

**AGREEMENT BETWEEN THE COUNTY OF SAN MATEO AND
MACRO CORPORATION**

THIS AGREEMENT, entered into this _____ day of _____, 20_____,
by and between the COUNTY OF SAN MATEO, hereinafter called "County," and MACRO
CORPORATION, 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 engineering support for a new standards-based (TIA-102 Project 25) compliant 700 MHz (or frequency hybrid) trunked radio system.

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

Exhibit B—Payments and rates

Attachment IP – Intellectual Property

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-HUNDRED SEVENTY-FOUR THOUSTAND SEVEN-HUNDRED SIXTEEN DOLLARS, (\$474,716).

4. Term and Termination

Subject to compliance with all terms and conditions, the term of this Agreement shall be from December 16, 2008, through December 15, 2011.

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 subject to Clause 16. Upon termination, the Contractor may make and retain a copy of such materials. Subject to availability of funding, Contractor shall be entitled to receive payment for work/services provided prior to termination of the Agreement. Upon mutual agreement, such payment shall be that portion of the full payment which is determined by comparing the work/services completed to the work/services required by 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.

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 third party claims, suits, or actions brought for, or on account of: (A) injuries to or death of any person, including Contractor, (B) damage to any tangible property, (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 to the extent directly resulting from negligent acts, willful misconduct or omissions of Contractor in the performance of any work performed under this Agreement, provided that this indemnification shall apply only proportionately to injuries or damage for which County has been found in a court of competent jurisdiction to be liable by reason of its own comparative negligence or willful misconduct, with the amount of Contractor's indemnification limited to its comparative share of the liability. Separate from third-party claims, which are governed by this paragraph, nothing in this paragraph limits the ability of the County to pursue a claim, suit, or action against Contractor for damages or other relief arising out of this Agreement except as otherwise limited by this section.

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.

Except to the extent covered and reimbursed by the policies of insurance provided by Contractor hereunder, the liability of Contractor for any claim whatsoever related to this Agreement, including any cause of action in contract, tort or strict liability, and including any obligations to indemnify County as set forth above, shall not exceed the maximum fiscal obligation (*i.e.*, \$474,716) listed in Section 3, above. In no event shall either party be liable to the other for any consequential, exemplary, special, incidental or punitive damages including, without limitation, lost profits, even if such damages are foreseeable or the damaged party has been advised of the possibility of such damages and regardless of whether any such damages are deemed to result from the failure or inadequacy of any exclusive or other remedy. The amount of this section's limitation on liability will remain applicable, regardless of any amendments increasing the County's maximum fiscal obligation under this Agreement, unless an amendment specifically includes a change to this section's limit on liability.

8. Assignability and Subcontracting

Contractor shall not assign this Agreement or any portion thereof to a third party or subcontract with a third party to provide services required by Contractor under this Agreement without the prior written consent of County. Any such assignment or subcontract without the County's prior written consent shall give County the right to automatically and immediately terminate this Agreement.

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.

- (1) **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.

- (2) **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:

(a) Comprehensive General Liability	\$1,000,000
(b) Motor Vehicle Liability Insurance	\$1,000,000
(c) Professional Liability	\$1,000,000

Except for Professional Liability, County and its officers, agents, 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, agents, 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. Further, Contractor certifies that the Contractor and all of its subcontractors will adhere to all applicable provisions of Chapter 4.106 of the San Mateo County Ordinance Code, which regulates the use of disposable food service ware.

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.

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 examine Contractor's employment records with respect to compliance with this paragraph and/or 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.

Contractor shall report to the County Manager the filing by any person in any court of any complaint of discrimination or the filing by any person of any and all charges with the Equal Employment Opportunity Commission, the Fair Employment and Housing Commission or any other entity charged with the investigation of allegations within 30 days of such filing, provided that within such 30 days such entity has not notified Contractor that such charges are dismissed or otherwise unfounded. Such notification shall include the name of the complainant, a copy of such complaint, and a description of the circumstance. Contractor shall provide County with a copy of their response to the Complaint when filed.

- 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) 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 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. Rights in Contractor-Owned Information or Material

Contractor shall retain and may use the general knowledge acquired as a result of its creation of the work product or the performance of services hereunder, for its general reference, enhancement of its technical capabilities, and for other purposes. Such general knowledge excludes any proprietary information about County-run or local law enforcement-run systems that the County and/or local law enforcement treat as sensitive and confidential information. Any such sensitive and confidential County- or local law enforcement-provided information may be used by the Contractor solely for internal purposes and only in connection with the work and services being performed hereunder, and for no other purpose. All information and material which is owned by Contractor and used by Contractor in the performance of the Agreement shall remain the exclusive property of Contractor whether or not such information or material was incorporated in or used to produce any of the work products delivered under this Agreement. The County is hereby granted a limited, non-exclusive license to use Contractor owned information and material solely for internal purposes and only in connection with the work and services being performed hereunder, and for no other purpose.

17. Changes

During the course of performing the services identified in Exhibit A, County and Contractor may identify changes in Contractor's scope of services, the project's schedule, or the cost of Contractor's services not anticipated by, or identified in, this Agreement. Such changes shall be brought to the attention of both parties immediately. If such changes result in an increase or decrease in services, the time required to perform services, or the compensation for services, then this Agreement shall be modified accordingly in writing in order for such changes to be valid. Notwithstanding any such changes, the not-to-exceed amount of the County's total fiscal obligation under the Agreement cannot be modified by such a change order.

18. Debarment and Suspension

As required by Executive Order 12549 ("Debarment and Suspension"), implemented by 21 CFR Part 1404, and as otherwise required by federal law, 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 statutes 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.

In relation to these requirements, Contractor also hereby certifies to the County under penalty of perjury that it is not subject to any of the three conditions listed above in this Section.

19. 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 States 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:
Sheriff Greg Munks
San Mateo County Sheriff's Office
400 County Center
Redwood City, CA 94063
Fax: 650/363-1868

In the case of Contractor, to:
Mr. George J. Peterman, President
492 Ninth Street, Suite 360
Oakland, CA 94607
Fax:

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: _____
Adrienne J. Tissier, President, Board of Supervisors,
San Mateo County

Date: _____

ATTEST:

By: _____
Clerk of Said Board

MACRO CORPORATION

Contractor's Signature

Date: _____

EXHIBIT A - SERVICES

AGREEMENT BETWEEN COUNTY OF SAN MATEO AND MACRO CORPORATION

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

1. SCOPE OF WORK

Contractor will assist the County with engineering support needed for the design of and implementation/migration to a new, standards-based (TIA-102 Project 25) compliant 700 MHz (or frequency hybrid) trunked radio system.

Contractor will perform/provide the following:

- Provide engineering support through the design and implementation phases of a shared P25 System based on meeting regional interoperability goals, the requirements of the San Mateo Trunked System (SMTS) users, and the requirements of the 19 local police departments (including the four local law mutual aid channels).
- Provide a needs analysis and specifications, incorporating the agencies into a shared County/City P25 network with the minimum goal of retaining comparable coverage and functionality that the agencies/departments currently have.
- Provide a design that will consider and evaluate various P25 configurations and make a recommendation for most effective system design among alternatives like: trunked, conventional, frequency hybrid, or a blending of these variations.
- Develop operational and regional inter-operational requirements.
- Perform activities related to Federal Communications Commission (FCC) licensing and regulatory issues.
- Prepare the functional specifications and technical content for a Request for Proposal.
- Review proposals, provide technical oversight during installation; and
- Provide technical expertise throughout the life of the project.

DESIGN APPROACH AND METHODOLOGY

Contractor will use various forms of methodology, including voice and data radio communications, Computer Aided Dispatch/Automatic Vehicle Location (CAD/AVL), and other technologies in large and complex urban environments like San Mateo.

A key element of the methodology is to understand and identify the needs before developing a solution. Another key element is to conduct each phase of the project with a constant vision into the needs for the next phase.

There will be two design scenarios for this project: 1) SMTS only; and 2) a combination of both SMTS and Local Law Enforcement.

To begin, Contractor will start with discussions and information gathering, including document reviews and discussions with key stakeholders and other knowledgeable parties, to further enhance a thorough understanding of operations and needs for the San Mateo Interoperability Radio Communications (SMIRC).

Through this discovery, Contractor will develop a set of prioritized needs and desired technologies that will be discussed and agreed upon. These needs will form the foundation for the recommendations and specification work that follows.

Once the needs/requirements and desired technologies have been identified, Contractor will develop a conceptual design and develop the necessary engineering cost estimates using current industry cost data. The estimate will include all project-related cost items including software, hardware, radio system equipment, testing, project management, engineering, training, and testing.

PHASE 1: FUNCTIONAL NEEDS ANALYSIS AND DATA GATHERING

Goal: To define the SMIRC's operational requirements for radio communications and to identify all existing systems, equipment, operating conditions, and funding realities.

Contractor will provide a report assessing the problems, needs, and requirements of the existing communications systems. This report must address, but shall not be limited to, the following requirements:

- Document Reviews;
- Stakeholder Interviews;
- Analysis of the current condition of the radio communication systems;
- Characterization of the existing systems and assessment for reuse;
- Review existing FCC license authorizations;
- Review dispatching operations and facilities as they relate to radio system usage and backup availability and options;
- Development of future radio system alternatives and preliminary recommendations;
- Migration Logistics (all key project elements);
- Preliminary coverage for cities;
- Existing site suitability surveys;
- Functional Requirements definition;
- P25/P25 Phase 2 Evaluation;
- Organizational capabilities;
- Regulatory impact issues; and
- Digital audio quality issues.

Task 1.1: Conduct Project Initialization, Kickoff Meeting, and Project Planning

Contractor will conduct a project kickoff meeting, designed for both the SMIRC's project team and Contractor's project team to establish mutual acquaintance, clarify roles, and reach a mutual understanding of the future vision and plans of the SMIRC. Other key objectives of the kick-off meeting include:

- Verifying project and task milestones, schedules and deliverables;
- Scheduling of key stakeholder interviews;

- Collecting all pertinent plans, initiatives, prior reports, memos, letters, surveys, FCC documents, presentation materials, etc. which are relevant to the project;
- Development of plans for surveying radio communications facilities and gathering site data; and
- Collection existing system documentation and license information, including any coverage information that might be available.

Task 1.2: Evaluation of Existing Systems and Functional Design

Contractor will review all relevant documentation describing the existing radio network interfaces made available in this activity. Through the review, Contractor shall develop a thorough understanding of integration and operational requirements. Contractor also plans to identify all ancillary systems that might be reused as the new system is implemented. In addition, Contractor will review the existing licenses and identify any outstanding regulatory issues that will significantly impact the planned project like Region 6 plans.

The goal of this activity is to evaluate all existing wireless infrastructure components throughout the required service area. Contractor will perform this qualitative inventory and evaluation to:

- Identify the various systems, their size and characteristics;
- Determine the scope and the effectiveness of the present communications systems; and
- Determine the degree to which the existing communications systems, equipment, and facilities can be used as part of a new communications infrastructure.

This evaluation forms the basis of the overall recommendations, because the information collected will define each stakeholder agency’s communications needs.

Contractor will specifically analyze the following and other relevant issues that emerge during the work:

- Condition and service history of existing equipment buildings, towers, emergency generators, grounding and radio shelters (radio facilities);
- Location and geographic definition of the radio facilities;
- FCC licenses for mobile systems and interconnections;
- Potential sites for any new or improved coverage requirement;
- Improved internal and external interoperability;
- Existing communications center arrangement and required upgrades (e.g., NFPA 1221);
- Voice channel loading (channel congestion issues); and
- Single point of failure issues.

Task 1.2.1: Functional Design Options for Shared Network

Contractor will explore the following three scenarios.

Scenario 1: All Agencies on a P25 trunked system

This scenario would consider one large or multiple smaller (but tightly-integrated) trunked systems supporting current SMTS users, as well as Local Law Enforcement. As City users are currently on 480 MHz, the transition plan to 700 MHz will be an important consideration. Contractor’s effort would consider temporary “bridges” between existing and

new systems, if practical and reliable. Geographic diversity and redundancy will also be important considerations under this scenario.

Contractor's work would not include any significant operational changes to the various dispatch centers; these would remain autonomous.

Scenario 2: County and Law Mutual Aid on P25 trunked and the Cities would migrate to conventional P25 Primary channels

Under this scenario, conventional Mutual Aid operation (TAC1, 2 and 3, CWMA) would be conducted on the planned trunked system, and all systems would be migrated to 700 MHz. The Cities would migrate their analog systems to P25 digital operation and purchase vehicular and portable radios capable of both trunked and conventional operation. This would allow local cities to build out their own systems that provide targeted coverage, but interoperate when needed. During the 700 MHz transition, both the existing 480 MHz Mutual Aid and the new 700 MHz Mutual Aid talkgroups could be "merged" or bridged for a more graceful transition for all users.

Scenario 3: County on Trunked P25, Law Mutual Aid and Police Departments remain on current platform and procure multi-band radios

This is a similar scenario to what occurred when the County transitioned to trunking, except that it takes one additional step by moving the County users to 700 MHz. However, Cities would purchase multi-band radios that will soon become available. This will allow a single radio to operate on both 480 MHz and 700 MHz. Under this scenario, all City Police Departments and Mutual Aid Systems, consoles, fixed equipment, subscribers, etc. would be replaced. This scenario could also turn out to be a pre-requisite or transitional step to implementing Scenario 1 or 2.

Task 1.3: Perform Site Suitability Surveys of Communication Facilities

Contractor understand that SMIRC wants to leverage the physical facilities that support the radio communication equipment (shelters, towers, power systems, etc.), and these must be considered for possible extended use. Contractor will visit the twenty-three primary dispatch communications centers and up to forty above-ground radio tower sites to ascertain the age, condition and improvement requirements of these facilities. Visits to other key in-structure RF distribution facilities and key communications rooms are also anticipated.

Contractor will work closely with the County's technical representatives to identify any issues affecting the modification and continued use of these sites. While visiting sites, Contractor will survey the existing voice-base stations and attendant antenna system configuration to allow Contractor to properly "baseline" the existing coverage. Property ownership will be established along with site lease or maintenance costs.

Task 1.4: Needs Analysis and Requirements Report in Draft

Contractor will compile all of the gathered information into a Needs Analysis Summary that shall contain the findings of the Phase 1 effort. This summary will be a technical memo supported by relevant databases in either Microsoft Excel or Microsoft Access presented in tabular format.

The report will include the following categories of information:

- Section 1: Task Overview
- Section 2: Needs Analysis
 - Summary of Communications Findings
 - Summary of Interview Findings
 - Summary of Inventory
- Section 3: Coverage and Interoperability
 - Communications Site Surveys
 - Existing Systems
 - Existing FCC Authorizations
 - Existing Network and Facilities
 - Technology and Regulatory Impacts
 - Interoperability Roles Matrix and Methods Matrix
- Section 4: Shared SMTS and City Scenarios
 - Establish Design Scenarios
 - High-level transition plan, pro/con analysis

DELIVERABLE:

Functional Needs Analysis Report - Existing System Summary Report (Final) and Databases; Shared SMTS and City Scenarios

Costing for three scenarios will be provided: 1) All Agencies on P25 trunked system; 2) County and Law Mutual Aid on P25 trunked with migration path for cities to P25 primary channels; and 3) County on trunked P25, Law Mutual Aid and Police Departments remain on current platform and procure multi-band radios. Costing for numbers 2 and 3 include in-kind upgrade to City infrastructures in Task 2.5.

COUNTY RESPONSIBILITIES:

County will review and approve the Functional Needs Analysis Report.

PHASE 2A: SPECIFICATION WRITING AND PROCUREMENT SUPPORT

Goal: To arrive at a jointly-developed, preliminary plan for 700/UHF/VHF Hybrid P25 wireless voice and their supporting ancillary and interconnection systems.

Contractor will recommend solution(s), with preliminary alternatives and recommendations. After the design recommendation is accepted by SMIRC, or an appropriate alternative is mutually defined, Contractor will proceed with the technical design and specification of the replacement radio system.

The system design will include:

- RF Design Criteria;
- System Architecture;
- System Performance Benchmarks;
- Site Recommendations;
- Interconnection Plans;
- Migration Plans;

- Acceptance Testing Plans; and
- Cost Estimate including: Implementation, Life Cycle/Ownership, and Maintenance.

The design approach for engineering will follow standard professional practices, especially for RF coverage, microwave path design, microwave or optical transmission design, DC power system design, and installation practices.

Task 2.1: Conduct Project Management and Direction Meeting

Contractor will meet with SMIRC's project team to discuss the following:

- P25 Standards, Status, and issues (e.g., digital audio);
- Technology and Frequency Plan (includes technologies, frequency bands and interoperability issues);
- Procurement plan for new communications system (sole source, competitive bid versus RFP, etc.);
- Scope of Work review and confirmation; and
- Project implementation schedule and plan.

Task 2.2: Design Criteria and Functional Plan

Contractor's design discussion focuses on radio frequency propagation, interference management, and requirements dependency and the systems and facilities needed to successfully achieve them.

Transmitter Noise and Receiver Desensitization – Intermodulation and Interface (IX) Approach

To perform these analyses, intermodulation and interference (IX) control at each tower site and vehicular radio susceptibility are analyzed. Frequencies resident at a site must be determined and then a worst-case intermodulation study will be conducted based on all known site transmitters and the County's receive frequencies. If an interference problem is found, an interference power level calculation will be made based on transmit power, antenna separation, and filter system being used. Filter requirements will then be specified for use in the procurement specification. Contractor recommends that FCC Class A Vehicular Receivers be deployed in the San Mateo RF environment to reduce IX. Transmitter noise and receiver desensitization IX is calculated when marginal frequency separations are anticipated. TSB-88B carrier-to-interference (C/I) are used with Contractor's coverage prediction tools to confirm that IX from co- and adjacent channels are within FCC stipulated limits.

Receive Signal Level/Prediction Calibration

Samples will be taken in three representative areas of known coverage and in-structure locations as mutually agreed upon.

The methodology employed will measure signals from a transmitter at a site to be designated using a Berkeley Varitronics system equipped with receivers along with a GPS receiver, a quarter-wave (-1 dBd) antenna and a laptop computer. SMIRC will be required to provide one of the UHF transmitters at the designated site in 100 percent duty cycle mode (i.e., continuous carrier) for the duration of the test. The suggestion for

gathering 700 MHz received signal level data would be to obtain from the temporary frequency to be tested. It is expected that the test will not exceed five days in length.

The mobile radio configuration to be used for the test will also be determined based on SMIRC's specific requirements; however, by way of example, it might be: Quarter-wave (6") rooftop mobile antenna, 5' above ground wideband analog portable radio; Helical (3") stub portable antenna worn at belt level, wideband analog.

Raw signal strength data will be taken while moving on foot or in traffic, at a rate of 1 report/second. Each report is the average of all data received during that second, or 512 samples per second. This setting is the most convenient since the internal GPS receiver in the measurement system reports position once per second. Statistically correct data samples, each with a position stamp, can then be obtained and recorded. If this option is exercised, routes to be traveled will be chosen to effectively obtain a sampling of City coverage environments.

Contractor will define the system design based upon a set of design criteria to include but not limited to the following:

- RF Coverage;
- Microwave or Fiber;
- Availability;
- Traffic Capacity;
- Redundancy and Survivability;
- Primary and Reserve Power;
- Projected Growth; and
- Maintainability.

The design work to be performed is focused on achieving SMIRC's stated objectives and as subsequently modified to meet project requirements including:

- Optimally efficient frequency utilization;
- High hardware and software availability, reliability and survivability;
- Easily maintainable, upgradeable, expandable systems;
- Better overall coverage with no geographic restrictions among talkgroups as well as between and among mobile and handheld radio units;
- Up-to-date technology with digital backbone network;
- Open architecture interface(s) to neighboring systems;
- Increased capacity to support voice transmission requirements;
- Improved operational efficiency and flexibility in communications systems;
- Flexibility and simplicity in creating and maintaining interoperability;
- Integration into the local P25 voice core network, as applicable;
- Communications interoperability with Emergency Management Radio Systems, other regional public safety, public services, and special districts as revealed and approved; and
- Capability to interface with other public safety systems and constituent information technology systems.

The radio replacement system will be designed to incorporate key sub-systems requirements. Complimentary requirements will be added as they are identified from the users or from the extensive Contractor radio system design knowledge base of mobile and handheld radios, mobile data terminals, base stations, site upgrades and/or construction, radio antenna tower replacements and/or construction systems and practices.

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Functional Specification Draft - Radio System Functional Plan

Task 2.3: FCC Regulatory Efforts

After working through the prior tasks above, Contractor will have established a clear and complete understanding of SMIRC's existing radio systems and operations, basic coverage requirements, and the current and future needs of the various participating agencies. Contractor's area of concentration is bounded by 26 sites and 30 channels as a composite for regulatory efforts.

Contractor will develop options for a future radio system. In particular, Contractor will explore the following possible technology variations based on County/City requirements:

- Perform Coverage Analysis for Cities prior to visiting sites to minimize costs associated with site visits by visiting only sites that will be used in new system;
- Realign current north/south zoning to bayside/coastal simulcast zones;
- Provide geographic diversity for system controllers to improve survivability;
- Analyze transmitter noise, receiver desensitization, and intermodulation for each site and by the method agreed upon using County-supplied data; and
- Regular on-site face-to-face meetings with SMIRC project team to discuss technical issues.

There is a likelihood that there may be one or more other options, or hybrid designs, which could meet SMIRC's requirements of a methodical and controlled implementation and transition of the replacement radio system.

Regulatory issues will be especially important to this project, and Contractor will address the following general topics:

- The likely availability of licensable channels in the 150, 450, 480, and 700 MHz bands within the SMIRC operating area within Region 6;
- The effect of 700 MHz regional activities and incumbent status in Region 6; and
- Regulatory protections available and their relationship to the type of technology deployed.

Contractor is assuming that SMIRC can obtain FCC authorizations or other agreements to meet radio communications capacity requirements. However, the County anticipates a need to support efforts for frequency coordination and FCC applications before the new radio communications system can be activated. This future decision shall be subject to validation against both the Contractor's conceptual design and the RF designs submitted by radio proposers in response to the procurement solicitation.

Note: Applicants for 700 MHz licenses must submit various showings along with their applications. This includes their build-out plan, proof of funding, and regulatory contour maps.

Task 2.4: Technical Specifications

During this task, the agreed-upon procurement documents shall be developed. These documents define the system to be procured (technical specification) and the procurement process and conditions (Request for Proposals instructions and conditions). It is the objective of these documents to clearly define the system requirements and the content of proposals, so that the proposals received are cost competitive, technically acceptable, and support a thorough and balanced evaluation process. Contractor will provide the Technical Specifications for the procurement of the selected radio system.

The Procurement Package will include:

- Procurement Plan;
- Functional Specifications;
- Technical Specification;
- Vendor List;
- Vendor Instructions;
- Contract Terms and Conditions;
- Vendor Pricing Sheets;
- Tool(s) for Review Process; and
- Request for Proposals (RFP) Notice.

***PHASE 2B: FUNCTIONAL AND PERFORMANCE BASED SPECIFICATION**

Contractor will develop specifications for SMIRC's future 700 MHz/480 MHz/VHF P25 radio system. Contractor will present the advantages and disadvantages of each agreed upon option, and make recommendations, with rationale.

The specifications include:

- Propagation coverage area reliability per TSB-88B, for mobile and portable radios, over the target operational areas as determined by SMIRC, including analysis of up to thirty-one identified and nineteen alternate sites;
- Wireless communications for all departments, and between departments and other agencies as necessary, for interoperability in normal, emergency event, or major incident conditions;
- Interconnection of radio sites to the PSAP/dispatch centers;
- High standard of reliability, through:
 - Distributed processing and geographic diversity of key components
 - Equipment and facilities redundancy and survivability
 - Independence from other communications systems
 - Reparability and maintainability
 - Emergency power arrangements;
- Interoperability with other jurisdictions to the degree practicable and necessary;
- Capable of phased implementation and orderly migration and expansion without loss of service;

- Maximum reuse of existing infrastructure;
- Technology-dependent operating features and system capabilities;
- Acceptable audio quality;
- Public Safety grade of service; and
- Network monitoring and management capability.

The development of a design shall include an analysis of the advantages and disadvantages of agreed upon options.

Radio Coverage Prediction Studies

Contractor will develop computer-generated prediction maps estimating the radio coverage to establish a coverage baseline as well as validate any coverage deficiencies claims reported by users during the survey and interview process. The coverage baseline is important to assure that any new system configuration (changes in antenna systems, orientation or height on the tower, and technology, etc.) maintains coverage in important areas. Coverage verification shall identify critical coverage areas where additional focus will be needed in future design tasks and for system cost considerations. Each participating agency's coverage will need to be identified, as well as the over-arching SMIRC coverage on prediction maps.

Contractor will then develop prediction maps for radio coverage from actual or potential transmit/receive sites, as necessary, to maintain coverage in important existing areas and improve coverage where needed.

Each radio site shall be evaluated independently and in combination with other sites within the County.

The techniques and parameters shall conform to the approach described in the document titled "*Wireless Communications Systems, Performance in Noise and Interference-Limited Situations, Recommended Methods for Technology Independent Modeling, Simulation, and Verification, TSB-88B,*" issued by the Telecommunications Industry Association (TIA). The propagation models shall take into account the terrain characteristics, diffraction, soil conductivity, land use, urban development, foliage, and other factors.

Develop Site Interconnection to Existing Microwave with Path Profiles

Radio coverage is a factor of prime importance in determining the design concept for the replacement of a radio communications infrastructure. Consideration of interconnectivity (licensed or unlicensed microwave, fiber, or other media) becomes a derivative activity. When the radio coverage conceptual design reaches a certain point of high confidence as to its viability (recommended solution), interconnectivity using microwave or other means among the existing facilities shall be evaluated for cost-benefit pertaining to determinations made by SMIRC and Contractor.

Contractor will identify various alternatives to interconnect to the existing backhaul system. Initial path feasibility assessments will be performed using automated in-house modeling tools and a terrain database to establish workable point-to-point path profiles

among system facilities and the dispatch locations.

Task 2.5: Preliminary System and Site Recommendations

Based on the conceptual design and site survey data collected in Phase 1, Contractor will recommend site improvements or new site facilities development to accommodate SMIRC's Radio System Design requirements. This recommendation shall become the anchor point for a more detailed functional specification.

Development of a Phased Migration Plan

Contractor will develop general guidelines for transitioning any new equipment, systems, or facilities necessary for activation of the new radio communications system. The transition plan could include critical aspects of facilities development, system installation, implementing, deploying, activating, and testing the new system with no loss of essential services and with minimum impact on normal operations. The transition plan may include provisions for the vendor's training of system administrators, users, dispatch workstation operators, and maintenance personnel. Discussions about network management and maintenance as they relate to a new network or combined operations may also be included to benefit the SMIRC project in its possible future role as system operator.

Development of a Phased Implementation Schedule

Contractor will provide a phased implementation schedule based upon the specified system solution. The schedule shall include, as required, critical aspects of the project, such as but not limited to the following:

- System Design;
- System Deployment;
- Training;
- System Acceptance Testing;
- System Acceptance; and
- Warranty and on-going support.

The Functional Specification shall define the following major subsystems that are normally associated with a complete and integrated wireless public safety network:

- Repeater/base station equipment;
- Antennas, transmission lines, etc.;
- PSAP/Dispatch requirements;
- Immediate (short-term) backup power;
- Routers, switches and servers;
- Long-term backup power (generator);
- Misc. support hardware (racks, etc.);
- Mobile, portable and fixed radios;
- Standard towers and shelters;
- Leased telephone lines/fiber;
- Microwave (point-to-point) radio; and
- Interoperability Solution.

The Contractor shall develop cost scenarios for the recommended system configuration, including the replacement costs for existing City networks (like-kind; no improvements).

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Final Functional Specifications

*Based upon the findings in Phase 2B, the Cities will determine whether they would like to proceed to the next phases. If the Cities choose not to proceed, the County will proceed to Phase 2C.

COUNTY/CITIES RESPONSIBILITIES

For Phase 2B, Cities will determine whether they want to proceed with the project. If they do not proceed, the County will continue with Phase 2C.

PHASE 2C: TECHNICAL SPECIFICATION

Based on the information gathered, SMIRC and Contractor project teams will reaffirm agreement upon a system for which a detailed design will be developed. The following key considerations will be addressed:

- The most appropriate current technology;
- Radio coverage requirements;
- Radio channel requirements;
- Requirements for radio sites and equipment;
- Requirements for direct radio communications for appropriate interoperability;
- Required system performance, reliability and availability; and
- New radio system cost estimate.

A draft Radio System Design shall be submitted to the SMIRC team for review to ensure all stakeholders are in agreement with the design of the new radio system. Following SMIRC's review of the draft Radio System Design, Contractor will meet with SMIRC to clarify issues and make required adjustments to the requirements and to the draft system design.

Preparation of a Technical Specification for Procurement Documents

The Technical Specification developed under this task shall be functional and performance-based rather than dictate a specific design approach. The Technical Specification defines the functions that need to be supported, the services required, and the performance that must be achieved. Suppliers shall be instructed as to what the radio replacement system must do, but they will not be restricted in how they may meet the functional and performance requirements. This approach enables the suppliers to propose a commercially-viable solution with less cost and risk, as long as the specified requirements are met. The functional and performance requirements documented in the Technical Specification shall be sufficiently detailed to emphasize that clearly and thoroughly presented requirements are to be met.

At a minimum, the Specification shall:

- Be focused on system and facility functional requirements and performance;
- Include determined radio user requirements and functionality;

- Provide for system scalability and integration/interfaces;
- Request integrated modules for future growth;
- System reliability, service, and support requirements;
- Include PSAP/Dispatch interface requirements;
- Characterize a radio solution to meet the call volumes to support agency and interoperability operations;
- Maximize collocation benefits and synergy whenever possible;
- Include legacy system compatibility whenever possible (leverage existing assets and services);
- Maximize redundancy, fault-tolerance, and back-up/recovery capabilities;
- Include Homeland Security interoperability issues and guidelines;
- Provide ability to train both the technical and operational staff, including related training documentation and methodology;
- Provide support requirements and on-going maintenance criteria for both the hardware and software options;
- Validate that vendors have the background in product, scope, and experience to meet SMIRC's system demands; and
- Position SMIRC for a flexible, highly competitive RFP document and procurement process.

Task 2.7: Produce Technical Specification Document – Final

Contractor will update the draft Technical Specification and issue the final document in electronic form to SMIRC for distribution to system providers or integrators. Contractor recommends that SMIRC's Procurement Department prepare the final commercial and RFP documents. The Procurement Documents will be sent to vendors by SMIRC.

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Technical Specification Report

COUNTY RESPONSIBILITIES

The County will review the Technical Specification Report and determine whether or not to proceed with Implementation.

ADDITIONAL OPTIONS:

Option A: Explore/Develop Governance Model for a shared network

Contractor will work with the SMIRC Project Team to identify options for a Governance Model for a shared radio system to be used by the participating agencies. The task will include, but not be limited to:

- Examination of the existing governance structures in place in the County;
- Identification of current cost and stakeholders needs;
- Identification and provision of analysis of various Governance models from existing shared Public Safety Radio Systems (to include: structure, representation, voting, cost analysis, support, maintenance, etc.); and
- Recommendation for a Governance Model that would best fit the needs of the County and participating agencies.

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The Contractor shall produce a Governance Report that details, among other issues, the following:

- Discussion of the applicability of each option to SMIRC;
- A list of the pros and cons of each option;
- Address Service Level Agreements for the stakeholders;
- Recommend the most suitable option; and
- Recommend how to tailor the option to SMIRC needs.

Option B: Ancillary Technical and Administrative Support

This option would allow for services as needed (either by proposed cost or Time and Materials (T & M)). The option will provide a not-to-exceed amount of \$65,000 (roughly 300 hours). Billing against the option would be activated by written request from the County. These dollars would apply for items such as:

- Master Site Engineering Support;
- Development of supplemental 700 MHz Plan;
- Radio Propagation discussion with City Police Departments; and
- Other items that could arise during the course of the project.

The methods and techniques used to provide services to the County are within the Contractor's discretion but are 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 are also left to the Contractor's discretion provided that Contractor coordinates with County departments as needed.

EXHIBIT B – PAYMENTS AND RATES
AGREEMENT BETWEEN COUNTY OF SAN MATEO
AND MACRO CORPORATION

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

1. SCHEDULE OF CHARGES

Phase I	Needs Assessment & Option A Governance	\$239,884	
Phase 1	Contract Award – Notice to Proceed (NTP) (25%)	\$59,971	
Phase 1	Complete Data Gathering & Evaluation Summary (30%)	\$71,965	
Phase 1	Needs & Require Report Draft (30%)	\$71,965	
Phase 1	Needs & Require Report Final (15%)	\$35,983	
	Options and New Tasks	\$29,400	
Option A	Governance Model Report (100% of this Task)	\$29,400	
Note:	Upon Completion of the Needs Report and Governance Model Report, the Cities will make a decision as to whether they wish to proceed in the design. That decision will determine whether the County will proceed with Alternative "A" or "B".	Alternative "A"	Alternative "B"
Phase 2	Specification Development	\$103,163	\$140,432
Phase 2A	Specification Development NTP (25%)	\$25,791	\$35,108
Phase 2B	Functional Design Plan (40%)	\$41,265	\$56,173
Phase 2C	Technical Specification (35%)	\$36,107	\$49,151
	Options		
Option B	Ancillary Technical and Administrative Support	\$65,000	

The County will submit payment within thirty (30) days of receipt of invoice upon the approval of work performed during the billing cycle.

In no event shall total payment under this Agreement exceed \$474,716. 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.