITE SUMMIT SIMULCAST DUAL LAN SWITCH	2	$16,176	$32,352
REMOTE SITE CONFIG DCPOWER	2	$24,053	$24,053
FOUR PORT IRIG B TIME CODE FDM	1	$770	$770
FOUR PORT DDM	1	$576	$1,728
GTR 8000 EXPANDABLE SITE SUB-SYSTEM	3	$4,800	$4,800
ADD: 700/800 MHZ MID POWER	1	$5,040	$5,040
ADD: QTY (2) GTR 8000 BASE RADIOS	1	$19,040	$19,040
ADD: IP BASED MULTISITE BASE RADIO SOFTWARE	1	$13,360	$66,800
ADD: CABINET RMC FOR EXPANSION RACK	5	$480	$480
ADD: EXPANSION 6 PORT CAVITY COMBINER	1	$6,720	$6,720
ADD: 700/800 PHASING HARNESS	1	$800	$800
ADD: QTY (1) XHUB	1	$2,800	$5,600
ADD: 7.5 FT OPEN RACK, 48RU	2	$396	$396
GCP 8000 SITE CONTROLLER	1	$2,400	$2,400
ADD: QTY (1) SITE CONTROLLER	1	$4,000	$4,000
ADD: IP BASED MULTISITE SITE CONTROLLER SOFTWARE	1	$50,000	$50,000
ADD: RACK MOUNT HARDWARE	1	$40	$40
SEVEN AND A HALF FOOT RACK	1	$396	$396
POWER DIST. UNIT SURGE PROTECT 120V	1	$792	$792
RACK MOUNTING PLATE ADAPTER, DSOP820A & DSNSOP820A 19 INCH RACK	1	$81	$81
EIGHT WIRE PROTECTION MODULE WITH RJ-48 PASS THROUGH &	1	$123	$123

MECH GRD CONN			
HORIZONTAL RACK BUS BAR FOR TSJ AND WPH SERIES NETWORK PROTECTOR	1	$70	$70
C& M UNIT FOR TTA W/O MULT, -48VDC, 792-824MHZ	1	$2,176	$2,176
TTA, COMPACT AUTO QUAD 792-824 MHZ TOWER BOX	1	$6,477	$6,477
CERTIFIED KEYBOARD FOR RSD SERVERS AND WORKSTATIONS	1	$38	$38
CERTIFIED OPTICAL WHEEL MOUSE FOR RSD SERVERS AND WORKSTATIONS	1	$27	$27
MCC SERIES DESKTOP SPEAKER	1	$360	$360
MCC SERIES DESKTOP GOOSENECK MICROPHONE	1	$200	$200
MCC SERIES HEADSET JACK	2	$160	$320
CERTIFIED MCC7500 FRU VISTA	1	$2,439	$2,439
MCC 7500 VOICE PROCESSOR MODULE FRU	1	$9,464	$9,464
2610-24 ETHERNET SWITCH	1	$1,800	$1,800
S6000 4 PORT ULTRAWAN II MODULE	1	$2,400	$2,400
S6000 ENCRYPTION MODULE	1	$800	$800
HDST MODULE BASE W/PTT, 15' CBL PROVIDES ONE DUAL PEDAL FOOTSWITCH FOR USE WITH MOTOROLA MCC 7500	2	$168	$336
DISP	2	$246	$491
V-POL, OMNI, 360 DEG HBW, 9 DBD, 1.25DEG EDT, 25% NULL FILL, 764-806MHZ	1	$1,573	$1,573
COLLINEAR OMNI ANTENNA, 11.5 DBD GAIN, 746-869 MHZ, PIM	1	$5,090	$5090
ENCLOSED 9 DIPOLE ARRAY, 10.5-13DBD GAIN, LOW PIM, 746-869 MHZ	1	$2,948	$2948
ENCLOSED 9 DIPOLE ARRAY, 10.5-13DBD GAIN, LOW PIM, 746-869 MHZ	1	$2,948	$2,948
ENCLOSED 9 DIPOLE ARRAY, 10.5-13DBD GAIN, LOW PIM, 746-869 MHZ	1	$2,948	$2,948
ENCLOSED 9 DIPOLE ARRAY, 10.5-13DBD GAIN, LOW PIM, 746-869 MHZ	1	$2,948	$2,948
ENCLOSED 4 DIPOLE ARRAY, 8.0-11.0 DBD GAIN. LOW PIM, 746-869 MHZ	1	$1,910	$1910
ENCLOSED 4 DIPOLE ARRAY, 8.0-11.0 DBD GAIN, LOW PIM, 746-869 MHZ	1	$1,910	$1,910
VERTICALLY POLARIZED LOG PERIODIC 63 DEGREE/13DBD ANT	1	$1,442	$1442
VERTICALLY POLARIZED LOG PERIODIC 63 DEGREE/13DBD ANT	1	$1,442	$1,442
VERTICALLY POLARIZED LOG PERIODIC 63 DEGREE/13DBD ANT	1	$1,442	$1,442
VERTICALLY POLARIZED LOG PERIODIC 63 DEGREE/13DBD ANT	1	$1,442	$1,442
VERTICALLY POLARIZED LOG PERIODIC 63 DEGREE/13DBD ANT	1	$1,442	$1,442
INCLUDES ITEMS 1.113 (DETAILS ON SPARES WORKSHEET)	1	$13,152	$13,152
65 AMP 48VDC RECTIFIER	1	$1,520	$1,520
1500W, INVERTER MODULE	1	$1,504	$1,504
RACK-MOUNTED CONTROLLER UNIT	1	$2,284	$2,284
AEROFLEX 3920 2.7 GHZ WITH OPT58	1	$28,305	$28,305
P25 CONVENTIONAL OPERATION MODE	1	$1,980	$1,980
P25 TURNKING OPERATION MODE 800MHZ	1	$2,160	$2,160
AES/DES ENCRYPTION	1	$1,980	$1,980
LSM CQPSK ANALYSIS SUITE	1	$6,120	$6,120
SIMULCAST ANALYSIS OPTION	1	$810	$810
AUDIO ANALYZER	1	$1,980	$1,980
X2-TDMA TESTING SUITE	0	$9,000	$0
X2-TDMA MOBILE EMULATION	0	$4,500	$0
X2-TDMA BASE STATION AND PARAMETRIC	0	$5,400	$0
FLUKE ES-LAN ETHERSCOPE LAN ANALYZE	1	$12,650	$12,650
PHONE LINE CONTINUITY TESTER	1	$274	$274
SIMULCAST			
FRU: GCP 8000/GCM 8000	1	$4,000	$4,000
FRU: GCP 8000/GCM 8000	1	$4,000	$4,000

GCM 8000 COMPARATOR	1	$2,400	$2,400
ADD: GCM 8000 COMPARATOR	1	$4,000	$4,000
ADD: IP BASED MULTISITE OPERATION	1	$7,200	$7,200
ADD: RACK MOUNT HARDWARE	1	$40	$40
ADD: POWER CABLE, DC	1	$0	$0
DISPATCH CONSOLES			
CERTIFIED KEYBOARD FOR RSD SERVERS AND WORKSTATIONS	1	$38	$38
CERTITIED OPTICAL WHEEL MOUSE FOR RSD SERVERS AND WORKSTATIONS	1	$27	$27
MCC SERIES DESKTOP SPEAKER	1	$360	$360
MCC SERIES DESKTOP GOOSENECK MICROPHONE	1	$200	$200
MCC SERIES HEADSET JACK	1	$160	$160
CERTIFIED MCC7500 FRU VISTA	1	$2,439	$2,439
MCC 7500 VOICE PROCESSOR MODULE FRU	1	$9,464	$9,464
SPARES TOTAL			**$537,240**
REQUIRED TEST EQUIPMENT			
AEROFLEX 3920 2.7 GHZ WITH OPT58	1	$28,305	$28,305
P25 CONVENTIONAL OPERATION MODE	1	$1,980	$1,980
P25 TRUNKING OPERATION MODE 800MHZ	1	$2,160	$2,160
AES/DES ENCRYPTION	1	$1,980	$1,980
LSM CQPSK ANALYSIS SUITE	1	$6,120	$6,120
SIMULCAST ANALYSIS OPTION	1	$810	$810
AUDIO ANALYZER	1	$1,980	$1,980
NETWORK TROUBLESHOOTING UNIT	1	$12,650	$12,650
PHONE LINE CONTINUITY TESTER	1	$274	$274
TEST EQUIPMENT TOTAL			**$56,259**

OPTIONAL RECURRING COSTS			
TECHNICAL SUPPORT YEAR 2		$54,500	$54,500
TECHNICAL SUPPORT YEAR 3		$56,150	$56,150
TECHNICAL SUPPORT YEAR 4		$57,850	$57,850
TECHNICAL SUPPORT YEAR 5		$59,600	$59,600
INFRASTRUCTURE REPAIR YEAR 2		$151,150	$151,150
INFRASTRUCTURE REPAIR YEAR 3		$155,700	$155,700
INFRASTRUCTURE REPAIR YEAR 4		$160,400	$160,400
INFRASTRUCTURE REPAIR YEAR 5		$165,200	$165,200
MICROWAVE SUPPORT YEAR 2		$83,500	$83,500
MICROWAVE SUPPORT YEAR 3		$83,500	$83,500
MICROWAVE SUPPORT YEAR 4		$83,500	$83,500
MICROWAVE SUPPORT YEAR 5		$83,500	$83,500
NICE LOGGING RECORDER LICENSING AND SUPPORT YEAR 2		$72,400	$72,400
NICE LOGGING RECORDER LICENSING AND SUPPORT YEAR 3		$72,400	$72,400
NICE LOGGING RECORDER LICENSING AND SUPPORT YEAR 4		$72,400	$72,400
NICE LOGGING RECORDER LICENSING AND SUPPORT YEAR 5		$72,400	$72,400
RECURRING COST			**$1,484,150**

Additional Sites/Phases Cost Schedule

Site/Phase	Hardware	Services	Licensing	System Level System Integration	System Discount	Shipping	Tax	Totals	Note
Foster City	$324,779	$63,969	$16,000	$90,000	$(49,475)	$3,350	$28,370	$476,993	*
Half Moon Bay PD	$333,827	$63,969	$16,000	$90,000	$(50,380)	$3,455	$29,123	$485,994	*
Hostel Sam	$162,280	$62,255	$16,000	$105,000	$(34,554)	$1,704	$14,842	$327,527	*
Mills Hospital	$325,040	$63,969	$16,000	$90,000	$(49,501)	$3,413	$28,392	$477,313	*
Pescadero	$157,741	$62,255	$16,000	$105,000	$(34,100)	$1,656	$14,464	$323,017	*
Pigeon Point	$160,588	$62,255	$16,000	$105,000	$(34,384)	$1,686	$14,701	$325,846	*
Rolph Hill	$298,538	$71,169	$16,000	$105,000	$(49,071)	$3,135	$26,185	$470,956	*
San Carlos Site 60	$324,431	$63,969	$16,000	$90,000	$(49,440)	$3,407	$28,341	$476,707	*
Skylawn	$327,558	$63,969	$16,000	$90,000	$(49,753)	$3,439	$28,601	$479,815	*
Sweeney Ridge	$325,705	$63,969	$16,000	$90,000	$(49,567)	$3,420	$28,447	$477,973	*
La Honda Verizon	$162,164	$62,255	$16,000	$105,000	$(34,542)	$1,703	$14,832	$327,412	*
Star Hill	$157,741	$62,255	$16,000	$105,000	$(34,100)	$1,656	$14,464	$323,017	*
Pomponio	$157,741	$62,255	$16,000	$105,000	$(34,100)	$1,656	$14,464	$323,017	*
NOC-COB2	$263,395	$151,535	$16,000	$55,607	$(47,054)	$2,766	$21,928	$448,177	*
PSCC	$1,269,721	$163,800	$16,000	$316,661	$(176,618)	$13,202	$107,036	$1,709,802	*
Radio Shop	$114,672	$26,897	$16,000	$45,237	$(18,681)	$1,192	$9,546	$178,864	*
Maguire Jail	$61,825	$21,368	$16,000	$22,618	$(10,581)	$649	$5,147	$101,026	*

Simulcast Optimization Equipment $87,000 $78,300
Master Site Equipment $80,000 $72,000

*System Discount is available for site contract in pairs of two sites at a time (or more) under three-year contract validity. Assumes Phase I executed contract in April 2010.

1. Supplemental System Description, SOW, Detailed Pricing, and Schedule to be provided per each subsequent phase listed above.

Additional System Equipment		
Control Station (70)	$4,864 / unit	$ 340,840
Mobile Repeaters (7)	$14,630 / unit	$ 102,410
Additional Consoles (3)	$61,825 / unit	$ 185,476
Conventional System (800MHz)		$ 3,456,031
Channel Bank Update (Trunked)		$ 348,178
Dynamic Dual Mode		$ 892,800
Subscriber Upgrade (P25 Phase 2)		$ 809,314
Fleetmap		$ 280,000

Notes:
1. Supplemental System Description, SOW, Detailed Pricing, and Schedule required and will be provided per each subsequent phase listed above
2. System Discounts available

Subscriber Equipment	**Quantity**	**Unit**	**Extended**
Mobile:			
APX6500 (Non-Encrypted)	210	$4,529	$951,090
APX7500 (Encrypted)	303	$5,544	$1,679,832
Portable:			
APX6000 (Non-Encrypted)	300	$3,894	$1,168,200
APX7000 (Encrypted)	687	$5,199	$3,571,713
Multi-Band:			
APX7000 (Non-Encrypted)	300	$5,020	$1,506,000
APX7000 (Encrypted)	300	$5,999	$1,799,700
Programming / Install			$406,500
Accessories			$576,791
Tax			$1,040,888
Shipping			$22,505
Total			$12,723,264

Notes:
1. Supplemental System Description, SOW, Detailed Pricing, and Schedule required and will be provided per each subsequent phase listed above
2. System Discounts available

COUNTY OF SAN MATEO

ATTEST:

By:_____
Richard S. Gordon, President, Board of Supervisors, San Mateo County

By:_____
Clerk of Said Board

Date:_____

MOTOROLA, INC.

_____
Contractor's Signature

Date:_____