

*STAFF REPORT**CITY OF OCEANSIDE*

DATE: April 1, 2015

TO: Honorable Mayor and City Councilmembers

FROM: Police Department

SUBJECT: **APPROVAL TO ACCEPT \$195,000 IN GRANT FUNDS FROM THE CITY OF SAN DIEGO FOR THE REGIONAL COMMUNICATIONS SYSTEM REPLACEMENT PROJECT**

SYNOPSIS

Staff recommends that the City Council accept \$195,000 in U.S. Department of Homeland Security Urban Area Security Initiative (UASI) grant funds from the City of San Diego awarded to the City for the Regional Communications System (RCS) Microwave Radio Backhaul System; appropriate these funds to the Police Department; approve a Professional Services Agreement in the amount of \$159,868 with Aviat U.S., Inc. (Aviat) for the replacement of RCS microwave transport network; and authorize the City Manager, or designee, to execute all related grant documents and agreements upon receipt of all supporting documents.

BACKGROUND

The Regional Communications System (RCS) provides radio communications service to local public safety agencies in San Diego County, with the exception of the City of San Diego. Operational in 1998, the RCS is approaching its "end of life" and must be replaced. The City Council approved the City's participation in the "Next Gen" RCS project on March 5, 2014. The first phase of the RCS replacement project is to upgrade the RCS microwave transport network to an IP/Ethernet capable network. The RCS microwave transport network connects all the 800MHz RCS radio sites and dispatch centers to the RCS core.

In 2013 the County of San Diego received San Diego Urban Area Security Initiative (UASI) grant funding to upgrade the portion of the microwave network that connects all of the RCS radio sites. In 2014 San Diego UASI funding was awarded for the replacement of the portions of the network that connect the individual dispatch centers to the RCS. During FY 2012/13 the County of San Diego conducted a competitive procurement for the replacement of the RCS microwave transport network, and a contract was subsequently awarded to Aviat.

Because each dispatch center owns the microwave network equipment that connects to the RCS, each City is responsible for the replacement of its existing microwave network equipment. However, the City of San Diego has allocated 2014 UASI grant funds to each City for the replacement of equipment. The City of Oceanside has been allocated

\$195,000 in grant funds for the RCS replacement project to replace the microwave network equipment located at the Oceanside Police Department (OPD). The selected contractor, Aviat, and the pricing for equipment and services is pursuant to the County of San Diego Competitive Solicitation Contract #547601 (piggybacking).

ANALYSIS

The Regional Communications System Replacement Project will allow OPD to replace its current microwave network system, which has reached its "end of life". The City of Oceanside has contracted with Aviat pursuant to the County's Competitive Solicitation Contract #547601 (piggybacking). Aviat will provide hardware and software, system integration, training, and technical services for the Police Department. Aviat, in coordination with OPD, Information Technologies, and the County of San Diego, will schedule the installation services for the replacement of OPD's existing microwave network equipment. The bid from Aviat to complete the City's portion of the project is \$159,868.

FISCAL IMPACT

Acceptance and appropriation of the grant funds in the amount of \$195,000 will allow for OPD to purchase services and equipment for the RCS replacement project without impacting the General Fund. The City of San Diego will reimburse OPD for the approved expenses. The Financial Services Department set up business unit 817142600273.5704 to track expenditures under this Agreement. Reimbursement will be deposited into account 817142600273.4376. There is no requirement for matching funds from the City of Oceanside. The bid from Aviat to complete the City's portion of the project is \$159,868. Additionally, acceptance of the grant funds for this project will reduce the expected City's costs for participation in the "Next Gen" RCS project originally anticipated for expenditure in FY 2016/17 by a similar amount.

INSURANCE REQUIREMENTS

Standard insurance requirements will be met.

COMMISSION OR COMMITTEE REPORT

The Police and Fire Commission will be advised of this matter at its regular meeting on April 16, 2015.

CITY ATTORNEY'S ANALYSIS

The referenced documents have been reviewed by the City Attorney and approved as to form.

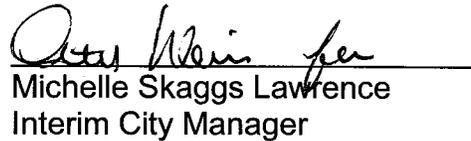
RECOMMENDATION

Staff recommends that the City Council accept \$195,000 in U.S. Department of Homeland Security Urban Area Security Initiative (UASI) grant funds from the City of San Diego awarded to the City for the Regional Communications System (RCS) Microwave Radio Backhaul System; appropriate these funds to the Police Department; approve a Professional Services Agreement in the amount of \$159,868 with Aviat U.S., Inc. (Aviat) for the replacement of RCS microwave transport network; and authorize the City Manager, or designee, to execute all related grant documents and agreements upon receipt of all supporting documents.

PREPARED BY:


Yaday Velazco
Program Specialist

SUBMITTED BY:


Michelle Skaggs Lawrence
Interim City Manager

REVIEWED BY:

Darryl Hebert, Fire Chief
Peter Lawrence, Fire Battalion Chief
Frank S. McCoy, Chief of Police
Jane McPherson, Interim Financial Services Director



ATTACHMENTS:

Attachment A – City of Oceanside’s Contractor Services Agreement

CITY OF OCEANSIDE
CONTRACTOR SERVICES AGREEMENT

PROJECT: AGREEMENT TO PROVIDE HARDWARE AND SOFTWARE, SYSTEM INTEGRATION, TRAINING, AND TECHNICAL SERVICES FOR THE CITY OF OCEANSIDE POLICE DEPARTMENT FOR A PUBLIC SAFETY MICROWAVE RADIO BACKHAUL SYSTEM (“Agreement”)

This Agreement, dated _____, 2015 for identification purposes, is made and entered into by and between the CITY OF OCEANSIDE, a municipal corporation, hereinafter designated as “CITY”, and AVIAT U.S., INC, hereinafter designated as “CONTRACTOR”.

RECITALS

- A. WHEREAS, CONTRACTOR has entered into a primary contract with the County of San Diego for a microwave radio backhaul system (“System”) to provide transport services for numerous mission critical public safety voice and data systems including all services, hardware, package software, system configuration and integration, training, testing, and documentation requirements as set forth in Statement of Work (“Project”).
- B. WHEREAS, CITY likewise requires a microwave radio backhaul system to provide transport services for numerous mission critical public safety voice and data systems including all services, hardware, package software, system configuration and integration, training, testing, and documentation requirements as set forth in Statement of Work
- C. WHEREAS, CITY desires to contract with CONTRACTOR as an independent contractor and CONTRACTOR desires to provide services to CITY as an independent contractor.
- D. WHEREAS, CONTRACTOR has demonstrated its competence and professional qualifications necessary for the satisfactory performance of the services designated herein by virtue of its experience, training, education and expertise to the County of San Diego through the competitive procurement process.

NOW THEREFORE, THE PARTIES MUTUALLY AGREE AS FOLLOWS:

- 1. **PROCUREMENT:** The County of San Diego conducted a competitive procurement for the replacement of the RCS microwave transport network in FY12/13. A contract was subsequently awarded to Aviat Networks, Inc. This contract, County Contract Number 547601 Agreement with Aviat U.S. Inc. For

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Microwave Network Replacement, contains a "public agency clause," and is attached hereto as **Exhibit A** and incorporated herein by reference. Pricing for equipment and services is based on County Contract 547601 and is more fully set forth in Section 3.

2. **SCOPE OF WORK.**

- 2.1. The Regional Communications System (RCS) provides radio communications service to local public safety agencies in San Diego County (with the exception of the City of San Diego). Originally constructed in 1998, the RCS is approaching "end of life" and must be replaced. The first phase of the R C S replacement project is to upgrade the RCS microwave transport network to an IP/Ethernet capable network. The RCS microwave transport network connects all the 800MHz RCS radio sites and dispatch centers to the RCS core.
- 2.2. The project is more particularly described as follows: CONTRACTOR shall, in a good and workmanlike manner and in accordance with the highest professional standards, at its own cost and expense, provide, install, make operational and implement the System, and provide all Deliverables and Services in accordance with the terms of this Agreement and the "Statement of Work," attached hereto as **Exhibit B**.
- 2.3. Consultant acknowledges that DHS/FEMA reserves a royalty-free, nonexclusive, and irrevocable license to reproduce, publish, or otherwise use, and authorize others to use, for Federal government purposes: a) the copyright in any work developed under an award or sub-award; and b) any rights of copyright to which a recipient or sub-recipient purchases ownership with Federal support. The recipient must affix the applicable copyright notices of 17 U.S.C. section 401 or 402 and an acknowledgement of Government sponsorship (including award number) to any work first produced under Federal financial assistance awards, unless the work includes any information that is otherwise controlled by the Government (e.g. classified information or other information subject to national security or export control laws or regulations). The recipient agrees to consult with DHS/FEMA and Cal OES regarding the allocation of any patent rights that arise from, or are purchased with, this funding.

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Any new equipment or deliverable that will ultimately be paid for with grant funds shall therefore be clearly marked as a grant asset on the equipment itself.

3. **COMPENSATION.** CONTRACTOR'S compensation for all work performed in accordance with this Agreement, shall not exceed the total contract price of \$159,868.00, as set forth in PRICING FOR SERVICES AND EQUIPMENT RE: DISPATCH SPUR LINK CONNECTING OCEANSIDE ABBEY & OCEANSIDE, attached hereto as **EXHIBIT C** and incorporated herein by reference.

3.1 The CITY shall make payment to the CONTRACTOR as follows: (1) For Equipment as detailed in **Exhibit C**, delivery to be FOB Destination, CONTRACTOR to invoice upon shipment, payable net thirty (30) days from acceptance of Equipment, acceptance to be determined within ten (10) calendar days of delivery, transfer of title and risk of loss shall pass to CITY upon acceptance of delivery; and (2) For Services as detailed in **Exhibit C**, Aviat to invoice upon completion of all work described in the Scope of Work (**Exhibit B**), payable net thirty (30) calendar days from acceptance of Services, acceptance to be determined within thirty (30) calendar days from completion of Services. No work shall be performed by CONTRACTOR in excess of the total contract price without prior written approval of the CITY. CONTRACTOR shall obtain approval by the CITY prior to performing any work that results in incidental expenses to CITY.

3.2 If any Deliverable or Service identified in the Scope of Work (**Exhibit B**) is not achieved by the date set forth in Section 11 below or such further extension as mutually agreed-upon by CITY and CONTRACTOR, such failure will interfere with the proper implementation of CITY'S plans and will negatively impact CITY'S business processes, and will result in loss and damage to CITY. As it would be impracticable to fix the actual damage sustained in the event of any such failure(s), in particular, loss of grant funding, the Parties agree that in the event of any such failure(s) that result from the actions, inaction, or conduct of CONTRACTOR, the amount of damage that will be sustained by CITY will be an amount equal to the amount of grant funding the CITY loses due to the failure of CONTRACTOR to complete the Project in a timely manner (the "Liquidated Damages"). The Parties agree that, in the event of the failure to achieve a Deliverable or Service by the scheduled date, CONTRACTOR shall pay to CITY the amount of the Liquidated Damages. CONTRACTOR shall pay accrued, unpaid Liquidated Damages (if any) to CITY within three

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(3) business days after receipt of notice and demand for payment thereof from CITY. CONTRACTOR may, in its discretion, offset against any payments otherwise due to CONTRACTOR, if any, the amount of any Liquidated Damages accrued and owing to CITY. Liquidated Damages pursuant to this Agreement shall not accrue for delays caused by *Force Majeure* or such other excusable delays caused by CONTRACTOR or such delays caused by CITY.

4. **INDEPENDENT CONTRACTOR.** CONTRACTOR'S relationship to the CITY shall be that of an independent contractor. CONTRACTOR shall have no authority, express or implied, to act on behalf of the CITY as an agent, or to bind the CITY to any obligation whatsoever, unless specifically authorized in writing by the CITY. CONTRACTOR shall be solely responsible for the performance of any of its employees, agents, or subcontractors under this Agreement. CONTRACTOR shall report to the CITY any and all employees, agents, and consultants performing work in connection with this project, and all shall be subject to the approval of the CITY.
5. **ORDER OF PRECEDENCE:** In the event of any conflict between this Agreement and any of the Exhibits/Appendices hereto or documents referenced herein, the terms and provisions of this Agreement shall control, then County Contract (**Exhibit A**).
6. **TERM OF AGREEMENT:** This Agreement will be effective on the date of Agreement signing and shall continue, with respect to the System implementation and development and warranty services, until the expiration of the Seven (7) Year Warranty Period for the System.
7. **LIABILITY INSURANCE.**
 - 7.1. CONTRACTOR shall, throughout the duration of this Agreement maintain comprehensive general liability and property damage insurance, or commercial general liability insurance, covering all operations of CONTRACTOR, its agents and employees, performed in connection with this Agreement including but not limited to premises and automobile.
 - 7.2. CONTRACTOR shall maintain liability insurance in the following minimum limits:

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Comprehensive General Liability Insurance
(bodily injury and property damage)

Combined Single Limit Per Occurrence	\$ 1,000,000
General Aggregate	\$ 2,000,000*

Commercial General Liability Insurance
(bodily injury and property damage)

General limit per occurrence	\$ 1,000,000
General limit project specific aggregate	\$ 2,000,000

<u>Automobile Liability Insurance</u>	\$ 1,000,000
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*General aggregate per year, or part thereof, with respect to losses or other acts or omissions of CONTRACTOR under this Agreement.

- 7.3 If coverage is provided through a Commercial General Liability Insurance policy, a minimum of 50% of each of the aggregate limits shall remain available at all times. If over 50% of any aggregate limit has been paid or reserved, the CITY may require additional coverage to be purchased by the CONTRACTOR to restore the required limits. The CONTRACTOR shall also notify the CITY promptly of all losses or claims over \$25,000 resulting from work performed under this contract, or any loss or claim against the CONTRACTOR resulting from any of the CONTRACTOR'S work.
- 7.4 All insurance companies affording coverage to the CONTRACTOR for the purposes of this Section shall add the City of Oceanside as "additional insured" under the designated insurance policy for all work performed under this agreement. Insurance coverage provided to the City as additional insured shall be primary insurance and other insurance maintained by the City of Oceanside, its officers, agents, and employees shall be excess only and not contributing with insurance provided pursuant to this Section.
- 7.5 All insurance companies affording coverage to the CONTRACTOR pursuant to this agreement shall be insurance organizations admitted by the Insurance Commissioner of the State of California to transact business of insurance in the state or be rated as A-X or higher by A.M. Best.

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- 7.6 CONTRACTOR shall provide thirty (30) days written notice to the CITY should any policy required by this Agreement be cancelled before the expiration date. For the purposes of this notice requirement, any material change in the policy prior to the expiration shall be considered a cancellation.
- 7.7 CONTRACTOR shall provide evidence of compliance with the insurance requirements listed above by providing, at minimum, a Certificate of Insurance and applicable endorsements, in a form satisfactory to the City Attorney, concurrently with the submittal of this Agreement.
- 7.8 CONTRACTOR shall provide a substitute Certificate of Insurance no later than thirty (30) days prior to the policy expiration date. Failure by the CONTRACTOR to provide such a substitution and extend the policy expiration date shall be considered a default by CONTRACTOR and may subject the CONTRACTOR to a suspension or termination of work under the Agreement.
- 7.9 Maintenance of insurance by the CONTRACTOR as specified in this Agreement shall in no way be interpreted as relieving the CONTRACTOR of any responsibility whatsoever and the CONTRACTOR may carry, at its own expense, such additional insurance as it deems necessary.
8. **WORKERS' COMPENSATION.** Pursuant to Labor Code section 1861, the CONTRACTOR hereby certifies that the CONTRACTOR is aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that Code, and the CONTRACTOR will comply with such provisions, and provide certification of such compliance as a part of this Agreement.
9. **CONTRACTOR'S INDEMNIFICATION OF CITY.** To the greatest extent allowed by law, CONTRACTOR shall indemnify and hold harmless the CITY and its officers, agents and employees against all claims for damages to persons or property arising out of the negligent acts, errors or omissions or wrongful acts or conduct of the CONTRACTOR, or its employees, agents, subcontractors, or others in connection with the execution of the work covered by this Agreement, except for those claims arising from the willful misconduct, sole negligence or active negligence of the CITY, its officers, agents, or employees. CONTRACTOR'S indemnification shall include any and all costs, expenses, attorneys' fees, expert fees

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and liability assessed against or incurred by the CITY, its officers, agents, or employees in defending against such claims or lawsuits, whether the same proceed to judgment or not. Further, CONTRACTOR at its own expense shall, upon written request by the CITY, defend any such suit or action brought against the CITY, its officers, agents, or employees resulting or arising from the conduct, tortious acts or omissions of the CONTRACTOR.

CONTRACTOR'S indemnification of CITY shall not be limited by any prior or subsequent declaration by the CONTRACTOR.

10. **OWNERSHIP OF DOCUMENTS.** All plans and specifications, including details, computations and other documents, prepared or provided by the CONTRACTOR under this Agreement shall be the property of the CITY, except to the extent such items are pre-existing property of CONTRACTOR (for example, forms used by Contractor to convey information/data that becomes CITY property, but the forms remain CONTRACTOR property.). CONTRACTOR shall retain ownership of such pre-existing property.. The CITY agrees to hold the CONTRACTOR free and harmless from any claim arising from any use, other than the purpose intended, of the plans and specifications and all preliminary sketches, schematics, preliminary plans, architectural perspective renderings, working drawings, including details, computation and other documents, prepared or provided by the CONTRACTOR. CONTRACTOR may retain a copy of all material produced under this Agreement for the purpose of documenting CONTRACTORs participation in this project.
11. **TIMING REQUIREMENTS.** Time is of the essence in the performance of work under this Agreement and the timing requirements shall be strictly adhered to unless otherwise modified in writing. All work shall be completed in every detail to the satisfaction of the CITY within six calendar months or, under no circumstances, later than October 31, 2015.
12. **ENTIRE AGREEMENT.** This Agreement, including all Exhibits hereto and/or referenced and incorporated herein, comprises the entire integrated understanding between CITY and CONTRACTOR concerning the work to be performed and services to be provided for this project and supersedes all prior negotiations, representations, or agreements.
13. **INTERPRETATION OF THE AGREEMENT.** The interpretation, validity and enforcement of the Agreement shall be governed by and construed under the laws of the State of California. The Agreement does not limit any other rights or remedies available to CITY. The CONTRACTOR shall be responsible for complying with

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all local, state, and federal laws whether or not said laws are expressly stated or referred to herein.

Should any provision herein be found or deemed to be invalid, the Agreement shall be construed as not containing such provision, and all other provisions, which are otherwise lawful, shall remain in full force and effect, and to this end the provisions of this Agreement are severable.

14. **AGREEMENT MODIFICATION.** This Agreement may not be modified orally or in any manner other than by an agreement in writing signed by the parties hereto.
15. **TERMINATION OF AGREEMENT.** Upon five (5) days notice, the City may terminate this Agreement for cause, which shall include but not be limited to breach of any term or any grant assurance contained in this Agreement. CONTRACTOR shall have ten (10) days upon receipt of Notice to Terminate to cure the default to the satisfaction of the CITY. If the default is not so cured, the Agreement shall be deemed terminated at midnight on the 10th day after receipt of said Notice to Terminate. The provisions of Section 3.2 shall apply in the event the Agreement is terminated for cause.

Upon thirty (30) days' written notice to the CONTRACTOR, the CITY may, without cause and without prejudice to any other of the CITY's rights or remedies, terminate this Agreement. Upon the service of a notice of termination, which shall include an effective date of termination, the CONTRACTOR shall discontinue the work in the manner, sequence, and at such times as directed by the CITY's project manager. The CONTRACTOR shall remain responsible for the quality and fitness of the work performed by the CONTRACTOR before termination of the Agreement. All requirements of the Agreement pertaining to work completed or to be completed as of the time of termination shall survive the termination, including without limitation all indemnities, warranties, requirements for preparation of record drawings and completion of any "punch list" items directed by the CITY's project manager.

If any portion of the work is terminated or abandoned by the CITY, then the CITY shall pay CONTRACTOR for any work completed up to and including the date of termination or abandonment of this Agreement. The CITY shall be required to compensate CONTRACTOR only for work performed in accordance with the Agreement up to and including the effective date of termination, and for any work that may be directed by CITY as described in the paragraph of this section 16 to be performed by CONTRACTOR after the effective date of termination.. Notwithstanding the foregoing, the CONTRACTOR shall not be entitled to recover

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any loss of anticipated profit or revenue or other economic loss arising out of or resulting from the termination, including without limitation any claim for anticipated profits on the work not performed or lost business opportunity.

- 16. FEDERAL GRANT FUNDING REQUIREMENTS:** CONTRACTOR is advised that funding for this Agreement is provided by the Homeland Security Grant Program. CONTRACTOR and CITY shall comply with all applicable Grant requirements, including, without limitation, those set forth in 44 CFR 13.36(i), to the extent applicable, and including the following:
- 16.1.** CONTRACTOR shall take the affirmative steps listed in 44 CFR 13.36(e)(2)(i)-(v) to assure that minority firms, women's business enterprises, and labor surplus area firms are used when possible.
 - 16.2.** CONTRACTOR shall comply with Executive Order 11246 of September 24, 1965, entitled "Equal Employment Opportunity," as amended by Executive Order 11375 of October 13, 1967, and as supplemented in Department of Labor regulations (41 CFR chapter 60.)
 - 16.3.** CONTRACTOR shall comply with the Copeland "Anti- Kickback" Act (18 U. S. C. 874) as supplemented in Department of Labor regulations (29 CFR Part 3.) (All contracts and subgrants for construction or repair.)
 - 16.4.** CONTRACTOR shall comply with the Davis- Bacon Act (40 U. S. C. 276a to 276a-7) as supplemented by Department of Labor regulations (29 CFR Part 5.) (Construction contracts in excess of \$2000 awarded by grantees and subgrantees when required by Federal grant program legislation.)
 - 16.5.** CONTRACTOR shall comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U. S. C. 327-330) as supplemented by Department of Labor regulations (29 CFR Part 5.) (Construction contracts awarded by grantees and subgrantees in excess of \$2000, and in excess of \$2500 for other contracts which involve the employment of mechanics or laborers.)
 - 16.6.** CONTRACTOR shall comply with notice of awarding agency requirements and regulations pertaining to reporting and with patent rights with respect to any discovery or invention which arises or is developed in the course of or under such contract.

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- 16.7.** CONTRACTOR shall provide access to CITY, the federal granting agency, the State of California granting agency, the City of San Diego, the County of San Diego, the Comptroller General of the United States, and any of their duly authorized representatives to any books, documents, papers, and records of the CONTRACTOR which are directly pertinent to this Agreement for the purpose of making audit, examination, excerpts, and transcriptions.
- 16.8.** CONTRACTOR shall retain all records pertaining to this Agreement for three years after CITY makes final payments and all other pending matters are closed.
- 16.9.** CONTRACTOR shall comply with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR part 15).
- 16.10.** CONTRACTOR shall comply with all mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. L. 94-163, 89 Stat. 871).
- 16.11.** Pursuant to 44 CFR 13.36(i)(7), CITY hereby notifies CONTRACTOR that the U.S. Department of Homeland Security requires CITY to submit financial, progress, and strategy implementation reports for all U.S. Department of Homeland Security funded projects in accordance with Homeland Security Grant Program Guidance.
- 16.12.** CONTRACTOR shall comply with the requirements of 31 U.S.C. § 3729, which set forth that no subgrantee, recipient or subrecipient of federal payments, shall submit a false claim for payment, reimbursement, or advance. Administrative remedies may be found in 38 U.S.C. §§ 3801-3812, addressing false claims and statements made.
- 16.13.** CONTRACTOR agrees that all publications created or published with funding under this grant shall prominently contain the following statement:
"This document was prepared under a grant from FEMA's Grant Programs Directorate, U.S. Department of Homeland Security. Points of view or opinions expressed in this document are those of the authors and do not

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necessarily represent the official position or policies of FEMA's Grant Programs Directorate or the U.S. Department of Homeland Security." The recipient also agrees that, when practicable, any equipment purchased with grant funding shall be prominently marked as follows: "Purchased with funds provided by the U.S. Department of Homeland Security."

16.14. CONTRACTOR shall comply with all applicable requirements of the Office of Emergency Services' FY 2014 Grant Assurances, attached to County Contract 547601, which is incorporated herein by reference.

16.17. The CITY and CONTRACTOR agree to comply with The Memorandum of Understanding Between the City of San Diego Office of Homeland Security and the City of Oceanside FY14 Urban Area Security Initiative (UASI) Grant Funding, including the Grant Assurances for Urban Area Security Initiative, which is hereby incorporated by reference.

17. NOTICES. Notices pursuant to this AGREEMENT shall be given in person or sent by certified mail, postage prepaid, return receipt requested, addressed to the party to be notified at the address specified herein:

To CITY:

Chief of Police
Oceanside Police Department
3855 Mission Avenue
Oceanside, California 92058

To CONTRACTOR:

Contracts Manager, Legal Department.
Aviat U.S., Inc
5200 Great America Parkway
Santa Clara, CA 95037

Notice shall be deemed to have been served upon personal service or, if deposited in the mail, on the third business day after the same has been deposited in the United States Postal Service. This shall be valid and sufficient service of notice for all purposes

18. SIGNATURES. The individuals executing this Agreement represent and warrant that they have the right, power, legal capacity and authority to enter into and to execute this Agreement on behalf of the respective legal entities of the CONTRACTOR and the CITY.

IN WITNESS WHEREOF, the parties hereto for themselves, their heirs, executors, administrators, successors, and assigns do hereby agree to the full performance of the

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covenants herein contained and have caused this Professional Contractor Services Agreement to be executed by setting hereunto their signatures on the dates set forth below.

By: AVIAT U.S., Inc.
Kevin Holwell,
Vice President of Finance

By: CITY OF OCEANSIDE
Michelle Skaggs Lawrence,
Interim City Manager

By: _____
Name/Title

APPROVED AS TO FORM:

City Attorney

NOTARY ACKNOWLEDGMENT OF CONTRACTOR MUST BE ATTACHED.

EXHIBIT A

County Contract Number 547601

**COUNTY CONTRACT NUMBER 547601
AGREEMENT WITH AVIAT U.S., INC. FOR
MICROWAVE NETWORK REPLACEMENT**

This AGREEMENT TO PROVIDE HARDWARE AND SOFTWARE, SYSTEM INTEGRATION, TRAINING, AND TECHNICAL SERVICES FOR THE SAN DIEGO COUNTY SHERIFF FOR A PUBLIC SAFETY MICROWAVE RADIO BACKHAUL SYSTEM ("Agreement") is made effective as of this 14th day of February, 2014 ("Effective Date") by and between AVIAT U.S., INC. a wholly owned subsidiary of Aviat Networks, Inc., incorporated in Delaware, located at 5200 Great America Parkway, Santa Clara, CA 95054 ("Contractor"), and the COUNTY OF SAN DIEGO, a political subdivision of the State of California, having its administrative headquarters at 1600 Pacific Highway, San Diego, CA 92101 ("County"), with reference to the following facts:

RECITALS

- A. The County requires a microwave radio backhaul system ("System") to provide transport services for numerous mission critical public safety voice and data systems including all services, hardware, package software, system configuration and integration, training, testing, and documentation requirements as set forth in Exhibit A, Statement of Work ("Project").
- B. The County, by action of the Board of Supervisors Minute Order No. 1, June 25, 2013 authorized the Director, Department of Purchasing and Contracting to award a contract for equipment and services.
- C. To meet these requirements, Contractor shall provide its existing System.
- D. Contractor has specially trained personnel possessing the skills, experience, education, and competency required to perform the services described in this Agreement.
- E. The Agreement shall consist of this pro forma agreement, Exhibit A Statement of Work, Exhibit B Insurance and Bonding Requirements, Exhibit C Pricing Schedule, and Exhibit D AviatCare Services Summary dated January 16, 2014, Exhibit E Aviat Statement of Work Release 3.1 dated January 16, 2014; Exhibit F Aviat Networks Software License Grant; Exhibit G Cisco End User Agreement; Contractor's Response to Request for RFP Clarification Request No. 2 dated November 19, 2013 and Contractor's Technical Proposal in response to RFP 6096 which are hereby incorporated herein by this reference and made a part of this Agreement.

NOW THEREFORE, for valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

PART 1 GENERAL

ARTICLE 1 - DEFINITIONS

Accept/Acceptance shall have the meaning as described in Article 5 of this Agreement.

Acceptance Certificate shall have the meaning set forth in Section 5.9, "Issuance of Acceptance Certificate."

Acceptance Test shall mean the two sets of formal test or tests developed at Staging Acceptance, and System Acceptance pursuant to the provisions of Article 5 ("Acceptance Procedure and Standard of Performance") by which County shall accept or reject the System.

Proposal shall mean the proposal submitted by Contractor on October 15, 2013.

COTR shall mean the Contracting Officer's Technical Representative and shall be the individual designated by the County, as described in Article 10, "Program Management," who will be the Contractor's point of contact with the County for this Project.

Change shall mean a modification to this Agreement requested under Article 14 ("Changes").

Change Order shall mean the written orders more particularly described in Article 14 ("Changes").

Conforms/Conforming shall mean the compliance of a particular Deliverable provided by Contractor with the applicable portion of the Specifications.

Contract Price shall have the meaning set forth in Article 12 ("Pricing and Payment").

Contracting Officer shall mean the Director, Department of Purchasing & Contracting, or his designee.

Contractor Personnel shall mean employees of Contractor or of any Subcontractor.

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Contractor's Key Employees shall mean those persons affiliated with Contractor and designated by County in Article 10.6 ("Key Employees").

Contractor's Representative shall mean that individual designated by the Contractor, as described in Article 10, "Program Management," as responsible for administering and coordinating this Agreement for Contractor, including all major decisions related to this Agreement, as well as the day-to-day management of the work to be performed under this Agreement.

County Personnel shall mean employees of County and any third party independent contractors engaged by County to perform any of County's obligations hereunder.

Detailed Design Review occurs when the parties have agreed upon the finalized Technical System Design Document to be incorporated herein, and the final system design has been completed.

Deliverable shall mean Documentation, a unit or component of the System, including, but not limited to Hardware, Software, training module or other specified task or tangible product to be delivered hereunder, as described in any Project, Work and/or Implementation Plan(s), the Specifications or elsewhere in this Agreement. Deliverables requiring payments by County are identified in Article 12.

Documentation shall mean the documentation developed in the course of services provided, including, without limitation, the technical drawings, diagrams, configuration files, operations and maintenance manuals, training documentation, and other documentation which shall be sufficient to permit a reasonably skilled individual to operation and maintain the System.

Effective Date shall mean the date of Agreement signing unless otherwise specified in the Agreement.

Error shall mean any failure of any particular Deliverable or of the System as a whole to Conform.

Final Project Acceptance shall mean that Contractor has completed all required work and provided all Deliverables and County has received all Deliverables.

Factory Testing shall mean the testing conducted at the factories on individual system components (Hardware or Software) prior to shipment to the Contractor's staging facility.

GANTT Chart shall mean the description of Tasks, allocation of responsibility and time by which such is to be completed, such Deliverable to be delivered or other Milestone met, in a graphic form in such format as is customarily used in the industry. Microsoft® Project may be used for purposes of tracking and reporting.

Hardware shall mean the System equipment provided pursuant to this Agreement.

Implementation Plan shall mean the then-current document delivered by Contractor and Accepted by County pursuant to Article 4 ("Development of Implementation Plan") hereunder to include Tasks/Deliverables and Milestones for the Project.

Installed/Installation shall mean completion of installation of System components represented by Contractor to be installed and operational.

Material Deficiencies shall mean the lack of functionality necessary for the System to perform the essential business duties of County of San Diego as defined by Exhibit A - Statement of Work.

Milestone shall mean the date by which a Deliverable is required to be delivered hereunder or by which a specific Deliverable shall have passed the applicable Acceptance Test therefor as set forth in this Agreement or the Implementation Plan.

Payment Schedule shall mean that schedule provided in Article 12 "Pricing and Payment" which sets forth the payments which shall be made upon completion and/or Acceptance of specified Deliverables as applicable, and the System as a whole.

Project shall mean the development work to be performed and all other tasks to be performed as necessary or appropriate to deliver, install and make operational the System, all as is described in this Agreement, the Specifications, the Contractor's Technical System Design Document, and the Implementation Plan.

Resources shall mean the specific personnel and hours per personnel which both the Contractor and the County are required to contribute to the Project, as described in Article 10 ("Program Management"), the Implementation Plan, the Statement of Work, or the Specifications.

RFP shall mean the County's Request for Proposals No. 6096, dated August 1, 2013, and as subsequently amended.

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Software shall mean an ordered series of instructions or statements, in object code or source code form, as the case may be, for controlling the operation of a central processing unit to execute a process to be performed on hardware, network System or otherwise required to be delivered by Contractor under the terms hereof, which for the purposes of this Agreement shall consist of System Software.

Specifications shall mean the technical and functional specifications describing the features, functionality and processing capabilities of the System, and the identification of any software and hardware requirements needed to implement such features, functionality and processing capabilities, as described in the Statement of Work, Exhibit A, Contractor's Technical Proposal, and Contractor's Technical System Design Document to be finalized at Detailed Design Review as such capabilities are amended through the Change Order Process; and with respect to Hardware and Operating System Software, shall mean the manufacturer's specifications therefor.

Statement of Error shall mean a written description of nonconformance delivered by County to Contractor ("Description of Nonconformance").

Status Reports shall mean: (i) Project Plans updated biweekly, and (ii) a biweekly status report which documents past and future project activities including, without limitation, the current status of achieving Milestones, Deliverables, payment schedule, issues requiring attention, GANTT chart and action items for the next and upcoming status report periods.

Subcontractor shall mean an independent contractor who furnishes supplies or services to Contractor pertaining to this Agreement other than standard commercial supplies, office space and printing services.

Staging Acceptance shall mean the completion of system level testing performed on the integrated System components in Contractor's facility.

System shall mean the microwave radio backhaul network including all hardware and software supplied by Contractor pursuant to this Agreement.

System Acceptance shall mean that County has accepted the essential technical and functional requirements of the Specifications for the System, as evidenced by a Certificate of System Acceptance executed by the COTR.

System Software shall mean Software, which meets the Specifications described in Exhibit A, whether developed by Contractor or a third-party ("Third Party Software"), commonly known as operating System software, which governs the operation of the Hardware.

Task shall mean a component part of the Project, as described in the Implementation Plan.

Technical Proposal shall mean that proposal submitted by Contractor in response to the RFP.

Technical System Design Document (TSDD) shall mean the document(s) used by Contractor to build the System as outlined in the submitted Contractor's Technical Proposal and post award design meetings.

Third Party Software shall mean the Software delivered by Contractor hereunder which Software is not owned by Contractor but is obtained by Contractor for incorporation into the System and delivered under third party license agreement.

Warranty Period shall mean the period during which the warranty of Contractor is in effect with respect to Software and Hardware, as set forth in Article 8 ("Warranty") hereof.

ARTICLE 1A – ORDER OF PRECEDENCE

In the event of any conflict between this Agreement and any of the Exhibits/Appendices hereto or documents referenced herein, the terms and provisions of this Agreement shall control and, in the event of a conflict among the remaining documents, the documents shall govern in the following order:

1. Amendments to this agreement, in reverse chronological order; then
2. This Agreement (including exhibits, appendices and attachments hereto); then
3. Exhibit A, Statement of Work; then
4. Exhibit B, Insurance and Bonding Requirement; then
5. Exhibit C, Pricing Schedule; then
6. Exhibit D AviatCare Services Summary dated January 16, 2014; then
7. Exhibit E Aviat Statement of Work Release 3.1 dated January 16, 2014; then
8. Exhibit F Aviat Networks Software License Grant; then

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9. Exhibit G Cisco End User Agreement; then
10. Contractor's Response to Request for RFP Clarification Request No. 2 dated November 19, 2013 which is hereby incorporated herein by this reference and made a part of this Agreement; then
11. Contractor's Technical Proposal in response to RFP 6096 which is hereby incorporated herein by this reference and made a part of this Agreement.

ARTICLE 2 - ENGAGEMENT OF CONTRACTOR and SCOPE OF SERVICES

2.1 Contractor's Performance

Contractor shall, in a good and workmanlike manner and in accordance with the highest professional standards, at its own cost and expense, provide, install, make operational and implement the System, and provide all Deliverables and services in accordance with the terms of this Agreement and with the terms of the Contractor's Technical System Design Document and the then-current Implementation Plan, (except as may be expressly specified herein to be provided by County) necessary to provide the services required under this Agreement.

2.2 General Description of Contractor Obligations

Contractor and County will jointly develop the Deliverables set forth in the Contractor's Technical System Design Document and Contractor represents that those Deliverables, as such Deliverables are further developed and reflected in the then-current Implementation Plan, are and will be all the Deliverables necessary or appropriate to implement a System meeting the Specifications set forth in Exhibit A.

2.3 System Requirements

County is relying upon Contractor to determine the software and hardware configuration and technical specifications sufficient to meet the functional and performance Specifications. Contractor shall supply the County with proposed software and hardware configuration(s), the Implementation Plan, and initial system design to be finalized at Detailed Design Review via the Technical System Design document. Contractor represents and warrants that the System will satisfy the Specifications with these configurations.

2.4.1 System Transition

Contractor shall meet the System transition requirements and standards set forth in Exhibit A.

2.6 Training

Contractor shall meet the training requirements set forth in Exhibit A.

2.7 Documentation

Contractor shall meet the standards and requirements regarding the form of required Documentation set forth in the Exhibit A.

2.8 Fixed Price Services

The Deliverables described in Contractor's Technical System Design Document and in the "Project Implementation Plan" included therein, and in the Initial Implementation Plan shall be performed for the fixed prices set forth in Article 12, "Pricing and Payment," below, and are not "level of effort" services, notwithstanding that the Contractor may have to devote more time or Resources to complete any such Task than estimated in Contractor's Technical Design Document or the Implementation Plan.

2.9 Maintenance

Commencing upon the expiration of the Warranty Period set forth in Section 8.7 "System Warranty", Contractor shall provide software maintenance services and technical support as set forth in Exhibit D.

2.10 Delivery and Installation

2.10.1 General

After Staging Acceptance, Contractor shall ship the Hardware and Software and provide on-site installation, including meeting all completion schedules, delivery schedules, installation schedules, and other requirements set forth in the Contractor's Technical Design Document and the then-current Implementation Plan.

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2.10.2 Access

The County shall provide the Contractor with access to the applicable sites for the purpose of installing the System Hardware and Software and configuring the System. The Contractor shall specify in the Implementation Plan the time required, providing specific beginning and end dates per site.

2.10.3 Site Conditions

To the extent applicable and unless this Agreement specifically states to the contrary, County will ensure that these work sites will have, (i) adequate air conditioning and other environmental conditions and; (ii) adequate electrical power outlets, distribution and equipment for the installation, use and maintenance of the System.

2.10.4 Equipment Location

New hardware shall be installed in the exact location of the hardware being replaced at each site. If Contractor determines that using the existing location is not feasible for any reason, Contractor shall notify the COTR, and the County must approve any change to the location.

2.10.5 Site Issues

If County or Contractor determines during the course of performance of this Agreement that a site identified in the Agreement is no longer available or desired, or if subsurface, structural, adverse, environmental or latent conditions at any site differ from those indicated on the specifications as necessary, County and Contractor will promptly investigate the conditions and will select a replacement site or adjust the installation plans and specifications as necessary. If such change in sites or adjustment to the installation plans and specifications causes a change in the cost or time to perform, County and Contractor will equitably amend the Contract Price, by a written Change Order.

2.10.6 Electromagnetic Interference (EMI)

Contractor shall design the System to provide adequate electromagnetic interference ("EMI") protection to prevent disruptive interference caused to other radio systems; however, it is recognized that Contractor may not have control over the generation of interference by other systems, i.e. systems not provided by the Contractor. If a source(s) of interference exists that is outside of Contractor's control, Contractor shall, to the extent technically possible, assist County with identification of the condition, component or equipment generating interference at an additional expense to County not exceeding the then current industry standard fees and out-of-pocket expenses. Interference is defined herein to mean a situation that results, on a demonstrable basis, in material degradation to the System.

ARTICLE 3 – TERM OF AGREEMENT

This Agreement will be effective on the Effective Date and shall continue, with respect to the System implementation and development and warranty services, until the expiration of the Seven (7) Year Warranty Period for the System and with respect to optional equipment, parts, and services for a period of 15 years, unless otherwise terminated in accordance with the terms of the Agreement.

ARTICLE 4 - DEVELOPMENT OF IMPLEMENTATION PLANS/PROJECT IMPLEMENTATION

4.1 Development of Implementation Plans

Contractor shall develop a detailed Contractor's Technical Design Document to be finalized at Detailed Design Review and Implementation Plans to be provided pursuant to this Article 4, which fully set forth the detailed functional specifications necessary to implement the System.

4.2. Detailed Design Review

Within sixty (60) days after execution of the Agreement, or as mutually-agreed upon by the parties, a Detailed Design Review will be held with the respective Project Managers. At Detailed Design Review, the parties will finalize the completed detailed design of the System and will complete the Technical and Implementation Documents. At the completion of Detailed Design review, equipment orders shall be placed and building and staging of the equipment begins. Any changes to the System after Critical Design Review will be processed by Change Order.

4.3. Project Managers

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Contractor shall appoint a Project Manager ("Contractor Project Manager") who will work directly with the County Project Manager and be the principal point of contact. Contractor shall notify the County's Project Manager in writing, when there is a new Contractor Project Manager assigned to the Project. The Contractor Project Manager's information is:

Project Manager Dan Austin
Address: 5200 Great America Pkwy, Santa Clara, CA 95054
Phone: (408) 567-6628 (office); (650) 743-6123 (mobile)
Fax: (408) 567-2120
E-mail: daniel.austin@aviatnet.com

County shall appoint a Project Manager ("County Project Manager") who will work directly with the Contractor Project Manager and be the principal point of contact for the Project. County shall notify Contractor's Project Manager in writing when there is a new County Project Manager assigned to the Project. The County Project Manager's information is:

Project Manager Hector Nunez
Address: Sheriff's Wireless Services Division
5595 Overland Ave., Ste. 101
San Diego, CA 92123
Phone: 858-495-5379
Fax: 858-694-3433
E-mail: hector.nunez@sdsheiff.org

4.4. Implementation Schedule

County and Contractor agree to perform their respective responsibilities in accordance with the schedule for the Project ("Implementation Schedule") to be preliminarily provided by the Contractor Project Manager and finalized at Detailed Design Review, subject to any agreed-upon Change Order. The Implementation Schedule shall set forth milestones beginning from the Effective Date. By executing this Agreement, County authorizes Contractor to proceed with the performance of the Project. No notice to proceed, purchase order, authorization or resolution, or other action is required for the performance of this Agreement to begin.

4.5 Project Status Reports

Every fourteen (14) calendar days commencing with the completion of Detailed Design Review, Contractor shall deliver project status reports that update the status of the Project to that date in all respects, identify any Project issues, and specify if any such issues will affect the Project schedule set forth in the Implementation Schedule. The COTR shall review and approve any modifications to the implementation schedule.

4.6. Implementation Schedule Delays

Successful performance of the Project will require cooperation between the parties. Because it is impractical to provide for every contingency that may arise during the course of performance of this Agreement, the parties agree to notify the other if they become aware of any condition outside their control that will significantly delay such performance. In such a case, the parties hereby agree to negotiate in good faith reasonable extensions of the Project caused by such conditions without undue delay of the completion of the Project.

4.7. Excusable Delays

If the performance of the Agreement, or of any obligation contained in it, is prevented, restricted or interfered with by reason of fire, explosion, epidemic, hailstorm, hurricane, tornado, cyclone, flood, power failure, war, revolution, civil commotion, acts of public enemies, blockade or embargo or any other circumstances beyond the reasonable control of the party affected, then the party affected, upon giving prompt notice to the other party, shall be excused from such performance on a day-for-day basis to the extent of such prevention, restriction or interference (and the other party shall likewise be excused from performance of its obligations on a day-for-day basis to the extent such party's obligations relate to the performance so prevented, restricted or interfered with); provided that the party so affected shall use its best efforts to avoid or remove such causes of non-performance and both parties shall perform with dispatch whenever such causes are removed or ceased.

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PART II ACCEPTANCE

ARTICLE 5 - ACCEPTANCE PROCEDURE & STANDARD OF PERFORMANCE

5.1. Staging Acceptance

Contractor shall propose a Staging Acceptance test plan which shall be mutually-agreed upon. Staging Acceptance will occur at Contractor's site located in Austin, Texas. Upon Staging Acceptance, the Equipment and Software will be shipped to County.

5.2 Commencement of Acceptance Testing

Contractor will provide to County at least thirty (30) days' notice before the Acceptance Tests commence. System testing will occur only in accordance with the Acceptance Test Plan.

5.3 System Acceptance

System Acceptance will occur upon successful completion of the Acceptance Tests described in the Acceptance Test Plan. When System Acceptance occurs, the parties will memorialize this event by promptly executing a System Acceptance Certificate. After completion of the Acceptance Tests, if County believes that the System fails the Acceptance Tests, County will provide to Contractor a written notice that includes the specific details of such failure.

5.5. Final Project Acceptance

Final Project Acceptance will occur after System Acceptance and after receipt of the final System Documentation and all other Project deliverables. When Final Project Acceptance occurs, the parties will promptly memorialize this final event by executing a Project Acceptance Certificate.

5.6. Acceptance by County

The COTR shall accept each Deliverable requiring Acceptance, including Factory Acceptance and System Acceptance, and Final Project Acceptance at such time as such Deliverable Conforms and may reject such Deliverables that fail to Conform.

5.7. Acceptance Process

Except as may be otherwise specified in this Agreement or in the then-applicable Implementation Plan, County shall have fifteen (15) business days ("Acceptance Period") to review acceptance test results for Staging Acceptance, System Acceptance and Final Project Acceptance and Accept such Deliverable(s) following successful completion of acceptance testing and/or confirmation of compliance of Deliverable with the associated requirements.

In the event that acceptance testing of any Deliverable reveals deficiencies in quality, functionality, performance or completeness of the deliverable, the COTR shall deliver to the Contractor a detailed list of all deficiencies ("Statement of Errors") found in that Deliverable. Contractor shall resolve all deficiencies and resubmit the Deliverable for re-testing on a schedule to be mutually determined by Contractor and the COTR. The scope and specific content of re-testing of any corrected Deliverable shall be defined by the COTR, to minimally include inspection and acceptance of remedial corrections and enhancements, up to and including full regression testing of a Deliverable component or the complete Deliverable as necessary to ensure Conformance. Except as may be otherwise specified in this Agreement or in the then-applicable Implementation Plan, County shall have ten (10) business days ("Acceptance Period") to review acceptance re-testing results for any corrected Deliverable and Accept such Deliverable following confirmation of compliance of Deliverable with the associated requirements.

Without limiting the foregoing, County may conduct Acceptance Tests or otherwise evaluate the applicable Deliverable for the purpose of determining the impact of such Deliverable on other and further Deliverables hereunder, including without limitation interdependencies for the purpose of determining the impact on related components of the System.

Notwithstanding any provision of this Agreement to the contrary, however, failure by the County to provide an Exception Report within the applicable time period permitted under this Agreement shall not be deemed to constitute Acceptance.

5.8. Correction of Errors and Remedies

If, after conducting the applicable Acceptance Test or other informal review process, the COTR notifies Contractor that a Deliverable, or any unit or component thereof, still does not Conform on a second delivery, then:

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5.8.1. The COTR and Contractor's Representative shall meet and attempt to mutually agree upon one or more of the following remedies within ten (10) business days of COTR's delivery of such notice: **(i)** to extend the correction period for a mutually agreeable time; **(ii)** to revise the Specifications in a mutually agreeable manner with respect to the particular nonconformance; **(iii)** if approved by the County Director of Purchasing and Contracting, to reduce the Contract Price attributable to the particular Deliverable, or unit or component thereof upon mutual agreement between County and Contractor; **(iv)** require Contractor to commit the necessary additional Resources to cause the Deliverable, or unit or component thereof to Conform; or **(vi)** such other remedies as COTR and Contractor's Representative shall agree upon. In preparation for this deficiency resolution process, COTR may require Contractor to provide a deficiency resolution proposal, plan and schedule.

5.8.2 If approved by the County Director of Purchasing and Contracting and written notice provided to Contractor, County may defer payment for the particular Deliverable.

5.8.3. The failure by Contractor to deliver an acceptable Deliverable within the then-current Implementation Plan or extension agreed-upon by County and Contractor may provide a basis for the County to assess performance penalties or declare a breach of this Agreement in accordance with the Provisions of Sections 13.1, "Termination for Default."

5.8.4 To the extent a rejected Deliverable, or unit or component thereof has interdependencies with the rest of the System then Contractor shall propose, subject to COTR's reasonable approval, corresponding changes to the Specifications for the rest of the System affected by such rejected Deliverable, or unit or component thereof, using the Change Order process described in Section 14.4 ("Change Order Process").

5.9 Issuance of Acceptance Certificate

Upon the COTR's determination that any particular Deliverable requiring Acceptance including Staging Acceptance, System Acceptance, and Final Project Acceptance conforms with the applicable Specification, COTR shall issue to Contractor a written acceptance certificate ("Acceptance Certificate") for such Deliverable or unit or component thereof in a form reasonably determined by COTR.

5.10 Delays in Acceptance

Time is of the essence. Contractor shall be responsible for providing Deliverables that are fully compliant with the Specifications. Contractor acknowledges Contractor's sole responsibility for implementation program delays resulting from delivery of incomplete or nonconforming Deliverables caused by the fault of Contractor.

5.11 Forced Rejection

In order to avoid a forced rejection by the COTR, from time to time and at any time during this Agreement when the County or COTR is required to respond to Contractor within a specified time frame, County can request an extension and Contractor shall not unreasonably withhold permission for such extension of time. However, any such extension of time granted shall concurrently extend all impacted Milestones set forth in the Implementation Plan on a day-for-day basis or as mutually-agreed upon by County and Contractor.

PART III OWNERSHIP OF SOFTWARE RIGHTS & WARRANTIES

ARTICLE 6 – RESERVED

ARTICLE 7 - OWNERSHIP OF SOFTWARE RIGHTS AND INTELLECTUAL PROPERTY INDEMNIFICATION

7.1 Representations and Warranties

Contractor represents and warrants, each time it delivers Software to County, that such Software (a) is original and created solely by Contractor or (b) if not original to Contractor, Contractor has contract rights to use such Software in an environment such as County's and to assign such Software in accordance with the terms of this Article ("Ownership of Software Rights").

7.2 System Software License See Exhibits F and G, Contractor's Software License Agreement.

7.3 Intellectual Property

Notwithstanding any language contained in this Agreement to the contrary, any invention, discovery, proprietary information, maskwork, software, System, data or report not otherwise transferred under specific terms contained in this Agreement, shall be the sole property of the Contractor. All rights, title, and interest in any patents, copyright, trade secrets, trademarks, maskwork or other intellectual property not transferred under specific terms contained in this Agreement shall be the sole property of Contractor.

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7.4 Intellectual Property Indemnification

Contractor shall report to County, promptly and in reasonable written detail, any actual or asserted patent, copyright or other intellectual property infringement of which Contractor has knowledge which could adversely impact the County's rights, including but not limited to County's rights to use the equipment or systems provided hereunder, or any portion thereof, in the manner and to the full extent contemplated by this Agreement.

Contractor shall defend with counsel satisfactory to County and shall indemnify, and hold County harmless, at Contractor's expense, against any claim, suit, proceeding, demand, liability, loss, damage or expense (including but not limited to reasonable attorneys' fees) arising from or relating to an asserted claim that any work performed or any portion of the equipment or systems provided under this Agreement infringes on a copyright, a creator's right to control his or her work (so-called "moral right"), trademark, trade secret, issued patent, or other intellectual property right of a third party. Without limiting the generality of the foregoing, if any portion of any the same or County's use of the same is, or in Contractor's or County's opinion likely to be, held to infringe the rights of any third party, Contractor shall at its expense either (i) procure the right for County to use the infringing item free of any liability or expense to County to the full extent contemplated by this Agreement; or (ii) replace it with a non-infringing equivalent reasonably satisfactory to County. Without limiting the County's other rights and Contractor's obligations under this section 8.11, County shall have the right to employ counsel at its own expense for, and assist in the defense of, any claim.

ARTICLE 8 - WARRANTY

8.1 General Performance Warranty

Contractor warrants that (i) the System, together with all Software provided by it under this Agreement, shall meet the Specifications therefor; (ii) the services performed by it under this Agreement shall be performed in accordance with the skill and care which would be executed by qualified personnel who are knowledgeable, trained and experienced in rendering services for the purpose of implementing the System; and (iii) that each item of System Software Conforms to the Specifications for a period of two (2) years from Final Project Acceptance unless extended as set forth in Section 8.9 (the "Extended Warranty").

8.2 Contractor Representation

Unless Contractor expressly states otherwise in its Technical Proposal, where functional requirements were expressly stated as part of the requirements of the RFP, Contractor, by responding, represents that in its opinion the System proposed meets those requirements.

8.3 Specific Warranty of Security and Privacy

The System or higher System shall include restricted data access through the use of "passwords."

8.4 System Operating Software Version

Contractor shall provide, as a component of the System Warranty, software and firmware upgrades to the County at no additional charge, so that at the end of the Warranty Period, the System is operating at the then-most current Operating System Version.

8.5 Reserved.

8.6 Warranty of Hardware Specifications.

Contractor warrants that the Hardware specified in its Technical Proposal will allow the System to perform in accordance with Exhibit A..

8.7 System Warranty. See attached Exhibit D.

8.8 Warranty of Services.

Contractor warrants that qualified personnel are employed for the purpose of integrating the System with the County's public safety communications systems, including recommendations relating to hardware sizing, configuration and configuration analysis, installation requirements, integration requirements and set-up.

8.9 Extended Warranty. See attached Exhibit D.

ARTICLE 9 - REMEDIES FOR BREACH OF WARRANTY

9.1 General Warranty of Performance

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Contractor warrants that it shall remedy all Errors that do not Conform with the applicable Specifications in accordance with the CONTRACTOR System Warranty attached hereto as Exhibit D.

**PART IV – STANDARD CLAUSES, CONTRACT
MANAGEMENT & ADMINISTRATION**

ARTICLE 10 - PROGRAM MANAGEMENT

10.1 Independent Contractors

The parties are each independent contractors and neither party shall be nor represent it to be, an agent, or party of any nature authorized or empowered to act on the behalf of the other parties. Neither Contractor nor Contractor's employees or subcontractors shall be deemed to be employees of County. Neither party is granted any right or authority to bind the other party on any matter whatsoever, including but not limited to the right or authority to obligate the other party to enter a transaction at any time with any third party. Retention by Contractor of any agent, employee or subcontractor shall be at Contractor's sole cost and expense, and County shall have no obligation to pay Contractor's agents, employees or Subcontractors; to support any such person's or entity's claim against Contractor or other parties; or to defend Contractor against any such claim. Contractor shall perform its obligations under this Agreement according to Contractor's own means and methods of work which shall be in the exclusive charge and under the control of Contractor, and which shall not be subject to control or supervision by County except as to the results of the work. Neither Contractor nor Contractor's employees or subcontractors shall be entitled to any benefits to which County employees are entitled, including without limitation, overtime, retirement benefits, workers' compensation benefits and injury leave. Contractor shall indemnify and hold County harmless from all claims whatsoever arising out of the demands of employees, Subcontractors or suppliers of Contractor solely based upon Contractor's performance of this Agreement.

10.2 Contractor Employees and Subcontractors

10.2.1 County Acceptance of Contractor Employees and Subcontractors

Other than those resumes provided in the Technical Proposal, Contractor shall furnish to County in writing the name and resume of each employee of Contractor, and any Subcontractor proposed for any portion of the Project (collectively, "Contractor Personnel") not less ten (10) business days prior to any such Contractor Personnel having access to County facilities, to include radio sites, and to the County microwave radio system. County shall have ten (10) business days from receipt, after due investigation, to object to any such proposed Contractor Personnel. County may perform background investigation as described below on any such Contractor Personnel. If County objects to any such Contractor Personnel after due investigation and upon reasonable ground Contractor shall not utilize or contract with such Contractor Personnel in connection with this Agreement and shall submit a substitute to whom County has no objection, subject to the same approval process described in this Section. There shall be no further appeal of the County's determination on the matter.

10.2.2 Acceptance During Course of Performance

County shall provide the Contractor's Representative with written notice of unsatisfactory Contractor Personnel, and attempt to resolve any problems prior to exercising its right to request removal of such Contractor Personnel. Contractor shall promptly replace any Contractor Personnel who continues to perform unsatisfactorily or who County identifies as not satisfactory to County.

10.3 Contracting Officer/Administration

County designates the Director, Department of Purchasing and Contracting to be the contracting officer ("Contracting Officer") for this Agreement; the Contracting Officer shall execute this Agreement on behalf of County, and is the only County official authorized to make any changes to this Agreement. The County has designated the following individual as the Contracting Officer's Technical Representative ("COTR"):

Sue Willy
Manager, Wireless Services Division
San Diego Sheriff's Department
5595 Overland Avenue, Suite 101
San Diego, CA 92123
Phone: 619.694.3663; Fax; E-mail: suewilly@sdssheriff.org

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And, on behalf of Contractor by Contractor's Representative, who is designated as:

Steve Verrando
Sr. Territory Manager
5200 Great America Pkwy, Santa Clara, CA 95054
Phone: (949) 707-2710; fax: (408) 567-2206; E-mail: steve.verrando@aviatnet.com

Contractor warrants that Contractor's Representative has full authority to act for Contractor hereunder. Contractor's Representative(s) will be responsible for overseeing all obligations of Contractor under this Agreement and any Tasks, and will be directly responsible for responding to the COTR at all times during the term of this Agreement.

10.4 Subcontractors

Any part of the Project performed for Contractor by a Subcontractor shall be pursuant to a written subcontract between Contractor and such Subcontractor. Each such subcontract shall:

- i. Require Contractor to assume complete responsibility for management and supervision of the Subcontractor in connection with the Project, and to cause the Subcontractor to perform all work and to supply all materials in accordance with the standards of care and diligence normally practiced and recognized by firms in performing services of a similar nature in existence at the time of performance.
- ii. Provide that at County's election, such Subcontract will be deemed assigned by to County, provided that such assignment shall be effective only (i) upon termination of this Agreement as a result of a default by Contractor prior to completion of work by Contractor; and (ii) notification of the assignment by County.
- iii. Require that the portion of the Project assigned to such Subcontractor be performed in accordance with the requirements of this Agreement and, to the extent applicable, include provisions of this Agreement in such subcontract; Contractor shall specifically include the provisions pertaining to termination contained in Article 13 ("Termination and Default") in each such subcontract, to the end that Contractor and its assignees shall have the rights therein set forth with respect to each Subcontractor.
- iv. Require the Subcontractor to carry and maintain comprehensive general liability and other types of insurance in accordance with Article 16 ("Insurance").
- v. Include all provisions required to be included in subcontracts pursuant to the grant agreement FY2013 Homeland Security Grant Program, Grant No. 2013-00110, including, without limitation, those provisions of Article 19 below.

Unless a subcontract is assigned in accordance with the provisions hereof, no contractual relationship shall exist between County and any Subcontractor. Contractor shall be solely responsible for the management of each Subcontractor in connection with the Project.

10.5 Compliance by Subcontractors

Use of a Subcontractor by Contractor shall not relieve Contractor of any of its duties hereunder. If any portion of the Project, which has been subcontracted by Contractor, is not executed in accordance with this Agreement, on request of County, the Subcontractor shall be replaced at no additional cost to County and shall not be employed again on the Project.

10.6 Key Employees

Contractor acknowledges that any personnel assigned to the Project will be intimately involved in the System development and that certain Resources of Contractor must be committed to the Project. Contractor acknowledges that County is relying on Contractor's expertise in designating the nature and extent of the Contractor's personnel who will be involved in the Project. In Contractor's Technical Proposal, Contractor has provided to County the resumes of key employees ("Key Employees") who Contractor commits to dedicate to the Project. Contractor shall not remove any such listed Key Employee from the Project without the consent of County, which shall not be unreasonably withheld. Such consent shall be deemed given in the event of voluntary or involuntary termination of such Key Employee from Contractor's employment; provided, however, that any replacement of such terminated Key Employees shall first be approved by the COTR. Contractor shall provide those Contractor Resources to the Project at the times and for the duration specified in the Implementation Plan. Upon execution of this Agreement, Contractor shall provide to County a direct telephone number, pager number, "fax"

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number and e-mail address for Contractor's Representative. Contractor's Representative shall use reasonable efforts to respond to any such communication from County no later than twenty-four (24) hours following transmittal.

10.8 Progress Status Meetings

The County's Project Manager and other County Personnel, as appropriate, will meet biweekly during the Project with Contractor's Project Manager and other representatives to review the Project performance. At these meetings the Project Manager will apprise Contractor of how the County views Contractor's performance and Contractor will apprise the County of problems, if any, being experienced. Contractor shall also deliver a Status Report which will include without limitation (i) notification of work being performed or planned to be performed, if any, that Contractor considers to be over and above the requirements of the Agreement, (ii) work completed since the previous Status Report, (iii) problems encountered, (iv) projected solutions, (v) near term activities, (vi) Milestone status and (vii) contract issues. The Status Reports delivered at the progress meetings will not be considered a "Deliverable" hereunder subject to the Acceptance Procedures. The COTR is designated to receive and approve Contractor invoices for payment, audit and inspect records, inspect Contractor Services, and provide other technical guidance as required. The COTR is not authorized to change any terms and conditions of the Agreement. Only the Contracting Officer issuing a properly executed Change Order modification with mutual written agreement of Contractor will make changes to the scope of work.

10.9 Inspection of Services

All performance (which includes services, materials, supplies and equipment furnished or utilized in the performance of this Agreement, and workmanship in the performance of services) shall be subject to reasonable inspection by the County at all times during the term of the Agreement. Contractor shall provide adequate cooperation to any inspector assigned by the County to permit the inspector, in accordance with the Acceptance procedures set forth in Article 5 ("Acceptance Procedures") to determine Contractor's conformity with the Specifications and the adequacy of the services being contractually provided. All inspection by the County shall be made in such a manner as not to unduly interfere with the performance of Contractor Personnel.

ARTICLE 11 - COMPLIANCE WITH LAWS AND REGULATIONS

11.1 Compliance with Laws and Regulations. Contractor shall at all times perform its obligations hereunder in compliance with all applicable federal, State, and County laws and regulations.

11.2 Contractor Permits and License. Contractor certifies that it possesses and shall continue to maintain or shall cause to be obtained and maintained, at no cost to the County, all approvals, permissions, permits, licenses, and other forms of documentation required for it and its employees to comply with all existing foreign or domestic statutes, ordinances, and regulations, or other laws, that may be applicable to performance of services hereunder. The County reserves the right to reasonably request and review all such applications, permits, and licenses prior to the commencement of any services hereunder.

11.3 Equal Opportunity. Contractor shall comply with the provisions of Title VII of the Civil Rights Act of 1964 in that it will not discriminate against any individual with respect to his or her compensation, terms, conditions, or privileges of employment nor shall Contractor discriminate in any way that would deprive or intend to deprive any individual of employment opportunities or otherwise adversely affect his or her status as an employee because of such individual's race, color, religion, sex, national origin, age, handicap, medical condition, sexual orientation or marital status.

11.4 Affirmative Action. Each Contractor of services and supplies employing fifteen (15) or more full-time permanent employees, shall comply with the Affirmative Action Program for Vendors as set forth in Article IIIk (commencing at Section 84) of the San Diego County Administrative Code, which program is incorporated herein by reference. A copy of this Affirmative Action Program will be furnished upon request by COTR or from the County of San Diego Internet web-site (www.co.san-diego.ca.us).

11.5 Drug and Alcohol-Free Workplace. The County of San Diego, in recognition of individual rights to work in a safe, healthful and productive work place, has adopted a requirement for a drug and alcohol free work place, County of San Diego Drug and Alcohol Use Policy C-25. This policy provides that all County-employed Contractors and Contractor employees shall assist in meeting this requirement.

11.5.1 As a material condition of this Agreement, the Contractor agrees that the Contractor and the Contractor employees, while performing service for the County, on County property, or while using County equipment:

11.5.1.1 Shall not be in any way impaired because of being under the influence of alcohol or a drug.

11.5.1.2 Shall not possess an open container of alcohol or consume alcohol or possess or be under the influence of an illegal drug.

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- 11.5.1.3 Shall not sell, offer, or provide alcohol or a drug to another person; provided, however, that the foregoing restriction shall not be applicable to a Contractor or Contractor employee who as part of the performance of normal job duties and responsibilities prescribes or administers medically prescribed drugs.
- 11.5.2 Contractor shall inform all employees who are performing service for the County on County property or using County equipment of the County objective of a safe, healthful and productive work place and the prohibition of drug or alcohol use or impairment from same while performing such service for the County.
- 11.5.3 The County may terminate for default or breach this Agreement, and any other Agreement the Contractor has with the County, if the Contractor, or Contractor employees are determined by the Contracting Officer not to be in compliance with the conditions listed herein.
- 11.6 Board of Supervisors' Policies.** Contractor represents that it is familiar, and shall use its best efforts to comply, with the following policies of the Board of Supervisors: Board Policy B-67, which encourages the County's Contractors to offer products made with recycled materials, reusable products, and products designed to be recycled to the County in response to the County's requirements; and Board Policies B-53 and B-39a, which encourage the participation of small and disabled veterans' business enterprises in County procurements.
- 11.7 Cartwright Act.** Following receipt of final payment under the Agreement, Contractor assigns to the County all rights, title and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright act (Chapter 1) (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code, arising from purchases of goods, materials, or services by the Contractor for sale to the County under this Agreement.
- 11.8 Hazardous Materials.** Contractor shall comply with all Environmental Laws and all other laws, rules, regulations, and requirements regarding Hazardous Materials, health and safety, notices, and training. Contractor agrees that it will not store any Hazardous Materials at any County Facility for periods in excess of ninety (90) days or in violation of the applicable site storage limitations imposed by Environmental Law. Contractor agrees to take, at its expense, all actions necessary to protect third parties, including, without limitation, employees and agents of the County, from any exposure to Hazardous Materials generated or utilized in its performance under this Agreement. Contractor agrees to report to the appropriate governmental agencies all discharges, releases, and spills of Hazardous Materials that are required to be reported by any Environmental Law and to immediately notify the County of it. Contractor shall not be liable to the County for the County's failure to comply with, or violation of, any Environmental Law. As used in this section, the term "Environmental Laws" means any and all federal, state or local laws or ordinances, rules, decrees, orders, regulations or court decisions (including the so-called "common law"), including, but not limited to, the Resource Conservation and Recovery Act, relating to hazardous substances, hazardous materials, hazardous waste, toxic substances, environmental conditions or other similar substances or conditions. As used in this section the term "Hazardous Materials" means any chemical, compound, material, substance or other matter that: (a) is a flammable, explosive, asbestos, radioactive nuclear medicine, vaccine, bacteria, virus, hazardous waste, toxic, overtly injurious or potentially injurious material, whether injurious or potentially injurious by itself or in combination with other materials; (b) is controlled, referred to, designated in or governed by any Environmental Laws; (c) gives rise to any reporting, notice or publication requirements under any Environmental Laws, or (d) is any other material or substance giving rise to any liability, responsibility or duty upon the County or Lessee with respect to any third person under any Environmental Laws.
- 11.9 Cal OSHA.** As applicable, all services furnished under this Agreement shall meet or exceed the standards established by the California Occupational Safety and Health Act of 1973 and current amendments thereto, provided the end use of the item is for the purpose for which the item is intended.
- 11.10 Debarment and Suspension.** Contractor certifies that it, its principals, its employees and its subcontractors:
- 11.10.1 Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal Department or agency;
- 11.10.2 Have not within a 3-year period preceding this Agreement been convicted of or had a civil judgment rendered against them for the commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction; violation of Federal or State anti-trust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making

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false statements, or receiving stolen property;

11.10.3 Are not presently indicted or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in the paragraph above; and

11.10.4 Have not within a 3-year period preceding this Agreement had one or more public transaction (Federal, State, or local) terminated for cause or default.

11.11 Labor Code/Prevailing Wage and Release of all Related Claims.

11.11.1 Contractor shall carry out its obligations under this Agreement in conformity with all applicable federal and state labor laws (including, without limitation, if applicable, the requirement under California law to pay prevailing wages and to hire apprentices). Contractor shall be solely responsible for determining and effectuating compliance with such laws, and the County makes no representation as to the applicability or non-applicability of any such laws to the services required under this Agreement. Contractor hereby expressly acknowledges and agrees that the County has not previously represented to the Contractor or its subcontractor(s), in writing or otherwise, whether the services required under this Agreement do or do not constitute a "public work" as defined by Section 1720 of the Labor Code. Contractor hereby agrees that Contractor shall have the sole obligation to provide any and all disclosures or identification as required by Labor Code section 1781 and any other similar law, as the same may be amended from time to time, if applicable.

11.11.2 Contractor shall indemnify, protect, defend and hold harmless County its officers, directors, agents and employees, with counsel acceptable to County, from and against any and all present and future claims, losses, liabilities, damages, costs, expenses and/or "increased costs" (including reasonable attorney fees, court and litigation costs, and fees of expert witnesses) arising out of or in any way connected with Contractor's obligation to comply with requirements of the Department of Industrial Relations in accordance with California Labor Code, and all other applicable federal, state and local laws and regulations pertaining to labor standards and payment of prevailing wage, including all claims that may be made by contractors, subcontractors or other third party claimants pursuant to Labor Code sections 1726 and 1781, or any other applicable law, as the same may be amended from time to time. "Increased costs" as used in this paragraph shall have the meaning ascribed in Labor Code section 1781, or any other similar law, as the same may be amended from time to time. The foregoing indemnity shall survive termination or expiration of this Agreement.

11.11.3 (a) Contractor for itself, its agents, assigns and related entities, fully releases, acquits and discharges County, its officers, directors, agents and employees, from all rights, claims, demands, actions or causes of action which Contractor now has or may have against County arising out of or in any way related to Contractor's obligation, if any, to comply with requirements of the Department of Industrial Relations in accordance with California Labor Code, and all other applicable federal, state and local laws and regulations pertaining to labor standards and payment of prevailing wage in connection with Contractor's performance of this Agreement.

(b) The release as detailed in this Section 8.10 is intended as a full and complete release and discharge of any and all such claims, that Contractor may or might have against County or its agents, as of the date of this release. In making this release, Contractor intends to release County, its officers, directors, agents and employees, from any liability of any nature whatsoever for any claim or injury or for damages or equitable or declaratory relief of any kind, whether the claim, or any facts on which such claim might be based, is known or unknown to the party possessing the claim. Contractor expressly waives all rights under Section 1542 of the Civil Code of the State of California, which Contractor understands provides as follows:

A general release does not extend to claims which the creditor does not know or suspect to exist in his or her favor at the time of executing the release, which if known by him or her must have materially affected his or her settlement with the debtor.

(c) Contractor acknowledges that it may hereafter discover facts or law different from, or in addition to, those which it now believes to be true with respect to the release of claims. Contractor agrees that the foregoing release shall be and remains effective in all respects notwithstanding such different or additional facts or law or any party's discovery thereof.

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(d) No party to this Agreement, nor its employees or agents, have made any statement or representation to any other party regarding any fact relied upon in entering into this Agreement, and each party expressly states it does not rely upon any statement, representation or promise of any other party or related entities in executing this Agreement, except as is expressly stated in this Agreement. Each party to this Agreement has made such investigation of the facts pertaining to this Agreement, and of all other matters pertaining thereto, as it deems necessary. Additionally, each party to this Agreement is represented by counsel and has sought the advice and assistance of counsel before entering into this Agreement.

11.12 Compliance with County Administrative Code Section 67

Contractor shall comply with Section 67 of the County Administrative Code, which stipulates that County shall not contract with, and shall reject any bid or proposal submitted by the person or entities specified below, unless the Board of Supervisors finds that special circumstances exist which justify the approval of such contract:

11.12.1 Persons employed by the County or by public agencies for which the Board of Supervisors is the governing body.

11.12.2. Profit-making firms or businesses in which employees described in sub-section (a) serve as officers, principals, partners, or major shareholders.

11.12.3. Persons who, within the immediately preceding twelve (12) months came within the provisions of subsection (a) and who (1) were employed in positions of substantial responsibility in the area of service to be performed by this Agreement, and (2) participated in any way in developing this Agreement.

11.12.4. Profit-making firms or businesses in which the former employees described in sub-section (c) serve as officers, principals, partners or major stockholders.

11.13 Conduct of Contractor

11.13.1 Contractor agrees to inform the County of all Contractor's interests, if any, which are or which Contractor believes to be incompatible with any interests of the County.

11.13.2 Contractor shall not, under circumstances which might reasonably be interpreted as an attempt to influence the recipient in the conduct of his duties, accept any gratuity or special favor from individuals or organizations with whom Contractor is doing business or proposing to do business, in accomplishing the work under this Agreement.

11.13.3 Either party shall not use for personal gain or make other improper use of privileged information, which is acquired in connection with this Agreement. In this connection, the term "privileged information" includes, but is not limited to, unpublished information relating to technological and scientific development; medical, personnel, or security records of the individuals; anticipated materials requirements or pricing actions; and knowledge of selections of contractors or subcontractors in advance of official announcement.

11.13.4 Contractor shall not offer, directly or indirectly, gifts, gratuity, favors, and entertainment to the County or employees thereof.

11.14 Interest of Contractor

Contractor covenants that it presently has no interest, including but not limited, to other projects or independent contracts, and shall not acquire any such interest, direct or indirect, which would conflict in any manner or degree with the performance of services required to be performed under this Agreement. Contractor further covenants that in the performance of this Agreement, no person having any such interest shall be employed or retained by it under this Agreement.

ARTICLE 12 – PRICING AND PAYMENT

12.1 Contract Price.

Except as is provided in the Change Order Process under Article 14 ("Changes") and the annual charge described in Section 12.5 ("Maintenance"), Contractor shall complete the Project including providing all Hardware, Software, development services and Deliverables required by this Agreement, for the fixed maximum price of **\$8,193,767.40** (the "Contract Price") plus potential options for and equipment, deployment services, parts, technical support, training, software services for a maximum price of \$12,500,000.00.

12.2 Liquidated Damages

12.2.1 If any Deliverable identified in subsection 12.4.2 is not achieved by the date set forth on the then current Implementation Plan or such further extension as mutually agreed-upon by County and Contractor, such failure will interfere with the proper implementation of County's plans and will negatively impact County's

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business processes, and will result in loss and damage to County. As it would be impracticable to fix the actual damage sustained in the event of any such failure(s), if applicable, to achieve the Deliverable, the Parties agree that in the event of any such failure(s), the amount of damage that will be sustained by County will be an amount equal to one percent (1%) of the payment otherwise due to Contractor for the achievement of that Deliverable set forth on the Payment Schedule for each calendar day after the scheduled due date that the subject Milestone or other Deliverable is not achieved, subject to the limitation set forth in subsection 12.2.2 below (the "Liquidated Damages"). The Parties agree that, in the event of the failure to achieve a Deliverable by the scheduled date, Contractor shall pay to County the amount of the Liquidated Damages. Contractor shall pay accrued, unpaid Liquidated Damages (if any) to County from time to time within three (3) business days after receipt of notice and demand for payment thereof from County. Contractor may in its discretion offset against any payments otherwise due to Contractor the amount of any Liquidated Damages accrued and owing to County.

12.2.2 Liquidated Damages pursuant to this Agreement shall not accrue for delays caused by Force Majeure or such other excusable delays caused by Contractor or such delays caused by County.

12.3 Favored Customer

During the performance period of this Agreement, the maximum price for the items and/or services shall not exceed the lowest price at which Contractor then offers the items and/or services to its most favored customer.

12.4 Payment Terms

12.4.1 No payment shall be required hereunder for the accomplishment of the Deliverables set forth in Section 12.4.2 unless and until the County shall have accepted such Deliverable which shall not be unreasonably withheld. Payments shall be made according to the schedule provided in Section 12.4.2.

12.4.2. The Contract Price shall be earned and invoiced in the following Milestones:

- 1) Fifteen (15) percent of total services price, **\$336,925.51** upon receipt of the initial Implementation Plan.
- 2) Twenty Five (25) percent of total services price, **\$561,542.51** upon completion of Detailed Design Review.
- 3) 100 percent of total equipment price (Hardware and Software and Warranty) including sales tax, **\$5,972,597.36** upon delivery to and inventory by County,
- 4) Equipment trade in credit (25,000). Contractor shall credit the County by issuing a CREDIT MEMO in the amount of \$25,000 upon receipt of removed equipment.
- 5) Thirty (30) percent of total services price, **\$673,851.01** upon System Acceptance.
- 6) Thirty (30) percent of total services price upon **\$673,851.01** Final Project Acceptance.

12.4.3 Contractor shall issue County invoices in accordance with the Milestones set forth above and shall be due and payable net (30) days from invoice date.

12.4.4 Except as may be agreed pursuant to the Change Order Process under Article 14 ("Changes"), County shall have no obligation to pay more than the Contract Price described in this Article, and Contractor will be responsible for all costs incurred in connection with the Project. Notwithstanding anything to the contrary set forth herein, County shall have no obligation to make the final payment hereunder until all training, Documentation and services required of Contractor shall have been performed and delivered.

12.4.5 Freight, Title and Risk of Loss. All freight charges, transportation costs and insurance will be pre-paid by Contractor. Title to the Equipment shall pass to County upon delivery. Risk of loss shall pass to County upon delivery.

12.5 Maintenance

Contractor shall provide warranty maintenance, support and software support services as set forth in Contractor's System Warranty – Exhibit D for seven (7) years from Final Project Acceptance. Additional support services may be purchased at Contractor rates as per Exhibit C in accordance with the terms provided on Exhibit C.

12.6 **Exhibit C Options Pricing.** For Exhibit C, Table C.6 Future Dispatch Spur Links Options and Table C.7 Future RCS Imperial County Options, all equipment prices are firm for five (5) years. All prevailing wage services must be tied to

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the current prevailing wage, pursuant to section 11.11 of this Agreement. All non-prevailing wage service prices are firm for two (2) years, and years 3 – 5 may increase with an increase in the Quarterly Census of Employment and Wages (QCEW) program, published by the Bureau of Labor Statistics, U.S. Department of Labor.

12.7 Disallowance

In the event the Contractor receives payment under this Agreement which is later disallowed by the County, the Contractor shall promptly refund the disallowed amount to the County on request, or at its option, the County may offset the amount disallowed from any payment due to the Contractor under any contract it may have with the County.

12.8 Availability of Funding

Pursuant to California law, the County's obligation for payment of any contract beyond the current fiscal year end is contingent upon the availability of funding from which payment can be made. No legal liability on the part of the County shall arise for payment, and no legal liability on the part of the Contractor shall arise for the discontinuance of Work pursuant to the Agreement, beyond June 30 of the calendar year unless funds are made available for such performance. County agrees to make an appropriate request for funds for this project.

12.9 One-Time Funding

Contractor acknowledges that this Agreement is partially funded by federal grant funds, and that the County will lose such funding if it is not expended by December 30, 2014. Therefore, the parties agree that if the Contractor fails to deliver all equipment specified in the System equipment list contained in the final Technical System Design Document to the County by December 30, 2014, that the Contractor shall invoice the County for such pro-rata share of the respective Milestone payment by December 30, 2014 and that any remaining amount of the Milestone payments or portion thereof not invoiced shall constitute the amount of damages incurred by the County for such failure. Furthermore, notwithstanding anything to the contrary contained in this Agreement, in no event shall County be liable to reimburse the Contractor for any System equipment received after December 30, 2104.

ARTICLE 13 – TERMINATION

13.1 Termination For Default.

Upon Contractor's breach of this Agreement, County shall have the right to terminate this Agreement, in whole or part. Prior to termination for default, County will send Contractor written notice specifying the cause. The notice will give Contractor 10 days from the date the notice is issued to cure the default or make progress satisfactory to County in curing the default, unless a different time is given in the notice. If County determines that the default contributes to the curtailment of an essential service or poses an immediate threat to life, health or property, County may terminate this Agreement immediately upon issuing oral or written notice to the Contractor without any prior notice or opportunity to cure. In the event of termination under this Article, all finished or unfinished documents, and other materials, prepared by Contractor under this Agreement shall become the sole and exclusive property of County.

In the event of such termination, the County may purchase or obtain the supplies or services elsewhere, and Contractor shall be liable for the difference between the prices set forth in the terminated order and the actual cost thereof to the County. The prevailing market price shall be considered the fair repurchase price. Notwithstanding the above, Contractor shall not be relieved of liability to County for damages sustained by County by virtue of any breach of this Agreement by Contractor, and County may withhold any reimbursement to Contractor for the purpose of off-setting until such time as the exact amount of damages due County from Contractor is determined.

If, after notice of termination of this Agreement under the provisions of this clause, it is determined for any reason that the Contractor was not in default under the provisions of this clause, the rights and obligations of the parties shall, if this Agreement contains a clause providing for termination for convenience of the County, be the same as if the notice of termination had been issued pursuant to such clause.

13.2 Full Cost Recovery Of Investigation And Audit Costs

Contractor shall reimburse County of San Diego for all direct and indirect expenditures incurred in conducting an audit/investigation when Contractor is found in violation (material breach) of the terms of the Agreement. Reimbursement for such costs shall be withheld from any amounts due to Contractor pursuant to the payment terms of the Agreement, or from any other amounts due to Contractor from County.

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13.3 Termination for Convenience

The County may, by written notice stating the extent and effective date terminate this Agreement for convenience in whole or in part, at any time. The County shall pay the Contractor as full compensation for work performed in accordance with the terms of this Contract until such termination:

- 13.3.1 The unit or pro rata price for any delivered and accepted portion of the work.
- 13.3.2 A reasonable amount, as costs of termination, not otherwise recoverable from other sources by the Contractor as approved by the County, with respect to the undelivered or unaccepted portion of the order, provided compensation hereunder shall in no event exceed the total price.
- 13.3.3 In no event shall the County be liable for any loss of profits on the resulting order or portion thereof so terminated.
- 13.3.4 County's termination of this Agreement for convenience shall not preclude County from taking any action in law or equity against Contractor for:
 - 13.3.4.1 Improperly submitted claims, or
 - 13.3.4.2 Any failure to perform the work in accordance with the Statement of Work, or
 - 13.3.4.3 Any breach of any term or condition of the Agreement, or
 - 13.3.4.4 Any actions under any warranty, express or implied, or
 - 13.3.4.5 Any claim of professional negligence, or
 - 13.3.4.6 Any other matter arising from or related to this Agreement, whether known, knowable or unknown before, during or after the date of termination.

13.4 Remedies Not Exclusive.

The rights and remedies of County provided in this article shall not be exclusive and are in addition to any other rights and remedies provided by law or under resulting order.

13.5 Audit and Inspection of Records

In the event of termination, County shall have the right to audit and inspect Contractor status reports, invoices and external correspondence that pertain directly to Contractor's performance of its duties pursuant to this Agreement, but excluding information related to cost or profit or attorney-client privilege. Upon reasonable written request therefor from County, Contractor shall make such records available in the County of San Diego, California during regular business hours, for inspection, audit or reproduction, until the expiration of three (3) years from the date of final payment to Contractor under this Agreement, or, if this Agreement is terminated pursuant to the provisions of this Article 13 ("Termination") then such records shall be made available for County's inspection for (i) three (3) years from the date of such termination, or (ii) until any litigation, appeal or claim submitted to mediation or arbitration arising out of such termination shall have been finally adjudicated or settled, whichever is longer.

13.6 Suspension of Work

13.6.1 The County, through its County Purchasing and Contracting officer may order the Contractor, in writing, to suspend, delay or interrupt all or any part of the Project for such period of time as he or she may reasonably determines to be appropriate for the convenience of the County.

13.6.2 Reserved

13.6.3 Reserved

13.6.4 If the performance of all or any part of this Project is, for any period of time, suspended, delayed or interrupted by an act of the contracting officer in the administration of this Agreement, or by his failure to act within the time specified in this Agreement, or by his failure to act within the time specified in this Agreement (or if no time is specified, within a reasonable time), an adjustment shall be made in the Contract Price for any increase in the cost of performance of this Agreement (excluding profit) necessarily caused by such suspension, delay or interruption and the Agreement modified in writing according to the Change Order Process set forth in Article 14. However, no adjustment shall be made under this clause for any suspension, delay or interruption to the extent (1) that performance would have been so suspended, delayed or interrupted by any other cause, including the fault or

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negligence of the Contractor or (2) for which an equitable adjustment is provided for or excluded under any other provision of this Agreement.

13.6.5 No claim under this clause shall be allowed unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of such suspension, delay or interruption, but not later than the date of final payment under this Agreement.

13.7 Reserved.

ARTICLE 14 – CHANGES

14.1 Variations in Specifications

The County reserves the right to waive a variation in the Statement of Work if, in the opinion of the COTR, such variation does not materially change the item and its performance remains within parameters acceptable to the County.

14.2 Change Order

Either party may at any time, by written request, propose changes within the general scope of this Agreement, in the scope of work described in the Specifications, in the definition of services to be performed, the time (e.g., hours of the day, days of the week, etc.) and place of performance thereof or in any other aspect of Contractor's work hereunder. Any such requested change order ("Change Order") shall be subject to the Change Order Process more particularly described in this Article 14 ("Changes"). The parties acknowledge that the intent of the Change Order Process is to provide an equitable adjustment in the Contract Price, in the Implementation Plan, or both, and upon acceptance according to the Change Order Process, this Agreement is modified accordingly.

14.3 Disputes Regarding Scope of Work

In the event that Contractor believes that any particular work is outside the scope of work described in the Statement of Work, or in the event that County believes that any particular work hereunder is within the scope of work described in the Statement of Work, but the other party disagrees, then the parties shall use the Change Order process as a means of agreeing upon the value of the disputed work and the impact, if any, on the Implementation Plan. Such agreement by the parties, if any, with respect to such value and impact on the Implementation Plan shall not be construed as an acknowledgement by either party that the work is or is not within the scope of work described in the Specifications, but rather shall be binding on the parties with respect to value and impact, if and to the extent that there is a determination that such work was outside the scope of work described in the applicable specifications and that Contractor is therefore entitled to payment therefor. However, nothing in this clause shall excuse Contractor from proceeding with the Project nor shall it permit Contractor to suspend performance pending resolution of the dispute, provided that County instructs Contractor in writing to proceed with work on the disputed work.

14.4 Change Order Process

14.4.1 Submission

County may submit to Contractor a Change Order request from time to time during the term of this Agreement. Not more than ten (10) business days from the date of such Change Order request, Contractor shall complete and return to County a proposed Change Order, which shall contain, at a minimum, a written price estimate based on Contractor's rates and charges set forth in Exhibit C Article 12, "Pricing Schedule," for each Change, a complete itemization of all components of such price estimate, any proposed adjustment in the Contract Price, any proposed adjustment in the Implementation Plan, and any impact on Resource requirements applicable thereto. Contractor shall not be reimbursed for the costs incurred by it to prepare to a proposed Change Order, including price estimates. County's COTR may not approve such proposed Change Order or agree to any price adjustment in this Agreement; such approval and agreement may only issue from the County's Director of Purchasing and Contracting, or his or her designee, by means of a mutually-agreeable and properly executed Change Order. If the County approves the Change Order in accordance with the foregoing with agreement by Contractor, evidenced by the execution of the applicable proposed Change Order by the Contractor, COTR and by the County Purchasing and Contracting Officer, Contractor shall perform the work as described in such Change Order and any adjustment to the Contract Price and/or the Implementation Plan approved in the Change Order shall become effective.

14.4.2 Initiation by Contractor

Contractor may initiate Changes by advising County in writing that in Contractor's opinion a Change is necessary, including without limitation if Contractor believes that any item or unit is not included within the scope of the

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Statement of Work or for any Change it deems necessary for performance under this Agreement. If the County agrees that the requested Change is required, then the County shall request Contractor to submit a proposed Change Order, and the process shall be handled as if initiated by County in accordance with subsection 14.4.1 above.

14.4.3 Affected Specifications

To the extent a requested Change Order has interdependencies with the rest of the System, Contractor shall, concurrently with the submission of the proposed Change Order, propose corresponding changes to the Specifications for the rest of the System affected by such requested Change Order. Such interdependencies shall include, without limitation Deliverables impacts on the Implementation Plan, schedule, training, documentation, Milestones performance, Resources, data conversion, users, and all other aspects of the Project, as reflected in the Implementation Plan.

14.5 Effect of Change Orders

County assumes no obligation to pay for changes performed without prior written approval through the Change Order Process described in this Article. As a condition to payment, individual invoices for each approved Change Order must be submitted to County within thirty (30) days of performance of work pertaining to such Change Order and payment shall be made in accordance with the provisions of such Change Order. Except for any agreed upon adjustment to the Contract Price or Implementation Plan set forth in a Change Order, all terms of this Agreement shall apply to any approved Change. No Change in the scope of work made pursuant to this section shall result in any delay in a Milestone unless such delay is set forth and approved in the Change Order. No adjustment to the Contract Price shall be allowed, whether equitable or otherwise, nor any price estimate submitted to County in connection with any change, except in accordance with the procedure described in this Article 14 ("Changes"). Except as provided in this Article 14 ("Changes"), no course of conduct between the parties, nor express or implied acceptance of any Change, and no claim that County has been unjustly enriched by any alteration or addition to the scope of work shall be the basis of any claim for an increase in the Contract Price, or a change in the Implementation Plan or the Specifications.

ARTICLE 15 - INDEMNITY

County shall not be liable for, and Contractor shall defend, indemnify and hold County harmless from, any and all claims, demands, liability, judgments, awards, fines, mechanics' liens or other liens, labor disputes, losses, damages, expenses, charges or costs of any kind or character, including attorneys' fees and court costs (hereinafter collectively referred to as "Claims"), related to the work covered by this Agreement arising either directly or indirectly from any act, error, omission or negligence of Contractor or its contractors, licensees, agents, servants or employees, including, without limitation, Claims caused by the concurrent negligent act, error or omission, whether active or passive, of County or its agents or employees. However, Contractor shall have no obligation to defend or indemnify County from a Claim if it is determined by a court of competent jurisdiction that such Claim was caused by the sole negligence or willful misconduct of County or its agents or employees.

ARTICLE 16 - INSURANCE

Without limiting Contractor's indemnification obligations to County, Contractor shall provide and maintain, during the duration of this Agreement and for such other period as may be required herein, at its sole expense, insurance in the amounts and form described in Exhibit B - Insurance Requirements, attached hereto.

ARTICLE 17 - REPORTS, RECORDS AND OTHER PRINTED OR WRITTEN MATERIALS

17.1 Audit and Inspection of Records

County shall have the right to audit and inspect those books, records and documents of Contractor, and other data in the possession of Contractor, which pertain directly to Contractor's performance of its duties pursuant to this Agreement. Contractor shall cause to be delivered to County all records relating to travel expenses claimed and training Deliverables. Upon reasonable written request therefor from County, Contractor shall make other Project records available to the COTR at a location in San Diego County, California during regular business hours, for inspection, audit or reproduction, until the expiration of three (3) years from the date of final payment to Contractor under this Agreement, or, if this Agreement is terminated pursuant to the provisions of Article 13, above, then such records shall be made available for County's inspection for (i) three (3) years from the date of such termination, or (ii) until any litigation, appeal or claim submitted to mediation or arbitration arising out of such termination shall have been finally adjudicated or settled, whichever is longer.

17.2 Confidentiality

Contractor acknowledges that information provided by it to County, including Confidential Information, may be subject to a request under the California Public Records Act. Should County receive such a request for disclosure of information, County will comply with the requirements under the California Public Records Act. If County receives a request for Contractor's

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Confidential Information, County will notify Contractor of the request. Contractor shall, within five (5) calendar days of such notice, notify County if Contractor objects to the disclosure of the requested Confidential Information. If Contractor objects to the disclosure of the information, Contractor shall set forth the legal basis of its objection. County will withhold the information and Contractor shall indemnify and hold harmless County to the fullest extent allowable by law and in accordance with the requirements of Article 15 of this Agreement.

ARTICLE 18 - GENERAL PROVISIONS

18.1 Assignment

Contractor shall not assign any interest in this Agreement, and shall not transfer any interest in the same (whether by assignment or novation), without the prior written consent of the County; County's consent shall not be unreasonably withheld. The Contractor shall make no Agreement with any party for furnishing any of the work or services herein contained without the prior written prior concurrence of the COTR.

18.3 Right to Acquire Equipment and Services

Nothing in this Agreement shall prohibit the County from acquiring the same type or equivalent equipment and/or service from other sources, when deemed by the County to be in its best interest.

18.4 Construction

The parties to this Agreement acknowledge that it has been read and approved by counsel for both parties and that it represents the result of the arms length negotiations of the parties. In the event of disagreement as to the meaning of any term of this Agreement, it shall be construed on the basis of its plain meaning and as if it had been jointly drafted by the parties to this Agreement.

18.5 Entire Agreement

This Agreement, together with all exhibits attached hereto and other agreements expressly referred to herein, constitutes the entire agreement between the parties with respect to the subject matter contained herein. All prior or contemporaneous agreements, understandings, representations, warranties and statements, oral or written, including any proposals from Contractor and requests for proposals from County, are superseded.

18.6 Exhibits

All exhibits referred to herein are attached to this Agreement and incorporated herein by reference.

18.7 Further Assurances

The parties agree to perform such further acts and to execute and deliver such additional documents and instruments as may be reasonably required in order to carry out the provisions of this Agreement and the intentions of the parties.

18.8 Governing Law

Except where preempted by Federal law, this Agreement shall be governed, interpreted, construed and enforced in accordance with the laws of the State of California.

18.9 Headings

The captions and Section headings used in this Agreement are inserted for convenience of reference only and are not intended to define, limit or affect the construction or interpretation of any term or provision hereof.

18.10 Modification and Waiver

Except as otherwise provided in Article 14, "Changes" above, no modification, waiver, amendment or discharge of this Agreement shall be valid unless the same is in writing and signed by both parties.

18.11 No Other Inducement

The making, execution and delivery of this Agreement by the parties hereto has been induced by no representations, statements warranties or agreements other than those expressed herein.

18.12 Notices

Notice to either party shall be in writing and either personally delivered or sent by certified mail, postage prepaid, return receipt requested, addressed to the party to be notified at the address specified herein. Any such notice shall be deemed

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received on the date of personal delivery to the party (or such party's authorized representative) or three (3) business days after deposit in the U.S. Mail, as the case may be.

County: Manager, Sheriff Wireless Division

 San Diego County Sheriff's Department
 5595 Overland Avenue, Suite 101
 San Diego, CA 92123
 Phone: 858.694.3663

With a copy to: Department of Purchasing & Contracting
 5560 Overland Avenue, Suite 270
 San Diego, CA 92123
 Phone: 858.505.6367

Contractor: Contracts Manager, Legal Department

 Aviat U.S., Inc.
 5200 Great America Parkway
 Santa Clara, CA 95037

Either party may change its address for notice by delivering written notice to the other party as provided herein.

18.13 Severability

If any term, provision, covenant or condition of this Agreement is held to be invalid, void or otherwise unenforceable, to any extent, by any court of competent jurisdiction, the remainder of this Agreement shall not be affected thereby, and each term, provision, covenant or condition of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

18.14 Successors

Subject to the limitations on assignment set forth in Section 18.1, all terms of this Agreement shall be binding upon, inure to the benefit of, and be enforceable by the parties hereto and their respective heirs, legal representatives, successors-in-interest, and assigns.

18.15 Time

Time is of the essence of each provision of this Agreement.

18.16 Time Period Computation

All periods of time, as referred to in this Agreement, shall include all Saturdays, Sundays and County holidays, unless the period of time specifies business days; provided that if the date or last date to perform any act or give any notice or approval shall fall on a Saturday, Sunday or Contractor, State or national holiday, such act or notice may be timely performed or given on the next succeeding day, which is not a Saturday, Sunday or State or national holiday.

18.17 Waiver

The waiver by one party of the performance of any term, provision, covenant or condition shall not invalidate this Agreement, nor shall it be considered as a waiver by such party of any other term, provision, covenant or condition. Delay by any party in pursuing any remedy or in insisting upon full performance for any breach or failure of any term, provision, covenant or condition shall not prevent such party from later pursuing remedies or insisting upon full performance for the same or any similar breach or failure.

18.18 Public Agency Participation

It is intended that any other public agency (e.g. city, district, public authority, public agency, municipality and other political sub-division or public corporation of California) located in San Diego County or Imperial County shall have the option to participate in any award made as a result of this solicitation. Any agency located outside of San Diego County or Imperial County shall have the option to participate, but shall incur all freight charges from location of awarded vendor to delivery

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point. The County of San Diego shall incur no financial responsibility in connection with orders issued under the authority of this provision or in making payments to the vendor.

18.19 Performance Bond

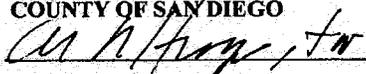
To secure State or federal grant funding, the County may direct the Contractor to obtain a performance bond to ensure the performance of all or a portion of the Contract within a specified period of time after payment by the County. Within 10 business days of such a request by the County, the Contractor shall obtain and deliver to County a performance bond in the form and amount specified by the County.

ARTICLE 19 – FEDERAL GRANT FUNDING REQUIREMENTS

Contractor is advised that partial funding for this Agreement is provided by the Homeland Security Grant Program ("Grant"). Contractor shall comply with all applicable Grant requirements, including, without limitation, the following:

- 19.1 Contractor shall take the affirmative steps listed in 44 CFR 13.36(e)(2)(i)-(v) to assure that minority firms, women's business enterprises, and labor surplus area firms are used when possible.
- 19.2 Contractor shall provide access to the County, the federal granting agency, the State of California granting agency, the City of San Diego, the Comptroller General of the United States, and any of their duly authorized representatives to any books, documents, papers, and records of the Contractor which are directly pertinent to this Agreement for the purpose of making audit, examination, excerpts, and transcriptions.
- 19.3 Contractor shall retain all records pertaining to this Agreement for three years after the County makes final payments and all other pending matters are closed.
- 19.4 Contractor shall comply with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR part 15).
- 19.5 Contractor shall comply with all mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. L. 94-163, 89 Stat. 871).
- 19.10 Pursuant to 44 CFR 13.36(i)(7), County hereby notifies Contractor that the U.S. Department of Homeland Security requires the County to submit financial, progress, and strategy implementation reports for all U.S. Department of Homeland Security funded projects in accordance with Homeland Security Grant Program Guidance.

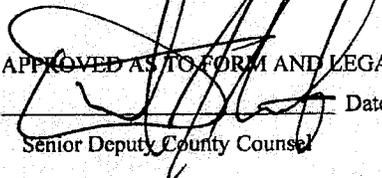
This Agreement shall be effective as of the date of its approval by County.

COUNTY OF SAN DIEGO
By: 
JOHN M. PELLEGRINO, Director
Department of Purchasing and Contracting

AVIAT U.S., INC.
By: 
NAME Kevin Howell
TITLE: VP FINANCE

Date: 2/13/2014

Date: February 13, 2014

APPROVED AS TO FORM AND LEGALITY
By:  Date: 2-13-14
Senior Deputy County Counsel

**COUNTY CONTRACT NUMBER 547601
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EXHIBIT A – STATEMENT OF WORK**

1. Project Overview

1.1 Project Background

- 1.1.1 The San Diego County Sheriff's Department (SHERIFF) operates and maintains the San Diego County – Imperial County Regional Communications System (RCS) which serves Law Enforcement, Fire Service, and Emergency Medical Service (EMS) providers in incorporated cities, counties, and other local and state agencies within the service area. The SHERIFF also operates and maintains conventional voice channels, a mobile data system, and a simulcast paging system.
- 1.1.2 The RCS is a Motorola trunked radio system built on an ASTRO 25 Integrated Voice & Data 7.13 core interfaced to legacy SmartZone® 3.0 remote sites through Motorola SmartX® converters. The system provides voice communications services to organizations with broad public safety and public service responsibilities from the local and tribal level to regional and state levels.
- 1.1.3 The existing microwave network utilizes Time Division Multiplex (TDM) technology to interconnect the RCS, a Motorola High Performance Data (HPD) radio network, a simulcast digital paging system, and a multi-channel conventional interoperability overlay.
- 1.1.4 The SHERIFF is currently planning for the replacement of the RCS with the Next Generation Public Safety Communications System (NGPSCS), a standards-based Project 25 (P25) integrated voice and data system that offers greater potential for interoperability, flexibility, and system longevity, with the spectral efficiency of trunked technology.
- 1.1.5 Although the current radio systems operate on a TDM backhaul network, the NGPSCS will require an Internet Protocol (IP) based environment to facilitate system redundancies, traffic prioritization, dynamic routing, quality of service, and efficient use of backhaul network bandwidth.

1.2 Project Scope

- 1.2.1 The SHERIFF seeks to replace the existing microwave backhaul network to support mission critical voice and data communications within San Diego County service area. Specific links that are not planned for immediate replacement are identified in Section 2 Microwave Backhaul Network Requirement.
- 1.2.2 The new microwave backhaul network shall provide enhancements to system functionality and capacity. The replacement network shall make use of newer technology at an earlier stage of its lifecycle. The IP/TDM hybrid microwave system must be capable of migrating to a 100% IP-based environment. The microwave system shall employ open standards (non- proprietary).
- 1.2.3 The new microwave backhaul network shall provide support for the current operational legacy public safety communication systems while laying the foundational technology needed to serve the NGPSCS.

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- 1.2.4 The SHERIFF intends to reuse existing microwave backhaul network sites to the greatest extent possible.
- 1.2.5 The SHERIFF does not anticipate the need for any facility upgrades (such as increased power or HVAC, tower improvements, etc.) at any of the sites. However, if the CONTRACTOR identifies any facility deficiencies impacting the successful completion of the project, the CONTRACTOR shall report the deficiencies to the SHERIFF as soon as possible after the completion of detailed site surveys and no later than the Detailed Design Review. The CONTRACTOR is not responsible for any facility upgrades or repairs related to the microwave system deployment.
- 1.2.6 The SHERIFF is planning for the future implementation of mobile broadband technology such as Long Term Evolution (LTE). The new microwave backhaul network design shall support potential mobile data services and features requiring higher levels of throughput, capability, and performance.

1.3 Project Summary

- 1.3.1 The CONTRACTOR shall be responsible for providing the following project components:
 - 1.3.1.1 Detailed site surveys
 - 1.3.1.2 Detailed path analysis
 - 1.3.1.3 System design and engineering
 - 1.3.1.4 Detailed design review
 - 1.3.1.5 Furnishing and installing system equipment
 - 1.3.1.6 Removal of existing equipment
 - 1.3.1.7 Project management
 - 1.3.1.8 Software installation and programming
 - 1.3.1.9 Network configuration
 - 1.3.1.10 Training
 - 1.3.1.11 Acceptance testing
 - 1.3.1.12 Cutover plan and execution
 - 1.3.1.13 Documentation

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- 1.3.1.14 Hardware and software warranty and maintenance, including spares and parts support
- 1.3.2 Planning, coordinating, conducting work and cutover shall be with minimal interruption of service to existing critical systems.
- 1.3.3 All equipment shall be provided in new condition and be covered by a full manufacturer's warranty of not less than two years.
- 1.3.4 Equipment shall be in an early stage of their respective lifecycles. The SHERIFF defines "end of lifecycle products" as products for which the manufacturer intends to discontinue support within the next seven years.

1.4 Project Manager

- 1.4.1 CONTRACTOR shall provide a Project Manager who shall be the primary liaison between SD County and the CONTRACTOR, responsible for managing all work by providing daily direction to the CONTRACTOR's Project management team. The Project Manager shall have the following minimum qualifications:
 - 1.4.1.1 Be a full-time employee of the CONTRACTOR and be available within three (3) hours of travel time to San Diego County throughout the duration of the project. Project Manager shall not be a subcontractor.
 - 1.4.1.2 Have knowledge and expertise in the deployment of microwave radio systems supporting public safety mission critical communications.
 - 1.4.1.3 Have at least three (3) years of recent project management responsibility for projects similar in scope and complexity to the Microwave Network Replacement Project.

1.5 Project Implementation Plan

- 1.5.1 The CONTRACTOR shall provide a Project Implementation Plan that includes, a detailed Work Breakdown Structure (WBS), project scope, deliverables, schedule, Quality Assurance/Quality Control (QA/QC) processes, and risk management sections.
- 1.5.2 The plan shall describe how the CONTRACTOR intends to monitor and control the installation and deployment of the proposed system and mitigate risks in order to ensure that the system meets the design specifications and is delivered on time.
- 1.5.3 Regularly scheduled status meetings shall be established between the SHERIFF Project Team and the CONTRACTOR. The CONTRACTOR shall provide a schedule for these meetings subject to the approval of the SHERIFF.

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1.6 Project Schedule

- 1.6.1 The CONTRACTOR shall develop and maintain a project schedule including tasks, milestones, start and end dates, task dependencies, and task owners based on an approved WBS.
- 1.6.2 The schedule shall represent tasks associated with completing work on all items identified in the WBS. The project schedule shall be updated with actual dates as tasks are completed.
- 1.6.3 The updated schedule shall be provided as an agenda item for all status meetings between the SHERIFF and the CONTRACTOR.

1.7 Project Meetings

- 1.7.1 A project kickoff meeting shall be scheduled prior to the beginning of the project.
- 1.7.2 Recurring project status meetings shall be scheduled following contract award and the initial kickoff meeting.
- 1.7.3 The CONTRACTOR shall be responsible for scheduling the meetings as well as preparing meeting agendas and minutes. Meeting agenda items shall include, as a minimum, the following items:
 - 1.7.3.1 Schedule review
 - 1.7.3.2 Status of deliverables
 - 1.7.3.3 Risk items
 - 1.7.3.4 Changes
 - 1.7.3.5 Plans for the next period
 - 1.7.3.6 Action item assignments
 - 1.7.3.7 Punch list review
- 1.7.4 The CONTRACTOR shall provide written minutes of all meetings no later than five business days after the meeting

1.8 Project Punch List

- 1.8.1 The CONTRACTOR shall establish and maintain a punch list, as mutually agreed to with the SHERIFF, for backhaul equipment, antenna systems, and acceptance tests.

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- 1.8.2 The punch list shall be maintained in real time and published weekly. The punch list shall include the following at a minimum:
 - 1.8.2.1 Sequential punch list item number
 - 1.8.2.2 Date identified
 - 1.8.2.3 Item description
 - 1.8.2.4 The party responsible for resolution
 - 1.8.2.5 Expected resolution date
 - 1.8.2.6 Final resolution date
 - 1.8.2.7 Details about how each punch list item was resolved and tested
 - 1.8.2.8 Notes about the item
 - 1.8.2.9 Sign off by the SHERIFF
- 1.8.3 If responsibility for resolving an item is transferred to another person or group, a new entry shall be added to the punch list and the original entry shall be appropriately noted.
- 1.8.4 The CONTRACTOR shall be responsible for reviewing each punch list item, and advising the SHERIFF of any changes. The status of punch list items shall be updated during each status meeting.

1.9 Background Checks

- 1.9.1 The CONTRACTOR shall be required to authorize the investigation of its personnel, subcontractors, independent contractors, Subject Matter Experts (SMEs), etc., that shall have access to non-public areas of the Sheriff's facilities, radio systems, network, data, or other sensitive information.
- 1.9.2 The scope of the background check is at the discretion of the Sheriff's Department, and may include polygraph and/or Computer Voice Stress Analysis (CVSA). The decision of the SHERIFF is final. The cost of attending the background investigation shall be the responsibility of the CONTRACTOR.

1.10 Preliminary Design

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- 1.10.1 The CONTRACTOR shall submit the Preliminary Design package with the updated Technical System Design Document within 60 calendar days of contract award, which shall include the following:
- 1.10.1.1 Detailed project schedule
 - 1.10.1.2 System block diagrams
 - 1.10.1.3 Microwave network equipment room overview drawings
 - 1.10.1.4 Microwave network equipment rack / cabinet elevation drawings
 - 1.10.1.5 Provide antenna mounting locations for any antennas that will not be mounted in the precise existing location.
 - 1.10.1.6 Detailed lists of materials for each site
 - 1.10.1.7 Microwave Engineering Report including fade margin calculations, graphical path profiles, and written evaluation of path suitability and indication of potential problems (e.g., terrain, weather, and possible obstructions). The path profiles and calculations shall be performed using at a minimum a 10-meter terrain data resolution. The present and anticipated future effect of on-path obstructions such as tree growth shall be evaluated and incorporated into the path design where applicable.

1.11 Detailed Design Review

- 1.11.1 The Detailed Design Review shall be conducted in a collaborative meeting between the CONTRACTOR and SHERIFF project teams in San Diego.
- 1.11.2 The purpose of the Detailed Design Review is to:
- 1.11.2.1 Establish a defined baseline for the system design and identify any special requirements and their impact on system implementation.
 - 1.11.2.2 Review the System Design, Statement of Work, Project Schedule, and Acceptance Test Plans, and update the contract documents accordingly.
 - 1.11.2.3 Discuss the proposed Cutover Plan and methods to document a detailed procedure.
- 1.11.3 CONTRACTOR shall submit Technical System Design Documents to the SHERIFF for approval so the design can be finalized.

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1.12 Final Design

- 1.12.1 The CONTRACTOR shall submit the Final Design package with the final Technical System Design Document within 90 calendar days of contract award, which shall include the following:
- 1.12.1.1 Any updates to previously submitted design information
 - 1.12.1.2 Cutover plan
 - 1.12.1.3 Site drawings (i.e., floor layout, rack drawings, tower profile, etc.)
 - 1.12.1.4 Structural analyses and results
 - 1.12.1.5 Staging Acceptance Test Plan (SATP) outlining a comprehensive series of tests that shall demonstrate proof of performance and readiness for shipment
- 1.12.2 The CONTRACTOR shall submit the SATP to the SHERIFF no later than 20 business days before the testing starts. The SHERIFF shall approve the SATP at least ten business days before the testing starts.
- 1.12.3 The SHERIFF shall be afforded the opportunity to witness the staging acceptance testing. The CONTRACTOR shall provide Staging Acceptance Test dates no later than 30 days in advance to ensure SHERIFF can arrange travel to the test site.

1.13 Equipment Delivery Timeline

- 1.13.1 All equipment and material shall be delivered and received by San Diego County no later than 270 calendar days after contract execution date.

2. Microwave Backhaul Network Requirements

2.1 Overview

- 2.1.1 The existing backhaul network consists of a combination of 59 microwave links (57 within San Diego County and 2 connecting to Imperial County) and 12 leased circuits. Attachment A – Backhaul Network Site Configuration provides a listing of the microwave links.
- 2.1.2 Attachment B – Microwave Network Topography provides a visual perspective of the geographic site placements. The existing network configuration consists of the following:
- 2.1.2.1 Three loop protected rings in San Diego County with 155 Mbps capacity (illustrated in red) for each ring

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- 2.1.2.2 One inter-county loop protected ring with 45 Mbps capacity (illustrated in red)
- 2.1.2.3 Multiple spurs throughout the Counties of San Diego and Imperial that range from 12 Mbps and 24 Mbps, to 180 Mbps capacities
- 2.1.3 Most Imperial County microwave links have recently been upgraded and do not require replacement. The following links do not require replacement microwave equipment:
 - 2.1.3.1 ICSO to Holtville
 - 2.1.3.2 ICSO to Brawley
 - 2.1.3.3 Brawley to Brunts
 - 2.1.3.4 Brunts to Black Mountain
 - 2.1.3.5 Black Mountain to Ogilby
 - 2.1.3.6 Ogilby to Black Hills
 - 2.1.3.7 Superstition to Salton City
 - 2.1.3.8 Calexico to ICSO
- 2.1.4 These microwave links are illustrated in blue in Attachment B Figure B.4. They do not require replacement. However, equipment, including routers, for the spurs to interface to the inter-county links will be required in the future. Please refer to Section 6 – Optional Items for more details.
- 2.1.5 The existing backhaul network employs a variety of microwave product lines to support the RCS trunked voice, conventional channels, Motorola High Performance Data (HPD), and paging services.
- 2.1.6 The NGPSCS will have standards-based Project 25 (P25) architecture that relies on the inherent flexibility provided by IP-based technology. The new backhaul network shall prioritize traffic guaranteeing bandwidth for each public safety communications system.
- 2.1.7 The new backhaul network shall support the continued use of TDM based services such as alphanumeric paging, HPD services, and conventional voice system.
- 2.1.8 Some services shall initially operate on TDM but eventually migrate to IP. Other services such as broadband data applications will immediately integrate into the IP network. The CONTRACTOR shall provide interface solutions capable of migrating existing TDM based services to IP at a later date.

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- 2.1.9 Other public service/safety agencies and commercial enterprises may also require bandwidth on the microwave backhaul network. Providing excess backhaul capacity to other organizations through an Ethernet connection between network connection points without risk to public safety traffic is required.
- 2.1.10 At ICSO, the CONTRACTOR shall provide, install and cutover the required interface equipment (routers, etc.) between the new San Diego County microwave network and existing Imperial County microwave network. The CONTRACTOR shall ensure the Inter-County Loop is fully functional.

2.2 Performance Requirements

- 2.2.1 Packet Loss – the microwave network shall maintain packet loss of less than .01%; this includes any packets out of order (see Jitter below).
- 2.2.2 Latency – the microwave network shall maintain latency of <40 ms (milliseconds).
- 2.2.3 Jitter – the microwave network shall ensure that all packets arrive in order and within 20 ms of the previous packet. The radio system may discard out of order packets.

2.3 Radio Requirements

- 2.3.1 The microwave network shall consist of monitored hot standby (MHSB) or loop (ring) protected point-to-point licensed microwave hops. (Any changes to the existing ring/MHSB will require preapproval of the SHERIFF.) The RF portion of the microwave network has the following technical requirements.
- 2.3.2 The microwave terminal equipment shall include transmitter, receiver, modem, power supply, automatic switching device, multiplexer, service channel(s), and all associated interconnections to provide a complete and functional network.
- 2.3.3 The microwave radio shall deliver two-frequency (or more as required by the design), full-duplex operation.
- 2.3.4 The microwave radio shall be able to support non-standard Ethernet frames, also known as jumbo frames.
- 2.3.5 The microwave network shall meet the following capacity requirements:
 - 2.3.5.1 Capacity shall be maximized system-wide, such that each loop (ring) delivers at a minimum 180 Mbps and each path within the loop delivers at a minimum of 180 Mbps. Exception on links Superstition – Monument PK and Monument PK – Volcan North that

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will operate at a minimum of 179 Mbps as required to achieve 99.999% reliability. All radios will be capable of operation at a minimum of 180 Mbps.

- 2.3.5.2 Minimum capacity for each spur shall be 50 Mbps.
- 2.3.6 The microwave network shall meet the following performance requirements:
 - 2.3.6.1 Each microwave link shall be designed to meet or exceed a one way end-to-end annual availability of 99.9995% (BER = 10^{-6}) at the required capacity offered by the vendor.
 - 2.3.6.2 Each microwave link shall be designed to meet or exceed a one way end-to-end annual reliability of 99.999% (BER = 10^{-5}) at the required capacity offered by the vendor.
 - 2.3.6.3 The CONTRACTOR shall be solely responsible for the new backhaul network to operate at the agreed accepted level of reliability and compliant with all new or modified required FCC radio station licenses.
- 2.3.7 The microwave radio shall meet the following transmitter requirements:
 - 2.3.7.1 Transmitter output power shall be consistent with the requirements of the path and the license.
 - 2.3.7.2 Transmit output power shall be software adjustable.
 - 2.3.7.3 Automatic Transmit Power Control (ATPC) shall be available.
 - 2.3.7.4 Where necessary and permissible under FCC rules, Adaptive Modulation and Coding (AMC) shall be employed.
 - 2.3.7.5 A transfer from main transmitter to standby transmitter shall not result in system outage.
 - 2.3.7.6 Radios shall be equipped with one RF power amplifier- per transmitter.
 - 2.3.7.7 New microwave radio equipment shall be type accepted for licensing under Part 101 of the FCC Rules and Regulations.
- 2.3.8 The microwave radio shall meet the following receiver requirements:
 - 2.3.8.1 The receiver design shall ensure that the receiver with the better performance is operational at any given moment. Radios shall be equipped with a 1:6 split to prevent frequent switching.
 - 2.3.8.2 Transfer to the backup receiver shall not result in system outage.

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- 2.3.9 The microwave network shall meet the following antenna system requirements:
- 2.3.9.1 The CONTRACTOR shall replace the existing antenna systems with new antenna systems. Replacement antennas shall be the same size (or smaller if at all possible). Any increase in antenna size will require justification.
 - 2.3.9.2 The CONTRACTOR shall be responsible for completing all required structural analyses, sealed by a professional engineer, licensed by the State of California. The SHERIFF shall make the final determination on which structures require analysis and shall provide earlier study results to the CONTRACTOR where possible.
 - 2.3.9.3 The following specifications apply to new antenna systems implemented:
 - 2.3.9.3.1 Microwave antennas shall be compatible with the radio frequency bands and conform to applicable FCC requirements. Solid parabolic type, Category A antennas with radomes shall be used in accordance with FCC Part 101.115.
 - 2.3.9.3.2 Pressurized elliptical waveguide shall be used where applicable. Connectors shall be standard, premium type, and compatible with the antenna and radio Electronics Industry Alliance (EIA) interfaces. All indoor and outdoor waveguide shall be fire retardant with no splices.
 - 2.3.9.3.3 An automatic dehydrator/pressurization system shall be provided to maintain at least five pounds per square inch gauge (psig) positive pressure of conditioned air in the elliptical waveguide. Individual pressure gauges with valves on a distribution manifold shall be provided for each line.
 - 2.3.9.3.4 All installed antenna/transmission lines shall be purged, pressure tested, and tested for low Voltage Standing Wave Ratio (VSWR) using return loss measurements.
 - 2.3.9.3.5 The entire antenna line system shall be swept for distance-to-fault (DTF), return loss, and VSWR measurement taken of the transmission path. For DTF use load for waveguide.
 - 2.3.9.3.6 CONTRACTOR shall provide hard copies and electronic copies of all test results at the time of Final System Acceptance.
 - 2.3.9.3.7 For all waveguide installations, an overall leakage test shall be performed to ensure the integrity of the complete antenna system, including the antenna, waveguide, and connectors. These tests shall be made in accordance with the manufacturers' specifications and shall be made from the pressure window. Results of all tests performed shall be provided to the SHERIFF.
 - 2.3.9.3.8 All tower mounting brackets, cable management, and other hardware used for installation shall be hot dipped galvanized or stainless steel and supplied

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as necessary for a complete installation. All interconnecting cables shall be tagged at both ends properly indicating the termination points.

- 2.3.9.3.9 The antenna systems shall be able to withstand a wind velocity survival rating of 125 miles per hour winds.
- 2.3.9.3.10 The antenna systems shall meet the minimum wind speed with ice and ice thickness requirements as specified in Annex B of ANSI/TIA-222 (latest revision).
- 2.3.9.3.11 Dual feed antennas exist on the following four paths: UCSD Medical Center to Traffic Management Center (TMC), Mount Woodson to North Peak, Mount Woodson to Escondido PD, and TMC to Mount Soledad. The dual feed antenna is used to support both the existing County microwave network and a completely separate microwave network (not being replaced at this time) at these locations due to tower constraints. An antenna dish that is compatible with both the new County microwave system and the other microwave network shall be installed at these locations. Attachment A, Table A.4 provides further details. Specific antenna model details for these links can be found in Attachment A, Table A.1.
- 2.3.9.4 All RF paths shall be tested to demonstrate proper antenna alignment by measuring the net path loss between sites as measured at the equipment rack / transmission line interface.
- 2.3.9.5 After installation, each path shall be tested for External Interference Fade Margin (EIFM) to demonstrate that each channel assignment is free of external harmful interference. The CONTRACTOR shall be responsible for correcting the harmful interference.
- 2.3.9.6 Physical path surveys shall be conducted to assure that all proposed paths meet proper clearance criteria.
- 2.3.9.7 Any antenna centerline mounting height changes as required by the CONTRACTOR shall be based on the information gathered during the physical path surveys and site visits.
- 2.3.9.8 Fade margin calculations showing the antenna sizes, system gains, and system losses shall be included.
- 2.3.9.9 New antenna equipment shall utilize existing spaces to the maximum extent possible.

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- 2.3.10 The CONTRACTOR shall provide and install a test bed set of radios at the Primary Systems Center. The CONTRACTOR shall install one test hop for each frequency band used in the new network.

2.4 Network Requirements

- 2.4.1 The microwave network shall meet the following Mixed Mode TDM and Packet Transport requirements:
 - 2.4.1.1 The microwave network shall support existing TDM-based systems until all supported systems are transitioned to IP.
 - 2.4.1.2 The microwave network shall support both traditional TDM connectivity as well as pure packet-based connections. Packet-based connections shall be native end-to-end packet networks with no intermediate TDM conversion.
 - 2.4.1.3 The microwave network shall support a smooth transition from the current TDM-based radio systems to future IP-based radio systems. The network shall also be capable of seamlessly transitioning capacity between the two technologies so that as each legacy radio system transitions to IP, excess TDM capacity can be migrated to IP. The network shall support the migration to full IP bandwidth without additional hardware.
 - 2.4.1.4 Capacity shall be designed into the microwave network such that all new systems can coexist with legacy systems for an extended period without compromising performance. This is required for installation, configuration, testing, acceptance, and transition periods. Both new and old systems require the ability to operate at full capacity during the transition period.
 - 2.4.1.5 There shall be no single point of failure within the IP or TDM networks. During a link failure, the routing equipment at each site that is part of a microwave loop shall detect, recover and reroute all microwave traffic away, and in the opposite direction around the loop to ensure that service is uninterrupted during the link failure. Spur links shall be MHSB-protected. No single failure shall impact the performance of the overall network or of the individual site.
 - 2.4.1.6 The network shall be configured to reroute network traffic in less than 50 ms in the case of a path or device failure.
- 2.4.2 The microwave network shall meet the following IP network requirements:
 - 2.4.2.1 The network shall support multiple virtual IP networks such that it logically separates traffic on these virtual networks from each other and the traffic on the separate virtual networks cannot intermingle.
 - 2.4.2.2 The network shall be capable of the following characteristics when managing traffic:

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- 2.4.2.2.1 Guaranteed and dedicated bandwidth
 - 2.4.2.2.2 Best effort bandwidth
 - 2.4.2.2.3 Automatic reroute upon a physical path failure
 - 2.4.2.2.4 The ability to set up predetermined paths through the network
 - 2.4.2.2.5 Packet “switching” in place of hop-by-hop routing
 - 2.4.2.2.6 Honor IP class of service marking for various priorities of traffic
 - 2.4.2.2.7 Support overlapping IP addresses in different virtual networks
 - 2.4.2.2.8 Support the ability to provide layer 3 VPN, VPLS, and pseudo-wire services that can support IP, ATM, and Ethernet connectivity
- 2.4.3 The microwave network shall meet the following TDM requirements:
- 2.4.3.1 The network shall support T1, DS1, DS3, and OC3 interfaces for legacy radio interfaces at each site as required.
 - 2.4.3.2 TDM circuits shall meet or exceed the following performance criteria:
 - 2.4.3.2.1 Reliability – 99.999%
 - 2.4.3.2.2 Bit Error Rate – 10^{-6}
 - 2.4.3.2.3 Error Free Seconds – 99.94%
 - 2.4.3.2.4 Errored Seconds – 45/day
 - 2.4.3.2.5 Severely Errored Seconds – 6/day
 - 2.4.3.2.6 Bi-polar violations – 0/day
 - 2.4.3.2.7 Transport delays – 5 ms
 - 2.4.3.2.8 Frame Slips – 0/day
- 2.4.4 The microwave network shall support the following IP Devices:
- 2.4.4.1 All IP devices shall have full support for Internet Protocol Version 4 (IPv4) and Version 6 (IPv6).

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2.4.5 The microwave network shall meet the following Routing requirements:

2.4.5.1 Routers shall be provided at each site to support management of IP traffic, with the exception of the following eighteen spur sites:

- Birch Hill
- Boucher Hill
- Encinitas Best Western
- Harmony Hill
- Hubbard Hill
- Jojoba Hill
- Point Loma
- Rainbow Peak
- Mt Soledad
- Alpine Heights
- Emery Hill
- Campo Graves
- Sunshine Summit
- Chihuahua Valley
- Banner Ranch
- Cuyamaca Peak
- Rams Hill
- Ocotillo Wells

2.4.5.2 Dual Routers shall be provided for physical redundancy at each of the following nine sites:

- Mt Woodson
- SDSO PSC
- Cowles Mtn
- Los Pinos Mt
- Monument Peak
- ICSO
- Lake San Marcos Peak
- Lyons Peak
- Volcan North

2.4.5.4 The new IP-based environment shall support many common networking protocols. Here are some examples:

2.4.5.2.1 Multi-Protocol Label Switching (MPLS)

2.4.5.2.2 Intermediate System to Intermediate System (IS-IS)

2.4.5.2.3 Border Gateway Protocol (BGP)

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2.4.5.2.4 Open Shortest Path First (OSPF)

2.4.6 The microwave network shall meet the following Interface requirements:

2.4.6.1 The backhaul network requires a variety of network interfaces. The backhaul network routers shall support the following interface types:

2.4.6.1.1 Serial Data Interface, V.35, RS-232 or X.21

2.4.6.1.2 10/100/1000 Ethernet (RJ45)

2.4.6.1.3 T1-RJ48 (ATM/IMA/TDM/MLPPP)

2.4.6.1.4 Small Form-Factor Pluggable (SFP) interfaces

2.4.6.2 For the spur sites without routers listed in 2.4.5.1, each microwave radio shall include a minimum of six (6) Ethernet interface ports, and each of these sites shall also include a 24-port Ethernet switch to expand access for future services.

2.4.6.3 Routers shall support spanning tree protocol to utilize cross-connected local network switches and/or routers to maintain 100% network equipment redundancy for all sites.

2.4.6.4 The system design shall provide proper interfaces from the new microwave network to the existing channel banks. These interfaces shall include RJ48 T1/E1 patch panels. Microwave jack field interfaces shall include Telect 28DS1 jack field.

2.4.7 The microwave network shall meet the following Quality of Service / Class of Service (QOS/COS) requirements:

2.4.7.1 The network shall support 802.x Ethernet standards including the following IEEE standards:

2.4.7.1.1 802.1p/Q VLAN Tagging

2.4.7.1.2 802.1ag Service Layer OAM

2.4.7.1.3 802.3 10BaseT

2.4.7.1.4 802.3ah Ethernet OAM

2.4.7.1.5 802.3u 100BaseTX

2.4.7.1.6 802.3x Flow Control

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- 2.4.7.1.7 IEEE 802.3z 1000BaseSX/LX
- 2.4.7.2 The network shall be capable of supporting multiple Quality of Service / Class of Service marking techniques including:
 - 2.4.7.2.1 Layer 2 802.1p/802.1Q (Priority Code Point)
 - 2.4.7.2.2 Layer 2.5 (tunnel and PWE3)
 - 2.4.7.2.3 VLAN Tagging (802.1Q)
 - 2.4.7.2.4 Layer 3 (DiffServ/Differentiated Services Code Point)
- 2.4.7.3 The network shall honor incoming QOS settings throughout the network and ensure that the IP packet markings remain set when it reaches its destination and is delivered to the local network.
- 2.4.7.4 QOS techniques shall be capable of dropping packets of a lower priority when required or designating traffic of different priorities for different paths through the network. When the received signal on a path drops below predetermined network thresholds due to a storm or other interference, the network shall ensure that the guaranteed traffic gets through.
- 2.4.7.5 The operating system (OS) running on the routers or any layer 3 devices shall be stable, reliable and have the ability to run for long periods of time, supporting protocols such as OSPF, IS-IS and BGP. Example: 5 years plus up times.
- 2.4.8 The microwave network shall provide auxiliary channels for the purpose of transporting orderwire, telemetry and network management data. For orderwire functionality, a handset at each site shall be provided in order to communicate with other microwave sites.

2.5 Network Management Requirements

- 2.5.1 The CONTRACTOR shall provide, configure, and install a Network Management System (NMS) with alarm, control, and tracking capabilities for the proposed microwave network. The NMS shall be capable of remotely monitoring equipment status and performance from all sites.
 - 2.5.1.1 The NMS shall be capable of monitoring, controlling, and tracking different alarm types (i.e., dry contact, sensor, environmental, etc.).
 - 2.5.1.2 The NMS shall be capable of remotely retrieving at least the part number, serial number, manufacture date, and revision level of each module.
 - 2.5.1.3 The NMS shall have a means to provide alarm condition notification to designated personnel using the SHERIFF's existing assigned radio pagers, telephone text

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messages, and e-mail notifications in addition to local audio and visual alarm indicators. This feature shall be configured and working properly prior to final acceptance by the SHERIFF.

- 2.5.1.4 The operator interface shall have multiple levels of access allowing remote operation via secure VPN connection to laptop computer.
- 2.5.1.5 The CONTRACTOR shall provide at least three Network Management Terminal (NMT) units. One NMT shall be installed at the Primary System Center (PSC). The location of the two other NMTs shall be determined during Detailed Design Review.
- 2.5.2 The NMT shall meet the following general requirements:
 - 2.5.2.1 The NMT shall have an expandable software and hardware architecture that can be easily updated by adding software modules and hardware boards.
 - 2.5.2.2 The NMT hardware and software platform shall be PC-based using current versions of hardware and software.
 - 2.5.2.3 The NMT shall have graphic and tabular displays and provide instantaneous and comprehensive network status information.
 - 2.5.2.4 The NMT shall provide full archiving and control functions.
 - 2.5.2.5 The NMT shall provide multiple alarm protocols for higher-level NMS mediated by the NMT.
 - 2.5.2.6 The NMT shall be designed to monitor a large cross-section of equipment so that it can consolidate multiple alarm types.
 - 2.5.2.7 The NMT shall perform full management functions with a local terminal.
 - 2.5.2.8 The NMT shall provide e-mail notification of alarms.
 - 2.5.2.9 The NMT shall provide alarm filtration and consolidation.
 - 2.5.2.10 Web browser interface shall be provided for common management functions.
 - 2.5.2.11 Secure web browser interface shall be provided to monitor alarms and perform control and management functions via Intranet or Internet.
 - 2.5.2.12 The NMT shall generate system statistical reports at SHERIFF desired intervals (i.e., weekly, monthly, etc.).
- 2.5.3 All NMS devices shall support the following management techniques and standards:

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- 2.5.3.1 Command line interface for configuration, management, and troubleshooting
- 2.5.3.2 Secure Shell (SSH, SSHv2) and Telnet for remote configuration and management
- 2.5.3.3 Remote Authentication Dial-In User Service (RADIUS) authentication services
- 2.5.3.4 Terminal Access Controller Access Control System (TACACS) authentication services
- 2.5.3.5 Syslog for remote logging
- 2.5.3.6 Network Time Protocol (NTP) or another time synchronization mechanism
- 2.5.4 NMS devices shall support Simple Network Management Protocol (SNMP v2c, SNMP v3) for remote monitoring via common network management tools. In addition to any proprietary Management Information Base (MIB), it shall support the following standard MIBs:
 - 2.5.4.1 RFC 1157 SNMPv1
 - 2.5.4.2 RFC 1907 SNMPv2-MIB
 - 2.5.4.3 RFC 2011 IP-MIB
 - 2.5.4.4 RFC 2012 TCP-MIB
 - 2.5.4.5 RFC 2013 UDP-MIB
 - 2.5.4.6 RFC 2138 RADIUS
 - 2.5.4.7 RFC 2571 SNMP-Framework-MIB
 - 2.5.4.8 RFC 2576 SNMP-COMMUNITYMIB
 - 2.5.4.9 RFC 2665 Ethernet-Like-MIB
 - 2.5.4.10 RFC 2863 The Interfaces Group-MIB
 - 2.5.4.11 IANA-ifType-MIB
- 2.5.5 The overall network shall have a common end-to-end management and configuration tool capable of complete control of all network elements. The tool shall be able to support building an end-to-end path without having to manually configure each intermediate device. Graphical display of resulting configurations is preferred.
- 2.5.6 Automated error checking shall be included to prevent typical configuration problems such as oversubscription of a link. The tool shall alert the user when such errors occur.

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- 2.5.7 The NMS shall perform automated backups of all device configurations and include a change log of all changes made to a device over time.
- 2.5.8 The NMS shall support a hierarchical user authorization mechanism allowing assignment of various roles to users and those users can act on a specific subset of devices. The NMS shall support RADIUS, TACACS, or Lightweight Directory Access Protocol (LDAP) authorization management techniques for user access.
- 2.5.9 The user interface shall be web based and support Hypertext Transfer Protocol Secure (HTTPS) for access from any point on the IP network. Each device shall also support an out of band management interface for local configuration via a craft port.
- 2.5.10 A dedicated VLAN or virtual network that has a priority set by the system manager shall support management traffic for the entire NGPSCS including the microwave and new RF subsystems. The virtual network shall be designed so that even under full load the highest priority on the network is unaffected by “customer” traffic.
- 2.5.11 The NMS shall be capable of monitoring the proposed microwave network and capable of expanding to monitor future components of the NGPSCS. The NMS shall be capable of querying device status and performance information as well as receiving alarm/fault information from devices via SNMP and similar standards based protocols.
- 2.5.12 The NMS shall provide a fault/alert list, performance graphs, and a topology map that indicates device status via color code. Access to the NMS shall be available via Web Browser from anywhere on the network.

2.6 Transition Requirements

- 2.6.1 Implementation of the new microwave network shall preclude major disruption to the operations of the current microwave network or the services it supports.
- 2.6.2 Removal of individual spur sites for 10 hours or less is permissible with prior coordination with the SHERIFF.
- 2.6.3 Individual hops within loops may be interrupted for 10 hours or less with prior coordination with the SHERIFF, but not the loop as a whole.
- 2.6.4 Any service outage required for the installation of new microwave equipment shall be planned well in advance and coordinated with the SHERIFF team and conducted only with SHERIFF approval.

2.7 Lifecycle Requirements

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- 2.7.1 The expected lifecycle for the microwave network is 20 years. The CONTRACTOR shall not provide products near the end of their respective lifecycles.
- 2.7.2 The CONTRACTOR shall certify that each product is of a model currently in production.
- 2.7.3 The CONTRACTOR shall support Aviat product for a minimum of 10 years from Final System Acceptance.

2.8 Physical Requirements

- 2.8.1 Physical requirements refer to the physical installation of the equipment and utility, and environmental conditions necessary to protect the equipment and keep it running as designed.
- 2.8.2 The SHERIFF has recently completed the replacement of the -48 VDC microwave battery plants at over 95% of the microwave sites. Attachment C – -48 VDC Microwave Battery Plant Information provides a list of existing microwave sites and their respective battery replacement information. The CONTRACTOR shall calculate the DC power system load for new microwave network equipment to be installed to determine a calculated run time on battery power plant. The County requires a run time of at least 8 hours. If the existing microwave battery plants cannot accommodate the calculated load, the CONTRACTOR shall expand or replace the existing power plant as necessary to support the new system.
- 2.8.3 The following are general power requirements for the microwave and routing system:
 - 2.8.3.1 Shall be equipped for -48V DC operation
 - 2.8.3.2 Shall have redundant power supplies
- 2.8.4 All electronic equipment shall be installed inside existing shelters and support the following operating environment requirements:
 - 2.8.4.1 23°F to +131°F
 - 2.8.4.2 5% to 93% humidity non-condensing
 - 2.8.4.3 Redundant cooling sources
- 2.8.5 All RF, routing, and switching components shall fit in new EIA standard 19" racks.
 - 2.8.5.1 All sites use 7.5 foot racks with the exception of Rainbow Peak which uses 7 foot racks.
 - 2.8.5.2 The CONTRACTOR must use existing Telcordia GR-63-CORE Network Equipment Building System (NEBS) compliant 7.5 foot racks at the TMC site.

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- 2.8.6 Equipment mounting (e.g., racks and cabinets) shall conform to full Zone 4 earthquake compliance in accordance with Telcordia (formerly Bellcore) GR-63-CORE NEBS requirements. Certification shall be provided that the racks and/or cabinets used meet the Telcordia GR-63-CORE NEBS requirements for Zone 4 in their as-built documentation package.
- 2.8.7 Equipment placement in racks or cabinets shall place heavier items lower in the racks and lighter items higher in the racks to minimize the effect of centrifugal forces and swaying during an earthquake.

2.9 Implementation Requirements

- 2.9.1 Given the complexities of successfully deploying a regional backhaul network of this magnitude, the rollout shall be partitioned into several phases that account for the initial proof of concept, functional building blocks, regulatory issues, and logical expansion of the system.
- 2.9.2 It is of critical importance to commence the system deployment in such a way as to allow for proof of concept to take place in a limited area and grow with each consecutive phase. Nevertheless, this limited area shall be significant enough to allow for real world system loading, multi-agency use, and overall day-to-day demands of public safety agency usage. This approach will allow the SHERIFF to evaluate the effectiveness of the system design, the technology used, and overall system functionality via mutually agreed to acceptance test plans. Completion of the final implementation phase shall provide service continuity for current RCS users throughout the region. This includes access to trunked, conventional, mobile data, and paging services.
- 2.9.3 The SHERIFF recognizes that the implementation shall be done in phases and that intermediate steps may not be fully optimized. Nevertheless, each phase shall support current legacy communication systems. As work progresses, the CONTRACTOR shall optimize completed portions of the network such that when the system is fully operational it is fully optimized.
- 2.9.4 The CONTRACTOR shall be responsible for developing and implementing the IP configuration plan for the entire microwave network.
- 2.9.5 The CONTRACTOR shall provide detailed plans that describe the steps necessary to migrate backhaul network sites and dispatch centers to the new system. These plans shall minimize service interruptions and describe possible risks associated with each step in the overall migration effort.
- 2.9.6 Should optimization of the existing Motorola trunking radio network or simulcast paging network require reevaluation due to timing issues related to the new microwave backhaul network, the CONTRACTOR shall work with the County to determine source of timing issue. If the source of the timing problem is determined to be caused by CONTRACTOR

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equipment configuration, the CONTRACTOR shall be responsible for all costs to correct timing issues.

3. Training

3.1 General

- 3.1.1 The CONTRACTOR shall develop and conduct training programs to allow SHERIFF personnel to become knowledgeable with the overall management capabilities, configuration, and fault management of the microwave backhaul network equipment.
 - 3.1.1.1 All training shall be conducted at a San Diego County facility. The CONTRACTOR shall coordinate with the SHERIFF to provide up to three class sessions with a maximum of six technical personnel per session.
 - 3.1.1.2 The CONTRACTOR shall be responsible for providing all radio and test equipment necessary for class instruction.
- 3.1.2 The CONTRACTOR shall schedule classes as near to system cutover as possible.
- 3.1.3 The CONTRACTOR shall train the SHERIFF employees or designated individuals.
- 3.1.4 The CONTRACTOR shall provide all instructional material, including printed manuals, audio, video, interactive self-paced personal computer programs, and complete equipment operating instructions for all technical training classes.
- 3.1.5 The CONTRACTOR shall use exact model and series of equipment being delivered for hands-on use and operation during training. All instructional material shall be subject to the approval of the SHERIFF and shall become property of the SHERIFF. Any material or equipment that shall be provided by the SHERIFF shall be clearly listed (i.e., tools, computers, cables).

3.2 Technical training

- 3.2.1 The CONTRACTOR shall provide complete and comprehensive technical training in the theory, maintenance, and repair of each type of equipment and system provided for the project. This training shall include, as a minimum, system theory, operations, system administration and configuration, troubleshooting, repair, and servicing techniques as applicable to the selected system.
- 3.2.2 The CONTRACTOR shall provide complete and comprehensive technical training for SHERIFF technical staff tasked with managing the system. This training shall include, but is not limited to:
 - 3.2.2.1 Planning and setting up the system
 - 3.2.2.2 Monitoring and managing the system's performance

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3.2.2.3 Developing system reports

4. Warranty, Maintenance, and Support

4.1 Warranty

- 4.1.1 The microwave network shall have a full two year. The two year warranty shall commence upon Final Acceptance.
- 4.1.2 System performance, installation, and all hardware, parts, software, and materials shall be warranted, including all related return and delivery fees.
- 4.1.3 The CONTRACTOR shall provide a single toll-free telephone number that answers 24 hours a day, 7 days a week, 365 days a year, for service requests and warranty claims.
- 4.1.4 The CONTRACTOR shall provide warranty maintenance 24-hours-a day.
- 4.1.5 The CONTRACTOR shall agree that the SHERIFF has the right to perform any routine maintenance and/or repairs required during the warranty period without jeopardizing the CONTRACTOR's warranty.
- 4.1.6 The following procedures shall be followed during the warranty period:
 - 4.1.6.1 The CONTRACTOR shall provide the SHERIFF with written documentation indicating the cause of the service outage, the resolution, and all post repair testing procedures to ensure proper operation. In the event SHERIFF owned spares are used to complete a repair, the model and serial number of both the defective unit and the spare shall be noted in the documentation.
 - 4.1.6.2 Hardware:
 - 4.1.6.2.1 For all equipment needing factory or depot repairs, a comprehensive tracking system shall be put in place by the CONTRACTOR to track units to and from the factory/depot.
 - 4.1.6.2.2 Replacement parts shall be equal in quality and ratings as the original parts.
 - 4.1.6.2.3 Fixed equipment mail-in board repair shall be completed within seven calendar days.
 - 4.1.6.3 Software:

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- 4.1.6.3.1 All software and firmware associated with equipment features, functions, and capacity as required by this specification shall be warranted.
- 4.1.6.3.2 During the installation and warranty periods, the CONTRACTOR shall provide, at no additional cost, commercially available upgrades of any and all software and firmware sold to the SHERIFF as part of the section installation. The frequency and timing of installation of upgrades during this period shall be at the sole discretion of the SHERIFF based on availability by the CONTRACTOR.
- 4.1.6.3.3 The CONTRACTOR shall make every effort to separate corrective revisions from enhancements. If the CONTRACTOR is unable to do so, and new releases are necessary to correct problem(s), then the entire release (including enhancements) shall be provided to the SHERIFF at no expense.
- 4.1.6.3.4 All back-up media and revised software manuals shall also be provided to the SHERIFF at no cost at the time of any software revisions.
- 4.1.6.3.5 Software releases for all devices shall be brought to the same release level prior to the conclusion of the warranty period.

4.2 Recurring Failures and Manufacturer Defects

- 4.2.1 If fixed equipment or a fixed equipment module fails more than twice during the acceptance test or twice during the first 2 years after Final System Acceptance CONTRACTOR shall perform a detailed root cause analysis to determine if failures are associated with product defects, design issues or systemic failures. CONTRACTOR shall provide findings and recommended resolution to the County for their approval. For failures determined to be product defects, design issues or systemic failures the CONTRACTOR shall be responsible to replace at no cost to the SHERIFF all fixed equipment and/or fixed equipment modules related to the failures and work with the County to insure a satisfactory solution that insures the correct operation and integrity of the County microwave system.

During the first 2 years after Final System Acceptance CONTRACTOR shall on a monthly basis monitor product reliability and root cause defect trend performance in accordance with Bellcore/Telcordia SR- 332 standard for reliability of Electronic Component in comparison with the minimum Aviat target values.

- 4.2.2 The CONTRACTOR, at no cost to the SHERIFF, shall correct latent design defects or recurring problems relating to software, hardware, or overall system design, during the warranty period. The CONTRACTOR shall reset the two-year warranty period for the replaced equipment.

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4.2.3 System malfunctions due to software shall be corrected at no cost to the SHERIFF.

4.3 Maintenance

4.3.1 The CONTRACTOR shall repair all equipment, hardware, and software throughout the implementation, migration, and warranty periods. The SHERIFF intends to maintain the network during and at the conclusion of the warranty period. The SHERIFF shall have the right to perform maintenance and/or repairs required during the warranty period without voiding the CONTRACTOR's warranty.

4.3.2 The CONTRACTOR shall contact the County within 30 minutes of telephone notification by the County of a Critical Service issue. Critical service issue shall be defined as an event that results in a complete loss of communications that prevent microwave link traffic re-routing. The CONTRACTOR's qualified service representative and the County representative shall attempt to resolve the Critical Service issue over the phone or via remote network management.

4.3.3 If the CONTRACTOR's qualified service representative and the County representative cannot resolve the issue remotely or over the phone, then the County shall make the determination regarding the criticality of the service issue and whether the CONTRACTOR shall dispatch qualified service representative to the site experiencing the service issue. CONTRACTOR shall make every effort to send a qualified service representative to be physically present at the site that requires service within 6 hours but no later than 12 hours of County's decision to escalate the call to onsite service. Onsite Contractor's service representative shall make every effort to resolve the Critical Service issue within 12 hours from the time the critical service issue was reported. In the event of natural calamities, strikes and boycotts, war or civil unrest or governmental actions, for which CONTRACTOR could not reasonably foresee and prepare and over which CONTRACT has no control, CONTRACTOR shall receive an additional reasonable amount of time, under the then-present circumstances, to complete the work required herein.

4.4 Parts Availability

4.4.1 The CONTRACTOR shall certify that repair parts for all delivered equipment shall be available for a period of at least seven years after the equipment is no longer in production

4.4.2 In the event the CONTRACTOR plans to discontinue any product line or stocking any part required for maintenance, the CONTRACTOR shall send written notice to the SHERIFF 12 months prior to the date of discontinuance to allow for last-time buys and spares replenishment

4.5 Spare Parts and Equipment

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- 4.5.1 The CONTRACTOR shall provide to the SHERIFF a list of recommended spare parts for the system, subsystems, and individual equipment.
- 4.5.2 The list of spare parts shall include, but is not limited to:
 - 4.5.2.1 Any CONTRACTOR identified Field Replaceable Units (FRUs)
 - 4.5.2.2 Any infrastructure component, which does not have FRUs that can cause a critical failure if it were to fail (i.e., Antenna Systems, other non-modular components, etc.)
 - 4.5.2.3 Power supplies
 - 4.5.2.4 Required and/or recommended test measurement, calibration, and repair kits
 - 4.5.2.5 Recommended diagnostic equipment to support SHERIFF maintenance activities
 - 4.5.2.6 Spares for less critical items shall also be enumerated
 - 4.5.2.7 The list shall include items that will rapidly and completely restore all critical system functionality with the least amount of effort, e.g., board replacement instead of troubleshooting to component level when a critical unit has failed.
- 4.5.3 The quantities of spares in the list shall be appropriately sized to accommodate equipment quantities for all microwave segments. The CONTRACTOR shall consider the customization of all hops (loops and spurs) when recommending quantities of spare equipment.
- 4.5.4 The list shall define the primary equipment category each spare kit supports, e.g., transceiver board for a microwave radio, interface board for a router, etc.

5. System Implementation, Test, and Acceptance

5.1 Project Timeline

- 5.1.1 The CONTRACTOR shall provide a project timeline for the microwave backhaul deployment and a separate detailed timeline for each implementation phase. The timeline shall be in Microsoft Project® format and clearly identify critical path tasks for both the SHERIFF and the CONTRACTOR.
- 5.1.2 In order to allow for coordination with the SHERIFF stakeholders, first responders, and site owners, each implementation phase timeline shall account for up to a 60 calendar day consultation period preceding each implementation phase build-out. The consultation period is expected to commence prior to the completion of the previous implementation phase. The CONTRACTOR shall clearly identify information needed during the consultation period to successfully implement the project while verifying requirements, resources, site access procedures, and path feasibilities to accomplish the microwave backhaul network deployment associated with each particular phase.

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- 5.1.3 The timeline shall account for a 30 calendar day “burn” period in which no system failures may be observed. A system failure shall be defined as any failure of infrastructure equipment requiring corrective action for any amount of time. The CONTRACTOR shall restart the 30 calendar day burn period in the event of a system failure.
- 5.1.4 Failure conditions exhibited during the 30 day “burn” period shall require clear resolution plans that identify any software, firmware, or hardware changes needed for proper resolution and regression testing procedures needed to confirm such changes are compatible with the system as a whole. Any action required to correct the failure condition shall be agreed to by the SHERIFF's representative. The SHERIFF reserves the right to modify the test plans and to add additional test requirements that verify compliance with the functional requirements specifications. Once such corrective actions have been confirmed to successfully resolve the failure condition, the 30 calendar day “burn” period shall restart.

5.2 Cutover Plan

- 5.2.1 The CONTRACTOR shall be responsible for planning, coordinating, and implementing the overall microwave backhaul network replacement. It is critical that the CONTRACTOR is cognizant of physical limitations which may impact the cutover plan for live systems.
- 5.2.2 Execution of the cutover plan shall ensure that the new network is brought online with minimum interruption to all existing systems and communications.
- 5.2.3 Prior to the Detailed Design Review, the CONTRACTOR shall deliver a preliminary cutover plan describing how the network will be phased over into a fully operational system.
 - 5.2.3.1 The CONTRACTOR shall successfully complete all tests and training prior to the actual cutover of the network.
 - 5.2.3.2 The CONTRACTOR shall provide the necessary labor to cutover from existing network to the proposed network.
 - 5.2.3.3 The plan shall include the schedule and procedures associated with the transition of each network segment. The plan shall specifically address how the SHERIFF can begin using the new system with minimal operational impact.
 - 5.2.3.4 The plan shall provide detailed loop and spur cutover plans, and specifically delineate between segments that affect and do not affect ongoing operations.
 - 5.2.3.5 The SHERIFF reserves the right to approve and change the cutover plan as it relates to any or all system components.
- 5.2.4 The SHERIFF shall review the CONTRACTOR's cutover methodology, and the CONTRACTOR shall execute a SHERIFF approved cutover plan.

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5.3 Staging and Factory Acceptance

- 5.3.1 Each individual assembly or equipment unit shall undergo factory testing prior to shipment.
- 5.3.2 Standard factory test documentation, documenting the tests performed and indicating successful completion of testing shall be submitted to the SHERIFF.
- 5.3.3 System Staging:
 - 5.3.3.1 The complete system shall be staged and tested to the greatest extent practical. The staging site should be located in the United States. The intent of the staging tests is to demonstrate to the SHERIFF that the system is ready for shipment and installation.
 - 5.3.3.2 The CONTRACTOR shall provide all necessary technical personnel, and test equipment to conduct staging tests. All deviations, anomalies, and test failures shall be resolved at the CONTRACTOR's expense.
 - 5.3.3.3 The CONTRACTOR shall use a SHERIFF approved Staging Acceptance Test Plan (SATP). The SHERIFF expects that the SATP has been performed and all tests have been successful before the SHERIFF witnesses the official SATP. The CONTRACTOR shall provide the opportunity for a minimum of three SHERIFF personnel to attend and participate in the SATP process. The SATP shall be signed and dated by the CONTRACTOR and SHERIFF representatives following completion of all tests. All tests in the SATP shall be marked as either pass or fail.
 - 5.3.3.4 Failed tests shall be documented, corrected, and retested. All defective components shall be replaced and retested. Defective components that cannot be corrected shall be replaced at the expense of the CONTRACTOR.
 - 5.3.3.5 Retest of individual failed SATP tests or the entire plan shall be at the SHERIFF's discretion.
 - 5.3.3.6 The fully executed and completed SATP document shall be provided to the SHERIFF no later than three business days from completion of acceptance testing.
 - 5.3.3.7 There shall be no deemed acceptance of the SATP.

5.4 Shipping

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5.4.1 The CONTRACTOR shall ship all equipment and materials to its own local (San Diego area) warehouse at its own expense for storage until installation. The SHERIFF will not store equipment.

5.5 Equipment Installation

5.5.1 The CONTRACTOR shall identify all installation related deficiencies during the site surveys and present them to the SHERIFF during Detailed Design Review.

5.5.2 Installation shall include a complete, tested, system to include placement of associated cabling, appropriate system layout, and terminal connections. The CONTRACTOR shall provide associated power supplies and any other hardware, adapters and/or connections to deliver a complete operable network to the SHERIFF at the time of acceptance.

5.5.3 The CONTRACTOR shall use existing cable trays to the greatest extent possible. Any potential requirement for additional cable trays shall be brought to the SHERIFF's attention at the completion of the detailed site surveys and no later than the Detailed Design Review. The CONTRACTOR shall protect all existing cables not designated for removal and shall restore damaged or temporarily relocated cables to a condition equal to or better than they were prior to new equipment installation.

5.5.4 All installations shall be performed by factory authorized service shops.

5.5.5 Prior to the start of the network installation, the CONTRACTOR shall participate in a mandatory project site survey with the SHERIFF's representative to confirm actual equipment locations within each site. At that time, the exact equipment locations shall be determined and documented by the CONTRACTOR.

5.5.6 The CONTRACTOR shall coordinate with the SHERIFF, as appropriate, to confirm that any preparatory work required for the installation of the equipment, such as tower work, coring, bracing, conduit, electrical, etc., is complete before equipment installation begins.

5.5.7 The CONTRACTOR shall provide and pay for all materials necessary for the execution and completion of all work. Unless otherwise specified, all materials incorporated into the permanent work shall be new and shall meet the requirements of this RFP. All materials furnished and work completed shall be subject to inspection by the SHERIFF's Project Manager.

5.5.8 Equipment supplied as spare equipment may not be used for installation of the proposed network. All spare equipment shall be supplied in an unused condition.

5.5.9 Worksites shall be left neat and broom swept upon completion of work each day. All shelter floors shall be thoroughly cleaned and all scuff marks and abrasions shall be removed prior to acceptance. All trash shall be removed daily.

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- 5.5.10 The SHERIFF shall conduct an inspection of the installations upon substantial completion. Any deficiencies shall be documented on a single punch list and provided to the CONTRACTOR for resolution.
- 5.5.11 Final Acceptance Testing shall not commence until all punch list items are resolved and agreed to by the SHERIFF.
- 5.5.12 The CONTRACTOR shall be responsible for keeping the job site free from safety and health hazards and ensuring that its employees and subcontractors are competent and adequately trained in all safety and health aspects of the job.

5.6 Decommissioning, Removal and Disposal of Existing Equipment

- 5.6.1 The CONTRACTOR shall remove existing equipment (e.g., transmitters, cables, antenna systems, etc.) that is not being reused in the new backhaul network.
- 5.6.2 The CONTRACTOR, at its sole expense, shall warehouse removed equipment for up to 120 days from Final System Acceptance until final equipment disposition has been approved by SHERIFF and all required County documentation is completed.
- 5.6.3 The CONTRACTOR shall maintain a detailed inventory of the removed equipment, listing the following at a minimum:
 - 5.6.3.1 The owning agency
 - 5.6.3.2 Model numbers
 - 5.6.3.3 Serial numbers
 - 5.6.3.4 Asset numbers
 - 5.6.3.5 Location removed from
 - 5.6.3.6 Location within the warehouse
- 5.6.4 The CONTRACTOR shall dispose of all removed equipment and materials that will not be retained by the SHERIFF.
- 5.6.5 The CONTRACTOR shall offer "trade in value" for all major microwave network components owned by the SHERIFF. Microwave equipment owned by the Imperial County Emergency Communications Authority (IVECA) will be retained by IVECA.

5.7 Quality Assurance and Coordination

- 5.7.1 Standards and Guidelines

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- 5.7.1.1 The CONTRACTOR shall comply with the following standards, rules, regulations, and industry guidelines presented in alphabetical order with no priority:
- 5.7.1.1.1 American National Standards Institute (ANSI)
 - 5.7.1.1.2 American Society of Testing Materials (ASTM)
 - 5.7.1.1.3 Electronics Industry Association (EIA)
 - 5.7.1.1.4 Federal Aviation Administration (FAA)
 - 5.7.1.1.5 Federal Communications Commission (FCC)
 - 5.7.1.1.6 Institute of Electrical and Electronics Engineers (IEEE)
 - 5.7.1.1.7 National Electrical Code (NEC)
 - 5.7.1.1.8 National Electrical Manufacturer's Association (NEMA)
 - 5.7.1.1.9 National Fire Protection Association (NFPA) 1221
 - 5.7.1.1.10 Telecommunications Industry Association (TIA)
 - 5.7.1.1.11 Telecommunications Distribution Methods Manual (TDMM)
 - 5.7.1.1.12 Underwriters Laboratories, Inc. (UL)
- 5.7.1.2 The CONTRACTOR shall comply with industry best practices for system installation, grounding, bonding, and transient voltage surge suppression (TVSS). This may include:
- 5.7.1.2.1 Motorola R56 – Standards and Guidelines for Communication Sites (latest revision)
 - 5.7.1.2.2 M/A-COM Site Grounding and Lightning Protection Guidelines (AE/LZT – 123 4618/1 – latest revision)
 - 5.7.1.2.3 Other applicable standard / guideline, in which case the CONTRACTOR shall propose such standard in advance to the SHERIFF for approval
- 5.7.1.3 Governing codes and conflicts: If the requirements of this RFP conflict with those of the governing codes and regulations, then the more stringent of the two shall become applicable.

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5.7.2 Frequency Coordination and Licensing

- 5.7.2.1 Attachment D – FCC Microwave Licenses provides a complete list of FCC licenses. The CONTRACTOR shall identify the frequencies available to fulfill the proposed network design based on the requirements in this RFP and in accordance with FCC Part 101 rules and regulations.
- 5.7.2.2 The CONTRACTOR shall be responsible for all frequency research, prior coordination, and preparation of all associated FCC license applications and submittals and Federal Aviation Administration (FAA) requirements, if applicable, on behalf of the SHERIFF.
- 5.7.2.3 If the CONTRACTOR identifies any invalid or incorrect frequency licenses during the design phase, the CONTRACTOR shall provide all modifications and applicable forms to the SHERIFF for review and approval. The CONTRACTOR on behalf of the SHERIFF shall execute and submit all forms following approval.
- 5.7.2.4 Following approval of the design phase, the CONTRACTOR shall provide all modifications and applicable forms to the SHERIFF for review and approval. The CONTRACTOR shall be responsible for any additional frequency license research, support, and preparation for a period of one year.
- 5.7.2.5 The CONTRACTOR shall be responsible for coordination and licensing fees, if applicable.

5.8 Electromagnetic Interference (EMI) Mitigation

- 5.8.1 The microwave radios shall not cause EMI (also called Radio Frequency Interference, RFI) at any level above that permitted under FCC Part 15. Shielding and filtering shall be provided for the new County microwave equipment to prevent EMI from, or to, other radio frequency equipment installed near the new County microwave equipment.
- 5.8.2 The CONTRACTOR shall be responsible for resolving all RF interference associated with the installation of antennas on existing antenna support structures. The CONTRACTOR shall perform and provide documentation for the necessary intermodulation and interference studies prior to installing antenna equipment.
- 5.8.3 The CONTRACTOR shall resolve all issues predicted during the RF interference analyses and intermodulation analyses. If an RF interference or intermodulation problem is identified prior to final acceptance, the CONTRACTOR shall identify and resolve the issue without degrading system performance. If an RF interference or intermodulation problem is identified during the initial warranty period following final acceptance, the CONTRACTOR shall work to identify and resolve the issue(s) without degrading system performance.

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5.9 Final Acceptance Testing

- 5.9.1 Prior to Final acceptance testing, the CONTRACTOR shall verify and document that all equipment, hardware, and software are upgraded to the latest factory revision. Multiple revision levels among similar equipment are not acceptable.
- 5.9.2 The SHERIFF shall be given two weeks written notice that all systems are ready for final acceptance testing.
- 5.9.3 The CONTRACTOR shall submit the Final Acceptance Test Plan (FATP) to the SHERIFF no later than 20 business days before the testing starts. The SHERIFF shall approve the SATP at least 10 business days before the testing starts.
 - 5.9.3.1 The CONTRACTOR shall use the SHERIFF approved FATP. It is expected that the FATP has been performed and all tests have been successful before the SHERIFF witnesses the official FATP. The FATP shall be signed and dated by the CONTRACTOR and SHERIFF representatives following completion of all tests. All tests in the FATP shall be marked as either pass or fail.
 - 5.9.3.2 The CONTRACTOR shall provide all necessary technical personnel, and test equipment to conduct FATP tests. All deviations, anomalies, and test failures shall be resolved at the CONTRACTOR's expense.
 - 5.9.3.3 Failed tests shall be documented, corrected, and retested. All defective components shall be replaced and retested. Defective components that cannot be corrected shall be replaced at the expense of the CONTRACTOR.
 - 5.9.3.4 Retest of individual failed FATP tests or the entire plan shall be at the SHERIFF's discretion.
 - 5.9.3.5 The fully executed and completed FATP results shall be provided to the SHERIFF no later than three business days from completion of acceptance testing.
 - 5.9.3.6 There shall be no deemed acceptance of the FATP.

5.10 As-Built Documentation

- 5.10.1 At the completion of the installation phase, the CONTRACTOR shall provide complete as-built documentation as outlined below:
 - 5.10.1.1 Equipment provided
 - 5.10.1.2 All IP network configuration files and documentation including those for the routers, switches and other network devices.

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- 5.10.1.3 Plan and elevation drawings of all equipment including antenna locations on towers
- 5.10.1.4 Cabling and terminations
- 5.10.1.5 Block and level diagrams
- 5.10.1.6 Site floor plans and equipment rack configurations
- 5.10.1.7 Setup and alignment information
- 5.10.1.8 Successfully completed, signed, and dated SATP and FATP
- 5.10.2 All drawing deliverables shall be provided in 11"x17" hardcopy format and in electronic format on CD-ROM. The CONTRACTOR shall provide six sets of hard copies and six sets of electronic copies.
- 5.10.3 The electronic files shall be provided in PDF format, as well as the source file format (e.g. DWG) used by the Computer-Aided Design (CAD) software. Electronic files shall be unprotected (or editable) for future changes.
- 5.10.4 All drawings shall be to scale.
- 5.10.5 All drawings shall contain the following minimum information:
 - 5.10.5.1 Name of firm or entity that prepared each deliverable on label or title block
 - 5.10.5.2 A space approximately 3-1/2 by 5 inches on label or beside title block to record the SHERIFF's review and approval markings
 - 5.10.5.3 Project name and date
 - 5.10.5.4 Deliverable number or other unique identifier, including revision identifier
 - 5.10.5.5 Drawing number and detail references, as appropriate
 - 5.10.5.6 Communications site name and number, as appropriate
 - 5.10.5.7 North arrow
 - 5.10.5.8 Scale
 - 5.10.5.9 Legend
 - 5.10.5.10 Other necessary identification

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5.10.6 Review and Approval Process:

- 5.10.6.1 All drawings shall be subject to review and approval by the SHERIFF.
- 5.10.6.2 All drawings shall be marked as draft until reviewed and approved by the SHERIFF.
- 5.10.6.3 The CONTRACTOR shall allow sufficient time (minimum of two weeks) for drawing review, including time for resubmittals.
- 5.10.6.4 Time for review shall commence upon SHERIFF's receipt of the deliverable.
- 5.10.7 It is the responsibility of the CONTRACTOR to assure the final installation agrees with the completed drawings. If any departure from the drawings or the specifications is deemed necessary, or in the event of conflicts, details of such departures or conflicts and the basis of any changes shall be submitted in writing.

5.11 Final System Acceptance

- 5.11.1 The SHERIFF shall deem the system ready for Final System Acceptance following successful completion and approval of the following:

5.11.1.1 Final Design submittals

5.11.1.2 Staging Acceptance Test Plan (SATP) Results

5.11.1.3 System installation completion

5.11.1.4 Final inspection and punch list resolution

5.11.1.5 System documentation to include

5.11.1.5.1 As-built documentation (drawing packages to include PDF and editable AutoCAD® formats)

5.11.1.5.2 All IP network configuration files and documentation including those for the routers, switches and other network devices

5.11.1.6 Final Acceptance Testing Report

5.11.1.7 Training

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6. Optional Items

6.1 General

Requirements described as an “OPTION” or “OPTIONAL” refer to features or equipment or services which may or may not be purchased by the SHERIFF, or items whose quantities are not determined yet.

6.2 Imperial County Spur Connectivity to Inter County Loop

Pricing for equipment, including routers, for the spurs to interface to the inter-county links shall be provided, as well as the cost for installation.

6.3 Dispatch Center Connectivity

The existing backhaul network provides connectivity to dispatch facilities listed in Attachment A – Table A.2. The dispatch links are not planned for replacement immediately. An option for upgrading each link should be provided. (Note: TMC is the only San Diego County dispatch center that is part of a core microwave loop and should be priced as part of the base proposal.)

6.4 Spare Parts and Equipment

The CONTRACTOR shall provide a list of OPTIONAL recommended spares including whole radios, network equipment, parts, and test equipment.

6.5 Post-Warranty Support

6.5.1 System Support

6.5.1.1 The CONTRACTOR shall provide OPTIONAL system support for the microwave backhaul network.

6.5.2 Software Support and Upgrades

6.5.2.1 The CONTRACTOR shall provide OPTIONAL software support and upgrades for the microwave backhaul network.

6.5.3 Extended Warranty

6.5.3.1 The CONTRACTOR shall provide an OPTIONAL extended warranty for up to five years.

6.6 Future Services and Equipment

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The SHERIFF expects to add microwave links to the network in the future. The SHERIFF shall have the OPTION to purchase technical and engineering services; hardware and software components; and installation services required to support future enhancement and expansion of the system.

7. Glossary of Acronyms

ATM – Asynchronous Transfer Mode

BGP – Border Gateway Protocol

IP – Internet Protocol

IS-IS – Intermediate System to Intermediate System

LAN – Local Area Network

L2TPv3 – Layer 2 Tunneling Protocol Version 3

MHSB – Microwave Hot Stand-By

MIB – Management Information Base

MPLS – Multi-Protocol Label Switching

OSPF – Open Shortest Path First

QOS – Quality of Service

RIP – Routing Information Protocol TDM – Time

Division Multiplexing VLAN – Virtual Local Area

Network VPLS – Virtual Private LAN Service

VPN – Virtual Private Network

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Attachment A – Backhaul Network Site Configuration

Table A.1 San Diego County Links

Site Name 1	Primary Antenna Model	Primary Height (FT)	Diversity Antenna Model	Diversity Height (FT)	TX Pwr (dBm)	Site Name 2	Primary Antenna 2 Model	Primary Height (FT)	Diversity Antenna Model	Diversity Height (FT)	TX Pwr (dBm)	Path Length (mi)
BLACK MTN	UHX6-59J RF (TR)	17			28.8	SDSO PSC	UHX6-59J LF (TR)	85			28.8	10.13
BORREGO PEG LEG	P6-105B (TR)	32			23	RAMS HILL	P4-105A (TR)	28			23	7.85
BORREGO PEG LEG	Unknown 6' model	45	Unknown 6' model	15		MONUMENT PK	Unknown 6' model	25	Unknown 6' model	15		28.55
COWLES MTN	PAR6-59 (TR)	19			28.8	SDSO PSC	UHX6-59J LF (TR)	85			28.8	6.03
COWLES MTN	VHLP800-11A (TR)	18			24.3	RATTLESNAKE	VHLP800-11A (TR)	15.1			24.3	5.37
ENCINA POWER	PARX8-59W (TR)	165.03			28.8	SAN MARCOS MTN	PARX8-59W (TR)	14.11			28.8	10.17
ENCINA POWER	PAR6-65A RF (TR)	285			29.5	ENCINITAS BEST WESTERN	PAR6-65A RF (TR)	45			29.5	6.63
HENDRIX PEAK	PL8-65D (TR)	25			21.2	WHITE STAR	PL8-65D (TR)	25			21.2	12.61
ICSO	UHX8-59J LF (TR)	83.99	UHX8-59J LF (DR)	54.1	30	HENDRIX PEAK	UHX8-59J LF (TR)	48.88	UHX8-59J LF (DR)	20	30	32.31
LOS PINOS MT	P6-105B (TR)	31			23	CAMPO GRAVES	P6-105B (TR)	45			23	10.9
LOS PINOS MT	PAR6-59 (TR)	15			28.8	LYONS PEAK	PAR6-59 (TR)	35			28.8	10.99
LOS PINOS MT	P6-105B (TR)	15			23	EMERY HILL	P4-105A (TR)	20			23	9.43
LYONS PEAK	PAR10-59 (TR)	35			28.8	COWLES MTN	PAR10-59 (TR)	17			28.8	17.54
MONUMENT PK	PL8-65D (TR)	15			30	VOLCAN SOUTH	PL8-65D (TR)	25			30	17.87
MONUMENT PK	PL8-65D (TR)	25	PL6-65D (DR)	15	28.7	SUPERSTITION	PL8-65D (TR)	50	PL6-65D (DR)	20	28.7	34.23
MONUMENT PK	HPX8-59E (TR)	25			28.8	LOS PINOS MT	HPX8-59E (TR)	23			28.8	14.06
MONUMENT PK	HPX8-59E (TR)	25			21.2	LOS PINOS MT	HPX8-59E (TR)	23			21.2	14.06
MONUMENT PK	P8-105B (TR)	25			23	CUYAMACA PK	P6-105B (TR)	40			23	11.33
MT SAN MIGUEL	HP8-6511 (TR)	47			24.3	OTAY MTN	HP8-6511 (TR)	16			24.3	8.43
MT SAN MIGUEL	VHLP4-107 (TR)	15.1			20	MONTE VISTA	VHLP4-107 (TR)	28.9			20	3.59
MT SAN MIGUEL	P6-105B (TR)	27			23	ALPINE HTS	P8-105B (TR)	15			23	11.34
MT SOLEDAD	PXL8-105B (TR)	60			23	TMC	PXL6-105B (TR)	32			23	5.52
MT WOODSON	PARX8-59W (TR)	49.9			20.8	SIERRA ROJO	PARX8-59W (TR)	15.1			20.8	17.51
MT WOODSON	PAR8-59 (TR)	117.78	PAR6-59 (DR)	87.93	28.8	NORTH PEAK	PAR8-59 (TR)	55.12	PAR6-59 (DR)	37.07	28.8	22.44
NORTH PEAK	PL10-65D (TR)	24			23	CHIHUAHUA VALLEY	PL10-65D (TR)	25			23	26.88
NORTH PEAK	PL8-65D (TR)	24	PL6-65D (DR)	12	23	SUNSHINE SUMMIT	PL8-65D (TR)	76	PL6-65D (DR)	46	23	25.81

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Site Name 1	Primary Antenna Model	Primary Height (FT)	Diversity Antenna Model	Diversity Height (FT)	TX Pwr (dBm)	Site Name 2	Primary Antenna 2 Model	Primary Height (FT)	Diversity Antenna Model	Diversity Height (FT)	TX Pwr (dBm)	Path Length (mi)
OCOTILLO WELLS	KP6F-820B (TR)	68.9			30	SUPERSTITION	KP6F-820B (TR)	68.9			30	23.52
OTAY MTN	PARX8-59W (TR)	15			32	SAN YSIDRO	PARX8-59W (TR)	20			32	11.67
PALOMAR MTN	P4-105A (TR)	85			23	BIRCH HILL MORROW	P4-105A (TR)	110			23	1.96
RATTLESNAKE	HP8-6511 (TR)	15			24.3	MT SAN MIGUEL	HP8-6511 (TR)	15			24.3	9.01
RED MTN	PARX8-59W (TR)	15.09			28.8	SIERRA ROJO	PARX8-59W (TR)	15.09			28.8	12.39
SAN YSIDRO	PARX8-59W (TR)	15			32	UC MED CTR	PARX8-59W (TR)	175			32	15.36
SDSO PSC	PAR6-59 (TR)	105			28.8	TMC	PAR6-59 (TR)	105			28.8	1.71
SDSO PSC	HPX10-59E (TR)	84.97			28.8	MT WOODSON	HPX8-59E (TR)	21.98			28.8	15.19
SDSO PSC	UCC6X-59A (TR)	85			19	COWLES MTN	UCC6X-59A (TR)	19			18	6.03
SIERRA ROJO	P8-105B (TR)	30			23	PALOMAR MTN	P8-105B (TR)	80			23	12.4
SIERRA ROJO	P8-105B (TR)	30			23	HARMONY PEAK	P8-105B (TR)	18			23	11.33
SIERRA ROJO	P8-105B (TR)	15			23	BOUCHER HILL	P6-105B (TR)	20			23	11
SAN MARCOS MTN	PARX8-59W (TR)	15.09			28.8	RED MTN	UHX8-59W LF (TR)	24.93			28.8	12.79
SAN MARCOS MTN	P6-105B (TR)	17	P6-105B (DR)	35	23	JOJOBA HILL	P6-105B (TR)	57	P6-105B (DR)	37	23	19.01
SUPERSTITION	PL8-65D (TR)	55.12	PL6-65D (DR)	35.1	30	ICSO	PL8-65D (TR)	96.13	PL6-65D (DR)	65	30	21.57
LAKE SAN MARCOS PK	P8-65D (TR)	25.9			28	RAINBOW PK	P8-65D (TR)	20			28	20.88
LAKE SAN MARCOS PK	PAR6-65A RF (TR)	60.04			28	HUBBARD HILL	PAR6-65A RF (TR)	49.87			28	7.73
LAKE SAN MARCOS PK	PARX8-59W (TR)	37.07			28.8	ENCINA POWER	PAR8-59W RF (TR)	165.03			28.8	8.02
LAKE SAN MARCOS PK	PAR6-59 (TR)	37			28.8	BLACK MTN	UHX6-59J LF (TR)	37			28.8	10.23
LAKE SAN MARCOS PK	PAR6-59 (TR)	60	PAR6-59A (DR)	20	28.5	OCEANSIDE ABBEY	PAR6-59A (TR)	80	PL4-59D (DR)	53	28.5	12.35
UC MED CTR	HP8-6511 (TR)	160			24.3	TMC	HP8-6511 (TR)	80			24.3	4.8
UC MED CTR	HP6-65J (TR)	185			29.5	POINT LOMA	HP6-65J (TR)	9.84			29.5	7.32
VOLCAN SOUTH	P4-105A (TR)	40			23	BANNER RANCH	P2-105A (TR)	20			23	5.2
VOLCAN NORTH	PAR6-59 (TR)	120			28.8	NORTH PEAK	PAR6-59 (TR)	16			28.8	10.65
VOLCAN NORTH	HP8-59F (TR)	120			28.8	MONUMENT PK	HP8-59F (TR)	25			28.8	21.56
WHITE STAR	PL8-65D (TR)	25			21.2	LOS PINOS MT	PL8-65D (TR)	15			21.2	16.3

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Table A.2 Optional Dispatch Center Links

Site Name 1	Primary Antenna Model	Primary Height (FT)	Diversity Antenna Model	Diversity Height (FT)	TX Pwr (dBm)	Site Name 2	Primary Antenna 2 Model	Primary Height (FT)	Diversity Antenna Model	Diversity Height (FT)	TX Pwr (dBm)	Path Length (mi)
OCEANSIDE ABBEY	VHP4-105 (TR)	60			26	OCEANSIDE CC	VHP4-105 (TR)	29			26	2.18
CONGREGATIONAL TOWERS (CHULA VISTA RELAY)	PAR6-65A RF (TR)	214.9			30	SAN YSIDRO	PAR6-65A RF (TR)	20			30	6.04
CONGREGATIONAL TOWERS (CHULA VISTA RELAY)	P4-105A (TR)	160.8			27	CHULA VISTA PD DISPATCH	P4-105A (TR)	51.8			27	0.22
COWLES MTN	P4-105A (TR)	20			12	HEARTLAND DISPATCH (HCFA)	P4-105A (TR)	25			12	4.33
EL CAJON PD	VHP4-105 (TR)	32			23	RATTLESNAKE	VHP4-105 (TR)	17			23	1.84
MT WOODSON	PAR6-65A RF (TR)	41.99			19.5	ESCONDIDO PD	UHX6-59WA (TR)	64.96			19.5	11.26
LAKE SAN MARCOS PK	P6-105B (TR)	37.1			22	RANCHO FIRE	VHLP800-11A (TR)	44.9			22	6.32
LAKE SAN MARCOS PK	VHLP800-11A (TR)	49.9			22	CARLSBAD PD	VHLP800-11A (TR)	34.8			22	4.09
ICSO	HP4-105C (TR)	130			26.5	EL CENTRO PD	HP4-105C (TR)	80			26.5	3.09

Table A.3 Imperial County Links (For Informational Purposes Only)

Site Name 1	Primary Antenna Model	Primary Height (FT)	Diversity Antenna Model	Diversity Height (FT)	TX Pwr (dBm)	Site Name 2	Primary Antenna 2 Model	Primary Height (FT)	Diversity Antenna Model	Diversity Height (FT)	TX Pwr (dBm)	Path Length (mi)
BLACK MTN	UHX6-59L LF (TR)	55.12	UHX6-59L LF (DR)	24.9	29	OGILBY ATC	UHX6-59L LF (TR)	126.97	UHX6-59L LF (DR)	97.1	29	20.32
BRAWLEY	PL8-59WB (TR)	77.1	PAR6-59W RF (DR)	34.1	28.1	BRUNTS	PL8-59WB (TR)	62.99	PAR6-59W RF (DR)	32.2	28.1	11.27
BRUNTS	PL8-107F (TR)	21.98	PL6-107E (DR)	51.8	28.1	BLACK MTN	PL10-107F (TR)	44.95	PL8-107F (DR)	75.1	28.1	28.68
CALEXICO	PAR6-65A RF (TR)	75.13			22.5	ICSO	PAR6-65A RF (TR)	144.03			22.5	8.41
ICSO	HP8-59F (TR)	129.92			31	HOLTVILLE	HP6-59J (TR)	129.92			31	10.35
ICSO	HP4-105C (TR)	130			26.5	EL CENTRO PD	HP4-105C (TR)	80			26.5	3.09
ICSO	PL8-59WB (TR)	135.17	PAR6-59W RF (DR)	86	28.1	BRAWLEY	PL8-59WB (TR)	84.97	PAR6-59W RF (DR)	44.9	28.1	15.9
OGILBY ATC	UHP8-59W (TR)	240.16			30	BLACK HILL	UHP6-59WB RF (TR)	29.86			30	13.21
SUPERSTITION	UHP8-59W (TR)	55.12			30	SALTON CITY	HP8-59F (TR)	185.04			30	23.24

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Table A.4 Dual Feed Antenna Microwave Links (rev1)

Site Name 1	Site Name 2	Frequency Band	FCC License	Other Microwave System	Comments
UC MED CENTER	TMC	6.1 GHz	KFM56 / WPNH204	CITY OF SAN DIEGO 3Cs	This path uses single feed antenna at both ends. However, at both ends, the City's (3C's) microwave radio RF output connects to the County radio's expansion RF port and thus the two radios share the single feed antenna.
MT WOODSON	NORTH PEAK	6.1 GHz	WQMA376 / WQMH411	CITY OF SAN DIEGO 3Cs	This path uses single feed antenna at both ends. At Woodson, only the County radio connects to the antenna. At North Peak, the City's (3C's) microwave radio RF output connects to the County radio's expansion RF port and thus the two radios share the single feed antenna.
TMC	MT SOLEDAD	10 GHz	WNTP825 / KCU35	STATE OF CALIFORNIA	Dual feed antennas are required at both sites.
MT WOODSON	ESCONDIDO PD	6.1 GHz	WQMA376 / WQMA375	CITY OF SAN DIEGO 3Cs	At Escondido PD, this path uses a dual feed antenna, with waveguide connections to the County and City's (3C's) microwave radios. At Woodson, the RF signal from Escondido PD is captured by two separate single feed antennas, mounted on two separate towers (County and City). The County and City (3C's) microwave radios are located in the County and City's radio shelters, respectively.

**COUNTY CONTRACT NUMBER 547601 - AGREEMENT WITH AVIAT U.S., INC. FOR
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Attachment B – Microwave Network Topography

Dotted lines represent T1 connectivity on all topographic maps. Loop protected ring in San Diego County with 155 Mbps capacity shown in red. Remaining colors represent spurs.

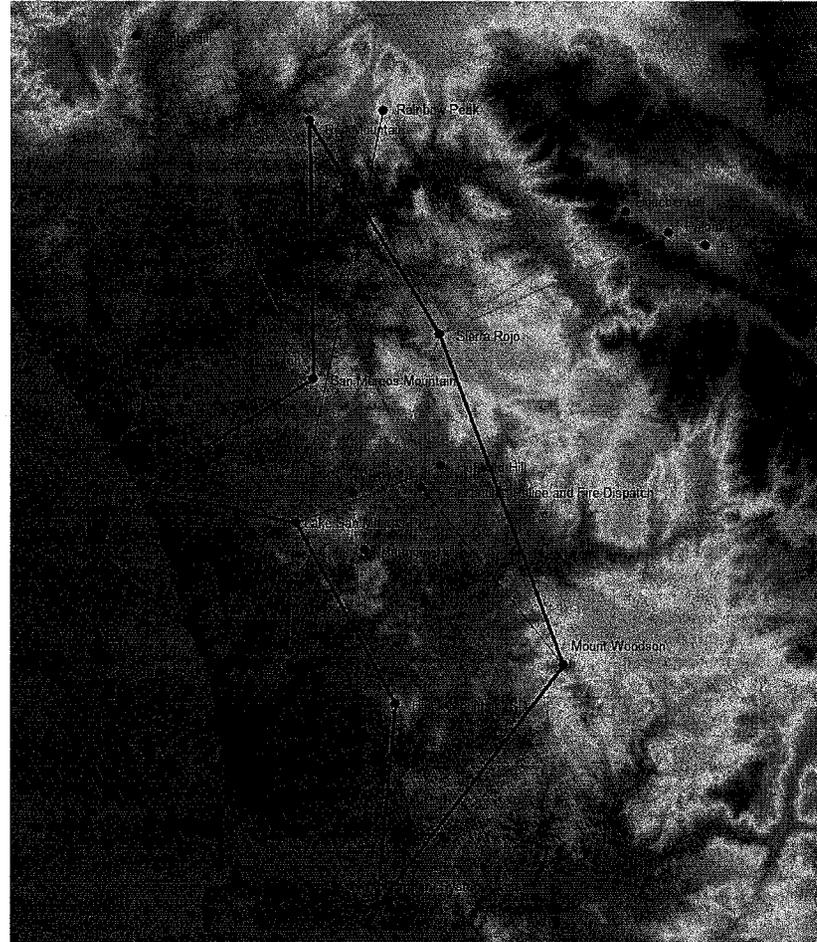


Figure B.1 – High level topography of the North Loop Microwave Network

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Loop protected ring in San Diego County with 155 Mbps capacity shown in red. Remaining colors represent spurs.

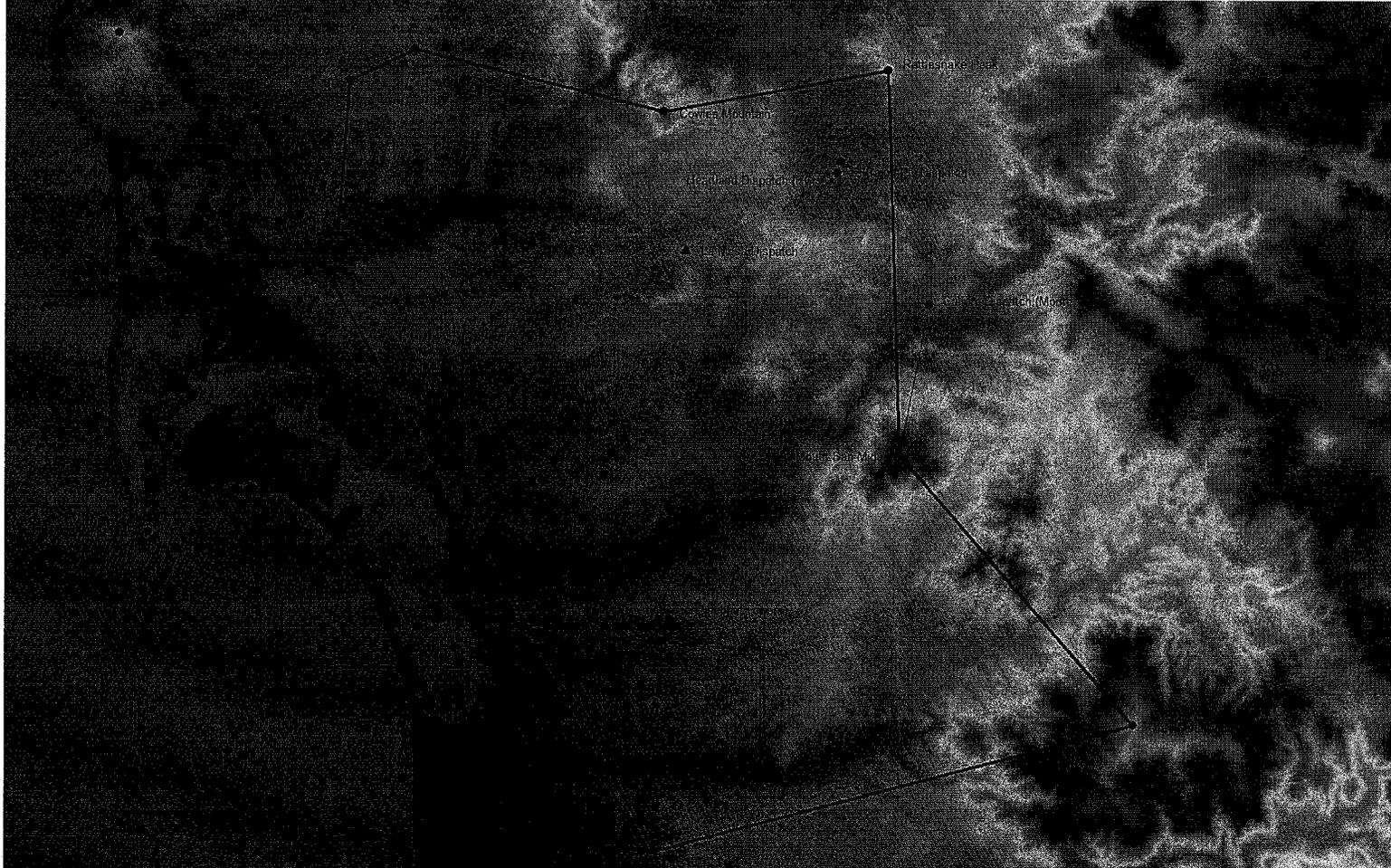


Figure B.2 – High level topography of the South Loop Microwave Network

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Loop protected ring in San Diego County with 155 Mbps capacity shown in red. Remaining colors represent spurs.

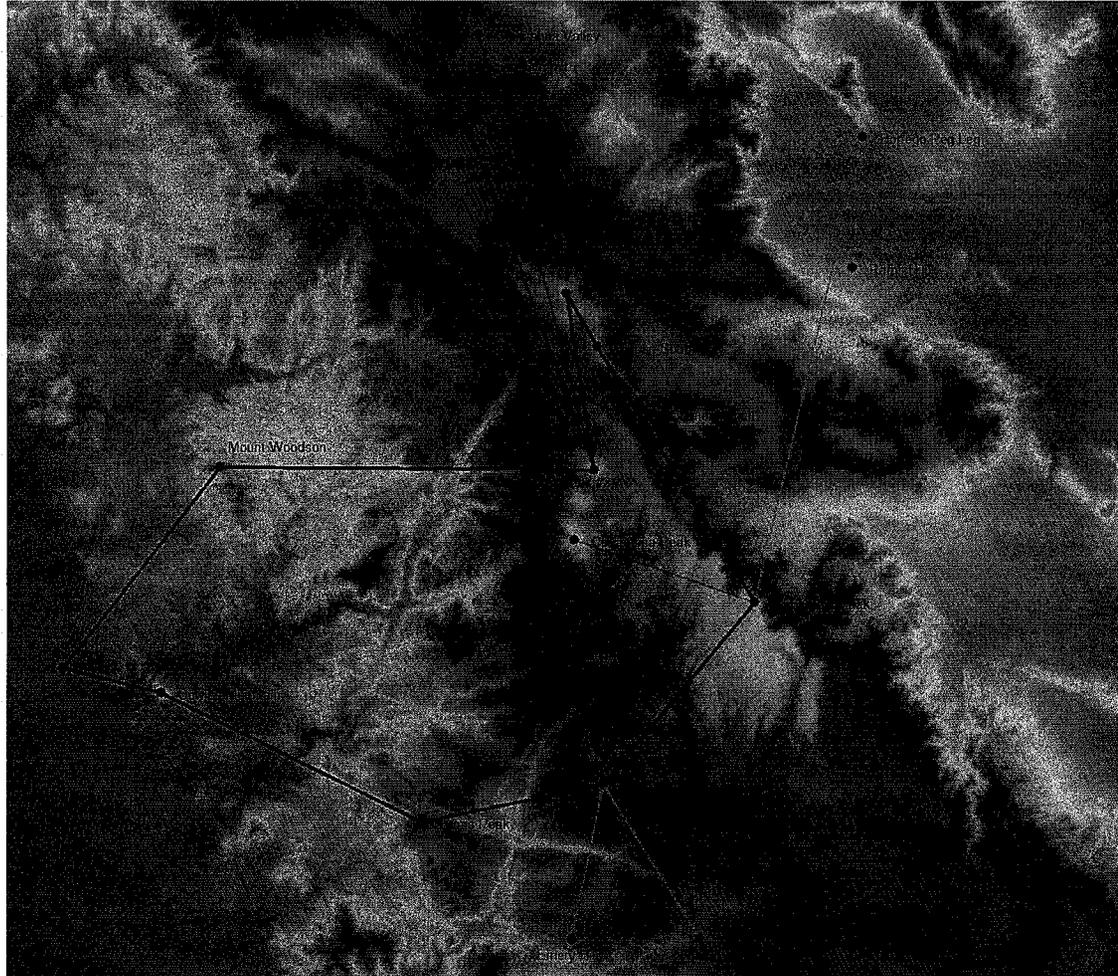


Figure B.3 – High level topography of the East Loop Microwave Network

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Inter-county loop protected ring with 45 Mbps capacity shown in red. Imperial County links not requiring replacement in blue.

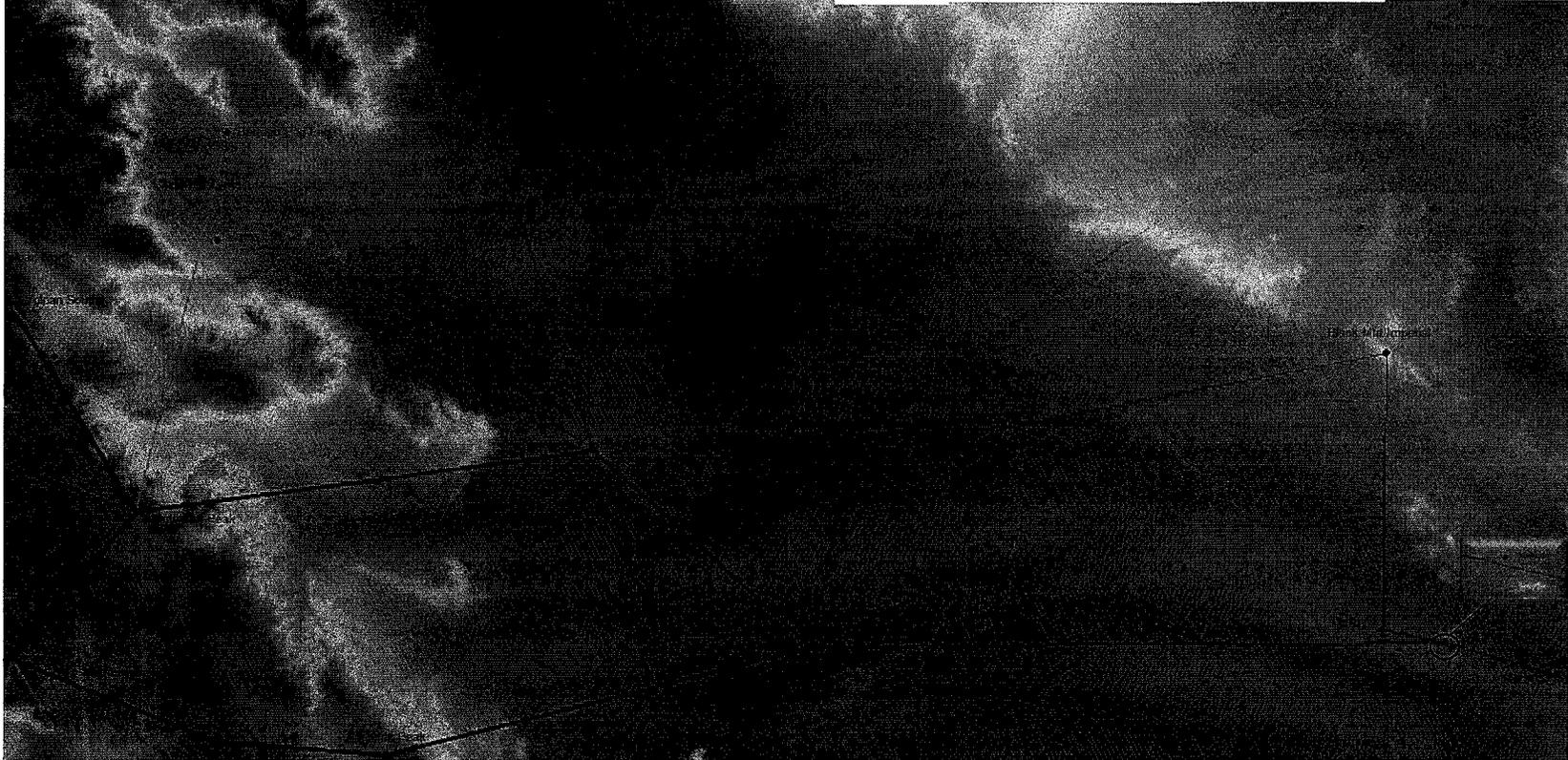


Figure B.4 – High level topography of the Inter-county Microwave Network

**COUNTY CONTRACT NUMBER 547601 - AGREEMENT WITH AVIAT U.S., INC. FOR
MICROWAVE NETWORK REPLACEMENT - EXHIBIT A – STATEMENT OF WORK – ATTACHMENT C**

Attachment C – -48V DC Microwave Battery Plant Information

Description	Current Model #	Location Name	Install/Replacement Date
48V BATTERY STACK	GNB50G13-312AH	Alpine Heights	4/27/2011
48V BATTERY STACK	GNB50G13-312AH	Banner Ranch	4/1/2012
48V BATTERY STACK	GNB90G11R19-432AH	Birch Hill	4/1/2012
48V BATTERY STACK	GNB90G11-432AH	Black Mountain, SD	4/19/2011
48V BATTERY STACK	ULHCTA400-400AH	Borrego Springs	9/21/2010
48V BATTERY STACK	GNB90G13-530AH	Boucher Hill	Planned July 2013
48V BATTERY STACK	GNB50G09-208AH	CalFire Monte Vista (CDF)	4/13/2012
48V BATTERY STACK	GNB90G11-432AH	CalTrans TMC	4/23/2012
48V BATTERY STACK	GNB50G09-208AH	Campo	4/1/2012
48V BATTERY STACK	GNB50G09R19-208AH	Chihuahua Valley	4/20/2012
48V BATTERY STACK	ULHCTA500-505AH	Cowles Mountain	9/1/2010
48V BATTERY STACK	GNB90G13-520AH	Cuyamaca Peak	9/1/2012
48V BATTERY STACK	Energys 12V125F	Emery Hill	11/10/2005
48V BATTERY STACK	GNB90G11-432AH	Encina Power Plant	5/12/2011
48V BATTERY STACK	GNB50A09-208AH	Encinitas Best Western	4/24/2006
48V BATTERY STACK	GNB50G05-104AH	Harmony Hill	4/20/2012
48V BATTERY STACK	GNB90G13-520AH	Hendrix Peak	3/1/2011
48V BATTERY STACK	GNB50G09-208AH	Jojoba Hill	4/23/2012
48V BATTERY STACK	C&D AT-15P/800 AH	Lake San Marcos Peak	2/11/2010
48V BATTERY STACK	GNB100G15-696AH	Los Pinos Peak	9/1/2010
48V BATTERY STACK	GNB90G09-344AH	Lyons Peak	6/18/2010
48V BATTERY STACK	GNB100G29-1400AH	Monument Peak	6/22/2010
48V BATTERY STACK	GNB90G11-432AH	Mount Otay	4/20/2011
48V BATTERY STACK	GNB90G11-432AH	Mount San Miguel	4/20/2011
48V BATTERY STACK	GNB90G11-432AH	Mount Soledad	4/21/2011
48V BATTERY STACK	ULHCTB800-800AH	Mount Woodson	9/20/2010
48V BATTERY STACK	GNB50G07R19-152AH	Mountain Empire High School	4/1/2012

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Description	Current Model #	Location Name	Install/Replacement Date
48V BATTERY STACK	GNB100G17-800AH	North Peak	6/21/2010
48V BATTERY STACK	12AVR100AH-UNIGY I	Oceanside Abbey	5/12/2009
48V BATTERY STACK	GNB50G05-104AH	Palomar Mountain	4/1/2012
48V BATTERY STACK	GNB50A07-152AH	Point Loma	10/4/2010
48V BATTERY STACK	GNB90G15-608AH	Primary System Center	6/14/2010
48V BATTERY STACK	GNB100G31-1496AH	Primary System Center	6/15/2010
48V BATTERY STACK	GNB90G11-432AH	Rattlesnake Peak	4/21/2011
48V BATTERY STACK	ULHCTA400-400AH	Rams Hill	9/21/2010
48V BATTERY STACK	GNB90G11-432AH	Red Mountain	4/25/2011
48V BATTERY STACK	GNB90G09-344AH	San Marcos Mountain	4/26/2011
48V BATTERY STACK	GNB90G11-432AH	San Ysidro View Park	5/11/2011
48V BATTERY STACK	ULHCTA400-400AH	Sierra Rojo	9/17/2010
48V BATTERY STACK	GNB50G13-312AH	Sunshine Summit	4/17/2012
48V BATTERY STACK	GNB90G13-520AH	Superstition Mountain	3/1/2011
48V BATTERY STACK	GNB90G07R19-256AH	UCSD Medical Center	5/16/2011
48V BATTERY STACK	GNB90A07-256AH	Volcan North	7/6/2007
48V BATTERY STACK	GNB90G11-432AH	Volcan South	4/19/2012
48V BATTERY STACK	GNB90G11-432AH	White Star	6/17/2010
48V BATTERY STACK	12AVR100AH-UNIGY I	Hubbard Hill	12/20/2011
48V BATTERY STACK	TEL12-125 126AH	Ocotillo Wells	10/14/2002

**COUNTY CONTRACT NUMBER 547601 - AGREEMENT WITH AVIAT U.S., INC. FOR
MICROWAVE NETWORK REPLACEMENT - EXHIBIT A – STATEMENT OF WORK – ATTACHMENT D**

Attachment D – FCC Microwave Licenses

LOCATION A			LOCATION B		
Site Name	Call Sign	Frequency	Site Name	Call Sign	Frequency
OCEANSIDE ABBEY	WPVS605	10593.125H	Oceanside CC	WPVS870	10658.125H
BLACK MTN ¹	WPJA267	6256.540V	SDSO PSC	WPNH200	6004.500V
BLACK MTN ²	WQAV249	6286.190H	OGILBY ATC	WQLB874	6063.800H
BORREGO PEG LEG	WPNG267	10583.125H	RAMS HILL	WPNH201	10648.125H
BORREGO PEG LEG	WPNG267	10563.125V	MONUMENT PK	KMX33	10628.125V
BRAWLEY	WPYU999	5974.850H	BRUNTS	WQAV248	6226.890H
BRUNTS	WQAV248	10755.000V	BLACK MTN ⁹	WQAV249	11245.000V
CALEXICO	WQGY742	6865.000H	ICSO	WPXT495	6705.000H
CONGREGATIONAL TOWERS (CHULA VISTA RELAY)	WPRR742	6865.625H	SAN YSIDRO	WPNH209	6705.625H
CONGREGATIONAL TOWERS (CHULA VISTA RELAY)	WPRR742	10558.125H	CHULA VISTA PD DISPATCH	WPRV874	10623.125H
COWLES MTN	WNEM962	6256.540V	SDSO PSC	WPNH200	6004.500V
COWLES MTN	WNEM962	10835.000V	RATTLESNAKE	WPNH202	11325.000V
COWLES MTN	WNEM962	10567.500V	HEARTLAND DISPATCH (HCFA)	WPNG274	10632.500V
EL CAJON PD	WPOT651	10623.125H	RATTLESNAKE	WPNH202	10558.125H
ENCINA POWER	WPND844	6034.150V	SAN MARCOS MTN	WPNH208	6286.190V
ENCINA POWER	WPND844	6695.625H	ENCINITAS BEST WESTERN	WQDD988	6855.625H
HENDRIX PEAK	WPNG275	6835.000H	WHITE STAR	WHC631	6675.000H
ICSO	WPXT495	6256.540V	HOLTVILLE	WQGY752	6004.500V
ICSO	WPXT495	6404.790H	HENDRIX PEAK	WPNG275	6152.750H
ICSO	WPXT495	10603.125V	EL CENTRO PD	WPYM766	10668.125V
ICSO	WPXT495	6286.190H	BRAWLEY	WPYU999	6034.150H
LOS PINOS MT	WGM27	10663.125V	CAMPO GRAVES	WPNG269	10598.125V
LOS PINOS MT	WGM27	6123.100H	LYONS PEAK	KMX31	6375.140H
LOS PINOS MT	WGM27	10643.125V	EMERY HILL	WPNG272	10578.125V
LYONS PEAK	KMX31	6404.790H	COWLES MTN	WNEM962	6152.750H
MONUMENT PK	KMX33	6805.000H	VOLCAN SOUTH	WPNH205	6645.000H
MONUMENT PK	KMX33	6735.000V	SUPERSTITION	WPNH207	6565.000V
MONUMENT PK	KMX33	6404.790V	LOS PINOS MT	WGM27	6152.750V
MONUMENT PK	KMX33	6305.960H	LOS PINOS MT	WGM27	6053.920H
MONUMENT PK	KMX33	10648.125V	CUYAMACA PK	WPNG271	10583.125V
MT SAN MIGUEL	WPNG278	10915.000V	OTAY MTN	WPNG279	11405.000V
MT SAN MIGUEL	WPNG278	11135.000V	MONTE VISTA	WPNH229	11625.000V

¹ San Diego County

² Imperial County

**COUNTY CONTRACT NUMBER 547601 - AGREEMENT WITH AVIAT U.S., INC. FOR
MICROWAVE NETWORK REPLACEMENT - EXHIBIT A – STATEMENT OF WORK – ATTACHMENT D**

LOCATION A			LOCATION B		
Site Name	Call Sign	Frequency	Site Name	Call Sign	Frequency
MT SAN MIGUEL	WPNG278	10638.125H	ALPINE HTS	WPNG264	10573.125H
MT SOLEDAD	WPJA268	10633.125H	TMC	WPNH204	10558.125H
MT WOODSON	WPNG277	6197.240H	SIERRA ROJO	WPNH210	5945.200H
MT WOODSON	WPNG277	6315.840V	NORTH PEAK	KMX99	6063.800V
MT WOODSON	WPNG277	6585.625H	ESCONDIDO PD	WPOL382	6745.625H
MT WOODSON	WPNG277	6345.49V	SDSO PSC	WPNH200	6093.45V
NORTH PEAK	KMX99	6635.000H	CHIHUAHUA	WPNG270	6795.000H
NORTH PEAK	KMX99	6545.000V	SUNSHINE SUMMIT	WPNH206	6715.000V
OCOTILLO WELLS	WPNC669	934.175H	SUPERSTITION	WPNH207	943.175H
OGILBY ATC	WQLB874	6725.000V	BLACK HILL	WQNH903	6555.000V
OTAY MTN	WPNG279	6197.240V	SAN YSIDRO	WPNH209	5945.200V
PALOMAR MTN	KMX32	10568.125V	BIRCH HILL (MORROW)	WPOT604	10633.125V
RATTLESNAKE	WPNH202	11215.000H	MT SAN MIGUEL	WPNG278	10715.000H
RED MTN	WPNH203	6063.800H	SIERRA ROJO	WPNH210	6315.840H
SAN YSIDRO	WPNH209	6004.500H	UC MED CTR	KFM56	6256.540H
SDSO PSC	WPNH200	6034.150H	TMC	WPNH204	6286.190H
SDSO PSC	WPNH200	5974.850H	MT WOODSON	WPNG277	6226.890H
SDSO PSC	WPNH200	6093.450H	COWLES MTN	WNEM962	6345.490H
SIERRA ROJO	WPNH210	10663.125V	PALOMAR MTN	KMX32	10598.125V
SIERRA ROJO	WPNH210	10653.125V	HARMONY PEAK	WPNG273	10588.125V
SIERRA ROJO	WPNH210	10643.125V	BOUCHER HILL	WPNG268	10578.125V
SAN MARCOS MTN	WPNH208	6226.890V	RED MTN	WPNH203	5974.850V
SAN MARCOS MTN	WPNH208	10553.125V	JOJOBA HILL	WPNG276	10618.125V
LAKE SAN MARCOS PK	KHH71	10563.125V	RANCHO FIRE	WPND845	10628.125V
LAKE SAN MARCOS PK	KHH71	6855.625H	RAINBOW PK	WHC632	6695.625H
LAKE SAN MARCOS PK	KHH71	6755.625V	Hubbard Hill	WPUW577	6595.625V
LAKE SAN MARCOS PK	KHH71	6345.490H	ENCINA POWER	WPND844	6093.450H
LAKE SAN MARCOS PK	KHH71	10583.125V	CARLSBAD PD	WPND846	10648.125V
LAKE SAN MARCOS PK	KHH71	6004.500H	BLACK MTN	WPJA267	6256.540H
LAKE SAN MARCOS PK	KHH71	6140.400V	OCEANSIDE ABBEY	WPVS605	6392.440V
SUPERSTITION	WPNH207	6226.890V	SALTON CITY	WPYV302	5974.850V
SUPERSTITION	WPNH207	6655.000H	ICSO	WPXT495	6815.000H
UC MED CTR	KFM56	11215.000H	TMC	WPNH204	10715.000H
UC MED CTR	KFM56	6785.625H	POINT LOMA	WQLC652	6625.625H
VOLCAN SOUTH	WPNH205	10633.125H	BANNER RANCH	WPNG265	10568.125H
VOLCAN NORTH	WQCH379	5945.200H	NORTH PEAK	KMX99	6197.240H
VOLCAN NORTH	WQCH379	6093.450H	MONUMENT PK	KMX33	6345.490H
WHITE STAR	WHC631	6695.000V	LOS PINOS MT	WGM27	6855.000V

**COUNTY CONTRACT NUMBER 547601 - AGREEMENT WITH AVIAT U.S., INC. FOR
MICROWAVE NETWORK REPLACEMENT - EXHIBIT A – STATEMENT OF WORK – ATTACHMENT D**

Note: Accuracy of location data in the FCC licenses was limited by the fact that GPS technology was not available at the time of survey. Recent GPS verified tower locations will be provided at the pre-proposal conference.

COUNTY CONTRACT NUMBER 547601
AGREEMENT WITH AVIAT U.S., INC. FOR MICROWAVE NETWORK REPLACEMENT
EXHIBIT B – INSURANCE AND BONDING REQUIREMENTS

Service Contract - Includes Professional Liability Exposure

INSURANCE REQUIREMENTS FOR CONTRACTORS

Without limiting Contractor's indemnification obligations to County, Contractor shall provide at its sole expense and maintain for the duration of this contract, or as may be further required herein, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder and the results of the work by the Contractor, his agents, representatives, employees or subcontractors.

1. Minimum Scope of Insurance

Coverage shall be at least as broad as:

- A. Commercial General Liability, Occurrence form, Insurance Services Office form CG0001.
- B. Automobile Liability covering all owned, non owned, hired auto Insurance Services Office form CA0001.
- C. Workers' Compensation, as required by State of California and Employer's Liability Insurance.
- D. Professional Liability required if Contractor Provides or engages in any type of professional services, including but not limited to medical professional, counseling services or legal services.

2. Minimum Limits of Insurance

Contractor shall maintain limits no less than:

- A. Commercial General Liability including Premises, Operations, Products and Completed Operations, Contractual Liability, and Independent Contractors Liability: \$1,000,000 per occurrence for bodily injury, personal injury and property damage. The General Aggregate limit shall be \$2,000,000.
- B. Automobile Liability: \$1,000,000 each accident for bodily injury and property damage.
- C. Employer's Liability: \$1,000,000 each accident for bodily injury or disease. Coverage shall include waiver of subrogation endorsement in favor of County of San Diego.
- D. Professional Liability: \$1,000,000 per claim with an aggregate limit of not less than \$2,000,000. Any self-retained limit shall not be greater than \$25,000 per occurrence/event without County Risk Management approval. If policy contains one or more aggregate limits, a minimum of 50% of any such aggregate limit must remain available at all times; if over 50% of any such aggregate limit has been paid or reserved, County will require additional coverage to be purchased by Contractor to restore the required limits. This coverage shall be maintained for a minimum of two years following termination of completion of Contractor's work pursuant to the Contract.

3. Deductibles and Self-Insured Retentions

Any deductible or self-insured retention must be declared to and approved by County Risk Management. At the option of the County, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the County, the members of the Board of Supervisors of the County and the officers, agents, employees and volunteers; or the Contractor shall provide a financial guarantee satisfactory to the County guaranteeing payment of losses and related investigations, claim administration, and defense expenses.

4. Other Insurance Provisions

The general liability and automobile liability policies are to contain, or be endorsed to contain the following provisions:

- A. Additional Insured Endorsement
Any general liability policy provided by Contractor shall contain an additional insured endorsement applying coverage to the County of San Diego, the members of the Board of Supervisors of the County and the officers, agents, employees and volunteers of the County, individually and collectively.
- B. Primary Insurance Endorsement
For any claims related to this Contract, the Contractor's insurance coverage shall be primary insurance as respects the County, the members of the Board of Supervisors of the County and the officers, agents,

COUNTY CONTRACT NUMBER 547601
AGREEMENT WITH AVIAT U.S., INC. FOR MICROWAVE NETWORK REPLACEMENT
EXHIBIT B – INSURANCE AND BONDING REQUIREMENTS

employees and volunteers of the County, individually and collectively. Any insurance or self-insurance maintained by the County, its officers, officials, employees, or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

C. Notice of Cancellation

Notice of Cancellation shall be provided in accordance with policy provisions.

D. Severability of Interest Clause

Coverage applies separately to each insured, except with respect to the limits of liability, and that an act or omission by one of the named insureds shall not reduce or avoid coverage to the other named insureds.

General Provisions

5. Qualifying Insurers

All required policies of insurance shall be issued by companies which have been approved to do business in the State of California by the State Department of Insurance, and which hold a current policy holder's alphabetic and financial size category rating of not less than A-, VII according to the current Best's Key Rating guide, or a company of equal financial stability that is approved in writing by County Risk Management.

6. Evidence of Insurance

Prior to commencement of this Contract, but in no event later than the effective date of the Contract, Contractor shall furnish the County with certificates of insurance and amendatory endorsements effecting coverage required by this clause. Renewal certificates and amendatory endorsements shall be furnished to County within thirty days of the expiration of the term of any required policy. Contractor shall permit County at all reasonable times to inspect any required policies of insurance.

7. Failure to Obtain or Maintain Insurance; County's Remedies

Contractor's failure to provide insurance specified or failure to furnish certificates of insurance and amendatory endorsements or failure to make premium payments required by such insurance, shall constitute a material breach of the Contract, and County may, at its option, terminate the Contract for any such default by Contractor.

8. No Limitation of Obligations

The foregoing insurance requirements as to the types and limits of insurance coverage to be maintained by Contractor, and any approval of said insurance by the County are not intended to and shall not in any manner limit or qualify the liabilities and obligations otherwise assumed by Contractor pursuant to the Contract, including, but not limited to, the provisions concerning indemnification.

9. Review of Coverage

County retains the right at any time to review the coverage, form and amount of insurance required herein and may require Contractor to obtain insurance reasonably sufficient in coverage, form and amount to provide adequate protection against the kind and extent of risk which exists at the time a change in insurance is required.

10. Self-Insurance

Contractor may, with the prior written consent of County Risk Management, fulfill some or all of the insurance requirements contained in this Contract under a plan of self-insurance. Contractor shall only be permitted to utilize such self-insurance if in the opinion of County Risk Management, Contractor's (i) net worth, and (ii) reserves for payment of claims of liability against Contractor, are sufficient to adequately compensate for the lack of other insurance coverage required by this Contract. Contractor's utilization of self-insurance shall not in any way limit liabilities assumed by Contractor under the Contract.

11. Claims Made Coverage

If coverage is written on a "claims made" basis, the Certificate of Insurance shall clearly so state. In addition to the coverage requirements specified above, such policy shall provide that:

- A. The policy retroactive date coincides with or precedes Contractor's commencement of work under the Contract (including subsequent policies purchased as renewals or replacements).

COUNTY CONTRACT NUMBER 547601
AGREEMENT WITH AVIAT U.S., INC. FOR MICROWAVE NETWORK REPLACEMENT
EXHIBIT B – INSURANCE AND BONDING REQUIREMENTS

- B. Contractor will make every effort to maintain similar insurance during the required extended period of coverage following expiration of the Contract, including the requirement of adding all additional insured's.
- C. If insurance is terminated for any reason, Contractor shall purchase an extended reporting provision of at least two years to report claims arising in connection with the Contract.
- D. The policy allows for reporting of circumstances or incidents that might give rise to future claims.

12. Subcontractors' Insurance

Contractor shall require that any and all Subcontractors hired by Contractor are insured in accordance with this Contract. If any Subcontractors coverage does not comply with the foregoing provisions, Contractor shall defend and indemnify the County from any damage, loss, cost or expense, including attorney fees, incurred by County as a result of Subcontractors failure to maintain required coverage.

13. Waiver of Subrogation

Contractor and County release each other, and their respective authorized representatives, from any Claims (as defined in the Article entitled "Indemnity" of the Contract), but only to the extent that the proceeds received from any policy of insurance carried by County or Contractor, other than any self-insurance, covers any such Claim or damage. Included in any policy or policies of insurance provided by Contractor hereunder shall be a standard waiver of rights of Subrogation against County by the insurance company issuing said policy or policies.

**COUNTY CONTRACT NO. 547601
AGREEMENT WITH AVIAT U.S., INC.
FOR MICROWAVE NETWORK REPLACEMENT
EXHIBIT C- PRICING TABLE OF CONTENTS AND SUMMARY**

1. Exhibit C Table of Contents

Table C.1	Pricing Summary	
Table C.2	System Equipment Pricing	(Confidential)
Table C.3	Base Bid Services Pricing	
Table C.4	Options to Base Proposal	
Table C.4.a	Extended Warranty	
Table C.4.b	Antenna Support Structure Analysis	
Table C.4.c	Battery System Enhancements	
Table C.4.d	Old Equipment Trade-in Value	
Table C.4.e	Recommended Spare Equipment	
Table C.5	Future Options for San Diego County Purchase	(Confidential)
Table C.5.a	Future Equipment Components	(Confidential)
Table C.5.b	Future Services	(Confidential)
Table C.6	Future Dispatch Spur Links Options	
Table C.6.a	Oceanside Abbey & Oceanside CC	
Table C.6.b	Congregational Tower & San Ysidro	
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Table C.6.e	Rattlesnake & El Cajon PD	
Table C.6.f	Mt. Woodson & Escondido PD	
Table C.6.g	Lake San Marcos PK & Rancho Fire	
Table C.6.h	Lake San Marcos PK & Carlsbad PD	
Table C.6.i	Imperial County SO & El Centro PD	
Table C7	Future RCS Imperial County Options	

2. Contract Initial Purchase Summary For Project Equipment and Services (see following table on page 2).

**COUNTY CONTRACT NO. 547601
 AGREEMENT WITH AVIAT U.S., INC.
 FOR MICROWAVE NETWORK REPLACEMENT
 EXHIBIT C- PRICING TABLE OF CONTENTS AND SUMMARY**

INITIAL CONTRACT PURCHASE SUMMARY		
Equipment/Service	Price	Reference Pricing Table
Radio Equipment	\$2,298,565.00	C.1.a (C.2)
Networking Equipment	\$1,103,665.00	C.1.a (C.2)
Network Management System	\$241,974.00	C.1.a (C.2)
Antenna Systems	\$525,025.00	C.1.a (C.2)
Pressurization Systems	\$129,662.00	C.1.a (C.2)
Additional equipment (spares)	\$178,026.00	C.4.e
Total Equipment	\$4,476,917.00	C.1.a
Less one time management equipment discount	(\$634,250.00)	C.1.a
Total Equipment after discount	\$3,842,667.00	C.1.a
Estimated Equipment Sales Tax @8%	\$307,413.36	C.1.a
Total equipment and tax	\$4,150,080.36	
Warranty	\$616,338.00	C.1.a (C.3)
Extended Warranty	\$1,206,179.00	C.1.b (C.4.a)
Total Equipment and Warranty¹	\$5,972,597.36	
System Equipment services	\$1,916,689.00	C.1.a (C.3)
System Engineering	\$325,048.00	C.1.a (C.3)
Project Management	\$236,844.00	C.1.a (C.3)
System Training	\$142,278.00	C.1.a (C.3)
MPLS Router Application Configuration	\$27,194.00	C.4.a
Total Deployment Services	\$2,648,053.00	
Less One time management services discount	(\$440,750.00)	C.1.a
Contractor Estimated Sales Tax on Taxable Services	\$38,867.04	C.1.a
Total Services²	\$2,246,170.04	
Old Equipment Trade-in Credit³	(\$25,000.00)	C.4.d
Total Contract for Initial Purchase	\$8,193,767.40	

¹ Milestone #3 = 100% of Equipment including Warranties

² Milestones #1 = 15%, #2=25%, #5=30%, #6=30% of Total Services

³ Milestone #4 = 100% Trade in Credit

TABLE C.1 -- TOTAL PRICE SUMMARY

TABLE C.1 is composed of two tables that will print on individual pages.
 Table C.1.a summarizes all prices for the Base Proposal without Options.
 Table C.1.b summarizes the Options which may be purchased at the same time as the Base Proposal.

TABLE C.1.a -- TOTAL PRICE SUMMARY OF THE BASE PROPOSAL

System Equipment (Table C.2)	Discounted Price
Radio Equipment	\$ 2,298,565.00
Networking Equipment	\$ 1,103,665.00
Network Management System	\$ 241,974.00
Antenna Systems	\$ 525,025.00
Pressurization Systems	\$ 129,662.00
Aviat Warranty Plus Advance Warranty (From Table C.3)	\$ 616,338.00
TOTAL EQUIPMENT PRICE	\$ 4,915,229.00
Deployment Services (Table C.3)	
System Equipment Services	\$ 1,916,689.00
System Engineering	\$ 325,048.00
Project Management	\$ 236,844.00
System Training	\$ 142,278.00
Other	-
TOTAL SERVICES PRICES	\$ 2,620,859.00
Total Base Proposal Price	\$ 7,536,088.00
One Time Management Discount Equipment	\$ (634,250.00)
One Time Management Discount Services	\$ (440,750.00)
Total Base Proposal Price After Discount	\$ 6,461,088.00
Estimated Tax, 8.0%	\$ 346,280.40
Total Base Proposal Price with Tax and Freight	\$ 6,807,368.40

TABLE C.1.b -- PRICE SUMMARY OF PROPOSALS WHICH MAY BE PURCHASED WITH THE BASE PROPOSAL

Extended Warranty (Table C.4.a)	Extended Price
IRU600 Warranty/Maintenance for Year 3, (164 TRs in base bid)	\$ 40,695.00
IRU600 Warranty/Maintenance for Year 4, (164 TRs in base bid)	\$ 40,695.00
IRU600 Warranty/Maintenance for Year 5, (164 TRs in base bid)	\$ 40,695.00
IRU600 Warranty/Maintenance for Year 6, (164 TRs in base bid)	\$ 40,695.00
IRU600 Warranty/Maintenance for Year 7, (164 TRs in base bid)	\$ 40,695.00
Provision Warranty/Maintenance for Year 3	\$ 8,400.00
Provision Warranty/Maintenance for Year 4	\$ 8,400.00
Provision Warranty/Maintenance for Year 5	\$ 8,400.00
Provision Warranty/Maintenance for Year 6	\$ 8,400.00
Provision Warranty/Maintenance for Year 7	\$ 8,400.00
SMARTNET/Maintenance for Year 3	\$ 184,428.00
SMARTNET/Maintenance for Year 4	\$ 184,428.00
SMARTNET/Maintenance for Year 5	\$ 184,428.00
SMARTNET/Maintenance for Year 6	\$ 184,428.00

TABLE C.1.b -- PRICE SUMMARY OF PROPOSALS WHICH MAY BE PURCHASED WITH THE BASE PROPOSAL	
SMARTNET/Maintenance for Year 7	\$ 184,428.00
Assentria and IP Phone 5 years extended warranty	\$ 38,564.00
RECOMMENDED SPARE EQUIPMENT, PARTS, ETC. (Table C.4.e)	Extended Price
TOTAL----->>>>	\$ 178,026.00
MPLS Router Application Configuration	\$ 27,194.00

**COUNTY CONTRACT NO. 547601
AGREEMENT WITH AVIAT U.S., INC.
FOR MICROWAVE NETWORK REPLACEMENT
EXHIBIT C- PRICING – TABLE C.2**

Table C.2 – System Equipment Pricing – "Base Bid"

CONFIDENTIAL/PROPRIETARY INFORMATION

REDACTED

TABLE C.3 - BASE BID SERVICES PRICES	
Description	Services Prices
System Equipment Services Prices	
Note: all factory build & OEM integration costs shall be included in price of equipment in Table C.2	
Radio integration	\$ 48,589.00
Vendor integration	\$ 136,677.00
R56 Integration	\$ 35,946.00
Config Eng / Documentation / Drafting	\$ 157,954.00
Customer Acceptance Testing (Austin, TX)	\$ 10,614.00
Delivery /Shipping	\$ 69,000.00
NI - Indoor Radio Install & CISCO Router Verification	\$ 327,327.00
NI - Field Acceptance Testing & 30 Day Burn In Period	\$ 14,400.00
NI - Traffic Cutover (TDM)	\$ 12,870.00
Field Install (Antenna Systems & Field Management)	\$ 883,397.00
Field Install (Warehousing)	\$ 67,568.00
Field Install (ProVision)	\$ 5,560.00
Antenna and System Removal	\$ 146,787.00
System Equipment Services Prices Subtotal	\$ 1,916,689.00
System Engineering	
Network Engineering including router design	\$ 122,236.00
Transmission Engineering	\$ 141,822.00
Comsearch Fees	\$ 60,990.00
System Engineering Subtotal	\$ 325,048.00
Project Management	
Program Management	\$ 97,730.00
Project Engineering	\$ 139,114.00
Project Management Subtotal	\$ 236,844.00
System Training	
Eclipse Family Technical Training-Customer Site, 3 day	\$ 39,192.00
Provision Network Manager-Customer Site, 2 day	\$ 26,640.00
Cisco Training, Prime Infrastructure, 5 Days, up to 8 Students	\$ 25,482.00
Cisco Training, CCNA, 5 Days, up to 8 Students	\$ 25,482.00
Cisco Training, BGP/MPLS, 5 Days, up to 8 Students	\$ 25,482.00
Other	
Other	
Training Subtotal	\$ 142,278.00
Aviatcare Standard Warranty upgrade to Warranty Plus	\$ 616,338.00
Other	
TOTAL SERVICES (NO EQUIPMENT)	
	\$ 3,237,197.00

TABLE C.4 -- OPTIONS TO BASE PROPOSAL

Description	Equipment Price		Services Price (engineering, test, install, etc.)
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IMPORTANT NOTE:

TABLE C.4 is for items and services either requested by the County or recommended by the Proposer. The County may or may not choose to purchase any line item in conjunction with the Base Proposal components. **IT IS NOT OPTIONAL FOR THE PROPOSER -- ALL PRICES MUST BE INCLUDED.**

TABLE C.4 is composed of several tables that will print on individual pages.

TABLE C.4 -- OPTIONS TO BASE PROPOSAL

Description	Equipment Price		Services Price (engineering, test, install, etc.)
Table C.4.a -- EXTENDED WARRANTY			
List the price for warranties after the full warranty period (2 years) included in the Base Proposal. The Extended Warranty will be purchased in conjunction with the Base Proposal system. Since Warranty is a service, show price in last column only.			
IRU600 Warranty/Maintenance for Year 3, (172 TRs in base bid)			\$ 40,695.00
IRU600 Warranty/Maintenance for Year 4, (172 TRs in base bid)			\$ 40,695.00
IRU600 Warranty/Maintenance for Year 5, (172 TRs in base bid)			\$ 40,695.00
IRU600 Warranty/Maintenance for Year 6, (172 TRs in base bid)			\$ 40,695.00
IRU600 Warranty/Maintenance for Year 7, (172 TRs in base bid)			\$ 40,695.00
Provision Warranty/Maintenance for Year 3			\$ 8,400.00
Provision Warranty/Maintenance for Year 4			\$ 8,400.00
Provision Warranty/Maintenance for Year 5			\$ 8,400.00
Provision Warranty/Maintenance for Year 6			\$ 8,400.00
Provision Warranty/Maintenance for Year 7			\$ 8,400.00
SMARTNET/Maintenance for Year 3			\$ 184,428.00
SMARTNET/Maintenance for Year 4			\$ 184,428.00
SMARTNET/Maintenance for Year 5			\$ 184,428.00
SMARTNET/Maintenance for Year 6			\$ 184,428.00
SMARTNET/Maintenance for Year 7			\$ 184,428.00
Assentria and IP Phone 5 years extended warranty			\$ 38,564.00
Corrective Maintenance NA&C, 4H Response, per year, per site			\$ 2,800.00
Preventive Maintenance-NA&C, per year, per site			\$ 1,400.00
Remote Monitoring-NA&C, Set up Charges			\$ 14,000.00
Remote Monitoring, per year, per site			\$ 402.00
Commscope year 4 to year7 extended warranty			\$ 130,938.00

TABLE C.4 -- OPTIONS TO BASE PROPOSAL

Description	Equipment Price		Services Price (engineering, test, install, etc.)
Table C.4.b -- ANTENNA SUPPORT STRUCTURAL ANALYSIS			
Assume that all towers will need structural analysis. Price each site separately, taking into account the number of towers involved at the site or whether the antennas are mounted on the side or roof of a building. Structural Analysis is only for Antenna Supports and not site buildings. Since Structural Analysis is a Service, show price in last column only.			
ALPINE HEIGHTS			\$ 5,472.00
BANNER RANCH			\$ 5,472.00
BIRCH HILL			\$ 6,912.00
BLACK MTN (SD)			\$ 8,352.00
BORREGO PEG LEG			\$ 5,472.00
BOUCHER HILL			\$ 7,488.00
CALFIRE DISPTACH (MONTE VISTA)			\$ 5,472.00
CALTRANS TMC			\$ 7,920.00
CAMPO GRAVES			\$ 5,472.00
CHIHUAHUA			\$ 5,472.00
COWLES MTN			\$ 6,480.00
CUYAMACA PK, Tower 1			\$ 5,472.00
CUYAMACA PK, Tower 2			\$ 5,472.00
EMERY HILL			\$ 5,472.00
ENCINA POWER			\$ 9,792.00
ENCINITAS BEST WESTERN			\$ 6,912.00
HARMONY PEAK			\$ 5,472.00
HENDRIX PEAK			\$ 6,048.00
HUBBARD HILL			\$ 5,472.00
JOJOBA HILL			\$ 5,472.00
LAKE SAN MARCOS PK			\$ 5,472.00
LOS PINOS MT			\$ 5,472.00
LYONS PEAK			\$ 5,472.00
MONUMENT PK			\$ 5,472.00
MT SAN MIGUEL			\$ 8,352.00
MT SOLEDAD			\$ 9,360.00
MT WOODSON			\$ 5,472.00
NORTH PEAK			\$ 5,472.00
OCEANSIDE ABBEY			\$ 5,472.00
OCOTILLO WELLS			\$ 5,472.00
OTAY MTN			\$ 6,048.00
PALOMAR MTN			\$ 5,472.00
POINT LOMA			\$ 5,472.00
RAINBOW PK			\$ 5,472.00
RAMS HILL			\$ 5,472.00
RATTLESNAKE PEAK			\$ 9,792.00

TABLE C.4 -- OPTIONS TO BASE PROPOSAL

Description	Equipment Price		Services Price (engineering, test, install, etc.)
RED MTN			\$ 5,472.00
SAN MARCOS MTN			\$ 5,472.00
SAN YSIDE (VIEW PK), Tower 1			\$ 5,472.00
SAN YSIDE (VIEW PK), Tower 2			\$ 6,048.00
SDSO PSC			\$ 8,928.00
SIERRA ROJO			\$ 6,048.00
SUNSHINE SUMMIT			\$ 7,776.00
SUPERSTITION MTN			\$ 6,048.00
UC MED CTR			\$ 5,472.00
VOLCAN NORTH			\$ 6,048.00
VOLCAN SOUTH			\$ 6,048.00
WHITE STAR			\$ 5,472.00
CARLSBAD PD			\$ 7,920.00
CHULA VISTA PD DISPATCH			\$ 7,920.00
CONGREGATIONAL TOWERS (CHULA VISTA RELAY)			\$ 9,792.00
EL CAJON PD			\$ 9,792.00
EL CENTRO PD			\$ 5,472.00
ESCONDIDO PD			\$ 9,792.00
HEARTLAND DISPATCH (HCFA)			\$ 9,792.00
ICSO			\$ 5,472.00
OCEANSIDE PD DISPATCH			\$ 7,488.00
RANCHO FIRE (NCDJPA)			\$ 5,472.00
TOTAL STRUCTURAL ANALYSIS COST			\$ 287,568.00

TABLE C.4 -- OPTIONS TO BASE PROPOSAL

Description	Equipment Price		Services Price (engineering, test, install, etc.)
Table C.4.d -- OLD EQUIPMENT TRADE-IN VALUE			
Note that the old equipment from each site must be removed, with the Labor of removing it covered under installation on Table C.3. Itemize each equipment item and assign a trade-in value for it.			
Alpine Heights			
Banner Ranch			
Birch Hill			
Black Mountain, SD			
Borrego Peg Leg			
Boucher Hill			
CalFire Dispatch (Monte Vista)			
CalTrans TMC			
Campo (Graves)			
Chihuahua Valley			
COC - Primary System Center			
Cowles Mountain			
Cuyamaca Peak			
Emery Hill			
Encina Power Plant			
Encinitas Best Western			
Harmony Hill			
Hendrix Peak			
Hubbard Hill			
Jojoba Hill			
Lake San Marcos Peak			
Los Pinos			
Lyons Peak			
Monument Peak			
Mount San Miguel			
Mount Soledad			
Mount Woodson			
North Peak			
Oceanside Abbey			
Ocotillo Wells			
Otay Mountain			
Palomar Mountain			
Point Loma			
Rainbow Peak			
Rams Hill			
Rattlesnake Peak			
Red Mountain			
San Marcos Mountain			
Sierra Rojo			
Sunshine Summit			
Superstition Mountain			
UC Medical Center			
View Park, San Ysidro			
Volcan North			
Volcan South			
White Star			

TABLE C.4 -- OPTIONS TO BASE PROPOSAL			
Description	Equipment Price		Services Price (engineering, test, install, etc.)
<i>\$25,000 Trade in value for the old radios</i>			
TOTALTRADE-IN VALUE>>>>	\$ 25,000.00		

TABLE C.4 -- OPTIONS TO BASE PROPOSAL			
Description	Unit Price	Quantity	Extended Price
Table C.4.e -- RECOMMENDED SPARE EQUIPMENT			
Itemize the recommended spare equipment, test equipment, and spare parts to be considered			
EXAMPLES OF ITEMS ARE: complete microwave radio, dish antennas, field replaceable units,			
Eclipse spares			
RFU, MP, IRU600v3, 5.8/L6 GHz, 5725-6450 MHz	\$ 4,612.00	3	\$ 13,836.00
IRU600 600 High power option 1 x RFU	\$ 900.00	3	\$ 2,700.00
RFU, MP, IRU600v3, U6 GHz, 6400-7125 MHz	\$ 4,612.00	3	\$ 13,836.00
IRU600 600 High power option 1 x RFU	\$ 900.00	3	\$ 2,700.00
RFU, MP, IRU600v3, 11 GHz, 10700-11700 MHz	\$ 4,612.00	3	\$ 13,836.00
RFU FAN UNIT, IRU600 V3	\$ 25.00	10	\$ 250.00
ECLIPSE, INTELLIGENT NODE UNIT 2RU, INC IDCE, FAN, NCCV2, HIGH OUTPUT	\$ 960.00	3	\$ 2,880.00
NODE PROTECTION CARD, HIGH OUTPUT	\$ 213.00	3	\$ 639.00
RAC 60E, QPSK-256 QAM, High Gain, No XPIC, ACM & SYNC-E	\$ 747.00	3	\$ 2,241.00
DAC GE3 GIGABIT ETHERNET SWITCH CARD	\$ 1,125.00	3	\$ 3,375.00
ECLIPSE, DAC 16XE1/DS1 V2, PROTECTABLE	\$ 395.00	3	\$ 1,185.00
DAC 3XE3/DS3M, MUXED TO E1/DS1 BUS	\$ 575.00	3	\$ 1,725.00
NETWORK CAPABILITIES MODULE (NCM)	\$ 1,500.00	3	\$ 4,500.00
AUX, ALARM I/O CARD	\$ 187.00	3	\$ 561.00
GIG ETH SFP, OPT SMF 1310nm LC 1000BASE-LX, <10 KM	\$ 60.00	3	\$ 180.00
GIG ETH SFP, ELEC RJ45 1000BASE-T, <100m	\$ 60.00	3	\$ 180.00
CISCO Spares			
CHASSIS, ASR 903 3RU 6SLOT INTFC MOD GBE 2RSP SLOT (ASR-903)	\$ 1,788.00	0	\$ -
LA FAN TRAY FOR ASR 903 (A903-FAN)	\$ 596.00	0	\$ -
SWITCH, ROUTE SWITCH PROCESSOR 1 BASE SCALE FOR ASR 903 (A903-RSP1A-55)	\$ 7,152.00	0	\$ -
8PORT GBE INTERFACE MODULE FOR ASR 900 (A900-IMA8T)	\$ 1,788.00	0	\$ -
PWR SUPPLY, 550W DC FOR ASR 900 (A900-PWR550-D)	\$ 835.00	0	\$ -
16 PORTS T1/E1 MODULE FOR ASR903	\$ 3,576.00	0	\$ -
Catalyst 3650 24 1100/1000 switch	\$ 2,563.00	0	\$ -
640W DC power supply	\$ 458.00	0	\$ -
Secondary DC Power supply	\$ 458.00	0	\$ -
Other Spares			
IP PHONE H.323, ECLIPSE, RJ-45 PORT	\$ 118.00	2	\$ 236.00
POWER SUPPLY FOR ECLIPSE IP PHONE, -48VDC TO 9 VDC/1.11A (DD100M9-1P1, WPE010-09V3)	\$ 40.00	3	\$ 120.00
S550-6/32M/DC, S550 W/6 EXPSLT; 32MB; -48VDC; SLOTS 1-6:EMPTY (S550-6/32M/DC)	\$ 2,163.00	2	\$ 4,326.00
64 Dry Contact Closures (high-density, includes "Y" interconnect cable, -64C)	\$ 47.00	2	\$ 94.00
8V 8 NON-ISOLATED ANALOG VOLTAGE SENSOR CARD (8V)	\$ 225.00	2	\$ 450.00
8R 8 LOW CURRENT RELAY CARDS (8R)	\$ 163.00	2	\$ 326.00
TEL DS1 PNL INTFC 28CKT RJ48C (097-0128-0008)	\$ 829.00	0	\$ -
DEHYDRATOR, LOW-PRESS MEM, WALL MNTBL, 3.0-5.0 PSIG, W/DSC ALRM, 115 VAC, 50/60 HZ, 4 SEP-VLVD PRTS (PMT200B-81315)	\$ 2,429.00	3	\$ 7,287.00
Test equipment			
AVG MULTIMETER	\$ 671.00	2	\$ 1,342.00

TABLE C.4 -- OPTIONS TO BASE PROPOSAL			
Description	Unit Price	Quantity	Extended Price
Table C.4.e -- RECOMMENDED SPARE EQUIPMENT			
Power Meter - Average, dual channel	\$ 9,017.00	2	\$ 18,034.00
Two regular and one USB connector	\$ 118.00	2	\$ 236.00
Power Sensor; USB average, thermocouple, 10MHz-18GHz, -35 to +20dBm	\$ 3,887.00	2	\$ 7,774.00
Power Sensor - Thermocouple, 10MHz to 18GHz average, -5 to +40dBm	\$ 4,872.00	2	\$ 9,744.00
Power Sensor, 10 MHz to 18 GHz, -70 to -20 dBm	\$ 2,354.00	2	\$ 4,708.00
14 GHz FieldFox Microwave Analyzer	\$ 21,481.00	1	\$ 21,481.00
Coax attenuator set of (4) 8493C's (3, 6, 10,20dB)	\$ 3,238.00	2	\$ 6,476.00
0-70dB manual step attenuator, 0-26.5GHz	\$ 2,002.00	2	\$ 4,004.00
T1 BER tester in HST3000 family with T1 SIM and adaptor	\$ 5,983.00	2	\$ 11,966.00
HST3000 ETHERNET PACKAGE	\$ 7,399.00	2	\$ 14,798.00
0			
TOTAL TEST EQUIPMENT AND SPARES COST>>>>			\$ 178,026.00
MPLS Router Application Configuration	\$ 27,194.00	1	\$ 27,194.00
TOTAL MPLS Router Application Configuration>>>>			\$ 27,194.00

**COUNTY CONTRACT NO. 547601
AGREEMENT WITH AVIAT U.S., INC.
FOR MICROWAVE NETWORK REPLACEMENT
EXHIBIT C- PRICING – TABLE C.5**

Table C.5 – Future CSD Options

CONFIDENTIAL/PROPRIETARY INFORMATION

REDACTED

TABLE C.6 -- FUTURE DISPATCH SPUR LINKS OPTIONS

Description	Discount %	Equipment Discounted Costs	Services Cost (engineering, test, install, etc.)
Dispatch Spur Link assume that a single monitored hot stand-by link connects a dispatch location and a site of the primary network. Includes all necessary networking/IP equipment, radios, antenna systems, battery systems, etc. per Section 6.3. Services are to be itemized separately in the last column.			
Pricing sheets for each of the nine potential dispatch links will appear on the next nine pages of this worksheet.			

Table C.6.c -- DISPATCH SPUR LINK CONNECTING CONGREGATIONAL TOWERS (CHULA VISTA RELAY) & CHULA VISTA PD			
EQUIPMENT			
Radio Equipment, including racks & accessories	70%,50%,45%,40%	\$ 44,054.50	
Other radio equipment		\$ -	
Networking Equipment, including protection switches	35.00%	\$ 25,510.00	
Other networking equipment		\$ -	
Network Management System, including clients & servers as needed		\$ -	
Other NMS equipment		\$ -	
Antenna Systems, including dishes, radomes, waveguide, & mounts	40.00%	\$ 5,963.00	
Other antenna system equipment		\$ -	
Pressurization Equipment, including hydrators & accessories	40.00%	\$ 4,046.50	
Other pressurization equipment		\$ -	
		\$ -	
SERVICES			
Staging Acceptance Testing Services			\$ 12,774.67
Delivery/shipping Services			\$ 2,444.44
Installation (including all equipment, antenna systems, old equipment removal, etc.)			\$ 24,751.44
Other services (Provision)			\$ 243.11
System/Network Engineering (including path surveys, FCC license preparation, interference analysis and mitigation, documentation, system acceptance testing, etc.)			\$ 3,759.67
Frequency Coordination Services			\$ 1,723.22
Other services Warehousing			\$ 1,430.00
Project Management Services			\$ 2,530.78
Project Engineering, includes site survey & reports			\$ 5,926.44
Aviatcare Standard Warranty upgrade to Warranty Plus			\$ 12,463.00
			\$ -
Year 3 to Year 7 Warranty for Radio, Router, IP OW, and Assentria RTU			\$ 27,046.61
			\$ -
			\$ -
			\$ -
			\$ -
			\$ -
			\$ -
			\$ -
		\$ 79,574.00	
Table C.6.c -- DISPATCH SPUR LINK CONNECTING CONGREGATIONAL TOWERS (CHULA VISTA RELAY) & CHULA VISTA PD EQUIPMENT TOTAL PRICE			
Table C.6.c -- DISPATCH SPUR LINK CONNECTING CONGREGATIONAL TOWERS (CHULA VISTA RELAY) & CHULA VISTA PD SERVICES TOTAL PRICE			\$ 95,093.39

TABLE C.7 -- FUTURE RCS IMPERIAL COUNTY OPTIONS

Description	Discount %	Equipment Discounted Costs	Services Cost (engineering, test, install, etc.)
Table C.7 -- Imperial County Microwave Enhancements			
The RCS Imperial County microwave radios are not being replaced. However, there are enhancements needed to ensure the radios in Imperial County are fully integrated to allow Internet Protocol (IP) transport.			
Itemize the enhancements you propose for each Imperial County site or link or radio. List site name first, then itemize equipment and services row-by-row. Keep in mind that some sites have multiple microwave radios and antennas.			
Put equipment discount and cost in the first two columns after the description and place services price in the shaded last column. You may total equipment and services separately for each site. If necessary, add rows to ensure complete itemization.			
BLACK HILL			
MPLS Router - Cisco ASR903			
CHASSIS, ASR 903 3RU 6SLOT INTFC MOD GBE 2RSP SLOT (ASR-903)	35.00%	\$ 1,788.00	\$
LA FAN TRAY FOR ASR 903 (A903-FAN)	35.00%	\$ 596.00	\$
SWITCH, ROUTE SWITCH PROCESSOR 1 BASE SCALE FOR ASR 903 (A903-RSP1A-55)	35.00%	\$ 14,304.00	\$
8PORT GBE INTERFACE MODULE FOR ASR 900 (A900-IMA8T)	35.00%	\$ 3,578.00	\$
PWR SUPPLY, 550W DC FOR ASR 900 (A900-PWR550-D)	35.00%	\$ 1,670.00	\$
METRO AGGREGATION SVCS FOR ASR 903 SERIES (SLASR903-A)	35.00%	\$ 3,576.00	\$
8PORT SFP GBE INTERFACE MODULE FOR ASR 900 SPARE (A900-IMA8S=)	35.00%	\$ -	\$
SFP, 1000MBPS SM, RUGGED (GLC-LX-SM-RGD)	35.00%	\$ -	\$
16 PORTS T1/E1 MODULE FOR ASR903	35.00%	\$ 3,577.00	\$
Vendor integration			\$ 1,110.89
MPLS Router Application Configuration			\$
Config Eng / Documentation / Drafting			\$ 401.00
Customer Acceptance Testing (Austin, TX)			\$ 542.56
NI - Site Visits/Travel			\$ 1,715.11
NI - R56 Compliance & Tellabs Router Verification			\$ 599.56
NI - Field Acceptance Testing & 30 Day Burn In Period			\$ 233.56
Field Install (Warehousing)			\$ 127.11
Network Engineering including router design			\$ 438.44
Program Management			\$ 437.44
Project Engineering			\$ 287.33

Aviatcare Standard Warranty upgrade to Warranty Plus			\$	12,618.33
BLACK MTN				
MPLS Router - Cisco ASR903				
CHASSIS, ASR 903 3RU 6SLOT INTFC MOD GBE 2RSP SLOT (ASR-903)	35.00%	\$	1,788.00	\$
LA FAN TRAY FOR ASR 903 (A903-FAN)	35.00%	\$	596.00	\$
SWITCH, ROUTE SWITCH PROCESSOR 1 BASE SCALE FOR ASR 903 (A903-RSP1A-55)	35.00%	\$	14,304.00	\$
8PORT GBE INTERFACE MODULE FOR ASR 900 (A900-IMA8T)	35.00%	\$	3,578.00	\$
PWR SUPPLY, 550W DC FOR ASR 900 (A900-PWR550-D)	35.00%	\$	1,670.00	\$
METRO AGGREGATION SVCS FOR ASR 903 SERIES (SLASR903-A)	35.00%	\$	3,576.00	\$
8PORT SFP GBE INTERFACE MODULE FOR ASR 900 SPARE (A900-IMA8S=)	35.00%	\$	-	\$
SFP, 1000MBPS SM, RUGGED (GLC-LX-SM-RGD)	35.00%	\$	-	\$
16 PORTS T1/E1 MODULE FOR ASR903	35.00%	\$	3,577.00	\$
Vendor integration			\$	1,110.89
MPLS Router Application Configuration (OPTION-Not included in total)			\$	-
Config Eng / Documentation / Drafting			\$	401.00
Customer Acceptance Testing (Austin, TX)			\$	542.56
NI - Site Visits/Travel			\$	1,715.11
NI - R56 Compliance & Tellabs Router Verification			\$	599.56
NI - Field Acceptance Testing & 30 Day Burn In Period			\$	233.56
Field Install (Warehousing)			\$	127.11
Network Engineering including router design			\$	438.44
Program Management			\$	437.44
Project Engineering			\$	287.33
Aviatcare Standard Warranty upgrade to Warranty Plus			\$	12,618.33
BRAWLEY				
MPLS Router - Cisco ASR903				
CHASSIS, ASR 903 3RU 6SLOT INTFC MOD GBE 2RSP SLOT (ASR-903)	35.00%	\$	1,788.00	\$
LA FAN TRAY FOR ASR 903 (A903-FAN)	35.00%	\$	596.00	\$
SWITCH, ROUTE SWITCH PROCESSOR 1 BASE SCALE FOR ASR 903 (A903-RSP1A-55)	35.00%	\$	14,304.00	\$
8PORT GBE INTERFACE MODULE FOR ASR 900 (A900-IMA8T)	35.00%	\$	3,578.00	\$
PWR SUPPLY, 550W DC FOR ASR 900 (A900-PWR550-D)	35.00%	\$	1,670.00	\$
METRO AGGREGATION SVCS FOR ASR 903 SERIES (SLASR903-A)	35.00%	\$	3,576.00	\$
8PORT SFP GBE INTERFACE MODULE FOR ASR 900 SPARE (A900-IMA8S=)	35.00%	\$	-	\$

SFP, 1000MBPS SM, RUGGED (GLC-LX-SM-RGD)	35.00%	\$ -	\$ -
16 PORTS T1/E1 MODULE FOR ASR903	35.00%	\$ 3,577.00	\$ -
Vendor integration			\$ 1,110.89
MPLS Router Application Configuration (OPTION-Not included in total)			\$ -
Config Eng / Documentation / Drafting			\$ 401.00
Customer Acceptance Testing (Austin, TX)			\$ 542.56
			\$ -
NI - Site Visits/Travel			\$ 1,715.11
NI - R56 Compliance & Tellabs Router Verification			\$ 599.56
NI - Field Acceptance Testing & 30 Day Burn In Period			\$ 233.56
			\$ -
Field Install (Warehousing)			\$ 127.11
			\$ -
Network Engineering including router design			\$ 438.44
			\$ -
Program Management			\$ 437.44
Project Engineering			\$ 287.33
			\$ -
Aviatcare Standard Warranty upgrade to Warranty Plus			\$ 12,618.33
			\$ -
BRUNTS			
MPLS Router - Cisco ASR903			
CHASSIS, ASR 903 3RU 6SLOT INTFC MOD GBE 2RSP SLOT (ASR-903)	35.00%	\$ 1,788.00	\$ -
LA FAN TRAY FOR ASR 903 (A903-FAN)	35.00%	\$ 596.00	\$ -
SWITCH, ROUTE SWITCH PROCESSOR 1 BASE SCALE FOR ASR 903 (A903-RSP1A-55)	35.00%	\$ 14,304.00	\$ -
			\$ -
8PORT GBE INTERFACE MODULE FOR ASR 900 (A900-IMA8T)	35.00%	\$ 3,578.00	\$ -
PWR SUPPLY, 550W DC FOR ASR 900 (A900-PWR550-D)	35.00%	\$ 1,670.00	\$ -
METRO AGGREGATION SVCS FOR ASR 903 SERIES (SLASR903-A)	35.00%	\$ 3,576.00	\$ -
			\$ -
8PORT SFP GBE INTERFACE MODULE FOR ASR 900 SPARE (A900-IMA8S=)	35.00%	\$ -	\$ -
SFP, 1000MBPS SM, RUGGED (GLC-LX-SM-RGD)	35.00%	\$ -	\$ -
16 PORTS T1/E1 MODULE FOR ASR903	35.00%	\$ 3,577.00	\$ -
Vendor integration			\$ 1,110.89
MPLS Router Application Configuration (OPTION-Not included in total)			\$ -
Config Eng / Documentation / Drafting			\$ 401.00
Customer Acceptance Testing (Austin, TX)			\$ 542.56
			\$ -
NI - Site Visits/Travel			\$ 1,715.11
NI - R56 Compliance & Tellabs Router Verification			\$ 599.56
NI - Field Acceptance Testing & 30 Day Burn In Period			\$ 233.56
			\$ -
Field Install (Warehousing)			\$ 127.11
			\$ -
Network Engineering including router design			\$ 438.44

			\$	
Aviatcare Standard Warranty upgrade to Warranty Plus			\$	12,618.33
ICSO				
MPLS Router - Cisco ASR903				
CHASSIS, ASR 903 3RU 6SLOT INTFC MOD GBE 2RSP SLOT (ASR-903)	35.00%	\$	-	\$
LA FAN TRAY FOR ASR 903 (A903-FAN)	35.00%	\$	-	\$
SWITCH, ROUTE SWITCH PROCESSOR 1 BASE SCALE FOR ASR 903 (A903-RSP1A-55)	35.00%	\$	-	\$
8PORT GBE INTERFACE MODULE FOR ASR 900 (A900-IMA8T)	35.00%	\$	-	\$
PWR SUPPLY, 550W DC FOR ASR 900 (A900-PWR550-D)	35.00%	\$	-	\$
METRO AGGREGATION SVCS FOR ASR 903 SERIES (SLASR903-A)	35.00%	\$	-	\$
8PORT SFP GBE INTERFACE MODULE FOR ASR 900 SPARE (A900-IMA8S=)	35.00%	\$	-	\$
SFP, 1000MBPS SM, RUGGED (GLC-LX-SM-RGD)	35.00%	\$	-	\$
16 PORTS T1/E1 MODULE FOR ASR903	35.00%	\$	17,885.00	\$
Vendor integration			\$	1,110.89
MPLS Router Application Configuration (OPTION-Not included in total)			\$	
Config Eng / Documentation / Drafting			\$	401.00
Customer Acceptance Testing (Austin, TX)			\$	542.56
NI - Site Visits/Travel			\$	1,715.11
NI - R56 Compliance & Tellabs Router Verification			\$	599.56
NI - Field Acceptance Testing & 30 Day Burn In Period			\$	233.56
Field Install (Warehousing)			\$	127.11
Network Engineering including router design			\$	438.44
Program Management			\$	437.44
Project Engineering			\$	287.33
Aviatcare Standard Warranty upgrade to Warranty Plus			\$	12,618.33
OGILBY ATC				
MPLS Router - Cisco ASR903				
CHASSIS, ASR 903 3RU 6SLOT INTFC MOD GBE 2RSP SLOT (ASR-903)	35.00%	\$	1,788.00	\$
LA FAN TRAY FOR ASR 903 (A903-FAN)	35.00%	\$	596.00	\$
SWITCH, ROUTE SWITCH PROCESSOR 1 BASE SCALE FOR ASR 903 (A903-RSP1A-55)	35.00%	\$	14,304.00	\$
8PORT GBE INTERFACE MODULE FOR ASR 900 (A900-IMA8T)	35.00%	\$	3,578.00	\$
PWR SUPPLY, 550W DC FOR ASR 900 (A900-PWR550-D)	35.00%	\$	1,670.00	\$
METRO AGGREGATION SVCS FOR ASR 903 SERIES (SLASR903-A)	35.00%	\$	3,576.00	\$
8PORT SFP GBE INTERFACE MODULE FOR ASR 900 SPARE (A900-IMA8S=)	35.00%	\$	-	\$

SFP, 1000MBPS SM, RUGGED (GLC-LX-SM-RGD)	35.00%	\$ -	\$ -
16 PORTS T1/E1 MODULE FOR ASR903	35.00%	\$ 3,577.00	\$ -
Vendor integration			\$ 1,110.89
MPLS Router Application Configuration (OPTION-Not included in total)			\$ -
Config Eng / Documentation / Drafting			\$ 401.00
Customer Acceptance Testing (Austin, TX)			\$ 542.56
			\$ -
NI - Site Visits/Travel			\$ 1,715.11
NI - R56 Compliance & Tellabs Router Verification			\$ 599.56
NI - Field Acceptance Testing & 30 Day Burn In Period			\$ 233.56
			\$ -
Field Install (Warehousing)			\$ 127.11
			\$ -
Network Engineering including router design			\$ 438.44
			\$ -
Program Management			\$ 437.44
Project Engineering			\$ 287.33
			\$ -
Aviatcare Standard Warranty upgrade to Warranty Plus			\$ 12,618.33
SALTON CITY			
MPLS Router - Cisco ASR903			
CHASSIS, ASR 903 3RU 6SLOT INTFC MOD GBE 2RSP SLOT (ASR-903)	35.00%	\$ 1,788.00	\$ -
LA FAN TRAY FOR ASR 903 (A903-FAN)	35.00%	\$ 596.00	\$ -
SWITCH, ROUTE SWITCH PROCESSOR 1 BASE SCALE FOR ASR 903 (A903-RSP1A-55)	35.00%	\$ 14,304.00	\$ -
			\$ -
8PORT GBE INTERFACE MODULE FOR ASR 900 (A900-IMA8T)	35.00%	\$ 3,578.00	\$ -
PWR SUPPLY, 550W DC FOR ASR 900 (A900-PWR550-D)	35.00%	\$ 1,670.00	\$ -
METRO AGGREGATION SVCS FOR ASR 903 SERIES (SLASR903-A)	35.00%	\$ 3,576.00	\$ -
			\$ -
8PORT SFP GBE INTERFACE MODULE FOR ASR 900 SPARE (A900-IMA8S=)	35.00%	\$ -	\$ -
SFP, 1000MBPS SM, RUGGED (GLC-LX-SM-RGD)	35.00%	\$ -	\$ -
16 PORTS T1/E1 MODULE FOR ASR903	35.00%	\$ 3,577.00	\$ -
Vendor integration			\$ 1,110.89
MPLS Router Application Configuration (OPTION-Not included in total)			\$ -
Config Eng / Documentation / Drafting			\$ 401.00
Customer Acceptance Testing (Austin, TX)			\$ 542.56
			\$ -
NI - Site Visits/Travel			\$ 1,715.11
NI - R56 Compliance & Tellabs Router Verification			\$ 599.56
NI - Field Acceptance Testing & 30 Day Burn In Period			\$ 233.56
			\$ -
Field Install (Warehousing)			\$ 127.11
			\$ -

COUNTY CONTRACT NUMBER 547601
AGREEMENT WITH AVIAT U.S., INC. FOR
MICROWAVE NETWORK REPLACEMENT
EXHIBIT D – AVIATCARE SERVICES SUMMARY



AviatCare Services

(Quote # NA130802-60260)

FOR:

- **County of San Diego**

January 16, 2014

- ✓ **Maintenance Services**
 - a. 7X24 Technical Support
 - b. Repair Services
 - c. ProVision

**COUNTY CONTRACT NUMBER 547601
 AGREEMENT WITH AVIAT U.S., INC. FOR
 MICROWAVE NETWORK REPLACEMENT
 EXHIBIT D – AVIATCARE SERVICES SUMMARY**

1. AVIATCARE SERVICES: MAINTENANCE COVERAGE

1.1. SERVICE LEVEL SUPPORT SUMMARY

The following table summarizes the Service Level Support that will be delivered to the County of San Diego:

ITEM	SUPPORT ELEMENT	DESCRIPTION
3	Access to Aviat Networks Customer Online Technical Support Site	Provides for self-serve on-line access and support for a variety of services such as RMA requests and Technical Support.
3.1	Repair Services	Covers repair or replacement of covered FRU's beyond the manufacturer standard equipment warranty period.
3.2	Advance Replacement	Provides advance replacement of an FRU prior to receiving the defective FRU at one of our Customer Support Centers for repair. When included within one of our Synergy MLA programs the total number of requests received for advanced replacement units cannot exceed ten percent (10%) of the total number of Repair Service transactions during the coverage period without additional charges being incurred by the Customer. Standard Advanced replacement – 3 – 5 business days
3.3	Repair Logistics Program	Aviat Networks shall provide free freight to the Customer for all Units returned via the Aviat Networks Repair Logistics Program (RLP). Upon RMA request, Aviat Networks will dispatch the appropriate courier to the Customer's facility to pick-up the defective Units. When the repaired or replacement unit is ready Aviat Networks will dispatch appropriate courier to the Customer's facility to deliver the replaced/repaired unit.
3.4	Remote Technical Support 24/7	Service requests (SR's), remote technical support, and troubleshooting support, material dispatch service and general Customer help desk.
3.5	ProVision Support	Aviat Networks shall provide remote technical support to the Customer on ProVision. Aviat Networks shall also provide general availability releases and product updates to the Customer free of charge during the coverage period.

**COUNTY CONTRACT NUMBER 547601
AGREEMENT WITH AVIAT U.S., INC. FOR
MICROWAVE NETWORK REPLACEMENT
EXHIBIT D – AVIATCARE SERVICES SUMMARY**

2. DURATION OF SUPPORT PERIOD

The support period of the Maintenance and Remote Monitoring services are provided in the table below:

	START	FINISH
ACCESS TO AVIAT NETWORKS CUSTOMER ONLINE TECHNICAL SUPPORT SITE	Acceptance	7 Year(s) thereafter
<u>REPAIR SERVICES</u>	Acceptance	7 Year(s) thereafter
<u>ADVANCE REPLACEMENT</u>	Acceptance	7 Year(s) thereafter
<u>REPAIR LOGISTICS PROGRAM</u>	Acceptance	7 Year(s) thereafter
REMOTE TECHNICAL SUPPORT 24 X 7	Acceptance	7 Year(s) thereafter
PROVISION MAINTENANCE	Acceptance	7 Year(s) thereafter

**COUNTY CONTRACT NUMBER 547601
 AGREEMENT WITH AVIAT U.S., INC. FOR
 MICROWAVE NETWORK REPLACEMENT
 EXHIBIT D – AVIATCARE SERVICES SUMMARY**

3. 2 YEAR WARRANTY

Services	Services Part Number	Product Qty
<p>Radios:</p> <ul style="list-style-type: none"> ✓ Technical Support: Available 24 X 7 (Unlimited) ✓ Aviat Xpress (Web Support): Available 24 X 7 (Unlimited) ✓ Repair Services: <ul style="list-style-type: none"> ➢ 20 Calendar Day turnaround time (Unlimited) on Aviat Networks manufactured equipment ➢ Advance Replacement - Based on availability of inventory ✓ Repair Logistics Program <p>Provision:</p> <ul style="list-style-type: none"> ✓ Technical Support: Available 24 X 7 (Unlimited) ✓ Aviat Xpress (Web Support): Available 24 X 7 ✓ Provide general availability releases and product updates to the Customer free of charge during the coverage period <p>OEM: OEM: All OEM is an Extension of Warranty offered by that Vendor</p> <p>Asentria:</p> <ul style="list-style-type: none"> ✓ Technical Support: Available 24 X 7 (Unlimited) ✓ Aviat Xpress (Web Support): Available 24 X 7 ✓ Provide general availability releases and product updates to the Customer free of charge during the coverage period <p>IP Phone:</p> <ul style="list-style-type: none"> ✓ Technical Support: Available 24 X 7 (Unlimited) ✓ Aviat Xpress (Web Support): Available 24 X 7 ✓ Provide general availability releases and product updates to the Customer free of charge during the coverage period 	<p>SNA- BWXXA1002438</p>	<ul style="list-style-type: none"> • IRU600 Standard Warranty (24 months from final acceptance) • Provision Standard Warranty (24 months from final acceptance) • CISCO Standard Warranty (24 months from final acceptance) • Asentria Standard Warranty (24 months from final acceptance) • Antenna System Standard Warranty (24 months from final acceptance) • IP Phone Standard Warranty (24 months from final acceptance) • Aviatcare Standard Warranty upgrade to Warranty Plus

**COUNTY CONTRACT NUMBER 547601
 AGREEMENT WITH AVIAT U.S., INC. FOR
 MICROWAVE NETWORK REPLACEMENT
 EXHIBIT D – AVIATCARE SERVICES SUMMARY**

<p>Cisco SmartNet:</p> <ul style="list-style-type: none"> ✓ Technical Support: ✓ Available 24 x 7 ✓ Extensive self-help support through Cisco's online knowledge base, communities, resources, and tools. ✓ Operating system (OS) software updates, including both minor and major releases within your licensed feature set. ✓ Advance hardware with next-business-day (NBD) replacement (8X5XNBD) ✓ CISCO SMARTNET coverage begins 12 months after shipment from CISCO or final acceptance whichever occurs earlier. 		
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4. EXTENDED WARRANTY TO 7 YEARS

Services	Services Part Number	Product Qty
<p>Radios:</p> <ul style="list-style-type: none"> ✓ Technical Support: Available 24 X 7 (Unlimited) ✓ Aviat Xpress (Web Support): Available 24 X 7 (Unlimited) ✓ Repair Services: <ul style="list-style-type: none"> ➤ 20 Calendar Day turnaround time (Unlimited) on Aviat Networks manufactured equipment ➤ Advance Replacement - Based on availability of inventory ✓ Repair Logistics Program 	<p>SNA- BNWXA1006038</p>	<ul style="list-style-type: none"> • (172) IRU600 • Support Years 3-7
<p>ProVision</p> <ul style="list-style-type: none"> ✓ Technical Support: Available 24 X 7 (Unlimited) ✓ Aviat Xpress (Web Support): Available 24 X 7 (Unlimited) ✓ Provide generally available software releases and product updates during the coverage period 	<p>SWW- PV24G3XX2499 and SWW- PV24G3XX3699</p>	<ul style="list-style-type: none"> • (3) Provision Systems 101-500 Node License • Support Years 3-7

**COUNTY CONTRACT NUMBER 547601
 AGREEMENT WITH AVIAT U.S., INC. FOR
 MICROWAVE NETWORK REPLACEMENT
 EXHIBIT D – AVIATCARE SERVICES SUMMARY**

<p>OEM: OEM: All OEM is an Extension of Warranty offered by that Vendor</p>		
<p>Cisco SmartNet ✓ OEM: All OEM is an Extension of Warranty offered by that Vendor ➤ Technical Support: Available 24 x 7 ➤ Extensive self-help support through Cisco's online knowledge base, communities, resources, and tools. ➤ Operating system (OS) software updates, including both minor and major releases within your licensed feature set. ➤ Advance hardware with next-business-day (NBD) replacement (8X5XNBD) ➤ CISCO SMARTNET coverage begins 12 months after shipment from CISCO or final acceptance whichever occurs earlier.</p>	<p>LS SmartNet</p>	<ul style="list-style-type: none"> • SMARTNET Support Years 3-7
<p>Asentria: ✓ OEM: Is an Extension of Warranty offered by that Vendor ➤ Technical Support: Available 24 X 7 ➤ Aviat Xpress (Web Support): Available 24 X 7 Repair Services: 30 Business Day turnaround time</p>	<p>SWW- OMEW000024MC And SWW- OMEW000036MC</p>	<ul style="list-style-type: none"> • Asentria Support Years 3-7
<p>IP Phone: ✓ Technical Support: Available 24 X 7 (Unlimited) ✓ Aviat Xpress (Web Support): Available 24 X 7 ✓ Provide general availability releases and product updates to the Customer free of charge during the coverage period</p>	<p>SWW- OMEW000024MC And SWW- OMEW000036MC</p>	<ul style="list-style-type: none"> • IP Phone Support Years 3-7

COUNTY CONTRACT NUMBER 547601
AGREEMENT WITH AVIAT US INC FOR
MICROWAVE NETWORK REPLACEMENT
EXHIBIT E - AVIAT STATEMENT OF WORK



Statement of Work

County of San Diego
Microwave Network
Replacement
NA130802-60260
Project Services

Release 3.1
1/16/2014

Issue Releases

Issue Number	Issue Release Date	Changes	Preparer
1.0	10/07/2013	Initial Release	James Ma James DelCarlo
2.0	12/19/2013	Issue 2	James Ma James DelCarlo
3.0	1/14/2014	Issue 3 incorporating clarifications requested by CoSD	James Ma James DelCarlo
3.1	1/16/2014	Issue 3.1 incorporating clarifications requested by CoSD	James Ma James DelCarlo



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1. EXECUTIVE SUMMARY

1.1. Purpose of Document

This Statement of Work (SOW) specifies the deliverables and defines the responsibilities and other relevant terms applicable to the planning and delivery of microwave and associated products from Aviat Networks and its partners, as well as the professional services required to engineer and implement the proposed solution for County of San Diego.

In circumstances where Aviat Networks and County of San Diego have an existing master services agreement, the terms and conditions of that agreement will supersede conflicts or overlaps with the scope of work defined in this document.

Execution of the services listed in this SOW is governed by the terms and conditions of the signed contract between Aviat Networks and County of San Diego. Neither party is obligated to provide any such services until the agreed contract is executed by both parties and an order has been placed for such services by County of San Diego and accepted by Aviat Networks.

When conflict between the scope of work defined in this document and the County's SOW, the County SOW supersedes this document.

1.2. Project Scope

This SOW only applies to Microwave Network Replacement project proposed by Aviat Networks, and cannot be extended to other projects. Aviat Networks will provide the following services to County of San Diego:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Project Management | <input checked="" type="checkbox"/> Network Engineering |
| <input checked="" type="checkbox"/> Transmission Engineering | <input checked="" type="checkbox"/> Project Engineering |
| <input checked="" type="checkbox"/> Configuration Engineering | <input checked="" type="checkbox"/> Drafting |
| <input checked="" type="checkbox"/> Factory Integration and Testing | <input checked="" type="checkbox"/> Antenna & Line Installation |
| <input checked="" type="checkbox"/> Radio and Network Equipment Installation | <input checked="" type="checkbox"/> Network Integration |
| <input type="checkbox"/> Civil Construction | <input type="checkbox"/> Consulting Services |
| <input type="checkbox"/> Site Acquisition | <input type="checkbox"/> A&E Services |
| <input checked="" type="checkbox"/> Prevailing Wages | |
| <input checked="" type="checkbox"/> Other: Warehousing and Antenna and transmission line removal; removal of existing equipment (e.g. transmitters, cables, antenna systems, etc) that is not being reused in the new backhaul network. | |

Any required services or material not specified in this SOW, or in the County's SOW, will be provided by County of San Diego, and will not be considered part of Aviat Networks' responsibilities. Any such service, if deemed possible by Aviat Networks, can be quoted and performed in accordance with the terms and conditions of the signed contract between Aviat Networks and County of San Diego. Once approved, these agreed items will be added to the current SOW upon placement of a new or adjusted services purchase order. For a full list of Aviat provided equipment, please refer to the project's equipment list. In the case of any conflict between the Aviat SOW and the County's SOW, the County's SOW will take precedent.

County of San Diego and Aviat Networks acknowledge that meeting the planned project completion date requires the cooperation of said parties. Any changes requested by County of San Diego before the design freeze date*, will be considered part of the design finalization phase of the project and not subject to a formal change order, IF the requested change falls within the original scope and hours of the project. Any changes requested by County of San Diego after the design freeze date, will be subject to review by Aviat Networks and could result in a change order fee and/or a delay in material delivery to the field. * See Appendix B for more detail on the design freeze.

Completion and accuracy of all deliverables are subject to the integrity of the information gathered during the proposal, field surveys, final design phase, and the information provided by County of San Diego pertaining to the existing system (if applicable). Aviat Networks will not be held accountable for validating the accuracy of the information provided by County of San Diego. Any changes resulting from incorrect information provided by County of San Diego or any County of San Diego contracted party, will be charged to County of San Diego as a billable change order.

County of San Diego furthermore agrees that any delays caused by inadequate site readiness for which County of San Diego was responsible for, may prohibit Aviat Networks from meeting the project completion date and the date may require adjustment as a result of such delays. Unless otherwise agreed to, any cost impact such delays might have on the project will be charged to County of San Diego as a billable change order. In the event of such delays, Aviat Networks and County of San Diego will make a reasonable effort to resolve the issue and mutually agree on new project milestones.



Documents submitted by Aviat Networks to the County of San Diego for approval shall be reviewed and approved in ten (10) working days from the date of receipt. If Aviat Networks does not receive comments and/or approval within this timeline, the County and Aviat Networks representatives will meet and determine the best course for resolution.

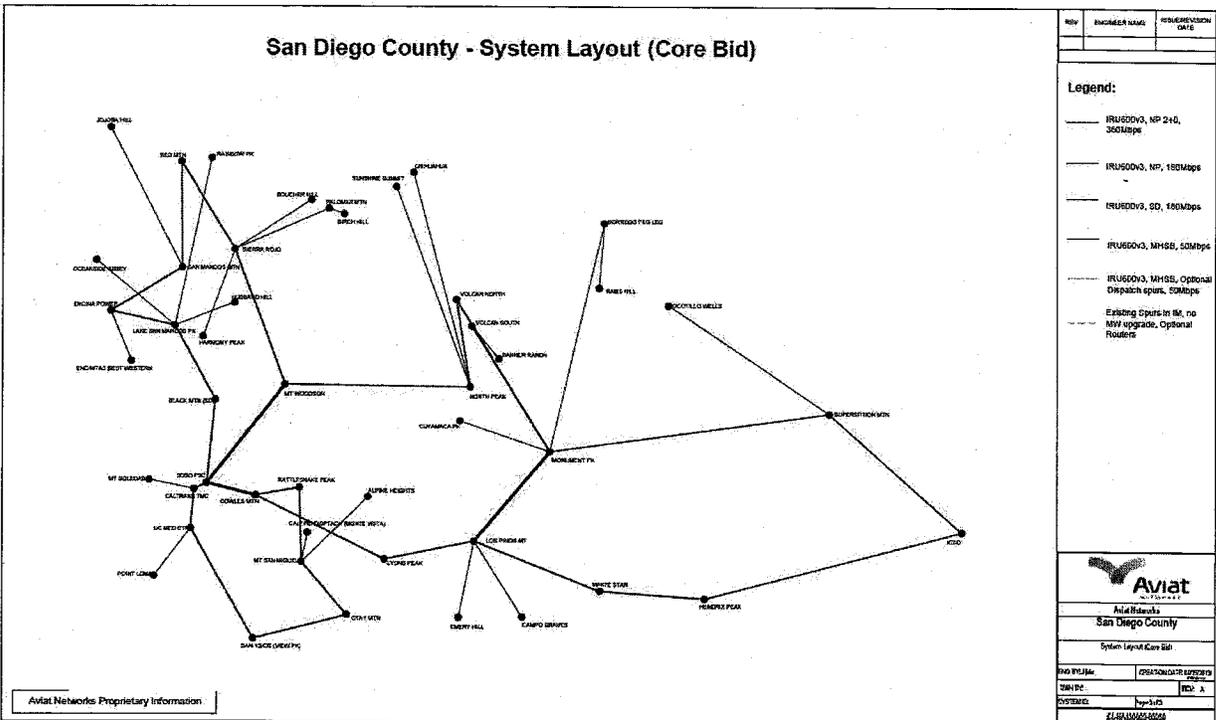
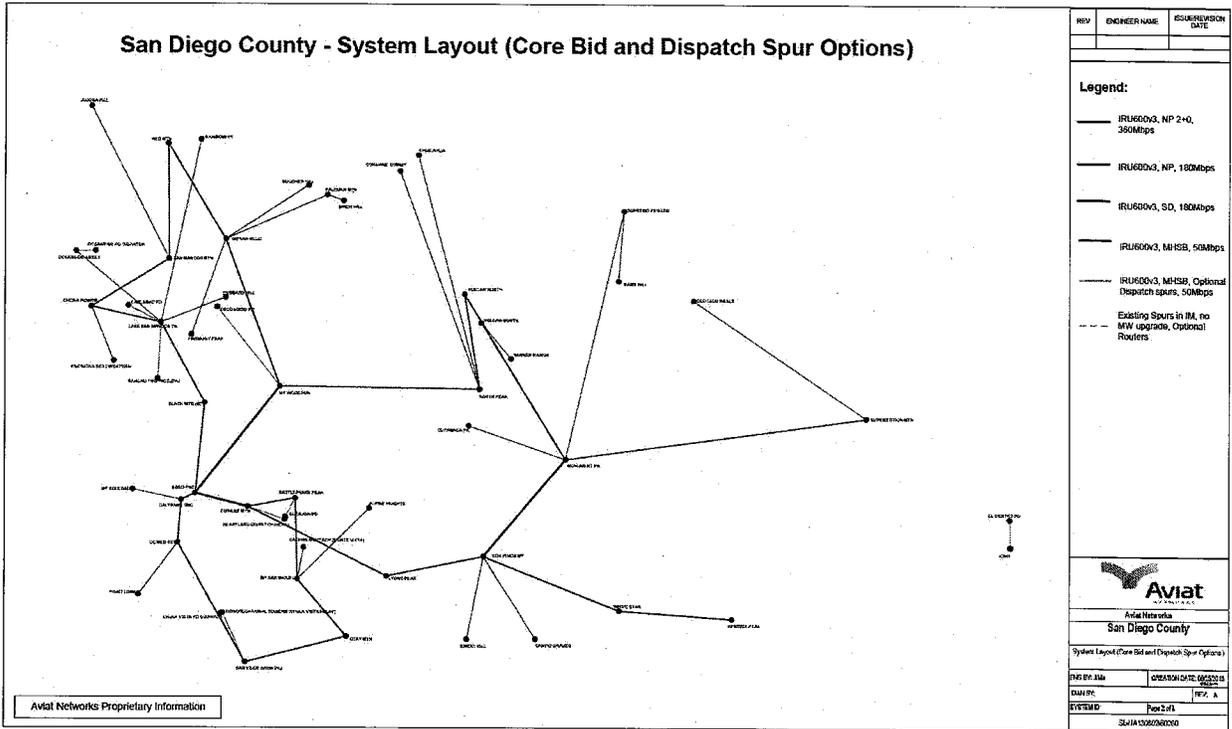
1.3. Project Summary

Number of Hops	50	Number of Sites	47
Number of parallel RF Channels	2-CHs on 3 paths	Number of Sites	5
Radio Equipment Family	IRU600V3/Eclipse	Frequency Band(s)	6GHz, 11GHz
Link Capacity	189/179/50Mbps	Protection Type(s)	MHSB, SD, NP
Traffic Type(s)	Ethernet, T1	Project Locations	CA

1.4. Supporting Documents

The following documents will be provided by Aviat Networks in support of this project and must be reviewed, approved and/or signed off by County of San Diego as part of the project completion. Although it is Aviat Networks' responsibility to provide the documents to County of San Diego, it is County of San Diego's responsibility to provide a signed copy of the documents to Aviat Networks before the final project completion.

	<u>Document</u>	<u>Master Document</u>	<u>Requires Customer Acceptance/Sign-off?</u>
Planning	Project Schedule	Project Schedule	Yes
	Statement of Work	This document	Yes
	Statement of Work Sign-off	This document	Yes
Design	DC Power Plant or DC System Plan	Design Freeze Package	No
	Design Freeze Package	Design Freeze Package	Yes
	Equipment List	Equipment List	Yes
	Frequency Datasheets	Path Survey Report	No
	Floor Plan	Installation Specifications	Yes
	IP Plan	Design Freeze Package	Yes
	NMS Plan	Design Freeze Package	No
	Path Calculations and Path Profiles	Path Survey Report	No
	Path Survey Report	Path Survey Report	Yes
	Rack Profiles and Wiring Diagrams	Installation Specifications	Yes
	Site Survey Report	Site Survey Report	No
	Synchronization Plan	Design Freeze Package	No
	System Layout	Design Freeze Package	Yes
Traffic Plan	Design Freeze Package	Yes	
Implementation	Antenna Installation Checklist	Installation Specifications	Yes
	Antenna Mounting Design	Installation Specifications	Yes
	Antenna System Audit Form	Installation Specifications	Yes
	As Built Record Sets	As Build Records	Yes
	Change Order Form	This document	Yes
	Equipment Installation Checklist	Installation Specifications	Yes
	Field Acceptance Test Plan	Installation Specifications	Yes
	Installation Specifications	Installation Specifications	Yes
	Injury and Illness Prevention	Installation Specifications	No
	Project Completion Sign-off	This document	Yes
	Punch List Completion Report	Installation Specifications	Yes
	Quality Checklists	Installation Specifications	No
	Site Installation Completion Report	Installation Specifications	Yes
	System Installation Completion Report	Installation Specifications	Yes
	Traffic Cutover Plan	Installation Specifications	Yes
RF Cutover Plan	Installation Specifications	Yes	



Proposed main equipment is IRU600 Eclipse packet node (hereafter called Eclipse Radio or radio). This product consists of two major components, INUe (Intelligent Nodal Unit) and IRU600 (RF unit). Both are installed indoor on a standard 19" rack.

Both 6GHz and 11GHz radios are proposed in this project.

All ring hops are loop protected except four hops. The four hops are ICSO-Superstition, ICSO-Hendrix, Monument PK-Superstition Mtn and Mt. Woodson-North Peak, which are MHSB/SD protected and loop protected. The use of space diversity is required to meet the performance objective outlined in the RFP. When space diversity is used, equipment protection (MHSD) is always in place. All spurs are MHSB protected.

All ring hops will provide 189Mbps capacity except three of the hops. The three hops are ICSO-Hendrix, Monument Peak - Superstition and Volcan North - Monument Peak, which will provide 179Mbps due to the reliability requirement. However, radios proposed for the three hops are ready to operate in 189Mbps capacity. All spur links proposed are in 50Mbps capacity, and are software upgradeable to a higher capacity.

All new antennas proposed are Category A, solid parabolic antennas. If the existing antenna, scheduled to be replaced is currently a high performance or ultra-high performance Aviat has proposed replacing those antennas with the same type even though they are much more expensive than standard Category A antennas. With this approach, frequency coordination will be much easier, and fewer surprises encountered during frequency coordination and implementation.

Per clarifications, Aviat has proposed fire retardant waveguide. Plenum rated waveguide is also the listed as optional. Aviat welcomes the opportunity to discuss further waveguide options after the site surveys are completed.

Aviat has also used the knowledge achieved during the site walks and our historical database to properly size the length of some waveguide runs. With this approach, the cost for waveguide increased in our proposed solution (compare to universal 40ft horizontal waveguide runs), but it portrays a more accurate approach and confirms the size of the antenna required to achieve the required reliability objective. This approach will minimize, and hopefully eliminate, any surprises during implementation. For example, Encina Power-Encinitas Best Western has total of 910ft WG run, this changes radio and antenna configuration.

All antenna and waveguide accessories, including dehydrators are included in proposal.

MPLS routers from Cisco are proposed for this project. Proposed routers are fully protected, To eliminate any single point of failure, even the Ethernet connections between the Eclipse radios and each routers are fully protected. Our proposed solution supports QoS, OSPF, ISIS, BGP, MPLS, MPLS-TE, Pseudo wire, L3VPN, H-VPLS etc. Also per clarifications, Aviat has proposed two routers at nine key sites identified by the County.

Proposed routers can be fully monitored by the Aviat Provision EMS/NMS which is included in our proposal. The proposed solution also includes Prime Infrastructure from Cisco, which can be used to build the end-to-end path without having to manually configure each intermediate device. The proposed NMS solution also supports GUI interface.

Siteboss550 from Asentria is proposed at every site. This is two rack space device which can hold up to six service slots. Currently three slots are used in our design to provide following:

- 64 station alarm points
- 8 analog monitor alarm inputs
- 8 control point outputs

Siteboss550 is fully integrated into Provision NMS/EMS, which can be monitored via SNMP protocol. All the relay/alarm connections are terminated on wall mounted M66 blocks.

Per the SOW request, a 28DS1 jackfield is proposed at every site. The same 28 DS1 jackfield is proposed for those sites that only drop a few T1's. Aviat is willing to discuss the possibility of using a smaller, more economical jackfield at these sites to reduce cost.

Aviat has provided a DC power calculation per site in the proposal. It confirms that the existing battery at every site is sufficient to provide more than 8 hours standby/back up power in the event of loss of commercial AC power. As result, existing chargers and batteries will be re-used.

Timing source is not needed for the solution proposed. Aviat has listed 1588V2 capable timing source as an option (not included in total) in case the County believes it is needed for other applications. The optional timing source is from Symmetricom. Monitoring of this timing source can be fully integrated into Provision EMS/NMS.

All proposed electrical equipment except spares and test equipment will be installed on to 19" seismic Zone 4 racks. 7'6" racks are proposed at all sites except Rainbow (where 7'0" rack is proposed) and TMC (where the existing 7'6" rack will be re-used).

Design document such as system topology, path calculation, equipment list, link tracker, power consumption calculation, typical block diagram, typical rack profiles are all provided in separate document to support the design.

2. PLANNING AND DESIGN SERVICES AND RESPONSIBILITIES

2.1. Project Management

2.1.1. Project Management Services provided by Aviat

Assigns a Project Manager to manage the project
Manages Civil construction

Yes
 No

No
 No

2.1.2. Project Management Responsibilities*

Planning:

- Develop project schedule for Aviat Engineers
- Develop project schedule for County of San Diego's supporting vendors, if applicable.
- Establish an action register
- Establish a communications plan
- Establish a change management plan
- Establish a risk management strategy
- Provide quality standards and procedures document, as listed in the response to RFP.
- Establish a resource management plan for Aviat resources
- Develop a responsibility matrix, detailing principle team members by function
- Provide details of County of San Diego's principle team members by function
- Provide details of County of San Diego's single point of contact for Aviat
- Site access policies and procedures
- Site access as required
- Building/shelter/enclosure access as required

<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
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<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat

Execution:

- Act as primary point of contact for County of San Diego
- Finalizes project terms and scope with County of San Diego
- Chair meetings to assign tasks, evaluate progress and address issues
- Coordinate Aviat Networks' day-to-day activities through to project signoff
- Coordinate County of San Diego's supporting vendors' day-to-day activities
- Monitor progress against the agreed-upon project milestones
- Report on progress as agreed to in the Communications Plan
- Ensure proper site readiness prior to the install start date
- Manage project risk through risk identification, quantification and mitigation
- Coordinate Aviat change orders until project completion
- Review quality checklists and photos for defects
- Ensure the terms and conditions of the contract are complied with

<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
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<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

Closeout:

- Manage project close-out activities
- Sign off on close-out activities and final deliverables

<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

2.1.3. Aviat Networks Project Management Deliverables

- | | |
|--|--|
| <input checked="" type="checkbox"/> Project Schedule | <input checked="" type="checkbox"/> Action Register |
| <input checked="" type="checkbox"/> Risk Management Strategy | <input checked="" type="checkbox"/> Communication Plan |
| <input checked="" type="checkbox"/> Change Management Plan | <input checked="" type="checkbox"/> Progress Reports (as required) |

*Refer to **Appendix A** for further details regarding the Project Manager's role.

2.2. Microwave Network Design

2.2.1. Network Design Services provided by Aviat

Equipment List	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Path Calculations and Path Profiles	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Rack Profiles and Wiring Diagrams	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
DS0 Traffic Plan	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
DS1/DS3/OC3 Traffic Plan	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
IP Traffic Plan	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
NMS Plan	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Synchronization Plan	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
DC power Plant or DC System Plan (Aviat to provide all DC loading requirements)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Traffic Cutover Plan	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Field Test Plan	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Sites/Offices/Locations	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Provides copies of equipment datasheets/user manuals	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

2.2.2. Network Design Responsibilities*

Planning:

Microwave system requirements	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Existing traffic, IP and NMS plans	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Anticipated channel plan requirements	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Preliminary system design during or after initial proposal	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Preliminary path calculations for selected Aviat Network radios	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

Design:

Final equipment list	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Final path calculations and path profiles	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Site Specific Diagram (RP's and wiring diagrams)	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
DS0 traffic plans (if applicable)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
DS1/DS3/OC3 traffic plans (if applicable)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
IP traffic plans (if applicable)	<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
NMS plan (if required)	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Synchronization plan (if required)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
DC power calculations (if required)	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Traffic cut-over plan and method of procedure (if required)	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Field acceptance test plan(if required)	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

Sign-off:

County of San Diego sign-off on final network design (design freeze)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
--	--	--------------------------------

2.2.3. Aviat Networks Design Deliverables

- Equipment List
- Design Freeze Package

*Refer to **Appendix B** for further details regarding the Network Design.

2.3. Microwave Path Design

Path Reliability	<input type="text" value="99.999"/>	%
BER	<input checked="" type="radio"/> 10 ⁻³	<input checked="" type="radio"/> 10 ⁻⁶
County of San Diego exempt from FCC License Fee	<input checked="" type="radio"/> Yes	<input type="radio"/> No

2.3.1. Path Design Services provided by Aviat

Field Path Surveys	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Frequency Coordination	<input checked="" type="radio"/> Yes	<input type="radio"/> No
FCC Licensing	<input checked="" type="radio"/> Yes	<input type="radio"/> No
RF Interference Paper Study	<input checked="" type="radio"/> Yes	<input type="radio"/> No
RF Field Measurements (No actual measurement of level of interferences on site using test equipment like a spectrum analyzer is proposed. However the absence of degradation which could be caused to the new system by unexpected interference will be verified by performing fade margin test on each hop).	<input type="radio"/> Yes	<input checked="" type="radio"/> No

2.3.2. Path Design Responsibilities* *It is understood that a lot of the tower, building and site plan information might only be available for the County owned sites.*

Planning:

Documents relating to tower or structural analysis and drawings, if available for County owned towers.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Documents relating to previous path surveys and frequency coordination, if available.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Historical path performance details on a per link basis, if available.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Path clearance objective for each path	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Federal Registration number (FRN) and Username and Password, for County-owned towers.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat

Design:

Path surveys to confirm path reliability objectives	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Site elevation and coordinates	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Existing antenna mounting structure description and information (tower type), if available.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Existing building description and information, if available, for County owned sites.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Site plan (drawing with major landmarks for location purposes), if available, for County owned sites.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Final path calculations and path profiles for each hop	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Identify locations of possible sources of spectral reflection (if applicable)	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Information concerning possible obstructions or obstacles	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Recommend antenna size, type and mounting height	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Radio frequency coordination	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Tower permit application (where applicable)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Prepare and submit FCC License Application (where applicable – Form 601)	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Prepare and submit environmental impact data (Environmental Impact Statements to comply with the National Environmental Policy Act NEPA, as required for new constructions at sites. Not applicable to this project where we are replacing existing equipment).	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Provide required environmental approvals or permits	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
File FCC construction completion notice	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Sign-off:		
Approve recommended antenna size, type and mounting height	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
County of San Diego sign-off on final path design	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat

2.3.3. Aviat Networks Path Design Deliverables

- Microwave Path Survey Report
- Frequency Datasheets

*Refer to **Appendix C** for further details regarding the Path Design.

2.4. Microwave Site Design –

It is understood that a lot of the tower information might only be available for the County owned sites and that some of the requested data might be able to be attained during the site visits.

2.4.1. Site Design Services provided by Aviat

Field Site Surveys	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Floor plan for Aviat Installation Scope	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Traffic Cutover Plan	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
RF Cutover Plan	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Field Acceptance Test Plan	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Installation Specifications	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

2.4.2. Site Design Responsibilities*

Planning:		
Documents relating to tower or structural analysis and drawings, if available for County-owned towers.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Design:		
Site surveys	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Existing tower description and information (tower type), if available. If not, Aviat will gather this information during site visits.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Existing building description and information, if available. If not, Aviat will gather this information during site visits.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Site plan (drawing with major landmarks for location purposes)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Environmental data (if required), if available for County-owned sites.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Flooring, ceiling, racking data and requirements to mount new hardware, if available. If not, Aviat will gather this information during site visits.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
All power, (as is and to be), and breaker assignments	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Aviat's equipment DC/AC loading requirements and calculation sheets	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Recommendation for placement of new equipment	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Identify and define antenna mounting hardware	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Identify any grounding issues and recommend improvements	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Identify demarcation types and location between new and existing equipment	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Existing waveguide dehydrator information and their associated cabling	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat

2.4.3. Aviat Networks Site Design Deliverables

- Microwave Site Survey Report
- Traffic Cutover Plan
- RF Cutover Plan
- Field Acceptance Test Plan
- Installation Specification

*Refer to **Appendix D** for further details regarding the Site Design.



2.5. Installation, Integration & Testing

2.5.1. Installation Services provided by Aviat

Tower installation	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Antenna system installation	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Transmission line installation	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Shelter installation	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Indoor equipment and rack installation	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
AC/DC power equipment and/or ground installation (Aviat will provide data on the required DC loading)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
DC Power Equipment	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Ground Installation (Aviat will tie into the existing internal ground systems if one exists)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Antenna alignment	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Equipment Decommissioning	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

2.5.2. Integration Services provided by Aviat

Microwave equipment integration	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Dehydrator integration	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
NMS integration	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

2.5.3. Testing Services provided by Aviat

Station test	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Hop test	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
System test	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Traffic cutover	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
RF Cutover	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

2.5.4. Installation, Integration & Testing Responsibilities*

General Project Responsibilities:

Obtain all necessary environmental and public agency approvals/documentation, if required and available.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Obtain all necessary construction permits.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Access to sites in accordance with the project schedule	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Normal road access for all project related vehicles	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Transport of Aviat Networks supplied equipment to the warehouse	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Transport of Aviat Networks supplied equipment to sites	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Transport of Aviat Networks personnel to and from sites	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Safety and first aid material and supplies to Aviat Networks personnel	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

Site & Civil Services:

Leasing, zoning, permits and inspections (County owned sites)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Structural analysis report for the existing antenna system. Aviat Networks has provided optional pricing if it is determined that an existing, County owned, antenna support structure should undergo a formal structural analysis.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Site layout drawings, plot plans or applicable architectural blueprints (County owned sites)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Locate and mark all site boundaries and features (County owned sites)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat

Secure storage for all equipment including radios, antennas and racks	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Standard equipment packaging	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Unpack Aviat Networks equipment and remove packing material from site	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Verify packing list to specifications	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Installation Services:		
<u>Tower Installation:</u>		
Antenna system support structures: towers, monopoles and tripods (Aviat to provide and install antenna mounting brackets and hardware)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Provide and install footing hardware and penetrations for structure on rooftops	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Adequate earth ground in accordance with EIA/TIE standard 222G (Aviat will depend on this level of grounding to properly install the waveguide ground kits)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Connect tower ground to site ground, in accordance with EIA/TIA standard 222G	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
<u>Antenna System Installation:</u>		
Provide and install specialized antenna mounts (standard antenna mounts are provided in our submittal. If special face mounts are required additional costs may apply)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Provide and install any required steel support members for side braces (this is required to properly install the new antennas. Being most antennas are being replaced we cannot assume the existing antennas were properly supported)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Provide and install standard tower leg pipe mounts (this is required to properly install the new antennas. Being most antennas are being replaced we cannot assume the existing antennas were installed using the proper mount)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Provide and install standard face mounts (see above)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
All RF/Microwave antenna mounting brackets	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Antenna feeder window/bridge and cable tray supports	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Antennas and radomes at specified centerlines	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Ice shields at specified locations	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
<u>Transmission Line Installation:</u>		
Waveguide ladders	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Waveguide bridges	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Rooftop sleepers for transmission lines and ground plates	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Provide and install cable trays	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Provide and install hanger kits and ground kits	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Penetrate building walls or roof and install waveguide ports and entry plates	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Provide and install waveguide boots at waveguide entry plates	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Terminate and label waveguide runs	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
<u>Shelter Installation:</u>		
Provide shelters, cabinets or enclosures	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
<u>Indoor Equipment and Rack Installation:</u>		
Provide and install cable ladders or trays	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Provide and install new racks in specified locations	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Provide and install bracing supports	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Provide and install pressurization equipment	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
See dehydrator		
<u>AC/DC Power Equipment and/or Ground Installation:</u>		
Provide and install DC circuit breakers to support Aviat Networks equipment	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Provide and install charger racks	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Provide and install battery into charger rack or on floor as required	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat

Field Integration Services

Integrate Aviat Networks microwave equipment	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Integrate rack ground to ground distribution in shelter	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Integrate DC wiring to specified distribution panels	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Integrate payload wiring to designated demarcation	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Integrate Ethernet wiring to designated demarcation	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Integrate alarm contacts to designated demarcation	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Connect radio antenna ports to waveguide flex sections	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Set dehydrator pressure to 4psi	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Install and Integrate NMS software into customer's radio network	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Customer equipment		
Customize NMS alarm designations	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

Testing Services:

Review and approve Aviat Field Acceptance Test plan	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
<u>Station Test:</u>		
Perform grounding inspection	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Perform equipment inspection	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
<u>Hop Test:</u>		
Perform antenna system test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Aviat to measure return loss of waveguide terminated at antenna within antenna freq range	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Aviat to verify airtightness, by turning pressurization valve off during 4 hours and measuring pressure drop on each line (should be less than 1 PSI).	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Perform microwave equipment test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform transmit power output test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform receive signal level test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform receiver threshold (fade margin) test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform transmitter/receiver switching test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform Layer 2 link aggregation test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform adaptive modulation test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform Ethernet test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform AUX alarm/data card test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform channel bank test	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Perform multiplexer test	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Perform dehydrator test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform 1-hour BER test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
<u>System Test:</u>		
Perform loop protection test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform network continuity test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform Provision element manager test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform 12-hour BER test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform 4-hour diversity BER test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
<u>Traffic/RF Cutover:</u>		
Provide technical personnel familiar with existing equipment and cutover plan	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Schedule cutover of all complete traffic immediately following installation and commissioning of each hop	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Transfer circuit wiring	<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat



Verify integrity of circuits being cutover	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Perform RF cutover	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform traffic cutover (joint effort)	<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Final Site Acceptance Procedure		
Notify all parties involved of site completion	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform site installation inspection	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Complete indoor quality checklist	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Complete tower quality checklist	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Submit final punch list of all deficiencies to be corrected to Aviat	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Identify all critical punch list items	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Review, agree and sign off on final punch list	<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Sign off on Aviat Networks site installation checklist form	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Final System Acceptance Procedure		
Sign off on Aviat Networks field acceptance test results	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Resolution of customer vendor issues affecting completion or project	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Sign off on Aviat Networks installation completion report	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Sign off on project acceptance based on acceptance criteria of project	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Issue final invoice for services upon acceptance of the system	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Provide as-built drawings for Aviat provided equipment	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

2.5.5. Aviat Networks Installation, Integration & Testing Deliverables

- Site Installation Completion Report
- Quality Checklists
- System Installation Completion Report
- Field Acceptance Test Report (completed)
- Punch List Completion Report
- As-built Record Sets

*Refer to **Appendix E** for further details regarding the Installation, Integration and Testing Services.

3. APPENDIX A: PROJECT MANAGEMENT

Responsibilities

Aviat Networks will assign a Project Manager for the duration of the project to administer all aspects of the contract between Aviat Networks and County of San Diego. The Project Manager will act as the primary point of contact for County of San Diego to facilitate effective resource management, escalations, approval processes, scheduling, communication, and reporting with Aviat Engineers and other designated vendors as needed. The Project Manager is responsible for maintaining control of the project and assuring compliance with the project and customer specifications. Aviat Networks will not be responsible for the resolution of County of San Diego vendor issues affecting the completion of the project. Any documentation and standards not listed in this or the County's, SOW will be the responsibility of County of San Diego to provide or it will default to Aviat Networks standards, where applicable. Where there is a conflict or omission of documentation and standards between this document and the County of San Diego SOW, the County of San Diego SOW supersedes this document..

Although face-to-face communication and on-site meetings with County of San Diego are an essential element of the service, in order to reduce travel and living costs activities that do not require face to face contact, some activities will be performed in the Project Manager's Aviat Networks office. These activities are at the discretion of the Project Manager. Refer to section 2.1.2 for a full list of Project Management Responsibilities.

Project Schedule

The project schedule for Aviat Engineers, Aviat sub-contractors, and for County of San Diego's supporting vendors will be developed and maintained in Microsoft Project and will identify project deliverables, key milestones, resource assignments, and track project progress against each milestone. County of San Diego and Aviat Networks agree to collaboratively review and agree to the project milestones and deliverable dates prior to the execution of any services on the project. A copy of the project schedule will be available upon request in .pdf or .mpp format.

It will be the responsibility of County of San Diego to track and deliver against all County of San Diego internal (including County of San Diego sub-contractors) milestones. The overall project plan generated by the Aviat Networks Project Manager will show major deliverable milestones, but not internal milestones of County of San Diego or their contractors. Tracking of County of San Diego and County of San Diego's contractor internal milestones will remain the responsibility of the County of San Diego Project Manager or point of contact.

Communications Plan

Establishment of a communications plan will be done in accordance with the principles of Project Management established by the Project Management Institute (PMI®) unless otherwise agreed to. The plan will involve representatives from Aviat Networks and County of San Diego and any other affiliated members (if required) for project kickoff meetings, periodic progress meetings, or problem escalations as needed. The plan will include the location and frequency of any such meetings, the format for formal communication and meeting minutes, attendee or distribution lists with contact details, methods of communication, and escalation and management level lists.

County of San Diego will make appropriate staff available for regular consultation and meetings with the Aviat Networks Project Manager. Failure to attend regular meetings or respond to Aviat Networks questions in a timely manner could result in a delay of the project deliverables.

Change Management Plan

Establishment of a change management plan will be done in accordance with the principles of Project Management established by the Project Management Institute (PMI®) and will include confirmation from Aviat Networks and County of San Diego's understanding of the process. Each party will work closely with the other to manage any scope changes through the term of the project, and understand their impact on the project performance from a cost, quality, and schedule perspective. Any such change could be subject to a change order fee and will be communicated to and agree to by County of San Diego prior to the implementation of the change. Any change order approvals will be submitted in writing. Refer to section 1.2 and Appendix B for more details on change orders.

Quality Standards and Procedures

Quality standards and procedures documents will be provided by County of San Diego unless otherwise stated in this SOW. If no documentation is provided by County of San Diego, the standards and procedures will default to Aviat Networks Best Practices Guide.

Resource Management Plan

Establishment of a resource management plan will be done in accordance with the principles of Project Management established by the Project Management Institute (PMI®); identifying principle team members by function, including backup resources (if required).

Closeout Activities

During the project closeout, all quality photos will be reviewed, completion documents will be signed with no exceptions, RMA completed, and final billing and invoicing released. It is recommended that County of San Diego provide Aviat Networks with performance feedback during this time to promote continuous improvement within Aviat Networks.

County of San Diego Responsibilities

County of San Diego shall:

- Provide details of County of San Diego's principle team members by function during the project kickoff meeting.
- Provide details of County of San Diego's single point of contact for Aviat during the project kickoff meeting.
- Provide all other relevant documentation or resources to assist in gathering information not stated in this SOW.
- Provide access to sites, shelters, buildings, enclosures, facilities or any other areas as required.
- Provide updates as necessary of any site readiness issues to be resolved prior to start of work. This includes, and is not limited to, permitting, leasing, zoning, insurance, etc.
- Provide security clearances and/or escorts as required for field survey and installation activities.
- Provide access to pertinent databases, planning requirements, including strategic plans, expansion scenarios, growth projections, introduction of new services and wireless technology

Deliverables

Refer to section 2.1.3 for a full list of Aviat Networks Project Management deliverables.

4. APPENDIX B: NETWORK ENGINEERING

Microwave System and Network Design

The Aviat Networks Network Engineer will provide the overall technical direction of the system design and will work with County of San Diego to insure system integrity, verify that all sub-systems and Aviat Networks furnished OEM equipment is compatible, and that the desired performance of the system is realized. Aviat considers this a collaborative effort between us and the County.

The Network Design portion of the project consists of three phases:

1. Preliminary Design
2. Final Design
3. Design Freeze

Preliminary Design Phase

During the Preliminary Design Phase, the Network Engineer will gather data to establish the design criteria and any special customer requirements that need to be incorporated into the final design. The Network Engineer will review and translate the system configuration into specific hardware requirements. Equipment selection will be based on the requirements, input and requests from County of San Diego, functionality of the equipment, and recommendations from the Aviat Network Engineer. Aviat Networks will provide County of San Diego with a summary of the preliminary system design prior to commencing field surveys. All preliminary designs are subject to change. Changes can include, but are not limited to changes based on:

- Survey results.
- Vendor shortages or long lead times.
- Customer requests.
- Engineering recommendations.

Design Finalization Phase

After receipt of the order and the project kickoff meeting, Aviat Networks and County of San Diego enter into the Design Finalization Phase. During this phase, the Network Engineer will incorporate any required changes stemming from the path and/or site surveys into the design and confirm the final design details. Changes can include but not limited to:

- Antennas (types, sizes, models, quantities, and mounts).
- Waveguide (types and lengths), waveguide accessories and dehydrators.
- Power systems, cabling, and other material that could not be finalized prior to conducting the field surveys.

During this phase, County of San Diego may also request changes to the system design if the changes fall within the original scope and hours of the projects. Any changes outside of the original scope or agreed schedule are subject to review by Aviat Networks to determine the impact and cost on the overall project.

Aviat Networks will provide a formal submission detailing the final system design and equipment list and highlight changes needed to the preliminary design. It is expected that County of San Diego review the data and schedule a meeting, if necessary, to discuss any concerns. If no concerns are noted, it is County of San Diego's responsibility to approve the final design in writing (email is acceptable) before the design is frozen and equipment is placed on order (unless otherwise agreed to in the terms and conditions or with the assigned Program Manager). Any delay in the approval of the final design could result in a delay in material delivery to the field. This might require a review by County of San Diego and Aviat Networks of the project schedule and deadlines. This paragraph is superseded by the County's SOW, Sections 1.10 and 1.11.

Design Freeze Phase

As part of the Design Finalization Phase, a date will be set for the design freeze at which the final design and all changes must be approved and accepted by both parties. Following the design freeze will be the Design Freeze Phase during which the Network Engineer will review all design documents and finalize any traffic plans, NMS plans, synchronization plans (not required for proposed solution), traffic cutover requirements, and field acceptance testing requirements for the project. During this phase, the design is frozen and no further changes to the system design will be accepted without a formal change order (billable or non-billable) and reevaluation of the project and delivery schedules. Refer to the project schedule for details on the planned start and finish dates for each of these phases.

Deliverables

Refer to section 2.2.3 for a full list of Aviat Networks Design deliverables.

- Equipment List refers to the final Bill of Material (BOM).
- Design Freeze Package refers to the final path calculations, path profiles, rack profile and system drawings, traffic plans, IP plans, NMS plans, and/or DC power calculations.

5. APPENDIX C: TRANSMISSION ENGINEERING

Microwave Path Design

The Aviat Networks Transmission Engineer ensures the delivery of the best possible network solution by providing the technical direction for the over-the-path RF performance of Aviat Networks system implementation. All microwave paths designs are preliminary, pending final path surveys and frequency coordination. This includes:

- Antenna selections, antenna centerlines, and antenna mounts.
- Total transmission line lengths.
- Path calculations and profiles.
- The size, type, quantity and configuration of each component.

Equipment proposals are simply a reflection of these preliminary designs and subject to change. It is further understood that any changes to existing or proposed antenna centerlines could justify the need for tower stress analysis or, if modification is impractical, construction of a new tower. Any such requirements will be the responsibility of County of San Diego unless stated otherwise in the terms and conditions of the signed contract between Aviat Networks and County of San Diego.

A formal submission detailing the results of the path survey and highlight changes needed to the preliminary design will be submitted to County of San Diego. It is expected that County of San Diego review the path survey data and schedule a meeting, if necessary, to discuss any concerns or alternate means of providing path continuity/system reliability. It is understood that the County will review and approve Aviat's path survey report prior to the final system design freeze.

Microwave Path Survey, Frequency Planning and Licensing

The microwave path survey is intended to:

- Identify geographical location of sites and antenna, waveguide length and tower requirements.
- Verify path clearance objectives for each of the paths from existing or new tower locations.
- Document obstruction, critical points, and reflection points in each of the paths.
- Verify tower coordinates and site elevations.
- Establish coordinates and height requirements for new towers, as needed for governmental agency registration and licenses (typically filed by County of San Diego).
- Confirm antenna centerlines and waveguide length requirements. Catalog antennas on the existing structures noting any space limitations in the survey report. An engineer will review the tower for new antenna design space limitations specific to this project only but will not perform a complete tower audit.
- Perform frequency coordination based on available FCC records to reduce the potential for interference between internal or external radio sources on a given system or network.
- Aviat Networks, upon receipt of County of San Diego's authorization, will prepare the FCC License Application Form 601 with the appropriate technical data. Information such as site location, radio type and frequency will be listed. Aviat Networks will complete and submit the Construction Complete Form 601 on line via FCC Universal Licensing System (ULS).
- File Antenna Structure Registration (ASR) form for towers over 200 feet.

The results of the survey will be utilized by Aviat Networks for preparation of final performance calculations, frequency coordination, government licensing, and tower registration requirements.

Survey Procedures

Preliminary path profiles are drawn based on the supplied site coordinates and contour information extracted from the best available topographic mapping. A field site survey is conducted to verify site coordinates and elevations based on North American Datum 1983 (NAD83) and gather information related to the proposed radio equipment and antenna locations, site access, and site development constraints. A field path survey is then conducted to verify path profile elevations, measure all natural and manmade potential obstructions and assess the reflective potential of all natural and manmade surfaces. Antenna centerline heights were calculated for the proposed frequency band by applying suitable clearance criteria based on the propagation characteristics of the geographic area. The path survey report is considered to be a representation of the information gathered in the field and as such, reflects a snap-shot in time at the time of the survey. It is not intended to show the final as-built configuration if any of the parameters were changed or updated after the survey report has been released.

Path calculation sheets are then generated for each hop, based upon the recommended centerline heights. Antenna sizes and the choice of propagation protection diversity are chosen to meet the required fade margin and the desired path propagation reliability. Propagation outage and reliability calculations are based on the Vigants model (ref. "Space Diversity Engineering", BSTJ, 1/75).

Design Criteria

Path clearance criteria must be established for each path on the basis of total system performance objectives, economic considerations, and careful analysis of local atmospheric conditions derived from published climatological data, where available, and reported microwave transmission experience pertinent to the area. Antenna heights much greater than actually needed because an unwarranted increase in system cost, and on paths with significant ground reflections, this can increase the exposure to multipath and ground reflection signal fading. It is desirable to locate the antennas high enough so that even under severe

super-standard atmospheric refractive conditions (surface ducting) there is adequate clearance such that signal entrapment does not significantly degrade the fade margin of the path or generate excessive multipath fade activity. The choice of clearance criteria for a microwave path is a balance between cost and performance.

The path clearance criterion as applied to a given geographic area is a function of the degree and direction of atmospheric beam bending and can conveniently be defined by the equivalent earth radius K factor:

$$K = \frac{\text{Effective Earth's Radius}}{\text{Actual Earth's Radius}}$$

The Median Propagation value of $K = 4/3$ allows the normal microwave horizon to be slightly extended when compared to the optical horizon; however, under certain meteorological conditions (for example, during nighttime super-refractivity usually associated with temperature inversions) the value of K increases to 2 or greater for periods of several minutes to several hours. This increases the path clearance and results in the heavy multipath fade activity seen on some reflective paths and antenna decoupling power fading on others.

Clearance Criteria

The criteria used to design a radio path in regions where the C-factor is equal to or less than 1:

- Main to Main:
 - 100% first Fresnel zone radius over $K=4/3$, or
 - 60% first Fresnel zone radius over $K=1$, whichever is greater
- Main to Diversity:
 - 60% first Fresnel zone radius over $K=4/3$ (Not Applicable)

The criteria used to design a radio path in regions where the C-factor is greater than 1:

- Main to Main:
 - 100% first Fresnel zone radius over $K=4/3$, or
 - 30% first Fresnel zone radius over $K=2/3$, whichever is greater
- Main to Diversity:
 - 60% first Fresnel zone radius over $K=4/3$ (Not Applicable)

Microwave path performance calculations and warranties

The microwave path design models most frequently employed within the industry (e.g., Vigants, and ITU-R P-530) provide a reasonably accurate (and therefore usually guaranteed) estimate of the cumulative time a path will be out of service due to random atmospheric multipath fading under normal atmospheric conditions. **These models do not (and cannot) accommodate abnormal, unusual, anomalous, or otherwise unpredictable conditions of weather or atmospheric refractivity.**

Microwave frequency engineering/inter-system interference analysis

Aviat Networks will partner with Comsearch, a CommScope company, to provide cost-effective frequency planning and FCC licensing services for radio communications systems (if required). The planning software used, considers specific operating parameters of both the proposed microwave system and the environment microwave systems (license and proposed) to properly consider the interference potential of the new path or system. Parameters and data elements incorporated into the modeling include, but are not limited to:

- Antenna type, antenna height, elevation, antenna radiation pattern.
- Receiver filter performance.
- Terrain.
- Radio modulation.
- Path orientation
- Receiver threshold

These elements are required to accurately predict specific interfering levels into and from the existing microwave systems. The accuracy of the calculations is ensured by "real time" maintenance of the Comsearch point-to-point microwave, earth station, radio equipment, antenna, interference objective, and contact database.

Microwave frequency selection

The interference analysis performed on the microwave system identifies available frequencies considering existing and proposed systems found in the Comsearch database. When applicable, an analysis of the systems in the adjacent bands can be done to ensure the microwave system does not receive unwanted threshold degradation. In bands shared with satellite systems, an analysis of potential interference with earth stations and with the geo-stationary satellite orbit can also be done. Additionally, co-located or nearby transmitters already licensed in the required frequency band can be identified in order to reduce the possibility of "bucking" an existing high/low frequency plan that could increase the possibility of receiver overload or reflective interference from a nearby system.

Microwave frequency coordination and FCC licensing

The majority of microwave bands subject to FCC Rule Part 101 require prior coordination with existing licensees. Aviat Networks will partner with Comsearch to perform the frequency coordination and FCC licensing on behalf of the customer (if required). The procedure will include notification of the technical parameters of the proposed system to all existing and proposed licensees in the area and frequency band of operation. Frequency coordination will also be performed with Canadian and Mexican authorities in border areas when necessary. By FCC rule, recipients are given 30 days to respond, or in some cases an expedited response can be requested.

Upon completion of the prior coordination process, documentation required to satisfy FCC Rule Part 101.103 (d) can be prepared on behalf of the customer. This will include any necessary exhibits, including Supplemental Showings required upon submittal of the requested license application. The FCC filing process includes:

- Filing of the FCC Form 601 microwave application upon written approval from the customer and providing an electronic copy of the application to the customer via email.
- Tracking the status of the application until the license is granted by the FCC. Amendments will be handled expeditiously on behalf of the customer for any questions or concerns from the Commission.
- Email notifications to the licensee when the license is granted by the FCC.
- Filing of the required "Completion of Construction" notification with the FCC upon written approval from the licensee and notification of the filing via email.

Special Considerations

On all microwave radio paths traversing urban areas there exists the possibility of multiple on- and off-path structural reflections which generate long-delayed echoes, as well as "terrain scatter" RF intra- and inter-system interference. Long delayed, low-level echoes have no effect on digital radio performance; however, the terrain scatter mechanism cannot be accurately predicted nor precisely measured without an extensive and expensive field trial. Consequently, this mechanism is specifically excluded from all current industry-wide path survey and frequency coordination performance guarantees.

The structure supporting the microwave antenna can take many forms. The antenna is most often mounted on a tower, but can be mounted on a variety of structures such as roof tripods, penthouse wall, wooden telephone pole or metal monopole. It is recommended that the customer or end user conduct a structural analysis of the support structure to determine if the structure will support the additional loading imposed by the antenna and its mount. The structure must also meet the twist and sway requirements per EIA/ANSI 222G. This can be discussed further, in face to face meetings, but Aviat cannot assume responsibility for the structural integrity of a County or non-County owned structure without a formal analysis being performed.

Site Access

Access to work sites will be made available by County of San Diego for a minimum of 10 hours per day, 6 days per week or per the agreed schedule in the project plan. All roads leading to work sites shall not require more than a 4-wheel drive vehicle unless stated otherwise and agreed to by both County of San Diego and Aviat Networks. Any delays or additional cost caused by poor road conditions or site access issues not discussed prior to the start of the surveys will be billed to County of San Diego as a billable change order and could have a negative impact on the project completion schedule.

FCC Rules for Filing Accuracy

CFR 47, Part 1.929 specifies that filing accuracy for site coordinates shall be (+/-) 1" latitude and longitude, and for ground elevation (+/-) 1 meter (3.28 ft). Part 1.929(k) (covering modification of FCC licenses) specifies that any change in site coordinates >5" latitude or longitude shall require prior authorization [re-coordination]. Therefore, wherever our survey results deviate more than (+/-) 5" latitude or longitude, or more than +3.28 ft site elevation, frequency re-coordination will be recommended.

Terms and Conditions

When Aviat Networks performs reliability calculations or path studies (path profiles from mapping or digitized data only) based solely on information supplied by or on behalf of the Customer, these calculations and studies are provided solely for budgetary purposes and shall not be construed as or be used for an installable design.

When conducting a path survey, Aviat Networks will verify site coordinates and ground elevations, and record trees and man-made fixed obstructions on the path. This information will be recorded on the profile for that particular path. Aviat Networks will assign an appropriate growth factor to tree heights.

When Aviat Networks performs frequency planning based, in part or its totality, on data provided by the Customer at the time of the study, Aviat Networks will not be responsible for any interference case that might arise due to errors or omissions in such data. As the usage of microwave bands increase and there is more sharing with satellite services, it may be necessary to perform frequency interference studies and additional path surveys (to determine blockage) to alleviate the possibility of interference from satellite earth stations.

Warranty of Path Engineering Services

Aviat Networks warrants that the installed radio communication path will conform to Customer's multipath performance reliability objectives. This warranty is for a period of 15 months from the date of the survey or one year from the date of installation of the microwave path, whichever expires first. All Aviat Networks field activities and path propagation analysis will utilize current

hardware, software, engineering practices and judgment with the goal of meeting normal Path Loss, as defined in TIA/EIA Standard RS-252-A.

Aviat Networks is not responsible for paths that it does not survey, nor for changes in path design beyond those specifically allowed in the path survey report or in writing after the field survey is completed, including but not limited to:

- Any change in path design;
- Any movement in site locations;
- Any building or other structure built on-path after date of survey;
- Any disturbance of the terrain which may cause blockage or reflection;
- Any additional frequency interference source;
- Any change of available antenna mounting space on tower.

Any one of the changes listed above will nullify this warranty, and the Customer shall in such case bear the total cost of determining that such change was the cause.

Aviat Networks will not be responsible for degraded path performance when such degradation is due to such anomalous propagation conditions as:

- Long-term loss of fade margin due to antenna decoupling misalignment caused by widely-varying k-factor changes;
- Long-term loss of fade margin due to Atmospheric Boundary Layering ("ABL") causing wave front defocusing (beam spreading), signal entrapment (blackout fading), ducting, and other such occurrence.
- Excessive rain outage rates beyond the published crane and/or chart data used in the calculation;
- Degradation resulting from certain types of multipath interference attributed to unidentifiable off-path terrain features or structures;
- Any other technological or atmospheric condition not foreseeable through the exercise of prudent engineering knowledge and judgment.

Additionally, Aviat Networks will not be responsible for degraded path performance when:

- Non-Aviat Networks radio equipment is installed on a surveyed path;
- Aviat Networks radio equipment is not installed by Aviat Networks;
- Existing antenna and waveguide system is used without test and inspection performed by Aviat Networks.

Aviat Networks designs the microwave path based upon best engineering practices and standards common to the industry, and it selects a transmission configuration based upon the most economical method for meeting the path performance objectives. When path loss or reliability objectives are not achieved, exclusive of anomalous propagation or path changes as described above, then Customer's sole remedy, and Aviat Networks' exclusive liability in connection with path engineering, shall be that Aviat Networks will provide incremental labor and material to optimize the antenna system beyond what would have been required during initial installation.

Where anomalous propagation is suspected in an installed microwave path, Aviat Networks will work with the Customer to obtain reasonable evidence that such condition exists. The total retroactive costs for such study shall be the responsibility of the Customer with Aviat Networks providing in-office engineering support. The cost of relocating towers, antennas, passive reflectors or other measures required to remedy this type of problem shall solely be the responsibility of the Customer.

Limitations

The foregoing warranties are in lieu of all other warranties whether oral, written, expressed, implied, or statutory. In particular, THE IMPLIED WARRANTIES OF FITNESS FOR PARTICULAR PURPOSE AND MERCHANTABILITY ARE HEREBY DISCLAIMED and shall not be applicable, either from Aviat Networks or any other equipment or software manufacturer. Aviat Networks' warranty obligations and Customer's remedies thereunder are solely and exclusively as stated herein. IN NO CASE SHALL AVIAT NETWORKS BE LIABLE FOR INDIRECT KINDS OF DAMAGES, INCLUDING BUT NOT LIMITED TO SPECIAL, INCIDENTAL, AND CONSEQUENTIAL DAMAGES, OR LOSS OF CAPITAL, REVENUE, OR PROFITS. In no event shall Aviat Networks' liability to customer, or any party claiming through Customer, be in excess of the actual sales price paid by Customer for any service supplied to Customer by Aviat Networks.

The terms in the County of San Diego Pro Forma Service Agreement supersede the terms of this clause.

Deliverables

Refer to section 2.3.3 for a full list of Aviat Networks Path Design deliverables.

6. APPENDIX D: SITE ENGINEERING

Microwave Site Design

The Aviat Implementation Engineer will perform field site surveys to verify that telecommunications equipment can be installed, powered and commissioned effectively at each site, antennas, waveguide and accessories can be connected to radios (towers, shelters and buildings), and customer traffic, alarms and dehydrator lines are fully engineered.

Microwave Site Survey

The microwave site survey is intended to gather data and identify the gap(s) between the site's present state and the site readiness for equipment installation, document any visible issue with the existing infrastructure / equipment that would pose a quality or safety issue during installation, gather environmental data and requirements for Telecommunication Equipment to function properly (including but not limited to HVAC, Temperature, humidity, the general state of the facility as well as seismic evaluation/compliance if required), record flooring, ceiling, racking data and requirements to mount new equipment (including floor plans, relay rack profiles, aisle numbering plans, and ceiling hangers, ladders, and anchor materials required to meet quality and safety standards.

The survey is also intended to record AC, DC, grounding (as is and to be), and breaker assignments and ensure power and grounding standards are met, identify demarcation types and location between new and existing equipment as well as the type of termination and the details required to terminate to the customer provided equipment, identify existing radio equipment (fixed, mobile) as well as their operating frequencies, record existing waveguide, dehydrator component and their associated cabling, identify all required or existing tower structures, mounting structures, antenna mounting types, waveguide ladder systems, entryway into telecom shelters and energy sources.

The results of the survey will be published and released in a site survey report and will be utilized by Aviat Networks for preparation of final power calculations, waveguide requirements, field OEM requirements, installation specifications, field test plans and traffic cutover plans. Aviat Networks will not be held accountable for validating the accuracy of the information provided by County of San Diego and assumes no responsibility in any inaccuracies of any part of the site engineering and microwave site design when such design is based on the information provided by County of San Diego or any contact affiliated with County of San Diego. Any corrective action required as a result of this, will be billed to County of San Diego as a billable change order.

Site Access

Access to work sites will be made available by County of San Diego for a minimum of 10 hours per day, 6 days per week or per the agreed schedule in the project plan. All roads leading to work sites shall not require more than a 4-wheel drive vehicle unless stated otherwise and agreed to by both County of San Diego and Aviat Networks. Any delays or additional cost caused by poor road conditions or site access issues not discussed prior to the start of the surveys will be billed to County of San Diego as a billable change order and could have a negative impact on the project completion schedule.

Deliverables

Refer to section 2.4.3 for a full list of Aviat Networks Site Design deliverables.

7. APPENDIX E: INSTALLATION, INTEGRATION & TESTING

The installation, integration and testing services include design-supported methodologies, product expertise, and field-proven processes to help ensure a quality installation and testing of critical system paths and hardware so that the network performs according to its design. Aviat Networks will designate a primary point of contact to answer any County of San Diego questions, provide guidance, and address issues specific to this service.

The quotation and SOW is based on an Aviat Networks standard installation schedule of 10 hour days, 6 days per week. Aviat Networks will adjust the SOW and quote for work week schedules outside of Aviat Networks' standard. No consideration for installation work performed during maintenance windows is included in the SOW unless specifically identified. All work will be done in accordance with Aviat Networks' Best Practices Guide.

Scope

Delivery of this service will utilize the design documentation developed as part of the Planning and Design phase. Field crews will utilize this documentation to:

- Install antenna systems
- Install transmission lines
- Install indoor microwave equipment, racks and components
- Perform Antenna alignment
- Perform system integration
- Perform system testing

System implementation is predicated upon completion of civil construction / complete site readiness. Antenna, waveguide and equipment installation activities will be performed at the same time on a per-site basis. As part of the delivery of this service, Aviat Networks may choose to integrate equipment at the manufacturer's location to minimize onsite installation time and provide a common point for quality assurance inspections. If staging areas are utilized as part of the project, equipment and materials will be delivered from these facilities to site by the installation crews. ***It is recommended that County of San Diego provide maintenance technicians during any service affecting work.***

The successful completion of all installation, integration and testing services are based on uninterrupted, contiguous-site installation and testing. Additional mobilizations are not included in the pricing and project schedule. If installation is delayed due to, inaccessible sites(s), incomplete site preparation, or construction, the following charges may apply and will be billed to County of San Diego as a billable change order:

- Standby time for antenna installation teams will be charged at a rate of \$1558 per person per day.
- Standby time for all other service teams will be charged at a rate of \$1200 per person per day.
- If re mobilization of the installation crew is necessary, then a two-week advance notice is required.
- Re mobilization will be billed on a time-and-expenses basis.
- Service costing assumes use of 4-wheel drive vehicles for all project related vehicles additional requirement (ATV) may drive additional service costs.
- If the field crew(s) is/are required to work out of contiguous sequence due to conditions beyond the control of Aviat Networks, a charge equal to one day for each crew person will be assessed to the Customer for each occurrence.

In the event any such delays occur because of natural calamities, strikes and boycotts, war or civil unrest or governmental actions, for which County could not reasonably foresee and prepare and over which County has no control, the additional charges shall not be applied.

Site Access

Access to work sites will be made available by County of San Diego for a minimum of 10 hours per day, 6 days per week or per the agreed schedule in the project plan. All roads leading to work sites shall not require more than a 4-wheel drive vehicle unless stated otherwise and agreed to by both County of San Diego and Aviat Networks. Any delays or additional cost caused by poor road conditions or site access issues not discussed prior to the start of the installation, integration or testing services will be billed to County of San Diego as a billable change order and could have a negative impact on the project completion schedule.

Site Services

All equipment including radios, antennas and racks will be stored in a secure location arranged by Aviat Networks.

Installation

County of San Diego shall verify that each site is ready for installation and commissioning activities, including County of San Diego supplied equipment installation and power up prior to the start of any such services and will take responsibility of any delay caused or cost incurred due to sites not being ready, as stated in the project scope of this document.

Per the directive of the County, Aviat Networks will approach the replacement of the existing equipment on a hop by hop basis. Please review the installation plan that was submitted with the proposal for all the details of the planned preparation and replacement of each site's, radios, antennas, transmission lines and dehydrators.

An inspection will be performed with County of San Diego after completing the physical installation. Workmanship deficiencies will be noted on a punch list for immediate correction. This inspection is not intended to verify operation of the new system or suitability of components, but rather to inventory and document that all equipment and materials from the schedule of values are installed to acceptable workmanship quality standards. Site drawings will be reviewed and red-lined to reflect the installed condition.

Testing

Test crews will begin work immediately after installation is complete. Testing, based on a standard set of Aviat Network test cases, will be performed on all provided equipment to confirm configuration, operation and manufacturer's specifications. Test data will be recorded on field test sheets, by technical field personnel who will also be responsible for documenting test results and any changes made to the design documentation.

The test crews will be trained on the equipment and utilize state-of-the-art test equipment to perform all tests. Test equipment will have valid calibration certifications, which can be verified prior to commencing any tests. It is recommended that County of San Diego take the opportunity to have their maintenance technicians witness/participate in field commissioning testing to gain on-the-job training and experience on the new system components.

Commissioning tests will consist of a set of standard Aviat Networks test cases and include turn-up and performance verification tests and circuit tests to verify end-to-end continuity and equipment operation as well as any other tests documented in the Field Acceptance Test Plan. The Field Acceptance Test Plan shall be approved and agreed to by Aviat Networks and County of San Diego, including any County of San Diego requested test, prior to test execution. Test results will be recorded on field test data sheets and submitted to County of San Diego. Refer to the Field Acceptance Test document for details on the test to be performed.

System tests will be performed on a logical section/loop of the system. The system tests will be designed to demonstrate performance and functionality of system features as-well as end-to-end operation of individual circuits/services. System Test results will establish benchmark system performance and operation prior to cut-over and acceptance. The test data sheets prepared during commissioning and system testing will become the base line document for maintenance and performance evaluation of the system over an extended period of time. County of San Diego will be required to review the commissioning and acceptance testing/results and red-lined drawings and provide approval/acceptance of the data and authorization to proceed with cut-over activities.

Our approach to testing will be slightly different than normal due to the size and design of the system and the limited access we will have regarding outages. A one hour BER test will be performed as each path is commissioned. More complete, bidirectional twelve hour (A side) and four hour (B side) will be performed on each loop as it gets completed.

Data throughput testing will be similar. A quick, RFC2544 test will be performed as each link is commissioned. Throughput testing will be performed on larger sections of the loop as the system is migrated from the existing TDM network to the eventual hybrid design.

Please refer to the System Acceptance Document that was submitted with the proposal for more detail.

Traffic Cut-over

Cut-over activities are anticipated to occur as Antenna and Radio sub-systems are implemented. The commissions and system-level test activities verify that the new system is ready to accept traffic. Preparation, Planning, Logistics and Technical support are the critical elements in transferring existing services to a new system. County of San Diego infrastructure is utilized for control of mission critical infrastructure; therefore, processes must also be put in place to minimize interruptions as well as to restore the original service in the event of unforeseen situations.

It is Aviat Networks plan to perform cutover of the existing TDM circuits as each path is brought on line. Please refer to the cutover plan that was submitted with the proposal for more detail.

Safety

The health and safety of all individuals, whether in the field, plant or office, takes precedence over all other concerns. Management's goal is to prevent accidents and to reduce personal injury and occupational illness and comply with all safety and health standards. A code of safe conduct is important to the efficiency of operations. Safety is everyone's responsibility. No individual is required or expected to be in such a rush that safety is neglected. The personal safety and health of each individual is of primary importance. The prevention of occupational-induced injuries and illnesses is of such consequence that it will be given priority mechanical over operation productivity whenever necessary.

Safety and first aid material and supplies will be provided to all Aviat Network construction/installation personnel or affiliated contractors or made available at each site for the duration of this project. All safety and first aid material will be stocked at acceptable levels and will have not exceeded the expiration dates where applicable. County of San Diego will be responsible for providing Aviat Networks with the location and phone numbers of all local emergency agencies.

Deliverables

Refer to section 2.5.5 for a full list of Aviat Networks Installation, Integration & Testing deliverables.

8. APPENDIX F: ASSUMPTIONS & EXCLUSIONS

The following assumptions will govern the delivery of the Project Management service:

- This SOW and associated pricing is based on the system as described in the Aviat Networks proposal and on County of San Diego completing all items set forth in this SOW as being County of San Diego responsibility to ensure site readiness.
- Service pricing includes labor and field living expenses compliant with the local prevailing wage rates.
- Any inaccuracies in FCC data may drive additional services costs during field implementation. In addition, any other troubleshooting tasks related to frequency interference issues that are not directly attributable to Aviat Networks are subject to additional service fees at daily/hourly rates define in this SOW.
- All equipment interconnects or termination points, unless specified otherwise, are estimated to be fifty (50) feet. This project does not include any cabling between buildings, rooms or floors, unless specifically identified in this SOW.
- Customer provided construction drawings will have sufficient details for Aviat engineering to order antenna mounting or any other related material required. Any re-engineering to provide correct mounts or material required by Aviat Networks may increase cost to County of San Diego. Aviat Networks will strive to attain all required information during the site visits.
- Where there is a conflict or omission of documentation and standards between this document and the County of San Diego SOW, the County of San Diego SOW supersedes this document.

Unless negotiated otherwise, the services described in this SOW will exclude:

- Responsibility for managing County of San Diego project responsibilities and deliverables.
- This SOW is a listing of roles and responsibilities to be provided by Aviat Networks. Aviat Networks shall not be responsible for the condition of existing equipment or the deficiencies of non-Aviat Networks provided labor. Only the labor addressed in this SOW will be provided by Aviat Networks.
- On-site technicians will decline any County of San Diego request for support or work outside the scope of work defined and agreed upon in the service contract unless it is addressed in the form of a change order.
- Aviat Networks proprietary documentation used by service delivery teams to perform this service is not available to County of San Diego.
- Provision of proprietary information on exact methods, procedures and tools to perform this service.
- Any and all items that are not specifically described within the service proposal as being provided by or the responsibility of Aviat Networks.
- Aviat Networks will not be responsible for the resolution of other vendor issues affecting the completion of the cutover. Aviat Networks can provide guidance and support to County of San Diego in resolving interoperability issues, where applicable.
- Repair of equipment not in the Engineering Drawings. Equipment requiring repair that is not included in the Engineering Drawings but is still under warranty must follow County of San Diego's normal repair and return procedures.
- Equipment removal that is not associated with the job order for this service
- Additions or changes to ironwork, cable racks, or fiber ducts are not included and can be quoted separately after site visit information is collected.



9. APPENDIX G: FIELD CHANGE ORDER PROCEDURE

Any change to the proposed system configuration, the number of sites, type of equipment, type of services or project responsibilities, or any other change as noted in the County's SOW to be performed by Aviat Networks will be considered as a change in scope and will be subject to the following process:

- The Customer or Aviat Networks identifies a change of project Scope of Work.
- Aviat Networks Program Manager and/or Project Engineer will submit a proposed Field Change Order Authorization and/or a Contract Amendment containing documentation of the proposed additional activity and the additional cost. (See example Appendix A)
- An authorized Customer representative must review and approve the Field Change Order Authorization and/or the Contract Amendment in writing prior to changes to the scope of work being started.



5200 Great America Parkway
Santa Clara, CA 95054
408-567-7000

CHANGE ORDER FORM

County of San Diego
Microwave Network Replacement
NA130802-60260

This amendment hereby modified and amends the contract/purchase order ("Agreement") between Aviat Networks, County of San Diego, also referred to as "Parties" as follows:

These products <and/or> services are hereby <added/deleted> to the Agreement between the Parties at the specified prices and all other terms and conditions remain unchanged.

Customer:	County of San Diego	Contract #:	
Phone:		Contract Date:	
Fax:		Change Order #:	
Email:		Aviat SO #:	

Line #	Description	QTY +/-	Unit Price	Ext Price +/-
1				
2				
3				
4				
5				
6				
7				
8				
9				
Subtotal Booking				\$
Tax (as applicable)				\$
Freight				\$
Other				\$
TOTAL THIS CHANGE				\$

Aviat Networks Authorized Representative		County of San Diego Authorized Representative	
Approved By:		Approved By:	
Print Name:		Print Name:	
Title:		Title:	
Date:		Date:	



10. STATEMENT OF WORK SIGN-OFF

County of San Diego
Microwave Network Replacement
NA130802-60260

Aviat Networks and County of San Diego agree that this document will govern the scope, roles, and responsibilities associated with the delivery of this project.

The parties also agree that material changes to the project scope or deviations from the assignment of responsibilities between Aviat Networks and County of San Diego have the potential to drive Job Change Orders and/or revisions to the project schedule.

Aviat Networks Authorized Representative		County of San Diego Authorized Representative	
Approved By:		Approved By:	
Print Name:		Print Name:	
Title:		Title:	
Date:		Date:	



11. PROJECT COMPLETION SIGN-OFF

Complete one page for every site
County of San Diego
Microwave Network Replacement
NA130802-60260
 <Site Name>

Equipment:

The Aviat Networks supplied microwave equipment has been completely installed and tested and has been accepted for traffic use with the following exceptions:

Exceptions (use additional sheets if required):

Please call our Customer Service hotline at 1-800-227-8332 for service, equipment repair, training or miscellaneous sales or visit our Customer Service Web at <http://www.aviatnetworks.com>

Aviat Networks Authorized Representative		County of San Diego Authorized Representative	
Approved By:		Approved By:	
Print Name:		Print Name:	
Title:		Title:	
Date:		Date:	

**COUNTY CONTRACT NUMBER 547601
AGREEMENT WITH AVIAT U.S., INC. FOR
MICROWAVE NETWORK REPLACEMENT
EXHIBIT F – AVIAT NETWORKS SOFTWARE LICENSE**

1. LICENSES.

- a) Aviat Networks grants to Customer, and Customer hereby accepts, a nontransferable (except as expressly provided in this Article), nonexclusive, paid-up, royalty-free license to use Licensed Aviat Networks Programs solely in connection with the use of the Equipment purchased by Customer.
- b) If the Customer utilizes the Licensed Aviat Networks Programs with other Equipment, then an additional license fee may be assessed by Aviat Networks.
- c) The Licensed Aviat Networks Programs furnished with the Equipment shall be Aviat Networks' latest commercial generation available at the time of shipment of the Equipment, and Aviat Networks shall be under no obligation to supply updates to such Licensed Programs (as defined below) except where so stated in writing.
- d) In addition to the Licensed Aviat Networks Programs, other Software or documentation provided by Aviat Networks may originate from third party licensors ("Licensed Third Party Programs"), and may require that the terms of their respective licenses be accepted prior to use. Such license terms, if any, may be attached or may appear as part of the delivered or downloaded Software and may require acceptance by Customer prior to installation of the Licensed Third Party Programs. Third party licensors shall be deemed to be third party beneficiaries with respect to any Licensed Third Party Programs. The terms of the third party licenses shall be controlling with respect to any Licensed Third Party Programs provided hereunder.
- e) The term "Licensed Programs," as used herein, refers to both the Licensed Aviat Networks Programs and the Licensed Third Party Programs. Customer's license for the Licensed Programs shall be subject to the following additional rules:
 - i. Unless expressly stated, the Licensed Aviat Networks Programs are limited to object code programs and related documentation only and do not apply to any of the corresponding source code or program listings. Title in and to the Licensed Programs is and shall continue to be solely and exclusively vested in Aviat Networks and the third party licensors, as the case may be.
 - ii. Customer acknowledges that Aviat Networks and the third party licensors have and shall continue to have valuable intellectual property rights in the Licensed Aviat Networks Programs and the Licensed Third Party Programs, as the case may be, and that such intellectual property rights are and shall continue to be the sole and exclusive property of Aviat Networks or the third party licensors, as the case may be.
 - iii. Customer shall keep the Licensed Aviat Networks Programs confidential by affording access only to those of Customer's employees, agents, or consultants having a need to know. In addition, Customer shall employ reasonable measures to prevent any unauthorized use, copying, publishing, reproduction, or disclosure of the Licensed Aviat Networks Programs and shall not treat such with lesser care than Customer's own confidential information. Customer shall not make copies of the Licensed Aviat Networks Programs without the prior written permission of Aviat Networks.
 - iv. Customer may copy machine-readable Licensed Aviat Networks Programs to the extent reasonably necessary for normal use with the Equipment. All originals and copies of the Licensed Aviat Networks Programs shall be and shall remain the property of Aviat Networks.
 - v. Customer shall label each copy of the Licensed Aviat Networks Programs with the copyright, trademark, and proprietary notices, in the same form, which appear on the Licensed Aviat Networks Programs delivered to Customer by Aviat Networks. All copies of the Licensed Aviat Networks Programs, when not in use, shall be destroyed or maintained in a secure place within Customer's business premises under access and use restrictions compatible with this Article 13. Customer shall be deemed to own only the magnetic or other physical media in which the Licensed Aviat Networks Programs (original and all copies) are recorded.

**COUNTY CONTRACT NUMBER 547601
AGREEMENT WITH AVIAT U.S., INC. FOR
MICROWAVE NETWORK REPLACEMENT
EXHIBIT F – AVIAT NETWORKS SOFTWARE LICENSE**

- vi. The Licensed Aviat Networks Programs and Licensed Third Party Programs may be used solely in connection with the Equipment or Software system purchased by Customer and on which the Licensed Programs were originally installed. Customer may not rent, lease, assign, transfer, network, display, or distribute the Licensed Aviat Networks Programs except as specifically provided herein or in the third party license terms, nor may Customer reverse engineer, disassemble, decompile, modify, alter, translate, or adapt the Licensed Programs or create any derivative thereof, except as permitted by the option selections contained within the Licensed Aviat Networks Programs or as permitted in the third party license terms. The licenses granted herein to the Licensed Aviat Networks Programs exclude the use of any functionality resident in the software application, unless specifically identified in Customer's order. Customer agrees to not use any functionality which is not specifically identified in its order without first obtaining Aviat Networks' written consent to expand the license grant to cover such functionality.
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COUNTY CONTRACT NUMBER 547601 - EXHIBIT G

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78-3621-0150

EXHIBIT B

Statement of Work



EXHIBIT B

Statement of Work

DISPATCH SPUR LINK
OCEANSIDE ABBEY &
OCEANSIDE PD (CITY OF
OCEANSIDE POLICE
DEPARTMENT)
NA141112-33754

Release 3.0
03/12/2015

Issue Releases

Issue Number	Issue Release Date	Changes	Preparer
1.0	02/03/2015	Initial Release	James Ma Sheik Ali
2.0	03/11/2015	Revised	Sheik Ali
3.0	03/12/2015	Revised	Sheik Ali
4.0			

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1. EXECUTIVE SUMMARY

1.1. Purpose of Document

This Statement of Work (SOW) specifies the deliverables and defines the responsibilities and other relevant terms applicable to the planning and delivery of microwave and associated products from Aviat Networks and its partners, as well as the professional services required to engineer and implement the proposed solution for CITY OF OCEANSIDE POLICE DEPARTMENT.

Execution of the services listed in this SOW is governed by the terms and conditions of the signed contract between Aviat Networks and CITY OF OCEANSIDE POLICE DEPARTMENT. Neither party is obligated to provide any such services until the agreed contract is executed by both parties and an order has been placed for such services by CITY OF OCEANSIDE POLICE DEPARTMENT and accepted by Aviat Networks.

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This SOW only applies to DISPATCH SPUR LINK OCEANSIDE ABBEY & OCEANSIDE PD project proposed by Aviat Networks, and cannot be extended to other projects. Aviat Networks will provide the following services to CITY OF OCEANSIDE POLICE DEPARTMENT:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Project Management | <input checked="" type="checkbox"/> Network Engineering |
| <input checked="" type="checkbox"/> Transmission Engineering | <input checked="" type="checkbox"/> Project Engineering |
| <input checked="" type="checkbox"/> Configuration Engineering | <input checked="" type="checkbox"/> Drafting |
| <input checked="" type="checkbox"/> Factory Integration and Testing | <input checked="" type="checkbox"/> Antenna & Line Installation |
| <input checked="" type="checkbox"/> Radio and Network Equipment Installation | <input checked="" type="checkbox"/> Network Integration |
| <input type="checkbox"/> Civil Construction | <input type="checkbox"/> Consulting Services |
| <input type="checkbox"/> Site Acquisition | <input type="checkbox"/> A&E Services |
| <input checked="" type="checkbox"/> Prevailing Wages | |
| <input checked="" type="checkbox"/> Other: Warehousing and Antenna and transmission line removal; removal of existing equipment (e.g. transmitters, cables, antenna systems, etc.) that is not being reused in the new backhaul network. | |

Any required services or material not specified in this SOW, or in the County's SOW, will be provided by CITY OF OCEANSIDE POLICE DEPARTMENT, and will not be considered part of Aviat Networks' responsibilities. Any such service, if deemed possible by Aviat Networks, can be quoted and performed in accordance with the terms and conditions of the signed contract between Aviat Networks and CITY OF OCEANSIDE POLICE DEPARTMENT. Once approved, these agreed items will be added to the current SOW upon placement of a new or adjusted services purchase order. For a full list of Aviat provided equipment, please refer to the project's equipment list.

CITY OF OCEANSIDE POLICE DEPARTMENT and Aviat Networks acknowledge that meeting the planned project completion date requires the cooperation of said parties. Any changes requested by CITY OF OCEANSIDE POLICE DEPARTMENT before the design freeze date*, will be considered part of the design finalization phase of the project and not subject to a formal change order, IF the requested change falls within the original scope and hours of the project. Any changes requested by CITY OF OCEANSIDE POLICE DEPARTMENT after the design freeze date, will be subject to review by Aviat Networks and could result in a change order fee and/or a delay in material delivery to the field. * See Appendix B for more detail on the design freeze.

Completion and accuracy of all deliverables are subject to the integrity of the information gathered during the proposal, field surveys, final design phase, and the information provided by CITY OF OCEANSIDE POLICE DEPARTMENT pertaining to the existing system (if applicable). Aviat Networks will not be held accountable for validating the accuracy of the information provided by CITY OF OCEANSIDE POLICE DEPARTMENT. Any changes resulting from incorrect information provided by CITY OF OCEANSIDE POLICE DEPARTMENT or any CITY OF OCEANSIDE POLICE DEPARTMENT contracted party, will result in a change order and, if approved, will be charged to the CITY OF OCEANSIDE POLICE DEPARTMENT as a billable change order.

CITY OF OCEANSIDE POLICE DEPARTMENT furthermore agrees that any delays caused by inadequate site readiness for which CITY OF OCEANSIDE POLICE DEPARTMENT was responsible for, may prohibit Aviat Networks from meeting the project completion date and the date may require adjustment as a result of such delays. In the event of such delays, Aviat Networks and CITY OF OCEANSIDE POLICE DEPARTMENT will make a reasonable effort to resolve the issue and mutually agree on new project milestones.



Documents submitted by Aviat Networks to the CITY OF OCEANSIDE POLICE DEPARTMENT for approval shall be, first submitted to the County for review and thereafter submitted to the CITY OF OCEANSIDE, reviewed and approved in ten (10) working days from the date of receipt. If Aviat Networks does not receive comments and/or approval within this timeline, the Oceanside Police Department, the County and Aviat Networks representatives will meet and determine the best course for resolution.

1.3. Project Summary

Number of Hops	1	Number of Sites	2
Number of parallel RF Channels	0	Number of Sites	0
Radio Equipment Family	IRU600V3/Eclipse	Frequency Band(s)	11GHz
Link Capacity	50Mbps	Protection Type(s)	MHSB
Traffic Type(s)	Ethernet, T1	Project Locations	CA

1.4. Supporting Documents

The following documents will be provided by Aviat Networks in support of this project and must be reviewed, approved and/or signed off by CITY OF OCEANSIDE POLICE DEPARTMENT as part of the project completion. Although it is Aviat Networks' responsibility to provide the documents to CITY OF OCEANSIDE POLICE DEPARTMENT, it is CITY OF OCEANSIDE POLICE DEPARTMENT's responsibility to provide a signed copy of the documents to Aviat Networks before the final project completion.

	<u>Document</u>	<u>Master Document</u>	<u>Requires Customer Acceptance/Sign-off?</u>
Planning	Project Schedule	Project Schedule	Yes
	Statement of Work	This document	Yes
	Statement of Work Sign-off	This document	Yes
Design	DC Power Plant or DC System Plan	Design Freeze Package	Yes
	Design Freeze Package	Design Freeze Package	Yes
	Equipment List	Equipment List	Yes
	Frequency Datasheets	Path Survey Report	Yes
	Floor Plan	Installation Specifications	Yes
	IP Plan	Design Freeze Package	Yes
	NMS Plan	Design Freeze Package	Yes
	Path Calculations and Path Profiles	Path Survey Report	Yes
	Path Survey Report	Path Survey Report	Yes
	Rack Profiles and Wiring Diagrams	Installation Specifications	Yes
	Site Survey Report	Site Survey Report	Yes
	Synchronization Plan	Design Freeze Package	Yes
	System Layout	Design Freeze Package	Yes
Traffic Plan	Design Freeze Package	Yes	
Implementation	Antenna Installation Checklist	Installation Specifications	Yes
	Antenna Mounting Design	Installation Specifications	Yes
	Antenna System Audit Form	Installation Specifications	Yes
	As Built Record Sets	As Built Records	Yes
	Change Order Form	This document	Yes
	Equipment Installation Checklist	Installation Specifications	Yes
	Field Acceptance Test Plan	Installation Specifications	Yes
	Installation Specifications	Installation Specifications	Yes
	Injury and Illness Prevention	Installation Specifications	No
	Project Completion Sign-off	This document	Yes
	Punch List Completion Report	Installation Specifications	Yes
	Quality Checklists	Installation Specifications	Yes
	Site Installation Completion Report	Installation Specifications	Yes
System Installation Completion Report	Installation Specifications	Yes	



Traffic Cutover Plan
RF Cutover Plan

Installation Specifications
Installation Specifications

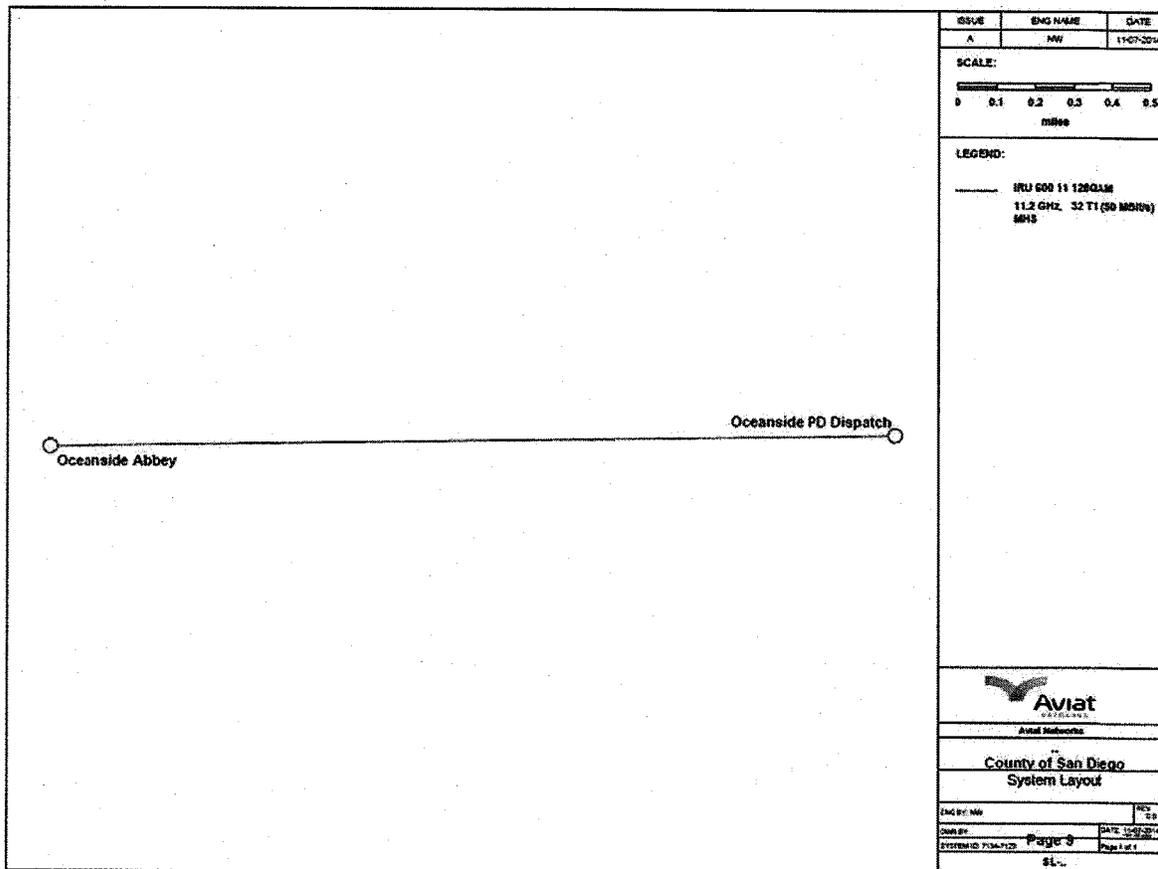
Yes
Yes

1.5. System Summary

Aviat has proposed the solution per customer's requirement.

In the proposal, one hop of equipment is proposed between OCEANSIDE ABBEY and OCEANSIDE PD.

Below is network topology.



Proposed main equipment is IRU600 Eclipse packet node (hereafter called Eclipse Radio or radio). This product consists of two major components, INUe (Intelligent Nodal Unit) and IRU600 (RF unit). Both are designed for indoor standard 19" rack mount.

Please note at Ocean Abbey, just two new RAC cards are proposed along with capacity upgrade key (from 50Mbps to 100Mbps). They will be plugged into the INUe chassis implemented in previous phase, to provide new RF connection to Oceanside PD.

11GHz MHSB protected radios are proposed. The capacity is 50Mbps with 128QAM modulation. The interface is T1 and Ethernet.

Ethernet demarcation point is the RJ45 ports on Ethernet switch. T1 demarcation point is RJ48 ports on patch panel, unless existing T1 cables do not reach new RJ45 interface panel, in which case Aviat will be responsible for running and labeling new T1 cables from RJ45 port to customer equipment.

All new antennas proposed are Category A, solid parabolic antennas. VHLP3-11W is proposed at OCEANSIDE ABBEY & OCEANSIDE PD

New waveguide and accessories are proposed for this new hop.

New dehydrator is proposed at OCEANSIDE PD. At Oceanside Abbey, existing dehydrator will be used for new waveguide run.

New Cisco 3650 switch is proposed at both Oceanside Abbey and OCEANSIDE PD. At Oceanside Abbey, the new switch will be connected to ASR903 routers implemented previously.

Siteboss550 from Asentria is proposed at OCEANSIDE PD. This device supports up to six service slots. Currently three slots are used in our design to provide following:

- 64 station alarm points
- 8 analog monitor alarm inputs

At Oceanside Abbey, a Siteboss550 has already been implemented in previous phase.

Siteboss550 is fully integrated into Provision NMS/EMS (provided in previous phase), which can be monitored via SNMP protocol. All the alarm connections are terminated on wall mounted M66 blocks.

28DS1 cross connect equipment and RJ48 patch panel are proposed at OCEANSIDE PD for T1 termination. At Oceanside Abbey, same equipment is already implemented in previous phase.

Aviat has proposed a DC power system at OCEANSIDE PD including 25Amp redundant C&D charger and GNB 105AH 20-year battery. The power equipment will be installed on existing battery rack. At Oceanside Abbey, existing power system will be used to cover the need of new equipment proposed.

All proposed electrical equipment except charger and battery will be installed on to 19"x7'6" seismic enhanced rack. At OCEANSIDE PD, new rack is proposed, at Oceanside Abbey, newly proposed equipment will be installed on existing rack.

1.6. Summary of installation, de-installation and test services

Installation of radios, lines, antennas, Cisco switches and alarm cabling.

Install Charger and batteries at Oceanside Dispatch PD, decommission existing batteries.

Test radios, Cisco switches, antenna alignment, line sweeps and traffic cuts during maintenance window.

Integration of new radios into ProVision NMS system.

Configuration of Cisco switches and integration into Cisco NMS/ACS Server.

Decommission of antennas, lines and radios.

Warehousing of equipment in San Diego County.

Aviat will store all de-installed equipment and will ultimately dispose of these items.

2. PLANNING AND DESIGN SERVICES AND RESPONSIBILITIES

2.1. Project Management

2.1.1. Project Management Services provided by Aviat

Assigns a Project Manager to manage the project	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Manages Civil construction	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

2.1.2. Project Management Responsibilities*

Planning:

Develop project schedule for Aviat Engineers	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Establish an action register	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Establish a communications plan	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Establish a change management plan	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Establish a risk management strategy	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Provide quality standards and procedures document, as listed in the response to RFP.	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Establish a resource management plan for Aviat resources	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Develop a responsibility matrix, detailing principle team members by function	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Provide details of CITY OF OCEANSIDE POLICE DEPARTMENT's principle team members by function and a single point of contact for Aviat	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Site access policies and procedures for Oceanside PD site (Note: All site visits and installations by Aviat will be accompanied by County employees)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Site/Building/shelter/enclosure access at Oceanside PD as required	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat

Execution:

Act as primary point of contact for CITY OF OCEANSIDE POLICE DEPARTMENT	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Finalizes project terms and scope with CITY OF OCEANSIDE POLICE DEPARTMENT	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Chair meetings to assign tasks, evaluate progress and address issues	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Coordinate Aviat Networks' day-to-day activities through to project signoff	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Monitor progress against the agreed-upon project milestones	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Report on progress as agreed to in the Communications Plan	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Ensure proper site readiness prior to the install start date	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Manage project risk through risk identification, quantification and mitigation	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Coordinate Aviat change orders until project completion	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Review quality checklists and photos for defects	<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Ensure the terms and conditions of the contract are complied with	<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

Closeout:

Manage project close-out activities	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Sign off on close-out activities and final deliverables	<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

2.1.3. Aviat Networks Project Management Deliverables

<input checked="" type="checkbox"/> Project Schedule	<input checked="" type="checkbox"/> Action Register
<input checked="" type="checkbox"/> Risk Management Strategy	<input checked="" type="checkbox"/> Communication Plan
<input checked="" type="checkbox"/> Change Management Plan	<input checked="" type="checkbox"/> Progress Reports (as required)

*Refer to **Appendix A (page 17)** for further details regarding the Project Manager's role.

2.2. Microwave Network Design

2.2.1. Network Design Services provided by Aviat

Equipment List	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Path Calculations and Path Profiles	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Rack Profiles and Wiring Diagrams	<input checked="" type="radio"/> Yes	<input type="radio"/> No
DS0 Traffic Plan	<input checked="" type="radio"/> Yes	<input type="radio"/> No
DS1/DS3/OC3 Traffic Plan	<input checked="" type="radio"/> Yes	<input type="radio"/> No
IP Traffic Plan	<input checked="" type="radio"/> Yes	<input type="radio"/> No
NMS Plan	<input checked="" type="radio"/> Yes	<input type="radio"/> No
DC power Plant (at Oceanside PD) or DC System Plan (Aviat to provide all DC loading requirements)	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Traffic Cutover Plan	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Field Test Plan	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Sites/Offices/Locations	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Provides copies of equipment datasheets/user manuals	<input checked="" type="radio"/> Yes	<input type="radio"/> No

2.2.2. Network Design Responsibilities*

Planning:

Microwave system requirements	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Existing traffic, IP and NMS plans	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Anticipated channel plan requirements	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Preliminary system design during or after initial proposal	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Preliminary path calculations for selected Aviat Network radios	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

Design:

Final equipment list	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Final path calculations and path profiles	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Site Specific Diagram (RP's and wiring diagrams)	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
DS0 traffic plans	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
DS1/DS3/OC3 traffic plans	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
NMS plan	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
DC power calculations	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Traffic cut-over plan and method of procedure	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Field acceptance test plan	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

Sign-off:

CITY OF OCEANSIDE POLICE DEPARTMENT sign-off on final network design (design freeze)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
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2.2.3. Aviat Networks Design Deliverables

- Equipment List
- Design Freeze Package

*Refer to **Appendix B (page 19)** for further details regarding the Network Design.



2.3. Microwave Path Design

Path Reliability	<input type="text" value="99.999"/> %	
BER	<input checked="" type="checkbox"/> 10 ⁻³	<input checked="" type="checkbox"/> 10 ⁻⁶
CITY OF OCEANSIDE POLICE DEPARTMENT exempt from FCC License Fee	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

2.3.1. Path Design Services provided by Aviat

Field Path Surveys	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Frequency Coordination	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
FCC Licensing	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
RF Interference Paper Study	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
RF Field Measurements (No actual measurement of level of interferences on site using test equipment like a spectrum analyzer is proposed. However the absence of degradation which could be caused to the new system by unexpected interference will be verified by performing fade margin test on each hop).	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

2.3.2. Path Design Responsibilities*

Planning:

Documents relating to tower or structural analysis and drawings, if available for County owned towers.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Documents relating to previous path surveys and frequency coordination, if available.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Path clearance objective for each path	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

Design:

Path surveys to confirm path reliability objectives	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Site elevation and coordinates	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Existing antenna mounting structure description and information (tower type), if available.	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Existing building description and information, if available, for County owned sites.	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Site plan (drawing with major landmarks for location purposes), if available, for County owned sites.	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Final path calculations and path profiles for each hop	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Identify locations of possible sources of spectral reflection	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Information concerning possible obstructions or obstacles	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Recommend antenna size, type and mounting height	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Radio frequency coordination	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Tower permit application (where applicable)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Prepare and submit FCC License Application (where applicable – Form 601)	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Prepare and submit environmental impact data (Environmental Impact Statements to comply with the National Environmental Policy Act NEPA, as required for new constructions at sites. Not applicable to this project where we are replacing existing equipment).	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
File FCC construction completion notice	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

Sign-off:

Approve recommended antenna size, type and mounting height	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
CITY OF OCEANSIDE POLICE DEPARTMENT sign-off on final path design	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat

2.3.3. Aviat Networks Path Design Deliverables

- Microwave Path Survey Report
- Frequency Datasheets

*Refer to **Appendix C (page 20)** for further details regarding the Path Design.



2.4. Microwave Site Design

2.4.1. Site Design Services provided by Aviat

Field Site Surveys (completed)	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Floor plan for Aviat Installation Scope	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Traffic Cutover Plan	<input checked="" type="radio"/> Yes	<input type="radio"/> No
RF Cutover Plan	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Field Acceptance Test Plan	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Installation Specifications	<input checked="" type="radio"/> Yes	<input type="radio"/> No

2.4.2. Site Design Responsibilities*

Planning:

Documents relating to tower or structural analysis and drawings, if available	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
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Design:

Site surveys	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Existing tower description and information (tower type)	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Existing building description and information	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Site plan (drawing with major landmarks for location purposes), OPD Only (Not Abbey), if available	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Flooring, ceiling, racking data and requirements to mount new hardware	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
All power, (as is and to be), and breaker assignments	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
All power calculation worksheets	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Recommendation for placement of new equipment	<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Identify and define antenna mounting hardware	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Identify any grounding issues and recommend improvements	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Identify demarcation types and location between new and existing equipment	<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Existing waveguide dehydrator information and their associated cabling.	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

2.4.3. Aviat Networks Site Design Deliverables

- Microwave Site Survey Report
- Traffic Cutover Plan
- RF Cutover Plan
- Field Acceptance Test Plan
- Installation Specification

*Refer to **Appendix D (page 24)** for further details regarding the Site Design.



3. Installation, Integration & Testing

3.1. Installation Services provided by Aviat

Tower installation	<input type="radio"/> Yes	<input type="radio"/> No
Antenna system installation	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Transmission line installation	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Shelter installation	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Indoor equipment and rack installation	<input checked="" type="radio"/> Yes	<input type="radio"/> No
AC power equipment and/or ground installation	<input type="radio"/> Yes	<input checked="" type="radio"/> No
DC Power Equipment (at Oceanside PD)	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Ground Installation (Aviat will tie into the existing internal ground systems)	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Antenna alignment	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Equipment Decommissioning	<input checked="" type="radio"/> Yes	<input type="radio"/> No

3.2. Integration Services provided by Aviat

Microwave equipment integration	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Dehydrator integration	<input checked="" type="radio"/> Yes	<input type="radio"/> No
NMS integration	<input checked="" type="radio"/> Yes	<input type="radio"/> No

3.3. Testing Services provided by Aviat

Station test	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Hop test	<input checked="" type="radio"/> Yes	<input type="radio"/> No
System test	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Traffic cutover	<input checked="" type="radio"/> Yes	<input type="radio"/> No
RF Cutover	<input checked="" type="radio"/> Yes	<input type="radio"/> No

3.4. Installation, Integration & Testing Responsibilities*

General Project Responsibilities:

Access to sites in accordance with the project schedule (County will coordinate access and provide escort)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Normal road access for all project related vehicles	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Transport of Aviat Networks supplied equipment to the warehouse	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Transport of Aviat Networks supplied equipment to sites	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Crane use fee as necessary for antenna installation – Not applicable	<input type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Transport of Aviat Networks personnel to and from sites	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Safety and first aid material and supplies to Aviat Networks personnel	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

Site & Civil Services:

Structural analysis report for the existing antenna system (OPD only, Not Abbey)	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Secure storage for all equipment including radios, antennas and racks	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Standard equipment packaging	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Unpack Aviat Networks equipment and remove packing material from site	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Verify packing list to specifications	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

Installation Services:

Tower Installation:

Adequate earth ground in accordance with EIA/TIE standard 222G (Aviat will depend on this level of grounding to properly install the waveguide ground	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
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kits)

Antenna System Installation:

- Provide and install specialized antenna mounts, if required Customer Aviat
- Provide and install any required steel support members for side braces Customer Aviat
- Mount antennas on existing mounts Customer Aviat
- All RF/Microwave antenna mounting brackets Customer Aviat
- Use existing antenna feeder window/bridge and cable tray supports Customer Aviat
- Antennas and radomes at specified centerlines Customer Aviat
- Ice shields at specified locations, if required Customer Aviat

Transmission Line Installation:

- Waveguide ladders Customer Aviat
- Provide and install hanger kits and ground kits Customer Aviat
- Provide and install waveguide boots at waveguide entry plates Customer Aviat
- Terminate and label waveguide runs Customer Aviat

Indoor Equipment and Rack Installation:

- Provide and install cable ladders or trays Customer Aviat
- Provide and install new racks in specified locations Customer Aviat
- Provide and install bracing supports Customer Aviat
- Provide and install pressurization equipment Customer Aviat
- See dehydrator

AC/DC Power Equipment and/or Ground Installation:

- Provide and install DC circuit breakers to support Aviat Networks equipment Customer Aviat
- Provide and install charger and battery into charger rack at Oceanside PD Customer Aviat

Field Integration Services

- Integrate Aviat Networks microwave equipment Customer Aviat
- Integrate rack ground to ground distribution in shelter Customer Aviat
- Integrate DC wiring to specified distribution panels Customer Aviat
- Integrate payload wiring to designated demarcation Customer Aviat
- Integrate Ethernet wiring to designated demarcation Customer Aviat
- Integrate alarm contacts to designated demarcation Customer Aviat
- Connect radio antenna ports to waveguide flex sections Customer Aviat
- Set dehydrator pressure to 4psi Customer Aviat
- Install and Integrate NMS software into customer's radio network Customer Aviat
- Customer equipment
- Customize NMS alarm designations Customer Aviat

Testing Services:

- Review and approve Aviat Field Acceptance Test plan Customer Aviat

Station Test:

- Perform grounding inspection Customer Aviat
- Perform equipment inspection Customer Aviat

Hop Test:

- Perform antenna system test Customer Aviat
- Aviat to measure return loss of waveguide terminated at antenna within antenna freq. range Yes No
- Aviat to verify airtightness, by turning pressurization valve off during 4 hours and measuring pressure drop on each line (should be less than 1 PSI). Yes No



Perform microwave equipment test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform transmit power output test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform receive signal level test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform receiver threshold (fade margin) test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform transmitter/receiver switching test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform adaptive modulation test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform Ethernet test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform AUX alarm/data card test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform dehydrator test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform 1-hour BER test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
<u>System Test:</u>		
Perform loop protection test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform network continuity test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform Provision element manager test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform 12-hour BER test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform 4-hour diversity BER test	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
<u>Traffic/RF Cutover:</u>		
Provide technical personnel familiar with existing equipment and cutover plan	<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Schedule cutover of all complete once a transition plan has been completed, reviewed by the County, and signed off by OPD following installation and commissioning of each hop	<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Transfer circuit wiring	<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Verify integrity of circuits being cutover	<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform RF cutover	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform traffic cutover - Aviat to do physical cutover, customer to provide pre-coordination and post cutover verification that all circuits are functioning (joint effort)	<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Final Site Acceptance Procedure		
Notify all parties involved of site completion	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Perform site installation inspection, along with County	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Complete indoor quality checklist	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Complete tower quality checklist	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Submit final punch list of all deficiencies to be corrected to Aviat, along with County	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Identify all critical punch list items, along with County	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Review, agree and sign off on final punch list, along with County	<input checked="" type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Sign off on Aviat Networks site installation checklist form	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Final System Acceptance Procedure		
Sign off on Aviat Networks field acceptance test results, after review by County	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Resolution of customer vendor issues affecting completion or project	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Sign off on Aviat Networks installation completion report	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Sign off on project acceptance based on acceptance criteria of project	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Aviat
Issue final invoice for services upon acceptance of the system	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat
Provide as-built drawings for Aviat provided equipment	<input type="checkbox"/> Customer	<input checked="" type="checkbox"/> Aviat

3.4.1. Aviat Networks Installation, Integration & Testing Deliverables

- Site Installation Completion Report

- Quality Checklists
- System Installation Completion Report
- Field Acceptance Test Report (completed)
- Punch List Completion Report
- As-built Record Sets

*Refer to **Appendix E (page 25)** for further details regarding the Installation, Integration and Testing Services.



4. APPENDIX A: PROJECT MANAGEMENT

Responsibilities

Aviat Networks will assign a Project Manager for the duration of the project to administer all aspects of the contract between Aviat Networks and CITY OF OCEANSIDE POLICE DEPARTMENT. The Project Manager will act as the primary point of contact for CITY OF OCEANSIDE POLICE DEPARTMENT to facilitate effective resource management, escalations, approval processes, scheduling, communication, and reporting with Aviat Engineers and other designated vendors as needed. The Project Manager is responsible for maintaining control of the project and assuring compliance with the project and customer specifications. Aviat Networks will not be responsible for the resolution of CITY OF OCEANSIDE POLICE DEPARTMENT vendor issues affecting the completion of the project. Any documentation and standards not listed in this or the County's, SOW will be the responsibility of CITY OF OCEANSIDE POLICE DEPARTMENT to provide or it will default to Aviat Networks standards, where applicable. Where there is a conflict or omission of documentation and standards between this document and the CITY OF OCEANSIDE POLICE DEPARTMENT SOW, the CITY OF OCEANSIDE POLICE DEPARTMENT SOW supersedes this document.

Although face-to-face communication and on-site meetings with CITY OF OCEANSIDE POLICE DEPARTMENT are an essential element of the service, in order to reduce travel and living costs activities that do not require face to face contact, some activities will be performed in the Project Manager's Aviat Networks office. These activities are at the discretion of the Project Manager. Refer to section 2.1.2 (page 9) for a full list of Project Management Responsibilities.

Project Schedule

The project schedule for Aviat Engineers, Aviat sub-contractors, and for CITY OF OCEANSIDE POLICE DEPARTMENT's supporting vendors will be developed and maintained in Microsoft Project and will identify project deliverables, key milestones, resource assignments, and track project progress against each milestone. CITY OF OCEANSIDE POLICE DEPARTMENT and Aviat Networks agree to collaboratively review and agree to the project milestones and deliverable dates prior to the execution of any services on the project. A copy of the project schedule will be available upon request in .pdf or .mpp format.

It will be the responsibility of CITY OF OCEANSIDE POLICE DEPARTMENT to track and deliver against all CITY OF OCEANSIDE POLICE DEPARTMENT internal (including CITY OF OCEANSIDE POLICE DEPARTMENT sub-contractors) milestones. The overall project plan generated by the Aviat Networks Project Manager will show major deliverable milestones, but not internal milestones of CITY OF OCEANSIDE POLICE DEPARTMENT or their contractors. Tracking of CITY OF OCEANSIDE POLICE DEPARTMENT and CITY OF OCEANSIDE POLICE DEPARTMENT's contractor internal milestones will remain the responsibility of the CITY OF OCEANSIDE POLICE DEPARTMENT Project Manager or point of contact.

Communications Plan

Establishment of a communications plan will be done in accordance with the principles of Project Management established by the Project Management Institute (PMI®) unless otherwise agreed to. The plan will involve representatives from Aviat Networks and CITY OF OCEANSIDE POLICE DEPARTMENT and any other affiliated members (if required) for project kickoff meetings, periodic progress meetings, or problem escalations as needed. The plan will include the location and frequency of any such meetings, the format for formal communication and meeting minutes, attendee or distribution lists with contact details, methods of communication, and escalation and management level lists.

CITY OF OCEANSIDE POLICE DEPARTMENT will make appropriate staff available for regular consultation and meetings with the Aviat Networks Project Manager. Failure to attend regular meetings or respond to Aviat Networks questions in a timely manner could result in a delay of the project deliverables.

Change Management Plan

Establishment of a change management plan will be done in accordance with the principles of Project Management established by the Project Management Institute (PMI®) and will include confirmation from Aviat Networks and CITY OF OCEANSIDE POLICE DEPARTMENT's understanding of the process. Each party will work closely with the other to manage any scope changes through the term of the project, and understand their impact on the project performance from a cost, quality, and schedule perspective. Any such change could be subject to a change order fee and will be communicated to and agree to by CITY OF OCEANSIDE POLICE DEPARTMENT prior to the implementation of the change. Any change order approvals will be submitted in writing. Refer to section 1.2 and Appendix B (page 19) for more details on change orders.

Quality Standards and Procedures

Quality standards and procedures documents will be provided by CITY OF OCEANSIDE POLICE DEPARTMENT unless otherwise stated in this SOW. If no documentation is provided by CITY OF OCEANSIDE POLICE DEPARTMENT, the standards and procedures will default to Aviat Networks Best Practices Guide.

Resource Management Plan

Establishment of a resource management plan will be done in accordance with the principles of Project Management established by the Project Management Institute (PMI®); identifying principle team members by function, including backup resources (if required).

Closeout Activities

During the project closeout, all quality photos will be reviewed, completion documents will be signed with no exceptions, RMA completed, and final billing and invoicing released. It is recommended that CITY OF OCEANSIDE POLICE DEPARTMENT provide Aviat Networks with performance feedback during this time to promote continuous improvement within Aviat Networks.

CITY OF OCEANSIDE POLICE DEPARTMENT Responsibilities

CITY OF OCEANSIDE POLICE DEPARTMENT shall:

- Provide details of CITY OF OCEANSIDE POLICE DEPARTMENT's principle team members by function during the project kickoff meeting.
- Provide details of CITY OF OCEANSIDE POLICE DEPARTMENT's single point of contact for Aviat during the project kickoff meeting.
- Provide all other relevant documentation or resources to assist in gathering information not stated in this SOW.
- Provide access to sites, shelters, buildings, enclosures, facilities or any other areas as required.
- Provide updates as necessary of any site readiness issues to be resolved prior to start of work. This includes, and is not limited to, permitting, leasing, zoning, insurance, etc.
- Provide security clearances and/or escorts as required for field survey and installation activities.
- Provide access to pertinent databases, planning requirements, including strategic plans, expansion scenarios, growth projections, introduction of new services and wireless technology

Deliverables

Refer to section 2.1.3 (page 9) for a full list of Aviat Networks Project Management deliverables.

5. APPENDIX B: NETWORK ENGINEERING

Microwave System and Network Design

The Aviat Networks Network Engineer will provide the overall technical direction of the system design and will work with CITY OF OCEANSIDE POLICE DEPARTMENT to insure system integrity, verify that all sub-systems and Aviat Networks furnished OEM equipment is compatible, and that the desired performance of the system is realized. Aviat considers this a collaborative effort between Aviat and Oceanside PD, with cooperation of County Sheriff's technical staff.

The Network Design portion of the project consists of three phases:

1. Preliminary Design
2. Final Design
3. Design Freeze

Preliminary Design Phase

During the Preliminary Design Phase, the Network Engineer will gather data to establish the design criteria and any special customer requirements that need to be incorporated into the final design. The Network Engineer will review and translate the system configuration into specific hardware requirements. Equipment selection will be based on the requirements, input and requests from CITY OF OCEANSIDE POLICE DEPARTMENT, functionality of the equipment, and recommendations from the Aviat Network Engineer. Aviat Networks will provide CITY OF OCEANSIDE POLICE DEPARTMENT with a summary of the preliminary system design prior to commencing field surveys. All preliminary designs are subject to change. Changes can include, but are not limited to changes based on:

- Survey results.
- Vendor shortages or long lead times.
- Customer requests.
- Engineering recommendations.

Design Finalization Phase

After receipt of the order and the project kickoff meeting, Aviat Networks and CITY OF OCEANSIDE POLICE DEPARTMENT enter into the Design Finalization Phase. During this phase, the Network Engineer will incorporate any required changes stemming from the path and/or site surveys into the design and confirm the final design details. Changes can include but not limited to:

- Antennas (types, sizes, models, quantities, and mounts).
- Waveguide (types and lengths), waveguide accessories and dehydrators.
- Power systems, cabling, and other material that could not be finalized prior to conducting the field surveys.

During this phase, CITY OF OCEANSIDE POLICE DEPARTMENT may also request changes to the system design if the changes fall within the original scope and hours of the projects. Any changes outside of the original scope or agreed schedule are subject to review by Aviat Networks to determine the impact and cost on the overall project.

Aviat Networks will provide a formal submission detailing the final system design and equipment list and highlight changes needed to the preliminary design. It is expected that CITY OF OCEANSIDE POLICE DEPARTMENT review the data and schedule a meeting, if necessary, to discuss any concerns. If no concerns are noted, it is CITY OF OCEANSIDE POLICE DEPARTMENT's responsibility to approve the final design in writing (email is acceptable) before the design is frozen and equipment is placed on order (unless otherwise agreed to in the terms and conditions or with the assigned Program Manager). Any delay in the approval of the final design could result in a delay in material delivery to the field. This might require a review by CITY OF OCEANSIDE POLICE DEPARTMENT and Aviat Networks of the project schedule and deadlines. This paragraph is superseded by the County's SOW, Sections 1.10 and 1.11.

Design Freeze Phase

As part of the Design Finalization Phase, a date will be set for the design freeze at which the final design and all changes must be approved and accepted by both parties. Following the design freeze will be the Design Freeze Phase during which the Network Engineer will review all design documents and finalize any traffic plans, NMS plans, synchronization plans (not required for proposed solution), traffic cutover requirements, and field acceptance testing requirements for the project. During this phase, the design is frozen and no further changes to the system design will be accepted without a formal change order (billable or non-billable) and reevaluation of the project and delivery schedules. Refer to the project schedule for details on the planned start and finish dates for each of these phases.

Deliverables

Refer to section 2.2.3 (page 10) for a full list of Aviat Networks Design deliverables.

- Equipment List refers to the final Bill of Material (BOM).
- Design Freeze Package refers to the final path calculations, path profiles, rack profile and system drawings, traffic plans, IP plans, NMS plans, and/or DC power calculations.

6. APPENDIX C: TRANSMISSION ENGINEERING

Microwave Path Design

The Aviat Networks Transmission Engineer ensures the delivery of the best possible network solution by providing the technical direction for the over-the-path RF performance of Aviat Networks system implementation. All microwave paths designs are preliminary, pending final path surveys and frequency coordination. This includes:

- Antenna selections, antenna centerlines, and antenna mounts.
- Total transmission line lengths.
- Path calculations and profiles.
- The size, type, quantity and configuration of each component.

Equipment proposals are simply a reflection of these preliminary designs and subject to change. It is further understood that any changes to existing or proposed antenna centerlines could justify the need for tower stress analysis or, if modification is impractical, construction of a new tower. Any such requirements will be the responsibility of CITY OF OCEANSIDE POLICE DEPARTMENT unless stated otherwise in the terms and conditions of the signed contract between Aviat Networks and CITY OF OCEANSIDE POLICE DEPARTMENT.

In the event that Aviat Networks is selected to perform the path surveys, a formal submission detailing the results of the path survey and highlight changes needed to the preliminary design will be submitted to CITY OF OCEANSIDE POLICE DEPARTMENT. It is expected that CITY OF OCEANSIDE POLICE DEPARTMENT review the path survey data and schedule a meeting, if necessary, to discuss any concerns or alternate means of providing path continuity/system reliability. If no feedback is received from CITY OF OCEANSIDE POLICE DEPARTMENT before the final system design approval, Aviat Networks will assume CITY OF OCEANSIDE POLICE DEPARTMENT's acceptance of the survey data, and will immediately proceed with frequency coordination (if applicable). It is understood that the County will review and approve Aviat's path survey report prior to the final system design freeze.

Microwave Path Survey, Frequency Planning and Licensing

The microwave path survey is intended to:

- Identify geographical location of sites and antenna, waveguide length and tower requirements.
- Verify path clearance objectives for each of the paths from existing or new tower locations.
- Document obstruction, critical points, and reflection points in each of the paths.
- Verify tower coordinates and site elevations.
- Establish coordinates and height requirements for new towers, as needed for governmental agency registration and licenses (typically filed by CITY OF OCEANSIDE POLICE DEPARTMENT).
- Confirm antenna centerlines and waveguide length requirements. Catalog antennas on the existing structures noting any space limitations in the survey report. An engineer will review the tower for new antenna design space limitations specific to this project only but will not perform a complete tower audit.
- Perform frequency coordination based on available FCC records to reduce the potential for interference between internal or external radio sources on a given system or network.
- Aviat Networks, upon receipt of CITY OF OCEANSIDE POLICE DEPARTMENT's authorization, will prepare the FCC License Application Form 601 with the appropriate technical data. Information such as site location, radio type and frequency will be listed. Aviat Networks will complete and submit the Construction Complete Form 601 on line via FCC Universal Licensing System (ULS).
- File Antenna Structure Registration (ASR) form for towers over 200 feet.

The results of the survey will be utilized by Aviat Networks for preparation of final performance calculations, frequency coordination, government licensing, and tower registration requirements.

Survey Procedures

Preliminary path profiles are drawn based on the supplied site coordinates and contour information extracted from the best available topographic mapping. A field site survey is conducted to verify site coordinates and elevations based on North American Datum 1983 (NAD83) and gather information related to the proposed radio equipment and antenna locations, site access, and site development constraints. A field path survey is then conducted to verify path profile elevations, measure all natural and manmade potential obstructions and assess the reflective potential of all natural and manmade surfaces. Antenna centerline heights were calculated for the proposed frequency band by applying suitable clearance criteria based on the propagation characteristics of the geographic area. The path survey report is considered to be a representation of the information gathered in the field and as such, reflects a snap-shot in time at the time of the survey. It is not intended to show the final as-built configuration if any of the parameters were changed or updated after the survey report has been released.

Path calculation sheets are then generated for each hop, based upon the recommended centerline heights. Antenna sizes and the choice of propagation protection diversity are chosen to meet the required fade margin and the desired path propagation reliability. Propagation outage and reliability calculations are based on the Vigants model (ref. "Space Diversity Engineering", BSTJ, 1/75).

Design Criteria

Path clearance criteria must be established for each path on the basis of total system performance objectives, economic considerations, and careful analysis of local atmospheric conditions derived from published climatological data, where available, and reported microwave transmission experience pertinent to the area. Antenna heights much greater than actually needed because an unwarranted increase in system cost, and on paths with significant ground reflections, this can increase the exposure to multipath and ground reflection signal fading. It is desirable to locate the antennas high enough so that even under severe super-standard atmospheric refractive conditions (surface ducting) there is adequate clearance such that signal entrapment does not significantly degrade the fade margin of the path or generate excessive multipath fade activity. The choice of clearance criteria for a microwave path is a balance between cost and performance.

The path clearance criterion as applied to a given geographic area is a function of the degree and direction of atmospheric beam bending and can conveniently be defined by the equivalent earth radius K factor:

$$K = \frac{\text{Effective Earth's Radius}}{\text{Actual Earth's Radius}}$$

The Median Propagation value of $K = 4/3$ allows the normal microwave horizon to be slightly extended when compared to the optical horizon; however, under certain meteorological conditions (for example, during nighttime super-refractivity usually associated with temperature inversions) the value of K increases to 2 or greater for periods of several minutes to several hours. This increases the path clearance and results in the heavy multipath fade activity seen on some reflective paths and antenna decoupling power fading on others.

Clearance Criteria

The criteria used to design a radio path in regions where the C-factor is equal to or less than 1:

- Main to Main:
 - 100% first Fresnel zone radius over $K=4/3$, or
 - 60% first Fresnel zone radius over $K=1$, whichever is greater
- Main to Diversity:
 - 60% first Fresnel zone radius over $K=4/3$ (Not Applicable)

The criteria used to design a radio path in regions where the C-factor is greater than 1:

- Main to Main:
 - 100% first Fresnel zone radius over $K=4/3$, or
 - 30% first Fresnel zone radius over $K=2/3$, whichever is greater
- Main to Diversity:
 - 60% first Fresnel zone radius over $K=4/3$ (Not Applicable)

Microwave path performance calculations and warranties

The microwave path design models most frequently employed within the industry (e.g., Vigants, and ITU-R P-530) provide a reasonably accurate (and therefore usually guaranteed) estimate of the cumulative time a path will be out of service due to random atmospheric multipath fading under normal atmospheric conditions. **These models do not (and cannot) accommodate abnormal, unusual, anomalous, or otherwise unpredictable conditions of weather or atmospheric refractivity.**

Microwave frequency engineering/inter-system interference analysis

Aviat Networks will partner with Comsearch, a CommScope company, to provide cost-effective frequency planning and FCC licensing services for radio communications systems (if required). The planning software used, considers specific operating parameters of both the proposed microwave system and the environment microwave systems (license and proposed) to properly consider the interference potential of the new path or system. Parameters and data elements incorporated into the modeling include, but are not limited to:

- Antenna type, antenna height, elevation, antenna radiation pattern.
- Receiver filter performance.
- Terrain.
- Radio modulation.
- Path orientation
- Receiver threshold

These elements are required to accurately predict specific interfering levels into and from the existing microwave systems. The accuracy of the calculations is ensured by "real time" maintenance of the Comsearch point-to-point microwave, earth station, radio equipment, antenna, interference objective, and contact database.

Microwave frequency selection

The interference analysis performed on the microwave system identifies available frequencies considering existing and proposed systems found in the Comsearch database. When applicable, an analysis of the systems in the adjacent bands can be done to ensure the microwave system does not receive unwanted threshold degradation. In bands shared with satellite systems, an analysis

of potential interference with earth stations and with the geo-stationary satellite orbit can also be done. Additionally, co-located or nearby transmitters already licensed in the required frequency band can be identified in order to reduce the possibility of "bucking" an existing high/low frequency plan that could increase the possibility of receiver overload or reflective interference from a nearby system.

Microwave frequency coordination and FCC licensing

The majority of microwave bands subject to FCC Rule Part 101 require prior coordination with existing licensees. Aviat Networks will partner with Comsearch to perform the frequency coordination and FCC licensing on behalf of the customer (if required). The procedure will include notification of the technical parameters of the proposed system to all existing and proposed licensees in the area and frequency band of operation. Frequency coordination will also be performed with Canadian and Mexican authorities in border areas when necessary. By FCC rule, recipients are given 30 days to respond, or in some cases an expedited response can be requested.

Upon completion of the prior coordination process, documentation required to satisfy FCC Rule Part 101.103 (d) can be prepared on behalf of the customer. This will include any necessary exhibits, including Supplemental Showings required upon submittal of the requested license application. The FCC filing process includes:

- Filing of the FCC Form 601 microwave application upon written approval from the customer and providing an electronic copy of the application to the customer via email.
- Tracking the status of the application until the license is granted by the FCC. Amendments will be handled expeditiously on behalf of the customer for any questions or concerns from the Commission.
- Email notifications to the licensee when the license is granted by the FCC.
- Filing of the required "Completion of Construction" notification with the FCC upon written approval from the licensee and notification of the filing via email.

Special Considerations

On all microwave radio paths traversing urban areas there exists the possibility of multiple on- and off-path structural reflections which generate long-delayed echoes, as well as "terrain scatter" RF intra- and inter-system interference. Long delayed, low-level echoes have no effect on digital radio performance; however, the terrain scatter mechanism cannot be accurately predicted nor precisely measured without an extensive and expensive field trial. Consequently, this mechanism is specifically excluded from all current industry-wide path survey and frequency coordination performance guarantees.

The structure supporting the microwave antenna can take many forms. The antenna is most often mounted on a tower, but can be mounted on a variety of structures such as roof tripods, penthouse wall, wooden telephone pole or metal monopole. It is recommended that the customer or end user conduct a structural analysis of the support structure to determine if the structure will support the additional loading imposed by the antenna and its mount. The structure must also meet the twist and sway requirements per EIA/ANSI 222G. This can be discussed further, in face to face meetings, but Aviat cannot assume responsibility for the structural integrity of a County or non-County owned structure without a formal analysis being performed.

Site Access

Access to Oceanside Police Department work site will be made available by CITY OF OCEANSIDE POLICE DEPARTMENT for a minimum of 10 hours per day, 6 days per week or per the agreed schedule in the project plan. All roads leading to work sites shall not require more than a 4-wheel drive vehicle unless stated otherwise and agreed to by both CITY OF OCEANSIDE POLICE DEPARTMENT and Aviat Networks. Any delays or additional cost caused by poor road conditions or site access issues not discussed prior to the start of the surveys will be billed to CITY OF OCEANSIDE POLICE DEPARTMENT as a billable change order and could have a negative impact on the project completion schedule.

FCC Rules for Filing Accuracy

CFR 47, Part 1.929 specifies that filing accuracy for site coordinates shall be (+/-) 1" latitude and longitude, and for ground elevation (+/-) 1 meter (3.28 ft.). Part 1.929(k) (covering modification of FCC licenses) specifies that any change in site coordinates >5" latitude or longitude shall require prior authorization [re-coordination]. Therefore, wherever our survey results deviate more than (+/-) 5" latitude or longitude, or more than +3.28 ft. site elevation, frequency re-coordination will be recommended.

Terms and Conditions

When Aviat Networks performs reliability calculations or path studies (path profiles from mapping or digitized data only) based solely on information supplied by or on behalf of the Customer, these calculations and studies are provided solely for budgetary purposes and shall not be construed as or be used for an installable design.

When conducting a path survey, Aviat Networks will verify site coordinates and ground elevations, and record trees and man-made fixed obstructions on the path. This information will be recorded on the profile for that particular path. Aviat Networks will assign an appropriate growth factor to tree heights.

When Aviat Networks performs frequency planning based, in part or its totality, on data provided by the Customer at the time of the study, Aviat Networks will not be responsible for any interference case that might arise due to errors or omissions in such data. As the usage of microwave bands increase and there is more sharing with satellite services, it may be necessary to perform frequency

interference studies and additional path surveys (to determine blockage) to alleviate the possibility of interference from satellite earth stations.

Warranty of Path Engineering Services

Aviat Networks warrants that the installed radio communication path will conform to Customer's multipath performance reliability objectives. This warranty is for a period of one year from the date of final acceptance the microwave path, whichever expires first. All Aviat Networks field activities and path propagation analysis will utilize current hardware, software, engineering practices and judgment with the goal of meeting normal Path Loss, as defined in TIA/EIA Standard RS-252-A.

Aviat Networks is not responsible for paths that it does not survey, nor for changes in path design beyond those specifically allowed in the path survey report or in writing after the field survey is completed, including but not limited to:

- Any change in path design;
- Any movement in site locations;
- Any building or other structure built on-path after date of survey;
- Any disturbance of the terrain which may cause blockage or reflection;
- Any additional frequency interference source;
- Any change of available antenna mounting space on tower.

Any one of the changes listed above will nullify this warranty, and the Customer shall in such case bear the total cost of determining that such change was the cause.

Aviat Networks will not be responsible for degraded path performance when such degradation is due to such anomalous propagation conditions as:

- Long-term loss of fade margin due to antenna decoupling misalignment caused by widely-varying k-factor changes;
- Long-term loss of fade margin due to Atmospheric Boundary Layering ("ABL") causing wave front defocusing (beam spreading), signal entrapment (blackout fading), ducting, and other such occurrence.
- Excessive rain outage rates beyond the published crane and/or chart data used in the calculation;
- Degradation resulting from certain types of multipath interference attributed to unidentifiable off-path terrain features or structures;
- Any other technological or atmospheric condition not foreseeable through the exercise of prudent engineering knowledge and judgment.

Additionally, Aviat Networks will not be responsible for degraded path performance when:

- Non-Aviat Networks radio equipment is installed on a surveyed path;
- Aviat Networks radio equipment is not installed by Aviat Networks;
- Existing antenna and waveguide system is used without test and inspection performed by Aviat Networks.

Aviat Networks designs the microwave path based upon best engineering practices and standards common to the industry, and it selects a transmission configuration based upon the most economical method for meeting the path performance objectives. When path loss or reliability objectives are not achieved, exclusive of anomalous propagation or path changes as described above, then Customer's sole remedy, and Aviat Networks' exclusive liability in connection with path engineering, shall be that Aviat Networks will provide incremental labor and material to optimize the antenna system beyond what would have been required during initial installation.

Where anomalous propagation is suspected in an installed microwave path, Aviat Networks will work with the Customer to obtain reasonable evidence that such condition exists. The total retroactive costs for such study shall be the responsibility of the Customer with Aviat Networks providing in-office engineering support. The cost of relocating towers, antennas, passive reflectors or other measures required to remedy this type of problem shall solely be the responsibility of the Customer.

Limitations

The foregoing warranties are in lieu of all other warranties whether oral, written, expressed, implied, or statutory. In particular, THE IMPLIED WARRANTIES OF FITNESS FOR PARTICULAR PURPOSE AND MERCHANTABILITY ARE HEREBY DISCLAIMED and shall not be applicable, either from Aviat Networks or any other equipment or software manufacturer. Aviat Networks' warranty obligations and Customer's remedies thereunder are solely and exclusively as stated herein. IN NO CASE SHALL AVIAT NETWORKS BE LIABLE FOR INDIRECT KINDS OF DAMAGES, INCLUDING BUT NOT LIMITED TO SPECIAL, INCIDENTAL, AND CONSEQUENTIAL DAMAGES, OR LOSS OF CAPITAL, REVENUE, OR PROFITS. In no event shall Aviat Networks' liability to customer, or any party claiming through Customer, be in excess of the actual sales price paid by Customer for any service supplied to Customer by Aviat Networks.

The terms in the CITY OF OCEANSIDE POLICE DEPARTMENT Pro Forma Service Agreement supersede the terms of this clause.

Deliverables

Refer to section 2.3.3 (page11) for a full list of Aviat Networks Path Design deliverables.

7. APPENDIX D: SITE ENGINEERING

Microwave Site Design

The Aviat Implementation Engineer will perform field site surveys to verify that telecommunications equipment can be installed, powered and commissioned effectively at each site, antennas, waveguide and accessories can be connected to radios (towers, shelters and buildings), and customer traffic, alarms and dehydrator lines are fully engineered.

Microwave Site Survey

The microwave site survey is intended to gather data and identify the gap(s) between the site's present state and the site readiness for equipment installation, document any visible issue with the existing infrastructure / equipment that would pose a quality or safety issue during installation, gather environmental data and requirements for Telecommunication Equipment to function properly (including but not limited to HVAC, Temperature, humidity, the general state of the facility as well as seismic evaluation/compliance if required), record flooring, ceiling, racking data and requirements to mount new equipment (including floor plans, relay rack profiles, aisle numbering plans, and ceiling hangers, ladders, and anchor materials required to meet quality and safety standards.

The survey is also intended to record AC, DC, grounding (as is and to be), and breaker assignments and ensure power and grounding standards are met, identify demarcation types and location between new and existing equipment as well as the type of termination and the details required to terminate to the customer provided equipment, identify existing radio equipment (fixed, mobile) as well as their operating frequencies, record existing waveguide, dehydrator component and their associated cabling, identify all required or existing tower structures, mounting structures, antenna mounting types, waveguide ladder systems, entryway into telecom shelters and energy sources.

The results of the survey will be published and released in a site survey report and will be utilized by Aviat Networks for preparation of final power calculations, waveguide requirements, field OEM requirements, installation specifications, field test plans and traffic cutover plans. Aviat Networks will not be held accountable for validating the accuracy of the information provided by CITY OF OCEANSIDE POLICE DEPARTMENT and assumes no responsibility in any inaccuracies of any part of the site engineering and microwave site design when such design is based on the information provided by CITY OF OCEANSIDE POLICE DEPARTMENT or any contact affiliated with CITY OF OCEANSIDE POLICE DEPARTMENT. Any corrective action required as a result of this, will be billed to CITY OF OCEANSIDE POLICE DEPARTMENT as a billable change order.

Site Access

Access to work sites will be made available by CITY OF OCEANSIDE POLICE DEPARTMENT for a minimum of 10 hours per day, 6 days per week or per the agreed schedule in the project plan. All roads leading to work sites shall not require more than a 4-wheel drive vehicle unless stated otherwise and agreed to by both CITY OF OCEANSIDE POLICE DEPARTMENT and Aviat Networks. Any delays or additional cost caused by poor road conditions or site access issues not discussed prior to the start of the surveys will be billed to CITY OF OCEANSIDE POLICE DEPARTMENT as a billable change order and could have a negative impact on the project completion schedule.

Deliverables

Refer to section 2.4.3 (page 12) for a full list of Aviat Networks Site Design deliverables.

8. APPENDIX E: INSTALLATION, INTEGRATION & TESTING

The installation, integration and testing services include design-supported methodologies, product expertise, and field-proven processes to help ensure a quality installation and testing of critical system paths and hardware so that the network performs according to its design. Aviat Networks will designate a primary point of contact to answer any CITY OF OCEANSIDE POLICE DEPARTMENT questions, provide guidance, and address issues specific to this service.

The quotation and SOW is based on an Aviat Networks standard installation schedule of 10 hour days, 6 days per week. Aviat Networks will adjust the SOW and quote for work week schedules outside of Aviat Networks' standard. All work will be done in accordance with Aviat Networks' Best Practices Guide.

Scope

Delivery of this service will utilize the design documentation developed as part of the Planning and Design phase. Field crews will utilize this documentation to:

- Install antenna systems
- Install transmission lines
- Install indoor microwave equipment, racks and components
- Perform Antenna alignment
- Perform system integration
- Perform system testing

System Implementation is predicated upon completion of civil construction / complete site readiness. Antenna, waveguide and equipment installation activities will be performed at the same time on a per-site basis. As part of the delivery of this service, Aviat Networks may choose to integrate equipment at the manufacturer's location to minimize onsite installation time and provide a common point for quality assurance inspections. If staging areas are utilized as part of the project, equipment and materials will be delivered from these facilities to site by the installation crews. ***It is recommended that County Sheriff's Department provides maintenance technicians during any service affecting work.***

The successful completion of all installation, integration and testing services are based on uninterrupted, contiguous-site installation and testing. Additional mobilizations are not included in the pricing and project schedule. If installation is delayed due to, inaccessible sites(s), incomplete site preparation, or construction, the following charges may apply and will be billed to CITY OF OCEANSIDE POLICE DEPARTMENT as a billable change order:

- Standby time for antenna installation teams will be charged at a rate of \$1558 per person per day.
- Standby time for all other service teams will be charged at a rate of \$1200 per person per day.
- If re mobilization of the installation crew is necessary, then a two-week advance notice is required.
- Re mobilization will be billed on a time-and-expenses basis.
- Service costing assumes use of 4-wheel drive vehicles for all project related vehicles additional requirement (ATV) may drive additional service costs.
- If the field crew(s) is/are required to work out of contiguous sequence due to conditions beyond the control of Aviat Networks, a charge equal to one day for each crew person will be assessed to the Customer for each occurrence.

In the event any such delays occur because of natural calamities, strikes and boycotts, war or civil unrest or governmental actions, for which OPD could not reasonably foresee and prepare and over which OPD has no control, the additional charges shall not be applied.

Site Access

Access to work sites will be made available by CITY OF OCEANSIDE POLICE DEPARTMENT for a minimum of 10 hours per day, 6 days per week or per the agreed schedule in the project plan. All roads leading to work sites shall not require more than a 4-wheel drive vehicle unless stated otherwise and agreed to by both CITY OF OCEANSIDE POLICE DEPARTMENT and Aviat Networks. Any delays or additional cost caused by poor road conditions or site access issues not discussed prior to the start of the installation, integration or testing services will be billed to CITY OF OCEANSIDE POLICE DEPARTMENT as a billable change order and could have a negative impact on the project completion schedule.

Site Services

All equipment including radios, antennas and racks will be stored in a secure location arranged by Aviat Networks.

Installation

CITY OF OCEANSIDE POLICE DEPARTMENT shall verify that OPD site is ready for installation and commissioning activities.

Per the directive of the County, Aviat Networks will approach the replacement of the existing equipment on a hop by hop basis. Please review the installation plan that was submitted with the proposal for all the details of the planned preparation and replacement of each site's, radios, antennas, transmission lines and dehydrators.

An inspection will be performed with CITY OF OCEANSIDE POLICE DEPARTMENT after completing the physical installation. Workmanship deficiencies will be noted on a punch list for immediate correction. This inspection is not intended to verify operation of the new system or suitability of components, but rather to inventory and document that all equipment and materials from the schedule of values are installed to acceptable workmanship quality standards. Site drawings will be reviewed and red-lined to reflect the installed condition.

Testing

Test crews will begin work immediately after installation is complete. Testing, based on a standard set of Aviat Network test cases, will be performed on all provided equipment to confirm configuration, operation and manufacturer's specifications. Test data will be recorded on field test sheets, by technical field personnel who will also be responsible for documenting test results and any changes made to the design documentation.

The test crews will be trained on the equipment and utilize state-of-the-art test equipment to perform all tests. Test equipment will have valid calibration certifications, which can be verified prior to commencing any tests. It is recommended that CITY OF OCEANSIDE POLICE DEPARTMENT take the opportunity to have their maintenance technicians witness/participate in field commissioning testing to gain on-the-job training and experience on the new system components.

Commissioning tests will consist of a set of standard Aviat Networks test cases and include turn-up and performance verification tests and circuit tests to verify end-to-end continuity and equipment operation as well as any other tests documented in the Field Acceptance Test Plan. The Field Acceptance Test Plan shall be approved and agreed to by Aviat Networks and CITY OF OCEANSIDE POLICE DEPARTMENT, including any CITY OF OCEANSIDE POLICE DEPARTMENT requested test, prior to test execution. Test results will be recorded on field test data sheets and submitted to CITY OF OCEANSIDE POLICE DEPARTMENT. Refer to the Field Acceptance Test document for details on the test to be performed.

System tests will be performed on a logical section/loop of the system. The system tests will be designed to demonstrate performance and functionality of system features as-well as end-to-end operation of individual circuits/services. System Test results will establish benchmark system performance and operation prior to cut-over and acceptance. The test data sheets prepared during commissioning and system testing will become the base line document for maintenance and performance evaluation of the system over an extended period of time. CITY OF OCEANSIDE POLICE DEPARTMENT will be required to review the commissioning and acceptance testing/results and red-lined drawings and provide approval/acceptance of the data and authorization to proceed with cut-over activities.

Our approach to testing will be slightly different than normal due to the size and design of the system and the limited access we will have regarding outages. A one hour BER test will be performed as each path is commissioned. More complete, bidirectional twelve hour (A side) and four hour (B side) will be performed on each loop as it gets completed.

Data throughput testing will be similar. A quick, RFC2544 test will be performed as each link is commissioned. Throughput testing will be performed on larger sections of the loop as the system is migrated from the existing TDM network to the eventual hybrid design.

Please refer to the System Acceptance Document that was submitted with the proposal for more detail.

Traffic Cut-over

Cut-over activities are anticipated to occur as Antenna and Radio sub-systems are implemented. The commissions and system-level test activities verify that the new system is ready to accept traffic. Preparation, Planning, Logistics and Technical support are the critical elements in transferring existing services to a new system. CITY OF OCEANSIDE POLICE DEPARTMENT infrastructure is utilized for control of mission critical infrastructure; therefore, processes must also be put in place to minimize interruptions as well as to restore the original service in the event of unforeseen situations.

It is Aviat Networks plan to perform cutover of the existing TDM circuits as each path is brought on line. Please refer to the cutover plan that was submitted with the proposal for more detail.

Safety

The health and safety of all individuals, whether in the field, plant or office, takes precedence over all other concerns. Management's goal is to prevent accidents and to reduce personal injury and occupational illness and comply with all safety and health standards. A code of safe conduct is important to the efficiency of operations. Safety is everyone's responsibility. No individual is required or expected to be in such a rush that safety is neglected. The personal safety and health of each individual is of primary importance. The prevention of occupational-induced injuries and illnesses is of such consequence that it will be given priority mechanical over operation productivity whenever necessary.

Safety and first aid material and supplies will be provided to all Aviat Network construction/installation personnel or affiliated contractors or made available at each site for the duration of this project. All safety and first aid material will be stocked at acceptable levels and will have not exceeded the expiration dates where applicable. CITY OF OCEANSIDE POLICE DEPARTMENT will be responsible for providing Aviat Networks with the location and phone numbers of all local emergency agencies.



Deliverables

Refer to section 3.4.1 (pages 15 and 16) for a full list of Aviat Networks Installation, Integration & Testing deliverables.

9. APPENDIX F: ASSUMPTIONS & EXCLUSIONS

The following assumptions will govern the delivery of the Project Management service:

- This SOW and associated pricing is based on the system as described in the Aviat Networks 'proposal and on CITY OF OCEANSIDE POLICE DEPARTMENT completing all items set forth in this SOW as being CITY OF OCEANSIDE POLICE DEPARTMENT responsibility to ensure site readiness.
- Service pricing includes labor and field living expenses compliant with the local prevailing wage rates.
- Any inaccuracies in FCC data may drive additional services costs during field implementation. In addition, any other troubleshooting tasks related to frequency interference issues that are not directly attributable to Aviat Networks are subject to additional service fees at daily/hourly rates define in this SOW.
- All equipment interconnects or termination points, unless specified otherwise, are estimated to be fifty (50) feet. This project does not include any cabling between buildings, rooms or floors, unless specifically identified in this SOW.
- Customer provided existing drawings will have sufficient details for Aviat engineering to order antenna mounting or any other related material required. Any re-engineering to provide correct mounts or material required by Aviat Networks may increase cost to CITY OF OCEANSIDE POLICE DEPARTMENT. Aviat Networks will strive to attain all required information during the site visits.

Unless negotiated otherwise, the services described in this SOW will exclude:

- Responsibility for managing CITY OF OCEANSIDE POLICE DEPARTMENT project responsibilities and deliverables.
- This SOW is a listing of roles and responsibilities to be provided by Aviat Networks. Aviat Networks shall not be responsible for the condition of existing equipment or the deficiencies of non-Aviat Networks provided labor. Only the labor addressed in this SOW will be provided by Aviat Networks.
- On-site technicians will decline any CITY OF OCEANSIDE POLICE DEPARTMENT request for support or work outside the scope of work defined and agreed upon in the service contract unless it is addressed in the form of a change order.
- Aviat Networks proprietary documentation used by service delivery teams to perform this service is not available to CITY OF OCEANSIDE POLICE DEPARTMENT.
- Provision of proprietary information on exact methods, procedures and tools to perform this service.
- Any and all items that are not specifically described within the service proposal as being provided by or the responsibility of Aviat Networks.
- Aviat Networks will not be responsible for the resolution of other vendor issues affecting the completion of the cutover. Aviat Networks can provide guidance and support to CITY OF OCEANSIDE POLICE DEPARTMENT in resolving interoperability issues, where applicable.
- Repair of equipment not in the Engineering Drawings. Equipment requiring repair that is not included in the Engineering Drawings but is still under warranty must follow CITY OF OCEANSIDE POLICE DEPARTMENT's normal repair and return procedures.
- Equipment removal that is not associated with the job order for this service
- Additions or changes to ironwork, cable racks, or fiber ducts are not included and can be quoted separately after site visit information is collected.

10. APPENDIX G: FIELD CHANGE ORDER PROCEDURE

Any change to the proposed system configuration, the number of sites, type of equipment, type of services or project responsibilities, or any other change as noted in the County's SOW to be performed by Aviat Networks will be considered as a change in scope and will be subject to the following process:

- The Customer or Aviat Networks identifies a change of project Scope of Work.
- Aviat Networks Program Manager and/or Project Engineer will submit a proposed Field Change Order Authorization and/or a Contract Amendment containing documentation of the proposed additional activity and the additional cost. (See example Appendix A)
- An authorized Customer representative must review and approve the Field Change Order Authorization and/or the Contract Amendment in writing prior to changes to the scope of work being started.



5200 Great America Parkway
Santa Clara, CA 95054
408-567-7000

CHANGE ORDER FORM

**CITY OF OCEANSIDE POLICE DEPARTMENT
DISPATCH SPUR LINK OCEANSIDE ABBEY & OCEANSIDE PD
NA141112-33754**

This amendment hereby modified and amends the contract/purchase order ("Agreement") between Aviat Networks, CITY OF OCEANSIDE POLICE DEPARTMENT, also referred to as "Parties" as follows:

These products <and/or> services are hereby <added/deleted> to the Agreement between the Parties at the specified prices and all other terms and conditions remain unchanged.

Customer:	CITY OF OCEANSIDE POLICE DEPARTMENT	Contract #:	
Phone:		Contract Date:	
Fax:		Change Order #:	
Email:		Aviat SO #:	

Line #	Description	QTY +/-	Unit Price	Ext Price +/-
1				
2				
3				
4				
5				
6				
7				
8				
9				
Subtotal Booking				\$
Tax (as applicable)				\$
Freight				\$
Other				\$
TOTAL THIS CHANGE				\$

Aviat Networks Authorized Representative		CITY OF OCEANSIDE POLICE DEPARTMENT Authorized Representative	
Approved By:		Approved By:	
Print Name:		Print Name:	
Title:		Title:	
Date:		Date:	



11. STATEMENT OF WORK SIGN-OFF

**CITY OF OCEANSIDE POLICE DEPARTMENT
DISPATCH SPUR LINK OCEANSIDE ABBEY & OCEANSIDE PD
NA141112-33754**

Aviat Networks and CITY OF OCEANSIDE POLICE DEPARTMENT agree that the City of Oceanside Contractor Services Agreement and this document will govern the scope, roles, and responsibilities associated with the delivery of this project.

The parties also agree that material changes to the project scope or deviations from the assignment of responsibilities between Aviat Networks and CITY OF OCEANSIDE POLICE DEPARTMENT have the potential to drive Job Change Orders and/or revisions to the project schedule.

Aviat Networks Authorized Representative		CITY OF OCEANSIDE POLICE DEPARTMENT Authorized Representative	
Approved By:		Approved By:	
Print Name:		Print Name:	
Title:		Title:	
Date:		Date:	



12. PROJECT COMPLETION SIGN-OFF

Complete one page for every site
CITY OF OCEANSIDE POLICE DEPARTMENT
DISPATCH SPUR LINK OCEANSIDE ABBEY & OCEANSIDE PD
NA141112-33754
 <Site Name>

Equipment:

The Aviat Networks supplied microwave equipment has been completely installed and tested and has been accepted for traffic use with the following exceptions:

Exceptions (use additional sheets if required):

Please call our Customer Service hotline at 1-800-227-8332 for service, equipment repair, training or miscellaneous sales or visit our Customer Service Web at <http://www.aviatnetworks.com>

Aviat Networks Authorized Representative		CITY OF OCEANSIDE POLICE DEPARTMENT Authorized Representative	
Approved By:		Approved By:	
Print Name:		Print Name:	
Title:		Title:	
Date:		Date:	

EXHIBIT C

Pricing for Services & Equipment

**EXHIBIT C
PRICING FOR SERVICES AND EQUIPMENT**

Description	Discount %	Equipment Discounted Costs	Services Cost (engineering, test, install, etc.)
DISPATCH SPUR LINK CONNECTING OCEANSIDE ABBEY & OCEANSIDE CC EQUIPMENT			
Radio Equipment, including racks & accessories	70%, 50%, 45%, 40%	\$ 40,903.00	
Other radio equipment		\$ -	
Networking Equipment, including protection switches	35.00%	\$ 6,166.00	
Other networking equipment		\$ -	
Network Management System, including clients & servers as needed		\$ -	
Other NMS equipment	40.00%	\$ 5,103.00	
Antenna Systems, including dishes, radomes, waveguide, & mounts			
Other antenna system equipment	40.00%	\$ 2,581.00	
Pressurization Equipment, including hydrators & accessories			
Other pressurization equipment		\$ -	
DC Power Systems, including batteries & charging system	40.00%	\$ 10,982.00	
Other power equipment		\$ -	
SERVICES			
System Equipment Services (SIPQ and Field Installation and Testing)			\$ 50,301.00
System Engineering (Included Transmission Engineering and FCC coordination)			\$ 12,243.00
Project Management			\$ 6,926.00
Aviaticare Standard Warranty upgrade to Warranty Plus			\$ 3,802.00
5 years Warranty (IRU600, Switch, C&D Charger, Assentria RTU, and IP Phone			\$ 10,469.00
Freight			\$ 3,700.00
Estimated Tax, 8.0%			\$ 6,692.00
DISPATCH SPUR LINK CONNECTING OCEANSIDE ABBEY & OCEANSIDE CC EQUIPMENT			\$ 65,735.00
DISPATCH SPUR LINK CONNECTING OCEANSIDE ABBEY & OCEANSIDE CC SERVICES TOTAL PRICE			\$ 94,133.00
			\$ 159,868.00