Cowlitz 911 Public Authority Board of Directors

SPECIAL MEETING AGENDA

Thursday, October 3, 2024 @ 10:00 AM

Hybrid – Cowlitz 911 & Zoom

1. **Call to Order and Introductions**

2. **MNI Microwave Bid**

   Recommended Action: A motion to approve the purchase of equipment for the stabilization project.

3. **Adjournment**

Cowlitz 911
Agenda Summary Sheet

2790 Ocean Beach Highway
Longview, WA 98632
www.cowlitz911.org

Introduced by: Deanna Wells **Date:** October 3rd, 2024

For Agenda of: Special Meeting 10/03/2024

SUBJECT TITLE: MNI Microwave procurement

SUMMARY STATEMENT:

The next step of the VHF analog simulcast radio stabilization plan is replacing the existing microwave network, VHF RF antenna systems, and waveguides. The meeting packet includes, a NASPO Value Point quote from MNI, Microwave Network Inc. to replace the legacy microwave equipment. MNI provided a system description, statement of work, master service agreement, and a pricing summary to replace (4), four microwave links as recommended by our professional services contractor. This quote will replace the microwave links, antennas, and waveguides between Rainier and Abernathy, Columbia Heights, Signal Peak and Davis Peak.

The cost of the replacement is $768,618 plus $62,259 tax, for a total of $830,877. The first two years lifecycle support services are included, with an additional three years of support for $61,383.00 payable over three years.

RECOMMENDED ACTION: The recommendation of the staff and 911 Director Darr Kirk is a motion from the board to approve the purchase.

Expenditure Required: YES
Amount Budgeted: $1,164,565.26
Appropriation Required: $897,232.00

MASTER SERVICES AGREEMENT

THIS MASTER SERVICES AGREEMENT (the "***Agreement***"), made this __3rd_ day of ___October, 2024____, is entered into by and between **Microwave Networks, Inc**. with its principal place of business at 4000 Greenbriar Drive, Stafford, Texas 77477 ("***CONTRACTOR***") and **Cowlitz 911 Public Authority, a Washington State public authority**, with a principal place of business at 2790 Ocean Beach Hwy, Longview, WA 98632 (***"Customer***" and, together with Contractor, the "***Parties***") and sets forth the terms and conditions by which Contractor will supply labor, materials, equipment and/or services for Contractor's scope of work (the "***Work***") defined on the date hereof and from time to time hereafter in one or more Purchase Orders incorporated by this reference herein upon execution by both of the Parties. Each Purchase Order shall reference and incorporate the terms and conditions of this Agreement. The scope of work is attached hereto as Exhibit A, SOW & MICROWAVE RADIO SYSTEM DESCRIPTION.

Term.

This Agreement shall remain in effect for a period of one (1) year from the date hereof, unless earlier terminated pursuant to the provisions herein (the "***Term***"). Agreement will automatically renew for an additional mutually agreed upon period or until the project is completed whichever comes first, unless terminated in writing by either party.

1. Performance of the Work.

A. All Work shall be performed in a professional manner and in accordance with the applicable specifications and drawings. Unless otherwise provided in the applicable Purchase Order, Contractor shall provide all labor, materials, equipment, tools, utilities, transportation, facilities and services necessary for proper execution and completion of the Work. Contractor shall be solely responsible for all construction means, methods, techniques, procedures and safety programs in connection with the performance of the Work. Contractor will not begin work without receiving a signed purchase order from customer. All commercial terms will be governed by Contractor Standard Terms and Conditions unless stated otherwise in this agreement, terms and conditions exhibit C.

B. Inspection and Acceptance: Within five (5) business days of notification by Contractor of each stage of completion of Work or the completion of all of the Work in the Purchase Order, Contractor will present a written notice certifying the Work is completed and approved ("Completed Work") by end customer per the Factory Acceptance Test Form and during the installation phase the Site Acceptance Test Form. If work is not completed to satisfaction, customer will create a written punch-list setting forth any necessary adjustments in the Work in order for it to comply with the specifications or other requirements set forth in the applicable Purchase Order or this Agreement. Prior to acceptance of any particular Work and at any time during any Warranty Period (as defined below) related thereto, Customer shall have the right to require repair or replacement of any Work that is defective or not performed in accordance with the specifications or other requirements of the applicable Purchase Order or this Agreement.

C. Certifications, Training, and Subcontracting: Contractor agrees to utilize contractor certified personnel during the entire course of project. Contractor, at its own discretion, may utilize subcontractors to complete certain portions of the project. Any subcontractor will be fully trained and will maintain contractor certification during entire course of project. Requests made by customer to use specific subcontractors of their choosing will be considered, but ultimate decision will be made by Contractor. All Work performed by a subcontractor of Contractor shall be deemed Work performed by Contractor.

D. Confidentiality: Cowlitz 911 Public Authority will comply with RCW 42.56 the statutory framework for disclosure of public records, and Public Meetings RCW 42.30. The Public Records Act (PRA) requires that all public records maintained by state and local agencies be made available to all members of the public, with very narrow statutory exemptions.

2. Invoicing and Payment.

Each Contractor invoice shall contain sufficient detail to identify the completed and approved Work, including but not limited to the written notice from customer approving the Work. Customer shall pay each properly submitted and approved invoice within forty-five (45) calendar days following its receipt of such invoice from Contractor in accordance with Exhibit B (Commercial Payment Terms). Late payments are subject to fees according to Contractor Standard Terms and Conditions (Exhibit C).

A. Prior to contract commencement, the Contractor will provide a project timeline with defined payment milestones for invoice processing purposes. Payments will only be processed upon completion of agreed upon milestones.
B. Contractor will meet either virtually or in person with the Customers PM on a mutually agreed upon weekly basis to provide status reports, report any delays, obstacles, and progress of the project. The Customer and Contractor will work closely to immediately resolve any issues to mitigate problems and maintain the project timeline.
C. Time is of the essence; the Contractor will make all reasonable efforts to complete the project on time and within budget.

3. Independent Contractor.

Nothing in this Agreement shall cause Contractor in any way to be construed as a partner or joint venture with, or an employee of, Customer in connection with or arising from Contractor's performance of the Work under this Agreement. Customer retains Contractor only for the purposes and to the extent as set forth in this Agreement and the Purchase Order(s), and Contractor's relation to Customer during the Term of this Agreement shall be that of an independent contractor and nothing herein shall create or imply any other or different relationship.

Contractor acknowledges that: (a) nothing herein constitutes the exercise by Customer of control or direction over the manner or method by which Contractor will perform the Work, and (b) Contractor is solely responsible for the withholding and payment of all federal, state and local income, social security and unemployment taxes, salaries, and other payments required to be made by it from funds received from Customer hereunder. Contractor acknowledges that persons performing Work are employees,

agents or subcontractors of Contractor and Contractor shall exercise full control of and supervision over such persons.

Contractors agrees to comply with all Washington State Labor & Industry Legislation RCW 43.22 and public works law 39.12 RCW, including but not limited to the submission of all forms in compliance with L&I rules, and regulations, prevailing wage rates, health and safety legislation, L&I filings, and required retainage laws on all public works projects, as referenced in Section 4, and Section 8 of the, "MNI Purchase Agreement".

4. Insurance.

A. Contractor shall, at its own expense, obtain and maintain in full force during the Term the insurance set forth below. A copy of: (i) certificate(s) of insurance; and (ii) endorsements, reasonably acceptable to Customer, shall be submitted to Customer prior to commencement of any Work and renewals or replacements of such certificates shall be so delivered at least thirty (30) days prior to the expiration or termination of each such policy.

(1) Commercial General Liability insurance shall be at least as broad as Insurance Services Office (ISO) occurrence form CG 00 01 with limits no less than $2,000,000 each occurrence, $2,000,000 general aggregate and a $2,000,000 products-completed operations aggregate limit.

(2) Automobile Liability insurance with a minimum combined single limit for bodily injury and property damage of $1,000,000 per accident.

(3) Workers' Compensation Insurance as required by state law where the Work is performed. Employer Liability insurance with limits of at least $1,000,000 for each occurrence.

(4) Umbrella/Excess Liability with limits of not less than $5,000,000 in excess of all the above-referenced Commercial General Liability and Motor Vehicle Insurance. Such Umbrella/Excess Liability policies shall follow form to the terms and conditions of the underlying coverages.

B. The General Liability and Motor Vehicle Insurance should be policies that are primary and non-contributory. All said policies of insurance shall be issued by insurance companies reasonably satisfactory to Customer, with an A.M. Best rating of A-, VII or better and which are authorized to do business in the state in which the Work is being performed. Said policies shall also provide that the insurer will endeavor to give Customer at least thirty (30) days prior written notice of cancellation or modification of said policy.

5. Mutual Indemnity; Limitation of Liability

A. Contractor and Customer agree to mutually indemnify, defend and hold harmless its directors, officers, employees and agents ("***Indemnitees***") against all claims, damages, expenses and liabilities of any kind (including, without limitation, attorney's fees and costs) (collectively, "***Claims***") arising out of or resulting from bodily injury or death of any person or damage to personal property, in each case, due solely to the negligent or willfully wrongful acts or omissions of Contractor or its subcontractors or agents. The provisions of this Section shall survive the termination expiration of the Term of this Agreement for an indefinite period thereafter.

Cowlitz 911 shall be named as an additional insured (or equivalent thereof depending on the terms of the policy) on said policy providing the additional insured with coverage at least as broad using ISO forms CG 20 11 and CG 20 37.

In accordance with Contractor Standard Terms and conditions, IN NO EVENT SHALL CUSTOMER OR CONTRACTOR BE LIABLE TO THE OTHER PARTY FOR LOSS OF BUSINESS OR PROFITS, OR FOR ANY OTHER SPECIAL, INDIRECT, INCIDENTAL, PUNITIVE, EXEMPLARY OR CONSEQUENTIAL DAMAGES, WHETHER OR NOT SUCH DAMAGES WERE FORESEEABLE OR THE PARTY WAS ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

6. Taxes.

Customer shall deliver to Contractor tax exemption information upon request for the Work that is exempt from tax. For Work which is not tax exempt, Customer shall pay any and all foreign, federal, state or local sales, use or excise taxes, duties, fees or similar charges imposed upon the performance of that Work or the delivery or use of any work product, except as otherwise required by applicable law or expressly provided in this Agreement.

7. Permits.

Except as otherwise expressly set forth in a Purchase Order, it will be the responsibility of Customer to obtain all governmental approvals, rights of way, licenses, permits, easements, and other third-party and private individual consents that are required for the Work.

8. Compliance with Safety Laws.

Contractor shall comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss (including, without limitation, the Federal Occupational Safety and Health Act and all applicable environmental protection laws, rules and regulations).

9. Clean-up.

Contractor shall at all time keep the Work premises free from accumulations of waste material, rubbish, and any other debris resulting from the Work. On an ongoing basis as the Work progresses, and at the completion of the Work, Contractor shall restore to essentially its former condition all aspects of the Work site and shall remove all waste and excess materials, tools, and equipment resulting from or used in the Work and legally dispose thereof.

10. Waiver.

The waiver by either Party of any breach of this Agreement by the other Party in a particular instance shall not operate as a waiver of subsequent breaches of the same or different kind. The failure of either Party to exercise any rights under this Agreement in a particular instance shall not operate as a waiver of the Party's right to exercise the same or different rights in subsequent instances.

11. Notices.

Any written notice or demand which under the terms of this Agreement or under any statute must or may be given or made by Customer or Contractor shall be in writing and addressed to the respective parties as stated in this Agreement. Notice shall be sent by certified, registered or express mail, other overnight delivery service, electronic mail, or shall be hand delivered. The addresses below may be changed at any time by giving prior written notice as above provided.

If to Contractor:

Vik Bala, COO

Microwave Networks, Inc.

4000 Greenbriar Drive

Stafford, Texas 77477

If to Customer:

Deanna Wells _

Cowlitz 911 I.T Vendor Manager

Cowlitz 911 Public Authority

2750 Ocean Beach Hwy

Longview, WA. 98632

wellsd@cowlitz911.org

360-431-4712

12. Assignment; Binding Effect.

Contractor shall not assign any right or interest under this Agreement to other than an affiliate of Contractor without prior written consent of Customer. Any attempted assignment to other than an affiliate of Contractor in contravention of the above provisions shall be void and ineffective. This Agreement shall bind and inure to the benefit of the Parties hereto and their respective heirs, legal representatives, successors and permitted assigns.

13. Choice of Law.

The construction, interpretation, and performance of this Agreement and all transactions under it shall be governed by the laws of the State of Washington and Oregon State irrespective of its conflict of law principles.

14. Required Mediation.

Customer and Contractor hereby each agree to attempt to resolve any disputes amicably via 3rd party mediation prior to the filing of any lawsuits related to this contract.

15. Amendment.

This Agreement and any Purchase Order may be amended or modified only by a written instrument executed by both Customer and Contractor.

Exhibit A

Scope of Work

SEE ATTACHMENTS

"MICROWAVE RADIO SYSTEM DESCRIPTION & SOW"

Exhibit B
Commercial Payment Terms

Project Milestone Payment Schedule

Invoice to be sent upon:	%	$
Completion of Project kickoff meeting (virtual or in person)	25%	192,155
Completion of path & site surveys, frequency coordination, and release of Prior Coordination Notice (PCN)	15%	115,291
Upon accepted project timeline and delivery of all equipment	25%	192,155
Completion and acceptance of Final site acceptance for network and signoff by customer	25%	192,155
Retainage per Labor and Industries department (State of WA)*	10%	76,862
Total	**100%**	**768,618**

*****10% retainage of the cost of the project will be withheld until the State of Washington L&I gives authorization for Cowlitz 911 to release retainage.

Freight included
Payment due date: Net 45 after delivery of customer approved invoice

Project Cancellation Schedule (Minus 10% Retainage)

Milestone	%	$
After Project Kickoff	25%	192,155
After completion of Site Surveys and Frequency Coordination	40%	307,447
After receipt of equipment	65%	499,601
After start of installation services	65%	499,601

***In addition**, any freight costs that have been incurred by contractor will be billed separately at the time of shipments

IN WITNESS WHEREOF, CUSTOMER AND CONTRACTOR HAVE EXECUTED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

CONTRACTOR

By: _____

Name: _____

Title: _____

Date: _____

CUSTOMER

_____
Chair of the Board, Brad Thurman

ATTEST:

_____
Clerk of the Board, Briana Harvill

APPROVED AS TO FORM:

_____
General Counsel, Frank Randolph

Exhibit "C"
Contractor Standard Terms and Conditions

SECTION 1 - GENERAL: All references to "MNI herein" shall mean "Microwave Networks Incorporated", and all references to "Buyer" herein shall mean the customer named in a contract, purchase order, quotation, proposal, or other agreement between the parties. All written quotations from MNI shall be considered solicitations of offers. And all orders placed by Buyer shall be considered offers which shall be deemed accepted upon notice thereof from MNI. Buyer will provide MNI with a complete written authorization or purchase order (with frequencies and all other technical specifications required to manufacture the equipment to completion), containing necessary information, such as site name, type and quantity of radios, requested delivery date and delivery instructions. Notwithstanding any terms or conditions which may be included in Buyer's purchase order or other communication, MNI's acceptance is conditional upon Buyer's assent to the terms and conditions set forth herein and the Master Service Agreement or in any other binding contract or agreement between the parties incorporating these terms and conditions. In the absence of Buyer's written acceptance of these terms, acceptance of or payment for purchases hereunder shall constitute an acceptance of these terms and conditions. The terms and conditions set forth herein shall be deemed incorporated (as though set forth in full) into any agreement of sale entered between MNI and Buyer unless otherwise modified in writing by the parties. MNI quotations are ~~not~~ firm unless expressly stated otherwise, with a specific period provided during which the quotation will remain firm on the face thereof. MNI reserves the right, without any increase in price, to modify the design and specifications of equipment designed by MNI, provided that the modification does not adversely affect the original performance specifications as specified by MNI or as requested by the Buyer. Buyer shall not assign any interest in the contents of this quotation without the prior written consent of MNI. All orders are subject to prior credit approval, which will not be unreasonably withheld. Stenographic, typographic and clerical errors are subject to correction, unless the proposal was relied upon by Buyer and substantial to the Buyer. All headings contained in these terms and conditions are for reference purposes only and shall not in any way affect the meaning or interpretation of these terms and conditions. MNI will notify buyer in

writing upon acceptance of site location, type and quantity of radios, requested delivery date, delivery location and delivery instructions, upon MNI approval. Buyer will provide a written notice to proceed.

SECTION 2 - SHIPPING AND HANDLING: Unless otherwise specified by Buyer and agreed to by MNI in writing, shipping and handling charges (e.g. Air, Parcel Post, Common Carrier) will be included on the applicable invoice as a separately priced item to be paid by the Buyer. Freight charges are subject to frequent change and in consideration of MNI's agreement to hold to the charges stated, Buyer agrees to pay such amount without regard to the actual charges applicable at the time of shipment. It is understood that MNI will not provide the Buyer with any copies of carrier freight bills, unless Buyer so requests. All packaging and packing shall be in accordance with standard commercial practice. Special export packaging, packing or crating, as required, will be quoted separately in writing to the Buyer.

SECTION 3 - DELIVERY AND TITLE: Unless otherwise specified, all deliveries and risk of loss shall be determined in accordance with the FOB shipping point for domestic shipments and FCA Stafford, Texas for international shipments in accordance with Incoterms 2000. Shipping or delivery dates are best estimates only and subject to change based on MNI commitments at the time Buyer's purchase order is received and accepted. MNI reserves the right to make deliveries in installments, and contracts or other agreements between the parties shall be severable as to such installments. A minor delay in delivery or default of any installment shall not relieve Buyer of its obligation to accept and pay for remaining deliveries. Claims for shipment shortage or damage shall be deemed waived unless presented to MNI in writing within ten (10) working days of delivery of each shipment, and failure to make any claim within ten (10) days after receipt of each product covered hereunder shall constitute an irrevocable acceptance thereof. Title to the products shall pass to Buyer upon receipt of full payment by MNI for such goods, which will not be unreasonably withheld, except that in any jurisdiction in which such retention of title is not recognized, MNI shall be deemed to have retained a purchase money security interest and right of possession in the products until Buyer makes full payment. Buyer's rights to enforce such purchase money security interest and its right of possession shall be

non-exclusive remedies. Buyer agrees to cooperate as reasonably necessary to assist MNI in perfecting such security interest, upon request.

Service completion dates indicated on quotations are subject to review and revision on the basis of MNI commitments at the time Buyer's order is received and accepted. All service completion dates are subject to credit approval, are approximate until confirmed in writing by MNI, and are based upon receipt of timely, accurate, and complete instructions and information from the Buyer.

SECTION 4 - ACCESS: Buyer hereby grants access to MNI to all equipment, sites, premises, and other areas where work is to be performed under these terms and conditions. MNI will make all reasonable efforts to comply with Buyer's standard rules and regulations for access, a copy of which will be furnished to MNI by Buyer upon the submission of any order to be performed under these terms and conditions. ~~M~~NI acknowledges the labor laws of Washington State and agrees to comply with Washington State Labor & Industry rules and regulations, including payment of prevailing wages for all civil work performed in Washington State, submission of appropriate L&I forms, to include but not be limited to a letter of intent, affidavit of completion, and payment of prevailing wages to union or non-union personnel who perform civil work.

SECTION 5 - COMMERCIAL WARRANTY: MNI manufactured products are warranted to be free from defect in material and workmanship under normal use and service for a period of two (2) years from the date of shipment. In the event of a defect during the warranty period, Buyer will return the defective item to the MNI depot repair facility for repair or replacement. Repair at MNI's option may include the replacement of parts or equipment and all replaced parts or equipment shall be the property of MNI. Parts or equipment replaced during the warranty period are warranted for the remainder of the original applicable warranty period or ninety (90) days, whichever is greater. This express warranty is extended by MNI to the original Buyer for commercial, industrial or governmental use. Such action on the part of MNI shall be the full extent of

MNI's liability and Buyer's exclusive remedy for breach of warranty. Expenses of Buyer such as travel expenses are not covered by this warranty.

SECTION 6 - PATH ENGINEERING SERVICES WARRANTY

MNI warrants that the installed radio communication path will conform to Customer's multipath performance reliability objectives when MNI has performed the path survey, recommended the path design, and MNI has implemented such recommendations. This warranty is for a period of 12 months from the date of the survey or one year from the date of installation of the microwave path, whichever expires first. All MNI 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. MNI 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 changes in path design; movement in site locations; buildings or other structures built on-path after date of survey; disturbances of the terrain which may cause blockages or reflections; frequency interferences from 3rd party sources including those caused by Wifi 6E; or change of available antenna mounting space on tower. Any one of these changes will nullify this warranty, and the Customer shall in such case bear the total cost of determining that such change was the cause. MNI 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 occurrences. 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, MNI will not be responsible for degraded path performance when Non-MNI radio equipment is installed on a surveyed path; MNI radio equipment is not installed by MNI;Existing antenna and waveguide system is used without test and inspection performed by MNI. MNI 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 MNI' exclusive liability in connection with path engineering, shall be that MNI 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, MNI 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 MNI 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

SECTION 7 - PATENT AND COPYRIGHT INDEMNIFICATION: MNI agrees to defend, indemnify and hold Customer harmless at MNI's expense, any suits against Buyer based upon a claim that any products furnished directly infringe a United States patent, copyright, or other intellectual property right of third parties. MNI agrees to pay costs (including attorney's fees) and damages finally awarded in any such suit, provided that MNI is notified promptly in writing of the suit and, at MNI's request and at its expense, is given control of said suit and all requested assistance for defense of same. If the use or sale of any products furnished hereunder is enjoined as a result of such a suit, MNI, at its option and at no expense to Buyer, shall obtain for Buyer the right of use or sale for said product(s) or shall substitute an equivalent product reasonably acceptable to Buyer and extend this indemnity thereto, or shall accept the return of product(s) and reimburse Buyer the purchase price thereof, less a charge for reasonable wear and tear. This indemnity does not extend to any suit based upon any infringement or alleged infringement of any patent or copyright by the combination of any products furnished by MNI and other elements, nor does it extend to any products of Buyer's design or formula. The foregoing states the entire liability of MNI for patent, copyright, or other intellectual property infringement.

SECTION 8 - PAYMENT: For domestic shipments, MNI's standard terms of sale are net thirty days of invoice date as defined in exhibit "B" Commercial Payment Terms, assuming MNI has complied with all Washington State Labor & Industry laws, rules, and regulations, payment is subject to a 10%, ten percent, L&I retainage, and funds may be released after L&I authorizes Cowlitz 911 to release retainage. For export shipments, the standard payment terms are irrevocable Letter of Credit (in accordance with MNI Letter of Credit Guidelines) or Cash in Advance (as described below), unless MNI has, prior to its acceptance of Buyer's purchase order, approved in writing other credit arrangements. All payments, whether by Letter of Credit or Cash in Advance, shall be made in U.S. Dollars (US$) by electronic funds transfer. Exceptions to the payment terms included herein shall be subject to the prior consideration and written approval of MNI. The Buyer shall make payments in full to MNI at the address stated on the MNI invoice or as otherwise specified in writing by MNI. Overdue payments are subject to a service charge of 1½% per month or the maximum legal rate, whichever is lower. To the extent permitted by applicable law, Buyer agrees to pay any and all costs and disbursements, including reasonable attorney's fees, incurred by MNI in legal proceedings to collect overdue invoices or enforce indebtedness. Buyer agrees that any and all costs or disbursements may be added to the total invoice amount already due at time of placement with an attorney or collection agency.

SECTION 9 - TAXES: Except for the amount, if any, of tax stated in a MNI contract, quotation, proposal, or customer purchase order, or other agreement between the parties, MNI sale prices and warranty provisions are exclusive of any amount for federal, state, local, excise, sales, use, property, retailers' occupation, in-country, import, VAT or similar taxes or duties. Such prices are also exclusive of all government permit fees, license fees, customs fees and similar fees levied upon delivery of the MNI products and services.

SECTION 10 - TERMINATION, CHANGES AND DELAYS: MNI shall not be liable for any delay or failure to perform due to any cause beyond its control, including, but not limited to: events of Acts of God including, but not limited to, flood, lightning,

seismic activity; and events of Force Majeure such as fire, explosion, war, civil disturbances, default of any supplier; delays caused by any government or regulatory body, frequency authorization, license grant; government intervention; inability to obtain necessary labor, material, or facilities; interruptions of transportation or utilities and strikes. The delivery schedule shall be considered extended by a period of time reasonably necessary to perform after such event(s). Notwithstanding the preceding sentence, in the event MNI is unable to wholly or partially perform due to any cause beyond its control, MNI may terminate any contract without liability to Buyer. Buyer may cancel any order due to the default of MNI upon thirty (30) days prior written notice and failure to cure by MNI.

Otherwise orders may be terminated, changed or delayed by Buyer only with the specific approval of MNI, which shall not be unreasonably withheld, and shall be subject to termination, change or delay charges which shall include compensation for specific expenses and costs related to commitments already made in connection with the order and a reasonable allowance for the cost of overhead, general and administrative expenses and profit in accordance with MNI's standard accounting practices. Change orders may also necessitate a change in the delivery schedule or service completion date. In the event Buyer causes a delay in contract completion or delivery, MNI shall have the right to submit invoices, due and payable upon receipt of equipment or material plus net 45, at sales value for equipment or material delivered and received by Cowlitz 911, and Buyer shall pay the invoiced amount and all necessary storage charges.

SECTION 11 - GOVERNMENT OR IN-COUNTRY LICENSING: The Buyer is solely responsible for obtaining any licenses or other authorizations required by the FCC, Federal Aviation Administration or any other government regulatory bodies, and for complying with their rules and with the rules and regulations of any other U.S. or foreign regulatory agency, whether federal, state, local or otherwise. Neither MNI, nor any of its employees, will be an agent or representative of the Buyer in such matters or otherwise. MNI may assist in the preparation of the license application by the Buyer; however, MNI's warranty shall not be modified to the detriment of MNI, and MNI shall have no liability to Buyer or any third parties arising out of or relating to MNI rendering technical advice, facilities or service in connection with such assistance.

SECTION 12 - CONTROLLING LAW: This document shall be governed by the internal laws of the States of Washington and Oregon, as determined by choice of law, as applied to contracts. The parties hereby agree that this document shall not be governed by the United Nations Convention on Contracts for the International Sale of Goods. This document is prepared and executed in the English language only and any translation of this document into any other language shall have no effect on effectiveness of or the interpretation of this document.

SECTION 13 - LIMITATION OF LIABILITY:

NO ACTION SHALL BE BROUGHT FOR ANY BREACH OF THIS CONTRACT MORE THAN THREE YEARS AFTER THE ACCRUAL OF SUCH CAUSE OF ACTION WITH RESPECT TO SERVICES, MNI LIABILITY FOR ANY PATH SURVEY, SITE SURVEY, FIELD MEASUREMENTS, OR PATH ENGINEERING IS LIMITED TO THE RE-SURVEY, RE-MEASUREMENT, OR RE-ENGINEERING OF THE PATH OR SITE. MNI DOES NOT WARRANTY PROPAGATION OR PATH PERFORMANCE. ALL SURVEYS ARE ACCURATE AS OF THE DATE THE SURVEY WAS CONDUCTED. MNI IS NOT RESPONSIBLE FOR UNCONTROLLED EVENTS, SUCH AS FUTURE BUILDING OBSTRUCTIONS OR MICROWAVE PATHS IN OR NEAR THE SURVEYED PATH OR CONTROLLED SITE, WHICH COULD CAUSE BLOCKAGE OR INTERFERENCE.

The Contractor shall procure and maintain, for the duration of the Agreement, insurance against claims for injuries to persons or damage to property which may arise from or in connection with the Contractor's operation and use of the Agency's Premises. The required Commercial General Liability limit can be met under a combination of primary and excess liability policies.

MNI SHALL PROVIDE PROOF OF INSURANCE NO LATER THAN 7 DAYS PRIOR TO COMMENCEMENT OF SERVICES.

Minimum Amounts of Insurance

a) Automobile Liability insurance with a minimum combined single limit for bodily injury and property damage of $1,000,000 per accident.

b) Commercial General Liability insurance shall be at least as broad as Insurance Services Office (ISO) occurrence form CG 00 01 with limits no less than $2,000,000 each occurrence, $2,000,000 general aggregate and a $2,000,000 products-completed operations aggregate limit.

Cowlitz 911 shall be named as an additional insured (or equivalent thereof depending on the terms of the policy)on said policy providing the additional insured with coverage at least as broad using ISO forms CG 20 11 and CG 20 37.

SECTION 14 - WAIVER: The failure of MNI to insist, in any one or more instances, upon the performance of any of the terms, covenants or conditions herein or to exercise any right hereunder, shall not be construed as a waiver or relinquishment of the future performance of any such term, covenant or condition, or the future exercise of such right, but the obligation of the Buyer with respect to such future performance shall continue in full force and effect.

SECTION 15 - US GOVERNMENT ORDERS: The provision of Executive Order No. 11246 of September 24, 1965, as amended, regarding equal employment opportunity, and the rules and regulations issued pursuant thereto, are incorporated herein by reference. Any other US Government procurement regulations which are required to be included shall be specifically and separately agreed to in writing prior to incorporation into the final agreement of sale.

SECTION 16 - SPECIAL CONDITIONS OF QUOTATION AND SALE: Supplementary to the above terms and conditions of sale, circumstances which require quotation of special terms and conditions of sale are available from MNI (Sales and/or Customer Care Departments) relating to the following: (A) Installation services (weather, employees, normal workday, FCC construction permits, realignment of existing equipment coordination, relocation of plant and equipment); (B) Frequency coordination (Buyer provided frequencies, MNI proposed frequency plan) and path survey (Buyer path survey, MNI proposed path survey); (C) MNI provided antenna installations of Buyer (antenna pipe mount, waveguide bridge, indoor waveguide runs, accessibility to building work areas, modification to Buyer's or Owner's premises, existing towers); (D) MNI provided towers (grounding (REA), tower lighting, modification to Buyer's or Owner's premises); (E) MNI provided roof mounted towers (roof reinforcing, transmission line entry, plot terrain, site accessibility, clearing and grading, tower load, future antenna loading); (F) Construction and/or civil work; (G) Dangerous or hazardous work conditions or environment; (H) PCS or PCN relocation services and related engineering services.

SECTION 17 - PROJECT DISCLAIMERS:

- Pricing shown is contingent upon purchase of entire quoted bill of materials and services.
- Additional charges may be applied if a particular component, brand, service, or installation partner is required by the customer
- Microwave Networks reserves the right to replace 3rd party products with alternative equipment of similar or superior function and quality
- Warranty on all 3rd party products is the original manufacturer's warranty or 1 year
- Final antenna type is subject to change based on PCN results
- Legacy and EOL equipment availability is limited and requirements for such may be filled by refurbished equipment on a case-by-case basis per customer approval
- Quote is valid for 60 days. Price will be updated and may increase after 60 days
- Change orders are subject to price increase
- Shipments may be held up to 90 days from receipt of PO due to factors outside of MNI’s control, after which warehousing and other handling fees may apply
- Customer is responsible for receiving and taking a detailed inventory of any shipments made against a valid purchase order. Any claims of missing and/or damaged equipment must be submitted to MNI’s customer service department

within 15 days of receiving shipment.
• Microwave Networks manufactured equipment is covered by 2 years warranty after shipment, per Microwave Networks' Standard Warranty

For Proteus UMX:
• Proteus UMX is covered by 1 year warranty after shipment, per Microwave Networks' Standard Warranty.
• With the use of unlicensed spectrum, any spectrum interference or resolution of that interference is not the responsibility of MNI
• Throughput and path performance for shared spectrum frequency bands is not guaranteed
• UMX radio is not recommended for mission critical applications due to inherent limitations with unlicensed spectrum

For Full turnkey or Services Only:
• Installation quote is based on preliminary path information and is subject to change once path and site surveys have been finalized
• Installation quote assumes site readiness. De-installation, removal, and disposal of any existing equipment is the responsibility of the customer unless quoted specifically by Microwave Networks Inc.
• Installation is expected to commence no later than 30 days after shipment of equipment. Installation may be delayed up to 90 days after shipment of equipment due to factors outside of MNI's control, after which additional program management and support fees may apply.
• Warranty on installation workmanship is 1 year from date of customer acceptance.

For Equipment only project or projects where MNI provides only partial installation services (i.e. Broken Turnkey):
• Microwave Networks Inc. designs and implements custom turn-key solutions and strongly recommends all customers take advantage of MNI's full turnkey services. MNI is not responsible for the workmanship of any 3rd parties selected by the customer and cannot be responsible for system turn-up and overall performance of any microwave systems not designed and installed by MNI
• All installation technicians must successfully complete Microwave Networks certification training - Day Wireless Longview Washington has completed the MNI certification training and have performed other microwave installation projects

For MNI customers, MNI agrees to warranty the installation and will partner with Day Wireless to perform the microwave, antenna and guidewire installation.

• If onsite troubleshooting is required by MNI, no additional charges will apply

For Lifecycle support services (Gold and Platinum):
• Advanced replacements limited up to 25% of the MNI equipment purchased
• Interference detection services will provide notification of potential interference caused by Wi-Fi 6E. Further efforts beyond notification to resolve or mitigate the interference are subject to additional charges.
• Early pay discounts are available for multi-year commitments. Please discuss with your regional director.

SECTION 18- COMPLETE AGREEMENT: Buyer acknowledges that Buyer has read and understands these Standard Terms and Conditions of Sale as stated, and agrees to be bound by them and that these in conjunction with the attached, "Master Service Agreement", above, are the complete and exclusive statement of the agreement between the parties and supersede all prior proposals, oral or written, and all other communications between the parties relating to the subject matter. No modification hereof shall be binding upon either party unless such modification is in writing signed by duly authorized representatives of the parties. If any part of the terms and conditions included herein is deemed contrary to, prohibited by or invalid under applicable laws or regulations, such provision shall be deemed omitted to the extent so contrary, prohibited or invalid, but the remainder shall not be invalidated and shall be given effect as far as possible.

CUSTOMER

_____

Chair of the Board, Brad Thurman

ATTEST:

_____

Clerk of the Board, Briana Harvill

APPROVED AS TO FORM:

_____

General Counsel, Frank Randolph

_____

Date

CONTRACTOR

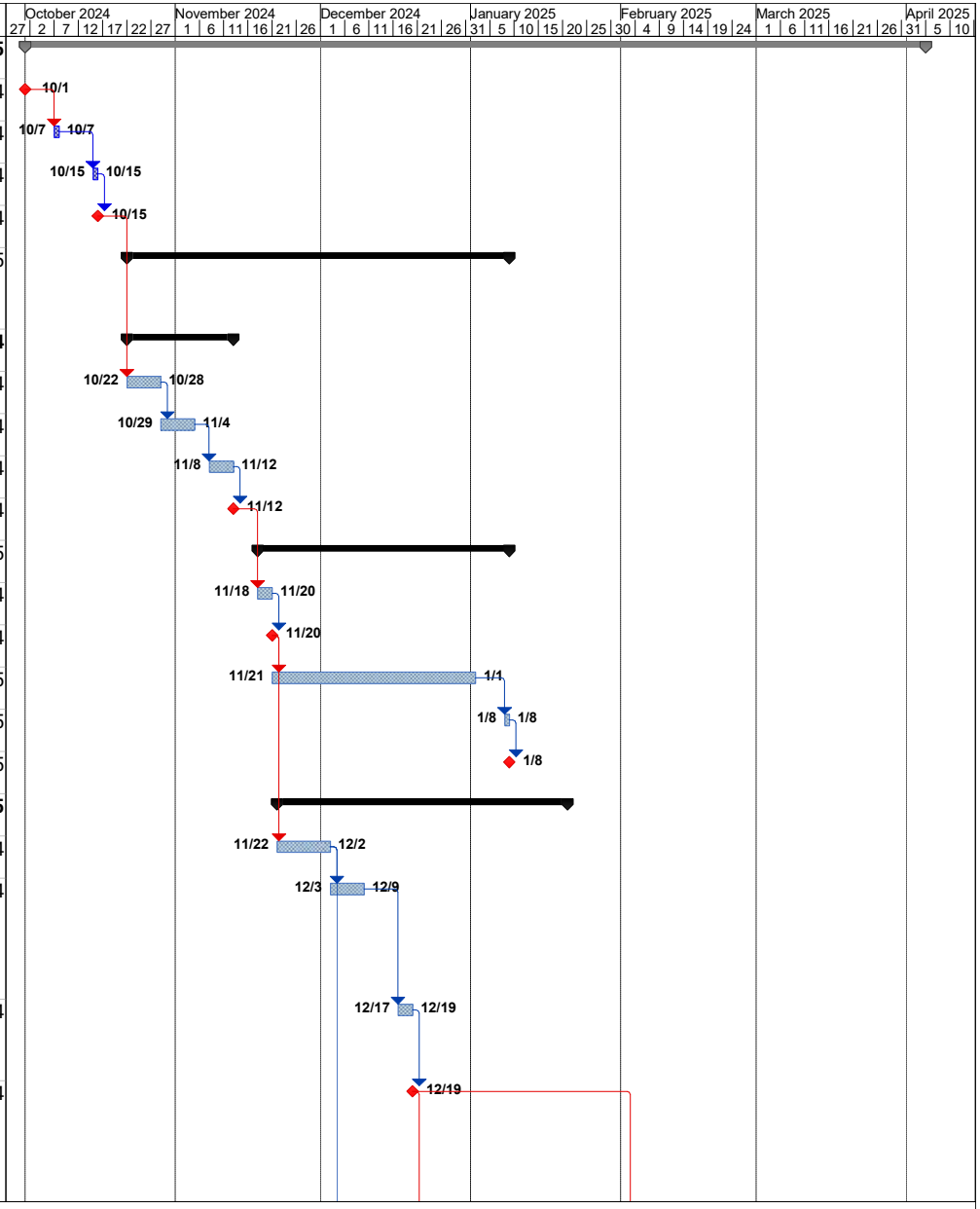
_____

Vik Bala, COO

_____

Date

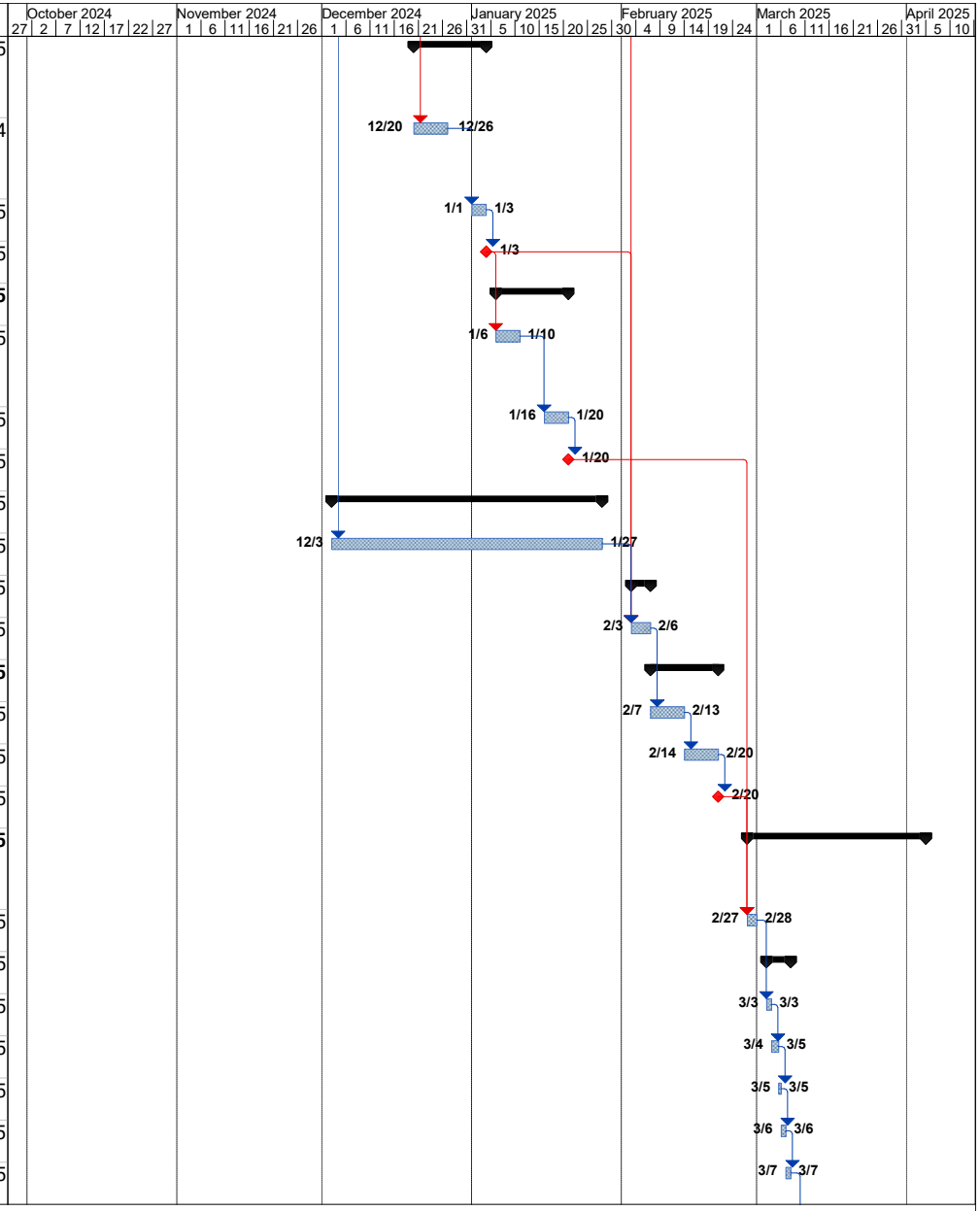
ID	Task Name	Duration	Start	Finish
0	**Cowlitz 911 Microwave Project**	**134 days**	**Tue 10/1/24**	**Fri 4/4/25**
1	Notice to Proceed	0 days	Tue 10/1/24	Tue 10/1/24
2	Kickoff Meeting	1 day	Mon 10/7/24	Mon 10/7/24
3	Detailed Design Review	1 day	Tue 10/15/24	Tue 10/15/24
4	Detailed Design Approved	0 days	Tue 10/15/24	Tue 10/15/24
5	Path Survey and Frequency Coordination	57 days	Tue 10/22/24	Wed 1/8/25
6	**Path Survey**	**16 days**	**Tue 10/22/24**	**Tue 11/12/24**
7	Field Path Survey	5 days	Tue 10/22/24	Mon 10/28/24
8	Prepare Survey Report	5 days	Tue 10/29/24	Mon 11/4/24
9	Customer Reviews Survey Report	3 days	Fri 11/8/24	Tue 11/12/24
10	Customer Approves Survey Report	0 days	Tue 11/12/24	Tue 11/12/24
11	Frequency Coordination and Licensing	38 days	Mon 11/18/24	Wed 1/8/25
12	Client Authorization Notice (CAN)	3 days	Mon 11/18/24	Wed 11/20/24
13	Customer Reviews and Approve CAN	0 days	Wed 11/20/24	Wed 11/20/24
14	Prior Coordination Notice (PCN)	30 days	Thu 11/21/24	Wed 1/1/25
15	Supplemental Showing	1 day	Wed 1/8/25	Wed 1/8/25
16	FCC Application Filed	0 days	Wed 1/8/25	Wed 1/8/25
17	**Engineering**	**42 days**	**Fri 11/22/24**	**Mon 1/20/25**
18	Generate & Release Equipment List	7 days	Fri 11/22/24	Mon 12/2/24
19	Generate Rack Profiles, Wire List, Channel Plan, Block Diagrams and Shipping Checklist	5 days	Tue 12/3/24	Mon 12/9/24
20	Customer Reviews Rack Profiles, Channel Plan and Shipping Checklist	3 days	Tue 12/17/24	Thu 12/19/24
21	Customer Approves Rack Profiles, Channel Plan and Confirms Local Warehousing	0 days	Thu 12/19/24	Thu 12/19/24



Cowlitz 911 Microwave Project
Microwave Networks Incorporated
Tue 9/24/24

Task	Rolled Up Critical Task	Project Summary	Manual Task	Finish-only
Critical Task	Rolled Up Milestone	External Milestone	Duration-only	External Tasks
Milestone	Rolled Up Progress	External Milestone	Manual Summary Rollup	External Milestone
Summary	Split	Inactive Milestone	Manual Summary	Progress
Rolled Up Task	External Tasks	Inactive Summary	Start-only	Deadline

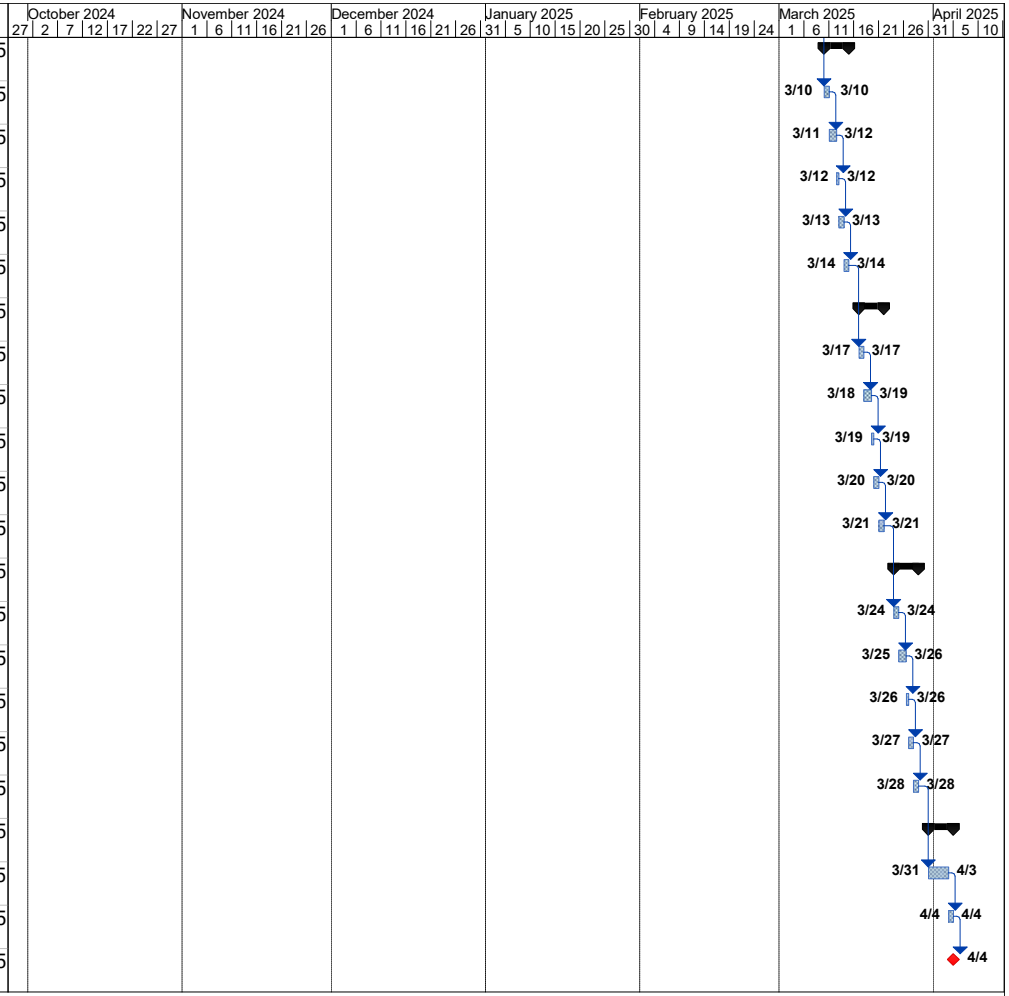
ID	Task Name	Duration	Start	Finish
22	Factory Acceptance Testing (FAT) Procedure	11 days	Fri 12/20/24	Fri 1/3/25
23	Prepare and Issue FAT Procedure for approval	5 days	Fri 12/20/24	Thu 12/26/24
24	Customer Reviews FAT Procedure	3 days	Wed 1/1/25	Fri 1/3/25
25	Customer Approves FAT Procedure	0 days	Fri 1/3/25	Fri 1/3/25
26	**Site Acceptance Testing (SAT) Procedure**	**11 days**	**Mon 1/6/25**	**Mon 1/20/25**
27	Prepare and Issue SAT Procedure for approval	5 days	Mon 1/6/25	Fri 1/10/25
28	Customer Reviews SAT Procedure	3 days	Thu 1/16/25	Mon 1/20/25
29	Customer Approves SAT Procedure	0 days	Mon 1/20/25	Mon 1/20/25
30	Manufacturing and Production Phase	40 days	Tue 12/3/24	Mon 1/27/25
31	Procure and Manufacture Equipment	40 days	Tue 12/3/24	Mon 1/27/25
32	Staging and System Factory Testing	4 days	Mon 2/3/25	Thu 2/6/25
33	Integration and Testing	4 days	Mon 2/3/25	Thu 2/6/25
34	**Shipping and Delivery**	**10 days**	**Fri 2/7/25**	**Thu 2/20/25**
35	Equipment Pack Ready for Shipment	5 days	Fri 2/7/25	Thu 2/13/25
36	Shipped and Delivered to Customer Warehouse	5 days	Fri 2/14/25	Thu 2/20/25
37	Equipment Received by Customer	0 days	Thu 2/20/25	Thu 2/20/25
38	**Installation, Testing and Commissioning**	**27 days**	**Thu 2/27/25**	**Fri 4/4/25**
39	Inventory Equipment at Customer Warehouse	2 days	Thu 2/27/25	Fri 2/28/25
40	Installation - Link 1	5 days	Mon 3/3/25	Fri 3/7/25
41	Radio System Installation	1 day	Mon 3/3/25	Mon 3/3/25
42	Antenna and Transmission Line Installation	1.5 days	Tue 3/4/25	Wed 3/5/25
43	Path Alignment	0.5 days	Wed 3/5/25	Wed 3/5/25
44	Link Test and Commissioning	1 day	Thu 3/6/25	Thu 3/6/25
45	Decommissioning	1 day	Fri 3/7/25	Fri 3/7/25



Cowlitz 911 Microwave Project
Microwave Networks Incorporated
Tue 9/24/24

Task	Rolled Up Critical Task	Project Summary	Manual Task		Finish-only
Critical Task	Rolled Up Milestone	External Milestone	Duration-only		External Tasks
Milestone	Rolled Up Progress	External Milestone	Manual Summary Rollup		External Milestone
Summary	Split	Inactive Milestone	Manual Summary		Progress
Rolled Up Task	External Tasks	Inactive Summary	Start-only		Deadline

ID	Task Name	Duration	Start	Finish
46	Installation - Link 2	5 days	Mon 3/10/25	Fri 3/14/25
47	Radio System Installation	1 day	Mon 3/10/25	Mon 3/10/25
48	Antenna and Transmission Line Installation	1.5 days	Tue 3/11/25	Wed 3/12/25
49	Path Alignment	0.5 days	Wed 3/12/25	Wed 3/12/25
50	Link Test and Commissioning	1 day	Thu 3/13/25	Thu 3/13/25
51	Decommissioning	1 day	Fri 3/14/25	Fri 3/14/25
52	Installation - Link 3	5 days	Mon 3/17/25	Fri 3/21/25
53	Radio System Installation	1 day	Mon 3/17/25	Mon 3/17/25
54	Antenna and Transmission Line Installation	1.5 days	Tue 3/18/25	Wed 3/19/25
55	Path Alignment	0.5 days	Wed 3/19/25	Wed 3/19/25
56	Link Test and Commissioning	1 day	Thu 3/20/25	Thu 3/20/25
57	Decommissioning	1 day	Fri 3/21/25	Fri 3/21/25
58	Installation - Link 4	5 days	Mon 3/24/25	Fri 3/28/25
59	Radio System & SPARCS Installation	1 day	Mon 3/24/25	Mon 3/24/25
60	Antenna and Transmission Line Installation	1.5 days	Tue 3/25/25	Wed 3/26/25
61	Path Alignment	0.5 days	Wed 3/26/25	Wed 3/26/25
62	Link Test and Commissioning	1 day	Thu 3/27/25	Thu 3/27/25
63	Decommissioning	1 day	Fri 3/28/25	Fri 3/28/25
64	Installation Close Out	5 days	Mon 3/31/25	Fri 4/4/25
65	Site Inspection	4 days	Mon 3/31/25	Thu 4/3/25
66	Site Acceptance Testing Sign Off	1 day	Fri 4/4/25	Fri 4/4/25
67	Project Complete	0 days	Fri 4/4/25	Fri 4/4/25



Cowlitz 911 Microwave Project
Microwave Networks Incorporated
Tue 9/24/24

Task	Rolled Up Critical Task	Project Summary	Manual Task	Finish-only
Critical Task	Rolled Up Milestone	External Milestone	Duration-only	External Tasks
Milestone	Rolled Up Progress	External Milestone	Manual Summary Rollup	External Milestone
Summary	Split	Inactive Milestone	Manual Summary	Progress
Rolled Up Task	External Tasks	Inactive Summary	Start-only	Deadline

4000 Greenbriar Stafford, TX 77477
Ph.: 281-263-6500; Fx: 281-263-6406
Sales Contact: Itai Farchi
System Engineer: LB
Quote: IF40522-50
Date: 9/20/2024
Currency: US Dollars
PRICE AND MATERIAL LIST

Cowlitz 911

Customer: Cowlitz 911 - NASPO ValuePoint Master Agreement Number 00318
Contact: Deanna Wells
Location: WA
Freight Terms FOB Destination
Validity: 60 Days
Delivery: 90 -120 Days ARO
Payment Terms: Per Contract
Project: 4 links to Rainier: Abernathy, Signal, Davis, Columbia South

Item	Description	Includes Items	Extended Cost
	Microwave Radios		
1.00	Proteus MX Radios & Radio Accessories	Includes items 1.01-1.19	$279,317
2.00	Antenna System	Includes items 2.01-2.25	$92,463
3.00	SPARCS Network Management System	Includes items 3.01-3.03	$22,377
4.00	Spares	Includes items 4.01-4.06	$30,289
	Equipment Management Concession		($30,754)
5.00	Services	Includes items 5.01-5.06	$405,277
	Management Concession on Services		($85,100)
6.00	FREIGHT		$54,750
Microwave Radio Equipment Total (does not include Sales Tax):			**$768,618**

Item	Description	Extended Price
	Support Services Program Proteus MX radios	
	Microwave Networks Support Services Program 5 years includes:	
	Proteus MX Extended Warranty (Repair & Return)	
	Proteus MX Premium 24x7 Phone Support	
	Software Releases Support	
	Lifecycle Support Services Program for Year 1	Included
	Lifecycle Support Services Program for Year 2	Included
	Lifecycle Support Services Program for Year 3 -Optional	$19,161
	Lifecycle Support Services Program for Year 4- Optional	$20,429
	Lifecycle Support Services Program for Year 5 -Optional	$21,793

Notes: *Pricing shown is contingent upon purchase of entire quoted bill of materials and services. Discounts will be reduced or rescinded should any portion be descoped during the project.*
Quote validity as shown on the quote may change due to factors that are outside of MNIs control such as delays and/or cost increases due to challenges within the global supply chain. MNI will make best efforts to keep the original terms but may be forced to update them. Any needed adjustments will be communicated to customer immediately.
Pricing is based on the prevailing costs of labor and materials as of the effective date of this quote. These costs may fluctuate over time due to factors such as inflation, market conditions, and changes in the cost of living. MNI reserves the right to review and update pricing should the project incur delays beyond the agreed timeline due to factors outside MNI's control.
Additional charges may be applied if a particular component, brand, service, or installation partner is required by the customer.
Microwave Networks reserves the right to replace 3rd party products with alternative equipment of similar or superior function and quality.
Warranty on all 3rd party products is the original manufacturer's warranty or 1 year, whichever is shorter.
Final antenna type is subject to change based on PCN results.
Scheduled delivery dates are approximate and depend on a number of factors including availability of inventory. MNI will make commercial best efforts to accommodate customer's requested delivery schedule as long as customer provides all information required for MNI to build the order.
All terms and conditions as per Microwave Networks Inc. (MNI) Standard Terms and Conditions of Trade.
Microwave Networks Inc. designs and implements custom turnkey solutions and strongly recommends all customers take advantage of MNI's full turnkey offering. MNI cannot control the workmanship of 3rd parties selected by the customer and therefore system turn-up and overall performance of any microwave systems not designed, surveyed and installed by MNI cannot be guaranteed.

Cowlitz 911

4000 Greenbriar Stafford, TX 77477
Ph.: 281-263-6500; Fx: 281-263-6406
Sales Contact: Itai Farchi
System Engineer: LB
Quote: IF40522-50
Date: 9/20/2024
Currency: US Dollars
PRICE AND MATERIAL LIST

Customer: Cowlitz 911 - NASPO ValuePoint Master Agreement Number 00318
Contact: Deanna Wells
Location: WA
Freight Terms FOB Destination
Validity: 60 Days
Delivery: 90 -120 Days ARO
Payment Terms: Per Contract
Project: 4 links to Rainier: Abernathy, Signal, Davis, Columbia South

						1	2	3	4	5		
Item	Model	Description	List Price	Discount	Unit Price	Rainier Hill	Davis Peak	Abernathy Mountain	Columbia Heights South	Signal Peak	Total Qty	Extended Price
1.00	**Proteus MX Microwave Radio Terminals**											
1.01	J06PE2-006A-NNN-EXBL	Proteus MX, 06 GHz Gigabit Ethernet Radio, Hot Standby Protected, All Indoor	$28,883	35%	$18,774	3	1	1		1	6	$112,644
1.02	8000754-00	Data Card, 32E1/DS1, AMT-MX	$781	35%	$508	6	2	2		2	12	$6,092
1.03	JNN99SHARP-32	License Key, Self Healing Ring Protection (SHARP) of 32 Tributaries	$3,424	35%	$2,226	6	2	2		2	12	$26,707
1.04	440F155F-XXX	License Key for Total Throughput of 155 Mb/s, 128 QAM, 30 MHz	$1,329	35%	$864	6	2	2		2	12	$10,366
1.05	JHHHIPOWRF-FI	License, RF Ultra High Power for Full Indoor Radios	$2,137	35%	$1,389	12	4	4		4	24	$33,337
1.06	JHH999ACM	License Key, Automatic Code Modulation (ACM)	$277	35%	$180	6	2	2		2	12	$2,161
1.07	JHH999DACC-YY	License Key, Digital Cross Connect (DACC)	$213	35%	$138	6	2	2		2	12	$1,661
1.08	J11PE2-006A-NNN-EXBL	Proteus MX, 11 GHz Gigabit Ethernet Radio, Hot Standby Protected, All Indoor	$29,479	35%	$19,161	1			1		2	$38,323
1.09	8000754-00	Data Card, 32E1/DS1, AMT-MX	$781	35%	$508	2			2		4	$2,031
1.10	JNN99SHARP-32	License Key, Self Healing Ring Protection (SHARP) of 32 Tributaries	$3,424	35%	$2,226	2			2		4	$8,902
1.11	440F155F-XXX	License Key for Total Throughput of 155 Mb/s, 128 QAM, 30 MHz	$1,329	35%	$864	2			2		4	$3,455
1.12	JHHHIPOWRF-FI	License, RF Ultra High Power for Full Indoor Radios	$2,137	35%	$1,389	4			4		8	$11,112
1.13	JHH999ACM	License Key, Automatic Code Modulation (ACM)	$277	35%	$180	2			2		4	$720
1.14	JHH999DACC-YY	License Key, Digital Cross Connect (DACC)	$213	35%	$138	2			2		4	$554
1.15	8108760-10	CHAMP Connector to WW 24 GA Cable, AMT-MX, 32 E1/DS1 (2 cables required), 10'	$208	35%	$135	8	2	2	2	2	16	$3,323
1.16	8209342-00	(SHARP) Shelf, 32E1/DS1 (Equivalent to 9901938-01)	$1,665	35%	$1,082	1	1	1	1	1	5	$8,323
1.17	9900653-02	Fuse Panel,15A, +/-48/24V	$805	35%	$523	1	1	1	1	1	5	$4,025
1.18	8709290-2N10	Waveguide Extender Kit, 6 GHz, B-Side Add-on, Top, Diplexer	$1,395	35%	$907	3					3	$4,185
1.19	8709292-2N10	Waveguide Extender Kit, 11 GHz, B-Side Add-on, Top, Diplexer	$1,395	35%	$907	1					1	$1,395
	(MNI is assuming the use of existing DC power, PDU and racks)											
										Radio Total:		**$279,317**

Microwave NETWORKS

Cowlitz 911

4000 Greenbriar Stafford, TX 77477
Ph.: 281-263-6500; Fx: 281-263-6406
Sales Contact: Itai Farchi
System Engineer: LB
Quote: IF40522-50
Date: 9/20/2024
Currency: US Dollars
PRICE AND MATERIAL LIST

Customer: Cowlitz 911 - NASPO ValuePoint Master Agreement Number 00318
Contact: Deanna Wells
Location: WA
Freight Terms FOB Destination
Validity: 60 Days
Delivery: 90 -120 Days ARO
Payment Terms: Per Contract
Project: 4 links to Rainier: Abernathy, Signal, Davis, Columbia South

						1	2	3	4	5		
Item	Model	Description	List Price	Discount	Unit Price	Rainier Hill	Davis Peak	Abernathy Mountain	Columbia Heights South	Signal Peak	Total Qty	Extended Price
2.00	**Antenna Systems**											
	6 GHz											
2.01	9901874-02	Antenna, 6 GHz,6-FT SU, UHP,CPR137G,5.9-6.4 GHz	$7,929	35%	$5,154	3	1	1		1	6	$30,923
2.02	9901766-02	Antenna Strut Kit, 4/6 Ft Antenna	$599	35%	$389	3	1	1		1	6	$2,336
2.03	9901277-01	Flexible Waveguide, Andrew, WR42/WR42 Press. Cover, 6 GHz, 36" (0.9m)	$572	35%	$372	3	1	1		1	6	$2,231
2.04	9900931-00	RFS, E60, Elliptical Waveguide, 5.925-6.425 GHz - per foot	$24	35%	$16	450	115	210		165	940	$14,664
2.05	9901878-05	RFS, C137-060FG, Elliptical Waveguide Connector, E60	$720	35%	$468	6	2	2		2	12	$5,616
2.06	990033-03	Pressure Window for WR137 - mates to CPR137G	$131	35%	$85	3	1	1		1	6	$511
2.07	9901876-03	RFS, HOIST1-158L, Hoisting Grip, E60	$49	35%	$32	3	1	1		1	6	$191
2.08	9901878-08	RFS, GKIT-60-060, Standard Grounding Kit, E60	$40	35%	$26	9	2	4		3	18	$468
2.09	9900933-00	RFS, CLAMP-060, Butterfly Hangers, Kit of 10, E60	$65	35%	$42	15	4	7		6	32	$1,344
2.10	9900932-00	RFS, BOOT4-060, Waveguide Boot Assembly, E60	$68	35%	$44	3	1	1		1	6	$265
	11 GHz											
2.11	9901852-00	Antenna, 11 GHz,4-FT SB,Cat A UHP,CPR90G,10.0-11.7 GHz	$3,936	35%	$2,558	1			1		2	$5,117
2.12	9901766-02	Antenna Strut Kit, 4/6 Ft Antenna	$599	35%	$389	1			1		2	$779
2.13	9901277-01	Flexible Waveguide, Andrew, WR42/WR42 Press. Cover, 6 GHz, 36" (0.9m)	$572	35%	$372	1			1		2	$744
2.14	9901721-00	Waveguide,EU90,Standard,10.2-11.7 GHz	$27	35%	$18	145			145		290	$5,090
2.15	9901721-01	WG Connector,CPR90 for EU90	$572	35%	$372	2			2		4	$1,487
2.16	9900101-00	Pressure Window for WR90-mates to CPR90G	$131	35%	$85	1			1		2	$170
2.17	9901721-03	Hoist Grip, Elliptical WG,EU90	$60	35%	$39	1			1		2	$78
2.18	9901721-02	Ground Kit for EU90 Waveguide	$50	35%	$33	3			3		6	$195
2.19	9901721-06	Hanger,Butterfly,EU90 Elliptical Waveguide, Ten	$46	35%	$30	5			5		10	$299
2.20	9901118-00	RFS, BOOT4-105, Waveguide Boot Assembly, E105	$68	35%	$44	1			1		2	$88
	Hardware											
2.21	9901721-07	Angle Adapter,3/8" tapped hole, Stainless, ten	$89	35%	$58	20	4	7	5	6	42	$2,430
2.22	9901723-14	3/8" x 1" bolts & Hardware for Standard Hangers (ten per kit)	$20	35%	$13	20	4	7	5	6	42	$546
2.23	9901723-11	3/8" Threaded Rod & Hardware (ten per kit)	$27	35%	$18	8	2	2	2	2	16	$281
	Dehydrator and Accessories											
2.24	9900869-07	Dehydrator,115/230Vac,Rack or Wall mount,MT050C	$4,615	35%	$3,000	1	1	1	1	1	5	$14,999
2.25	990034-43	Gas Distribution Manifold (w gauges), 4-port w/ 25' tube per port	$496	35%	$322	1	1	1	1	1	5	$1,612
	(Existing tower mounted antenna pipe mounts to be reused)											
										Antenna System Total:		**$92,463**
3.00	**SPARCS Network Management System**											
3.01	8708270-00	SPARCS Extended License (supports central computer with unlimited remote logins and up to 10 polling agents)	$25,020	35%	$16,263						1	$16,263
3.02	9999-SERVER	Server with licenses and 19 " monitor.	$9,048	35%	$5,881						1	$5,881
3.03	99999-MISC	2 Post, Center Mount Conversion, 2U-7U	$358	35%	$233						1	$233

Cowlitz 911

4000 Greenbriar Stafford, TX 77477
Ph.: 281-263-6500; Fx: 281-263-6406
Sales Contact: Itai Farchi
System Engineer: LB
Quote: IF40522-50
Date: 9/20/2024
Currency: US Dollars
PRICE AND MATERIAL LIST

Customer: Cowlitz 911 - NASPO ValuePoint Master Agreement Number 00318
Contact: Deanna Wells
Location: WA
Freight Terms FOB Destination
Validity: 60 Days
Delivery: 90 -120 Days ARO
Payment Terms: Per Contract
Project: 4 links to Rainier: Abernathy, Signal, Davis, Columbia South

						1	2	3	4	5		
Item	Model	Description	List Price	Discount	Unit Price	Rainier Hill	Davis Peak	Abernathy Mountain	Columbia Heights South	Signal Peak	Total Qty	Extended Price
										SPARCS Total:		$22,377

Microwave NETWORKS

Cowlitz 911

4000 Greenbriar Stafford, TX 77477
Ph.: 281-263-6500; Fx: 281-263-6406
Sales Contact: Itai Farchi
System Engineer: LB
Quote: IF40522-50
Date: 9/20/2024
Currency: US Dollars
PRICE AND MATERIAL LIST

Customer: Cowlitz 911 - NASPO ValuePoint Master Agreement Number 00318
Contact: Deanna Wells
Location: WA
Freight Terms FOB Destination
Validity: 60 Days
Delivery: 90 -120 Days ARO
Payment Terms: Per Contract
Project: 4 links to Rainier: Abernathy, Signal, Davis, Columbia South

						1	2	3	4	5		
Item	Model	Description	List Price	Discount	Unit Price	Rainier Hill	Davis Peak	Abernathy Mountain	Columbia Heights South	Signal Peak	Total Qty	Extended Price
4.00	**Recommended Spares**											
4.01	J06NE2-006A-NNN-EXBL	Proteus MX, 06 GHz Gigabit Ethernet Radio, Non Protected, High TX Pwr, All Indoor	$15,872	35%	$10,317						1	$10,317
4.02	J11NE2-006A-NNN-EXBL	Proteus MX, 11 GHz Gigabit Ethernet Radio, Non Protected, High TX Pwr, All Indoor	$16,165	35%	$10,507						1	$10,507
4.03	8000754-00	Data Card, 32E1/DS1, AMT-MX	$781	35%	$508						1	$508
4.04	JNN99SHARP-32	License Key, Self Healing Ring Protection (SHARP) of 32 Tributaries	$3,424	35%	$2,226						2	$4,451
4.05	440F155F-XXX	License Key for Total Throughput of 155 Mb/s, 128 QAM, 30 MHz	$1,329	35%	$864						2	$1,728
4.06	JHHHIPOWRF-FI	License, RF Ultra High Power for Full Indoor Radios	$2,137	35%	$1,389						2	$2,778
										Spares Total:		**$30,289**
	CONCESSION	Equipment Management Concession	($30,754)								1	($30,754)
										Equipment Total:		**$393,691**
5.00	**MNI Services**											
5.01	PATH SURVEY	Path and Site Surveys	$43,462	35%	$28,250						1	$28,250
5.02	FREQ COORD	FCC Licensing Assistance	$11,692	35%	$7,600						1	$7,600
5.03	FACTINT	Factory Integration & Testing	$3,846	35%	$2,500						1	$2,500
5.04	PROGMGMT	Program Management	$25,026	35%	$16,267						1	$16,267
5.05	INSTALL	Install, Optimize & Test of Antenna, lines and Dehydrator system Equipment Quoted	$472,923	35%	$307,400						1	$307,400
5.06	INSTALL	Install, Optimize & Test of Radio Equipment Quoted and Provision of SPARCS NMS	$66,554	35%	$43,260						1	$43,260
	CONCESSION	Management Concession on Services	($85,100)								1	($85,100)
										Services Total:		**$320,177**
6.00	FREIGHT	FREIGHT Cowlitz County, WA	$54,750								1	$54,750
Grand Total:												**$768,618**

STANDARD TERMS AND CONDITIONS OF SALE

Exhibit "C"

Contractor Standard Terms and Conditions

SECTION 1 - GENERAL: All references to "MNI herein" shall mean "Microwave Networks Incorporated", and all references to "Buyer" herein shall mean the customer named in a contract, purchase order, quotation, proposal, or other agreement between the parties. All written quotations from MNI shall be considered solicitations of offers. And all orders placed by Buyer shall be considered offers which shall be deemed accepted upon notice thereof from MNI. Buyer will provide MNI with a complete written authorization or purchase order (with frequencies and all other technical specifications required to manufacture the equipment to completion), containing necessary information, such as site name, type and quantity of radios, requested delivery date and delivery instructions. Notwithstanding any terms or conditions which may be included in Buyer's purchase order or other communication, MNI's acceptance is conditional upon Buyer's assent to the terms and conditions set forth herein and the Master Service Agreement or in any other binding contract or agreement between the parties incorporating these terms and conditions. In the absence of Buyer's written acceptance of these terms, acceptance of or payment for purchases hereunder shall constitute an acceptance of these terms and conditions. The terms and conditions set forth herein shall be deemed incorporated (as though set forth in full) into any agreement of sale entered between MNI and Buyer unless otherwise modified in writing by the parties. MNI quotations are ~~not~~ firm unless expressly stated otherwise, with a specific period provided during which the quotation will remain firm on the face thereof. MNI reserves the right, without any increase in price, to modify the design and specifications of equipment designed by MNI, provided that the modification does not adversely affect the original performance specifications as specified by MNI or as requested by the Buyer. Buyer shall not assign any interest in the contents of this quotation without the prior written consent of MNI. All orders are subject to prior credit approval, which will not be unreasonably withheld. Stenographic, typographic and clerical errors are subject

SECTION 2 - SHIPPING AND HANDLING: Unless otherwise specified by Buyer and agreed to by MNI in writing, shipping and handling charges (e.g. Air, Parcel Post, Common Carrier) will be included on the applicable invoice as a separately priced item to be paid by the Buyer. Freight charges are subject to frequent change and in consideration of MNI's agreement to hold to the charges stated, Buyer agrees to pay such amount without regard to the actual charges applicable at the time of shipment. It is understood that MNI will not provide the Buyer with any copies of carrier freight bills, unless Buyer so requests. All packaging and packing shall be in accordance with standard commercial practice. Special export packaging, packing or crating, as required, will be quoted separately in writing to the Buyer.

SECTION 3 - DELIVERY AND TITLE: Unless otherwise specified, all deliveries and risk of loss shall be determined in accordance with the FOB shipping point for domestic shipments and FCA Stafford, Texas for international shipments in accordance with Incoterms 2000. Shipping or delivery dates are best estimates only and subject to change based on MNI commitments at the time Buyer's purchase order is received and accepted. MNI reserves the right to make deliveries in installments, and contracts or other agreements between the parties shall be severable as to such installments. A minor delay in delivery or default of any installment shall not relieve Buyer of its obligation to accept and pay for remaining deliveries. Claims for shipment shortage or damage shall be deemed waived unless presented to MNI in writing within ten (10) working days of delivery of each shipment, and failure to make any claim within ten (10) days after receipt of each product covered hereunder shall constitute an irrevocable acceptance thereof. Title to the products shall pass to Buyer upon receipt of full payment by MNI for such goods, which will not be unreasonably withheld, except that in any jurisdiction in which such retention of title is not recognized, MNI shall be deemed to have retained a purchase money security interest and right of possession in the products until Buyer makes full payment. Buyer's rights to enforce such purchase money security interest and its right of possession shall be non-exclusive remedies. Buyer agrees to cooperate as reasonably necessary to assist MNI in perfecting such security interest, upon request.

Service completion dates indicated on quotations are subject to review and revision on the basis of MNI commitments at the time Buyer's order is received and accepted. All service completion dates are subject to credit approval, are approximate until confirmed in writing by MNI, and are based upon receipt of timely, accurate, and complete instructions and information from the Buyer.

SECTION 4 - ACCESS: Buyer hereby grants access to MNI to all equipment, sites, premises, and other areas where work is to be performed under these terms and conditions. MNI will make all reasonable efforts to comply with Buyer's standard rules and regulations for access, a copy of which will be furnished to MNI by Buyer upon the submission of any order to be performed under these terms and conditions. ~~M~~NI acknowledges the labor laws of Washington State and agrees to comply with Washington State Labor & Industry rules and regulations, including payment of prevailing wages for all civil work performed in Washington State, submission of appropriate L&I forms, to include but not be limited to a letter of intent, affidavit of completion, and payment of prevailing wages to union or non-union personnel who perform civil work.

SECTION 5 - COMMERCIAL WARRANTY: MNI manufactured products are warranted to be free from defect in material and workmanship under normal use and service for a period of two (2) years from the date of shipment. In the event of a defect during the warranty period, Buyer will return the defective item to the MNI depot repair facility for repair or replacement. Repair at MNI's option may include the replacement of parts or equipment and all replaced parts or equipment shall be the property of MNI. Parts or equipment replaced during the warranty period are warranted for the remainder of the original applicable warranty period or ninety (90) days, whichever is greater. This express warranty is extended by MNI to the original Buyer for commercial, industrial or governmental use. Such action on the part of MNI shall be the full extent of MNI's liability and Buyer's exclusive remedy for breach of warranty. Expenses of Buyer such as travel expenses are not covered by this warranty.

SECTION 6 - PATH ENGINEERING SERVICES WARRANTY

MNI warrants that the installed radio communication path will conform to Customer's multipath performance reliability objectives when MNI has performed the path survey, recommended the path design, and MNI has implemented such recommendations. This warranty is for a period of 12 months from the date of the survey or one year from the date of installation of the microwave path, whichever expires first. All MNI 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. MNI 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 changes in path design; movement in site locations; buildings or other structures built on-path after date of survey; disturbances of the terrain which may cause blockages or reflections; frequency interferences from 3rd party sources including those caused by Wifi 6E; or change of available antenna mounting space on tower. Any one of these changes will nullify this warranty, and the Customer shall in such case bear the total cost of determining that such change was the cause. MNI 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 occurrences. 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

SECTION 7 - PATENT AND COPYRIGHT INDEMNIFICATION: MNI agrees to defend, indemnify and hold Customer harmless at MNI's expense, any suits against Buyer based upon a claim that any products furnished directly infringe a United States patent, copyright, or other intellectual property right of third parties. MNI agrees to pay costs (including attorney's fees) and damages finally awarded in any such suit, provided that MNI is notified promptly in writing of the suit and, at MNI's request and at its expense, is given control of said suit and all requested assistance for defense of same. If the use or sale of any products furnished hereunder is enjoined as a result of such a suit, MNI, at its option and at no expense to Buyer, shall obtain for Buyer the right of use or sale for said product(s) or shall substitute an equivalent product reasonably acceptable to Buyer and extend this indemnity thereto, or shall accept the return of product(s) and reimburse Buyer the purchase price thereof, less a charge for reasonable wear and tear. This indemnity does not extend to any suit based upon any infringement or alleged infringement of any patent or copyright by the combination of any products furnished by MNI and other elements, nor does it extend to any products of Buyer's design or formula. The foregoing states the entire liability of MNI for patent, copyright, or other intellectual property infringement.

SECTION 8 - PAYMENT: For domestic shipments, MNI's standard terms of sale are net thirty days of invoice date as defined in exhibit "B" Commercial Payment Terms, assuming MNI has complied with all Washington State Labor & Industry laws, rules, and regulations, payment is subject to a 10%, ten percent, L&I retainage, and funds may be released after L&I authorizes Cowlitz 911 to release retainage. For export shipments, the standard payment terms are irrevocable Letter of Credit (in accordance with MNI Letter of Credit Guidelines) or Cash in Advance (as described below), unless MNI has, prior to its acceptance of Buyer's purchase order, approved in writing other credit arrangements. All payments, whether by Letter of Credit or Cash in Advance, shall be made in U.S. Dollars (US$) by electronic funds transfer. Exceptions to the payment terms included herein shall be subject to the prior consideration and written approval of MNI. The Buyer shall make payments in full to MNI at the address stated on the MNI invoice or as otherwise specified in writing by MNI. Overdue payments are subject to a service charge of 1½% per month or the maximum legal rate, whichever is lower. To the extent permitted by applicable law, Buyer agrees to pay any and all costs and disbursements, including reasonable attorney's fees, incurred by MNI in legal proceedings to collect overdue invoices or enforce indebtedness. Buyer agrees that any and all costs or disbursements may be added to the total invoice amount already due at time of placement with an attorney or collection agency.

SECTION 9 - TAXES: Except for the amount, if any, of tax stated in a MNI contract, quotation, proposal, or customer purchase order, or other agreement between the parties, MNI sale prices and warranty provisions are exclusive of any amount for federal, state, local, excise, sales, use, property, retailers' occupation, in-country, import, VAT or similar taxes or duties. Such prices are also exclusive of all government permit fees, license fees, customs fees and similar fees levied upon delivery of the MNI products and services.

Cowlitz 911, WA
Microwave Radio System Description

September 20th, 2024

Contents

1 Cowlitz 911 Digital Microwave Radio Design Overview

1.1 Introduction

With more than fifty years of experience in the business, Microwave Networks Incorporated is a top U.S. manufacturer of wireless transmission equipment and support services. Manufacturing, designing, and implementing mission-critical microwave radios for markets like utility, public safety, and the federal government are our main priorities. This project will provide a new microwave backhaul network for Cowlitz 911 to upgrade their current backhaul from a TDM based system to an IP packet-based network.

We are excited to present our project to upgrade County's current backhaul from a TDM-based system to a cutting-edge IP packet-based network. Our comprehensive proposal includes the complete integration of a network designed to meet and exceed your functional requirements. Specifically, our proposal entails the design, engineering, supply, and installation of 4 Proteus MX microwave radio links for Cowlitz 911, featuring:

- **Proteus all indoor microwave radios** equipped with native TDM + IP/Ethernet interfaces
- **Mission Critical** microwave backhaul design with **True No Single Point of Failure**
- **High Power Indoor RF units**
- **DS1 interfaces** to support seamless migration of legacy circuits
- New Antennas, waveguide and dehydrators system
- Path & Site Survey, System installation, optimization and acceptance testing
- Project management based on Project Management Industry standards
- Warranty, extended warranty and support options

All radio links have been designed to meet or exceed 99.999% annual path availability (two-way) and 35 dB fade margin using licensed 6 and 11 GHz band. The proposed designs are based on MNI's flagship radio, the Proteus MX with All Indoor RFU configuration, including native TDM and IP interfaces. The path calculations are based on radio-guaranteed specifications.

In order to reduce the size of the microwave antennas (and reduce tower loading), provide greater path reliability, and support high throughput capacity, we have utilized the **High-Power (HP)** version of the Proteus 6 GHz and 11 GHz Indoor RF Units. The HP RFUs provide a guaranteed output level at the antenna port of up to 110 dB system gain. This system gain offers the following benefits:

- Potential to use smaller antennas without sacrificing path reliability. This reduces the material and installation cost of the antenna system. More importantly, it reduces tower space requirements and tower loading and can translate to considerable cost savings.
- Enables the use of higher modulation without compromising path reliability. As modulation level is increased, to provide greater link capacity, system gain for the radio is reduced, reducing the reliability of the path. The extra transmit power of the

HP Proteus MX radio can overcome the reduction in system gain at high modulations and maintain high reliability for the microwave path.

- The HP Proteus MX radio's increased output power enables longer path lengths to be achieved for fixed modulations and antenna sizes. In some cases, this could potentially eliminate the need for an intermediate, microwave-only repeater site resulting in very significant savings to the project.

The proposed network design includes four links, with each hop equipped with 1+1 protection to ensure redundancy and reliability.

The proposed links were designed to support a throughput capacity of 155 Mbps.

The proposed new High-Performance antennas are Commscope Category A with sway bar (side struts) for additional support. Antenna ice shields are not included.

The new waveguide systems are the Eupen 6 GHz and 11 GHz elliptical waveguides. Waveguide runs for each site will be supplied with a new dehydrator and installation hardware accessories. An additional 50 ft of horizontal run was added at each site in our path calculations.

Existing racks will be equipped with new Trimm breaker panels equipped with the necessary breakers to supply power to the proposed microwave radios.

The microwave radios will be powered by a DC power system with battery systems sized to provide backup in case of failure of the site's main AC supply. Existing Cowlitz 911 sites will be using existing 48 VDC power supplies and batteries.

1.2 Path Design Considerations

All paths were engineered to meet or exceed an annual two-way availability of 99.999% and an Effective Fade Margin of at least 35 dB at a BER of 10E-6 using the Vigants-Barnett model. The preliminary calculations for path performance are based on Microwave Networks guaranteed 10E-6 receiver threshold levels and transmit power. Bellcore Standard transmission engineering practices, formulas and topographic data are the foundation of these calculations. The Clearance criteria and Digital Terrain data used to determine preliminary antenna centerlines are:

First Criteria:

- K = 1.33 @ 100% F1, 0.67 @30%
- Diversity K=1.33 @ 60%
- 20 ft. Tree Growth

Digital Terrain Databases:

- Elevation: 1/3" Arc USGS terrain data
- Land Cover: 30 meter USGS NLCD 2019 Land Cover data

Before system implementation, a microwave path engineering survey will be conducted on all paths. The objective of this survey is to confirm the information to be used for clearance and engineering performance objectives. This confirmation includes site location (latitude/longitude coordinates), elevation above mean sea level (AMSL), accurate measurement of path obstructions along the path (i.e. trees and buildings, electrical transmission lines, cellular towers and the presence of reflective surfaces) and general compilation of local climate information.

At locations with existing towers, pre-determined azimuths and centerlines will be checked for availability/adaptability in terms of proposed antenna mounting.

2 Cowlitz 911 Microwave Equipment Solution

2.1 Proteus MX

All Proteus MX radios support Native Ethernet and Native TDM radios, providing a flexible platform allowing the increase in capacity for future requirements without the need of re-investing.

The features of this design are as follows:

- Native Ethernet ans native TDM radios
- Mission Critical microwave backhaul design with True No Single Point of Failure
- Proven backhaul reliability for P25 Land Mobile Radio Systems and Simulcast Analog systems

The Proteus MX is a technically advanced, cost-effective mission-critical licensed band radio platform. As a hybrid radio, the MX supports native TDM (DS1, DS3 and OC3) and native Ethernet IP traffic separately without converting traffic from one format to the other. This hybrid design has the advantage of preserving TDM timing and minimizing latency and jitter in the TDM traffic.

The Proteus MX was designed around Mission Critical Reliability; it was designed from the ground up to provide backhaul for critical applications such as P-25, TETRA and LTE networks. In the 1+1 protected configuration every active component is duplicated with automatic switching between primary and Standby at several different points in the traffic path. Individual modules can be removed and replaced for maintenance without disconnecting traffic cables or interrupting traffic in any way.

Setup and configuration is carried out using either a menu based Command Line Interface session or using the Proteus Element Manager GUI application. Unlike many other radios in the market, both ends of a radio hop can be configured simultaneously from one site – there is no need to individually configure each site separately.

The Proteus MX is also available in various hardware and path protection configurations, including 1+0, 2+0, non-protected repeater, non-protected space diversity, fully hot-standby protected (1+1) and protected transmit with space or frequency diversity receivers.

Key features include:

- Native Ethernet and Native TDM - Proteus MX offers risk-free migration from TDM to IP with the highest possible capacities at the lowest overall cost - addressing any deployment scenarios.
- Data rates from 6 Mbps (2.5 MHz channel) to 350 Mbps (60 MHz channel)
- 6-38 GHz licensed frequency bands
- All Indoor or Split Mount with outdoor antenna mounted RF Units.
- QPSK to 256 QAM Modulations
- TDM Features
  - Up to 32DS1 or 4DS3

- SHARP – Self Healing Alternate Ring Protection- built-in T1 Loop Protection
- Integrated M13 Multiplexer – DS1s inserted/dropped from a DS3
- DACS – TDM Digital Cross Connection and Traffic Grooming
- MicroBus – Single cable interface for co-located radios

- Carrier Ethernet Features:
  - Integrated L2 Ethernet switch with 4096 VLAN and QoS
  - Standard: 4 x10/100/1000BaseT interface (FE/GE) – RJ45
  - Optional: 3x10/100/1000BaseT interfaces (FE/GE) – RJ45 plus 1xGE SFP 1000Base-X SFP
  - Optional: 12x10/100/1000BaseT interfaces (FE/GE) – RJ45
  - Support up to 10k byte Jumbo Frame
  - Encryption: AES 128/256 (optional)
  - FIPS 140-2 Validated (optional hardware version)
- Adaptive Coding & Modulation (ACM)
- Relay Alarm Outputs 4 x Form-C relays, NO & NC contacts (software mapped)
- External Inputs 6 x TTL floating inputs
- Forward Error Correction for improved receiver threshold.
- System Identification Memory (SIM) – A front panel accessible Flash memory card (SD Flash) containing all configuration and history files. The SIM card can be transferred during maintenance to quickly and easily upload configuration to a replacement unit.
- Operating Temperature Range:
  - Indoor installed units: -5^{0}C to +55^{0}C
  - Outdoor installed units: -50°C to +55°C
- A powerful Transversal Equalizer to provide high tolerance to dispersive fades
- Transmitter pre-distortion for increased output power
- RADIUS user authentication
- Element Manager (EM) application GUI for easy radio setup and configuration
- Available SPARCS Network Management System – An SNMP based NMS for managing Proteus radios as well as other SNMP based objects in the networks.

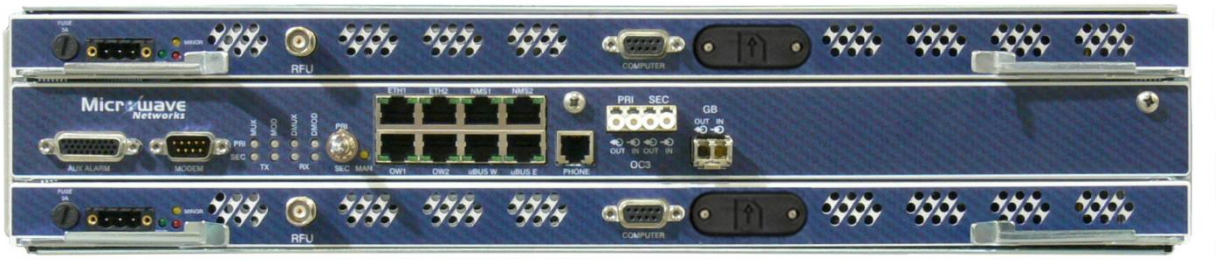


Figure 1: MX Signal Processing Unit (SPU)

The Proteus IRFU provides output power up to +33 dBm in a small footprint. The RFU is designed to support multiple capacities, frequencies, modulation schemes and configurations for various network requirements. It operates in the 6, 7, 8 and 11 GHz frequency bands, and supports capacities of 6-350 Mbps. The RFU branching unit includes a built-in expansion port that allows a new radio connection to an existing antenna system.

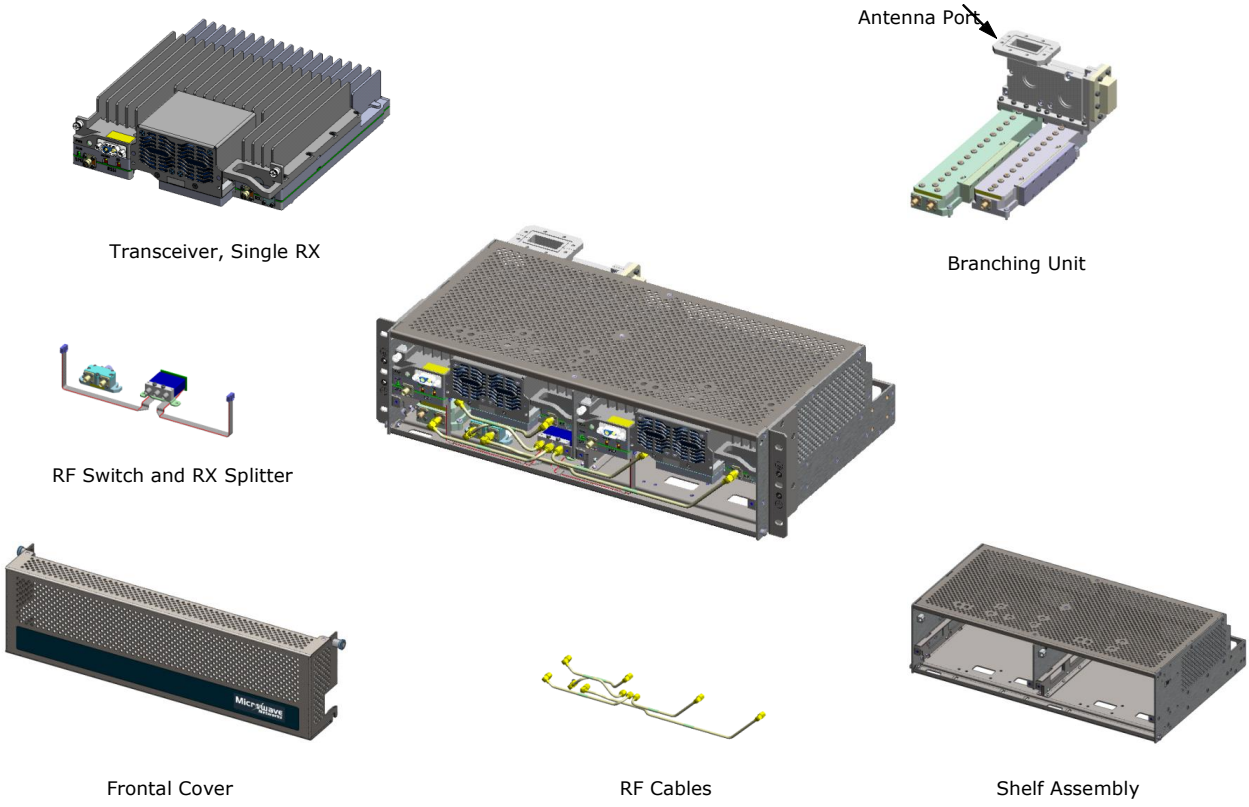
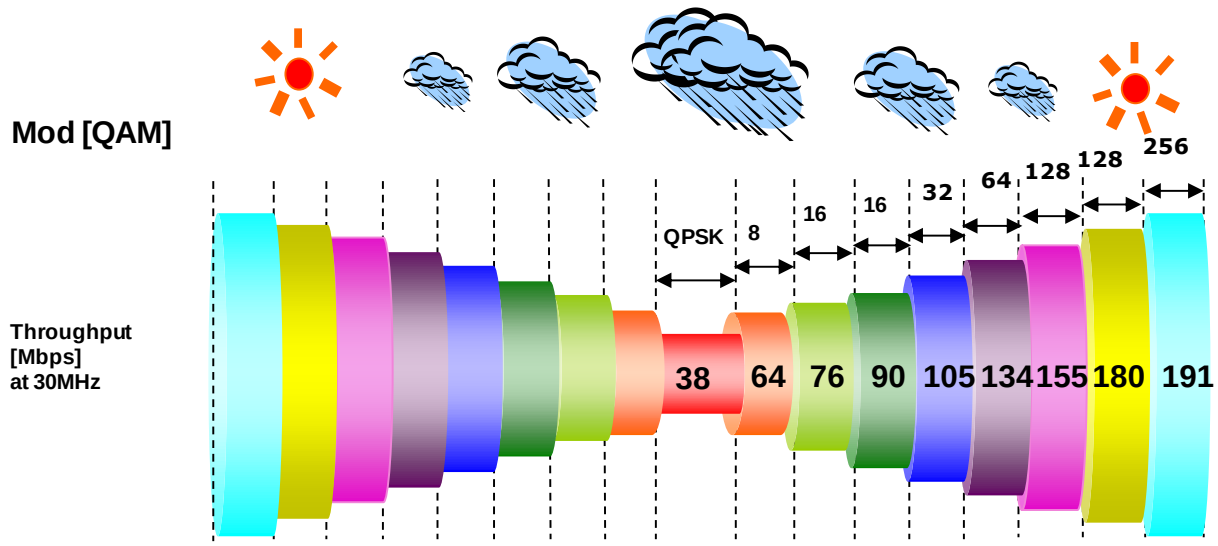


Figure 2: Proteus IRFU (Indoor RF Unit)

The Proteus MX includes errorless RX switching to ensure the RX with the better SNR (Signal to Noise Ratio) remains on line. Typically in a HSB radio this will be the primary RX because the RX power split provides a higher signal level to the primary receiver.

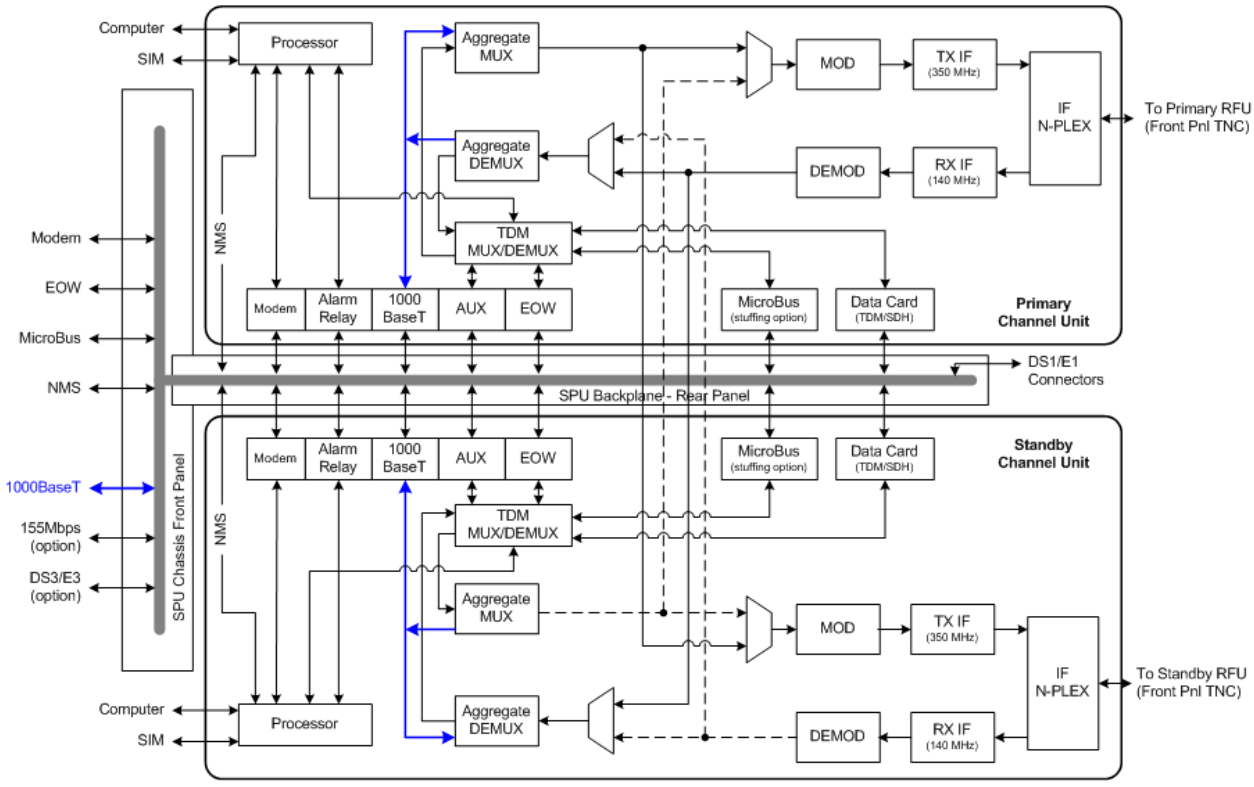
In addition to hardware reliability, path availability is critical to a reliable backhaul network. The Proteus MX includes Automatic Transmit Power Control (ATPC) and Adaptive Code and Modulation (ACM), which ensures a path can be designed and provisioned to meet even the most stringent goals. Adaptive Modulation is an important new technology for Microwave networks. This technique is used to increase radio throughput by adjusting the modulation scheme as propagation conditions change. The figure below illustrates how adaptive code modulation technology can automatically adjust modulation modes and dynamically enable service transport according to the performance of air interface channels that might be affected by bad weather conditions. The modulation mode can be changed (for example, from 256QAM to 64QAM or QPSK) to enable error-free communications. In adverse conditions, for example, the access bandwidth of the Microwave air interface may be decreased. This means that the Microwave equipment must prioritize high availability services over best-effort services. The equipment will then automatically recover the original rate when the channel quality is recovered. Adaptive code modulation technology increases bandwidth capacity and enables Microwave equipment to be deployed in densely populated areas.



2.1.1 Proteus MX Hot Standby Protection

The proposed spur paths radio configuration will be 1+1 fully protected. In the Proteus MX transmit and receive switching is independent. Also, in the TX and RX path there are two switch points so the Input & MUX section switches independently of the Modulator/RF

section.



The first switch is between the multiplexer (MUX) and the modulator (MOD). This switch allows either MUX A or MUX B to operate with whichever MOD/XMTR is on line at any given time. Normally MUX A and MOD A are on line and the "B" units are in standby mode. If a failure were to occur in MUX A, MUX B would switch on-line almost instantly resulting in only very small number of bit errors during the switch. The important thing is MOD A and XMTR A would remain on line so there is no disruption in the RF Path.

The second transmitter switch is a mechanical RF Relay which switches between the XMTR A and XMTR B. Normally XMTR A will remain on line, however a failure in MOD A or in XMTR A will result in a transmitter switch. Detection of the failure and relay switching time is less than 10 ms, however switching transmitters may result in the far end receiver losing sync while it acquires the new XMTR B signal. If this occurs an outage of up to 250ms is possible while the receivers resynchronize with the new signal. For this reason, transmitter switching is non-revertive. Since there is no system gain penalty for operating on XMTR B, once the transmitter has switched it will not return to XMTR A, even after the fault in XMTR A is resolved, unless it is reset manually or a fault occurs in XMTR B. The Proteus MX includes errorless RX switching to ensure the RX with the better SNR (Signal to Noise Ratio) remains on line. Typically in a HSB radio this will be the primary RX because the RX power split provides a higher signal level to the primary receiver.

The Proteus MX includes errorless RX switching to ensure the RX with the better SNR (Signal to Noise Ratio) remains on line. Typically in a HSB radio this will be the primary RX because the RX power split provides a higher signal level to the primary receiver.

2.2 Antenna System

The proposed high performance antennas for this system of the Micorwave Networks 6GHz and 11 GHz. All the antennas used for transmission meet FCC Part 101, Category A and provide rugged, high-quality performance at low initial costs. They also provide excellent wind survivability at 155 mph. Radomes and additional antenna struts are also proposed to reduce wind loading and enhance the survivability of the system.

2.3 Network Management

Several complementary products can be used for Site Alarm and Network Management. These include the following:

- **Element Manager**, which provides direct local access or remote access over any IP network to provide configuration, link by link analysis, and alarms.
- **SPARCS**, which is an SNMP based open network monitoring and management system

2.3.1 Element Manager

The Element Manager (EM) is the Proteus Series radio and link supervisory system that simplifies configuring, monitoring, and testing each radio or the complete link. The EM is a Microwave Networks proprietary software package, provided free of charge with each radio terminal. It has an intuitive graphical user interface. The EM gives radio installer, maintenance personnel and operators a tool for management and control of individual radio links – on site or from remote locations – using a platform independent Java environment. A radio manager can use EM to configure a radio, test a radio or link and monitor performance and alarms.

EM's graphical interface provides a clear display of radio information, alarms, status, configuration and logs. The radio logs up to 200 items: 100 radio alarms and 100 events. Events include configuration changes and condition changes. EM has administrator and guest security levels. The following illustration shows the EM display of a protected radio configuration. This view summarizes performance graphically for both primary/secondary and near-end and far-end radios.

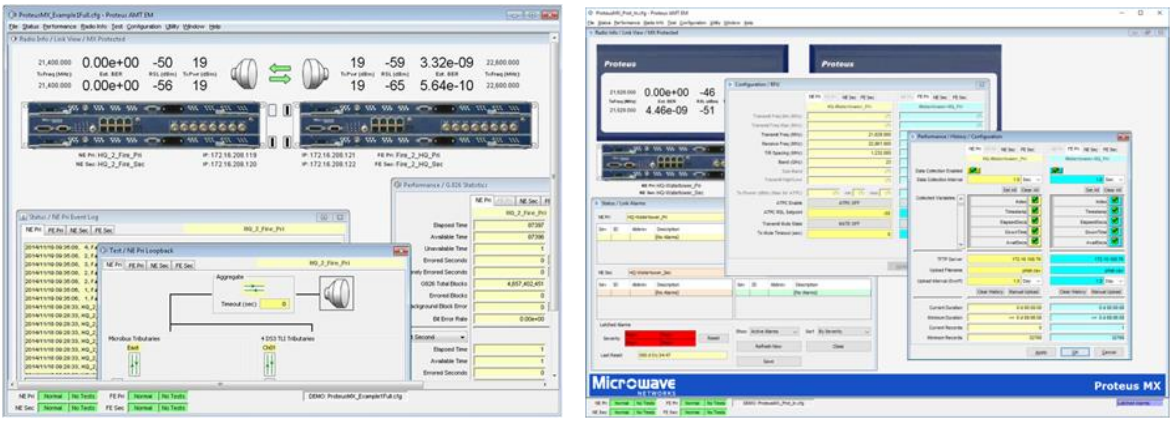


Figure 5: Element Manager Screens

The EM is for management of a single radio link at a time. Management of multiple links and/or the entire network is achieved with SPARCS.

2.3.2 SPARCS Network Management System

Our proposal includes SPARCS SNMP based Network Management System. SPARCS monitor and control the digital microwave system we are proposing. We will supply SPARCS already loaded on a Server, and configure it to monitor your Microwave Network. SPARCS provides the following capabilities and features:

- Runs on Windows OS with modest hardware requirements. SPARCS is a completely open system allowing access to its data from external sources.
- SPARCS can be used to manage any SNMP enabled device.
- Supports a multi-level hierarchical map. Each hierarchy can represent cities, buildings, or sub-networks. Imported bitmaps of geographic maps or floor plans, along with manual or automatic network placement, lets you create a layout that closely matches the actual network.
- Automatically lay out each map network as a tree, ring, or bus topology. Each map object uses a device specific or user selected icon, and the object color indicates the device status.
- The Map Navigation Tool Window displays the map as a tree for direct selection of objects. The Navigation tree also displays the current alarm status of each subnet to quickly locate failing devices.
- The map window Full Zoom feature automatically moves and zooms the view so that all devices are always visible in the window. The Pan/Zoom feature lets you select a region to zoom into from the complete set of devices in a view.
- Automatic network discovery agents find new nodes on the network and automatically place them on the root Map. Operators can then move the newly discovered node to any sub-map and configure how SPARCS will interact with the node.
- Employs distributed polling agent architecture to provide a high performance solution capable of monitoring networks from several hundred devices to tens of thousands. Remote software and Web based consoles provide network information to everyone who needs it.

- Provides remote access consoles through Java or Windows based client software. Each remote user is assigned a security level and unique view of the network based on their user login.
- Security and accountability through support for user audit trails. Any user access to the management platform or configuration changes are tracked and written to a log file. Alerts are automatically generated if an intrusion attempt is detected.
- Alarm events can be configured to automatically Email and or page appropriate service personnel.
- With the Trend Reporting capability, Polling Agents monitor all user-defined report variables for a learning period and calculate a baseline for typical patterns. Thereafter, the Polling Agents compare the actual polled data to the baseline and generate alarms when variables deviate excessively from the baseline. Polling Agents automatically adjust baselines as traffic patterns change. You can also manually configure alarm thresholds for any polled variable.
- Changes the color of map objects and performs other actions based on received events. Event Action Filters select the action to take when an event occurs.
- Automatically export Map Topology, trend statistics and event log entries to industry standard databases for further processing. Use familiar tools such as Microsoft Access to generate customized trend reports.
- Automatically generates scheduled daily, weekly, and monthly statistic reports. Report formats include graph, bar chart, distribution, and summary. They can be exported to a variety of destinations, including printers, files, or a WEB server.
- User defined custom menus directly perform commands without having to select MIB objects. Custom menus can display a MIB table; edit, graph or chart any set of MIB variables; set an SNMP MIB variable; or run an application program.

SPARCS provides the most immediate real-time health indication of the network by the color of the icons representing the sub-networks, sites and individual radios in the network map: each icon's color represents the severity of the most serious problem that SPARCS knows of in the radio or radios that that icon represents. SPARCS determines the severity level of the radio by polling the radio's object, and also by tracking the setting and clearing SNMP traps that the radio can be configured to send to one or more SPARCS consoles.

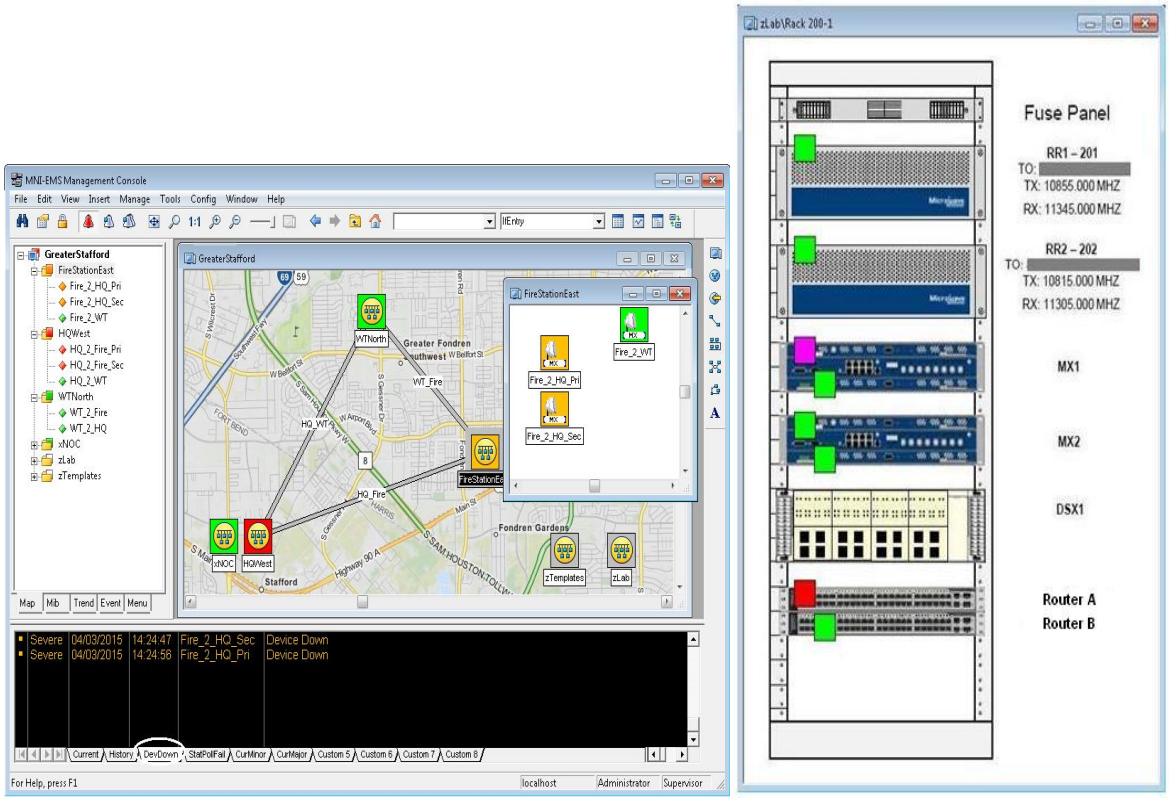


Figure 6: SPARCS Event Log, icon coloring, and hierarchical map

The Proteus MX radio's MIB contains dozens of status variables, and these can be viewed directly using SPARCS, or in a more formatted fashion using the Element Manager. In addition, any status variable can be polled by SPARCS or a SPARCS script, and SPARCS can trigger a notification event if the monitored variable exceeds specified thresholds.

CUSTOMER

_____

Chair of the Board, Brad Thurman

ATTEST:

_____

Clerk of the Board, Briana Harvill

APPROVED AS TO FORM:

_____

General Counsel, Frank Randolph

_____

Date

Contractor

Signed:_____ Date:_____

MNI Representative

Scope of Work (SOW): Cowlitz 911 Microwave Upgrade Installation Services

Customer:	Cowlitz 911	Date:	9/20/24
Quote #:	IF40522-50	Revision:	R.1
Order #:	TBD	Salesperson:	Itai Farchi
Equipment:	Proteus MX, 6 GHz, 11 GHz	Program Mgr.:	TBD
Location:	Cowlitz County, WA	Customer Rep.:	TBD

This Scope of Work (SOW) details Microwave Networks Incorporated (MNI) and Cowlitz 911 (Customer) responsibilities and tasks to be performed for the installation and commissioning of the equipment specified in Quote Number listed above.

Microwave Networks Implementation Overview

Microwave Networks is providing the following services to support the microwave network:

- Program Management
- Project Engineering
- Path Survey Engineering and Technical Report
- FCC Frequency Coordination and Licensing
- Factory System Integration and Staging
- Acceptance Test Plan
- Installation of Radio Equipment Quoted
- Installation & Optimization of Antenna, Transmission Line Equipment Quoted
- Optimization of radio and antenna systmes
- Field Acceptance Testing
- Documentation
- Lifecycle Support Services

Below are the details of these services:

Program Management

Microwave Networks will provide Program Management services to manage the project's flow proactively, keep Customer up to date, and follow and track all aspects of the project, including documentation, scheduling, manufacturing, shipping and meetings. The Microwave Networks Program Manager will be responsible for all correspondence regarding the project and will be the primary point of contact throughout the project. The tasks of the Project Manager include, but are not limited to, the following:

- Act as the main point of contact between Project Manager and Microwave Networks resources throughout the entire project lifecycle.
- Full responsibility for supervising and coordinating day-to-day activities, deliverables, and milestone completions. Management of project lifecycle requires periodic job site visits by

the Project Manager at which time he/she will ensure work is being performed on time, as scoped, with the utmost quality, and professionalism by Microwave Networks employees, agents, and subcontractors.
- Inspect site to ensure readiness for receiving and installing equipment.
- Inspect and maintain inventory of all received equipment to insure total delivery.
- Manage/supervise field installation and implementation teams to ensure that all on-site installation, integration, and optimization tasks are performed per contract requirements, industry best practices, and applicable standards and guidelines.
- Monitor the project to ensure that support resources are available as scheduled and as identified in the contract.
- Develop, track, manage, and communicate both orally and in writing (hard copy or electronic format) the project plan, schedule, status of deliverables, risk items, change orders, action items, punch list, and other reporting deliverables as set forth with Customer.
- Schedule and participate with Customer in a project kick-off meeting and weekly project status meetings/calls or as deemed necessary throughout the project lifecycle.
- Establish and maintain a project punch list and review during weekly status meetings/calls.
- Resolve deviations from the Project Schedule.
- Coordinate closely with the Customer Project Manager any needed interruptions to the existing system during implementation of the new system.
- Provide timely responses to issues related to project progress raised by Customer Project Manager.
- Review and administer change control procedures with Customer Project Manager.

Project Engineering

The Project Engineer(s) will lead the design, support, installation, optimization, testing and acceptance of the microwave radio subsystem. General responsibilities include:

- Collaborate throughout the implementation
- Perform site walks and system audits to assess requirements for system design and site development.
- Microwave link budget calculations based on Customer's requirements.
- Develop system description, Bill of Materials (BOMs), system diagrams and rack diagrams.
- Evaluate power and battery requirements for the proposed solution.
- Presented detailed engineering design reviews with Customer and present proposed solution.
- Given the results of the path survey, the site survey, and the frequency coordination, Microwave Networks, will perform the project engineering to develop a detailed equipment list which specifies, on a site-by-site basis, all of the individual items required to implement the new microwave radio system.
- Collaborate with 3rd party subsystem vendors for backhaul implementation and design.
- Execute Functional System Acceptance Test Plans (FATP)
- Develop cutover plans in conjunction with Customer.
- Provide sound knowledge of microwave link budget analysis, bandwidth planning, network design and capacity planning.
- Provide expertise in designing systems to meet public safety grade requirements as defined in RFP requirements.
- Provide insight to frequency planning, reuse and licensing.

- Evaluate feasibility of TDM, Ethernet or hybrid microwave backhaul links.
- Provide expertise in backhaul capacity planning and designing solutions to provide redundancy at various TCP/IP layers.
- Troubleshoot RF, Network and Microwave implementation issues.
- Develop cutover plans with very minimum interruption/downtime.

Path Survey Engineering and Technical Report

The initial step in the design of a microwave radio link is the path survey. The purpose of the path survey is to accurately identify and locate all critical points and potential obstructions between the two sites and to determine the antenna centerlines that are required to meet the established path clearance criteria. Microwave Networks has a staff of transmission engineers and survey crews to conduct path surveys.

Prior to beginning the physical path survey, computer analysis is conducted for the proposed path. Preliminary site coordinates are entered and preliminary path profiles are generated from USGS 1/3 arc second Digital Elevation Models (DEMs). This data is then used to calculate preliminary antenna centerlines and critical elevation points which require investigation and confirmation during the actual survey.

During the physical survey, the path is traversed and the horizontal and vertical positions of the proposed radio sites, critical elevation points, and potential obstructions are accurately identified using a differential global positioning system (DGPS) and a laser range finder. This information is digitally recorded on a path survey data collector.

Based upon the as-surveyed path profile, antenna centerlines are selected to satisfy two sets of clearance criteria: F1 @ K=4/3 and 0.3F1 @ K=2/3. An analysis is also performed to determine if potential path reflections might interfere with path performance. Path reliability for a two-way link will be at least 99.999%.

All of the relevant information gathered during the survey, the path profiles, and the proposed antenna centerlines are compiled into a path survey report. The entire report includes each path for which a survey was conducted and will be delivered within 1 to 2 weeks after the completion of the survey.

In parallel with, or shortly after the path survey, Microwave Networks will conduct site surveys. The purpose of the site survey is to perform a visual inspection of the site and collect information that will be used to finalize the detailed site design and to accurately assess the scope and plan for installation.

Within one week of the completion of the survey, Microwave Networks will deliver the site survey report which details the findings and recommendations.

FCC Frequency Coordination and Licensing

Microwave Networks will provide the frequency coordination services and FCC Licensing services for the Customer for each microwave path. This provides a 10 year license for the microwave path.

This includes first, performing an interference analysis to determine frequencies that will not cause harmful interference to other existing and proposed microwave paths and earth stations in a particular band. Our Interference Analysis services include:

- Identification of co-located or nearby licensed transmitters.
- Accurate prediction of interfering levels into and from your system, using our proprietary software and factors such as antenna performance, radio filter performance and terrain.
- Identification of available frequencies considering existing and proposed systems. This may include analysis of adjacent or shared bands to detect unwanted threshold degradation or potential earth station interference.
- Documentation of the system parameters including the selected frequencies and any outstanding interference conflicts.

Prior coordination is required by the FCC and begins when the system design is complete. After frequencies are selected, a Prior Coordination Notice (PCN), including a path data sheet, must be sent to all existing microwave users in the area to notify them of the proposed path. The FCC rules state that existing users have 30 days to object to the proposal. Once the 30-day period expires and any objections are resolved, we provide the supplemental showing which must be included in the FCC license application. Our Prior Coordination services include:

- Notification of your proposed system to all existing and proposed licensees in your area and frequency band of operation.
- Case resolution if any licensees are not in full agreement.
- Preparation of documentation required to satisfy FCC Rule Part 101.103 (d).

For the final FCC forms, Microwave Networks will complete the engineering sections of the Private Fixed Microwave Application Form 402. In addition, we will provide the exhibits of the functional system diagram which are required by FCC rules. The end-user will provide information for other sections of the form which relates to shared use of facilities, environmental impact, and other non-engineering aspects of the application.

Manufacturing

The Microwave Networks Program Manager will monitor all of the radio equipment through the manufacturing process from the material planning phase to the final test. By having real-time

access to the status of the manufacturing process, the Program Manager can ensure the successful delivery of the equipment on-site with the start of the installation. Also, whenever situations occur on the project which require a modification to the manufacturing process the Program Manager can initiate the necessary changes quickly and establish the appropriate feedback channels to confirm that the changes are implemented.

Factory Staging

MNI does system integration and factory staging in our factory in Stafford, TX. In the factory Systems Integration Facility, Microwave Networks will perform a complete factory integration and test of the entire system or can do this in ring-by-ring approach. As part of the factory integration process, all the equipment will be configured as it will be when installed. All radios are connected back-to-back with fixed/variable attenuation while various radio and system-level tests are performed. The microwave links can all be staged at the same time.

Equipment Delivery

All racked radio equipment, except for power systems and batteries will be delivered to the local secure facility in racks. Power systems, antennas and waveguide and other mounting accessories will also be delivered to the local warehouse. Microwave Networks will transfer equipment to each site for installation.

Installation of Antenna Systems and Radios systems

All antenna installation work is sub-contracted by Microwave Networks to Day Wireless who will work under the direction of the Microwave Networks Program Manager. As the prime contractor for both the antenna installation and the other installation activities for the site, the Microwave Networks Program Manager coordinates all activities related to the antenna installation, including delivering the equipment to the site and the assistance of the tower crew in the path alignment process.

As part of a comprehensive installation, Microwave Networks will install the necessary lengths of waveguide to connect the radio to the antenna. Microwave Networks will adhere to established industry standards such as Motorola R56 and manufacturers' recommendations when installing waveguide on towers.

Upon completing the installation of an antenna system, Microwave Networks conducts a sweep test on each section of waveguide. The purpose of the sweep test is to verify that the installed system conforms to VSWR specifications across the operating band.

Microwave Networks will also install and test the pressurization equipment. The pressurization equipment will be installed at a location designated in the site plan. Upon completion of the installation, Microwave Networks performs a pressure integrity test of the system.

Microwave Networks installation subcontractors will install and test the radio system. All of our installations are performed by our certified subcontractors whose activities are directed and monitored by the Microwave Networks Program Manager.

The general scope of the installation includes uncrating, inspection, inventory, setting and securing in place, connection of DC power, connection to transmission system, path alignment, and testing. While these general activities provide an overview of the scope of installation, the detailed installation plan will vary from site to site.

Field Acceptance Testing

Microwave Networks will conduct on-site testing to meet the project requirements. These tests are a subset of the tests performed during the manufacturing process and the factory system test. On-site measurement of receive signal level (RSL) will be recorded to verify proper path alignment. Microwave networks will perform a 24-hour BER test on TDM radios, RFC 2544 and Y.1564 Ethernet testing. The test results report will provided in PDF format.

Documentation

The following documentation will be provided:

- Detailed Implementation schedule
- Acceptance Test Plans
- FCC licenses and coordination documentation
- Path Profiles and Path Link Analysis
- Formal Path and Site Survey Report
- One complete set of Microwave Networks Operation and Maintenance manuals with drawings for each rack.
- One complete set of vendor provided Operation and Maintenance literature with drawings for each location.
- Project completion notice upon completion of the activities detailed in the Scope of Work. The project completion notice may apply to the project on a per hop or per system basis, as mutually agreed upon by Microwave Networks and the Customer.
- Complete System functional diagram
- A complete documentation package of equipment as installed and accepted (As Builts), to the Customer three (3) weeks after system acceptance, including wiring lists, calibration procedures, maintenance charts and tables.

Life Cycle Support Program

Microwave Networks is pleased to include a 2-year Lifecycle Support Services (LSS) Program at no charge and optional pricing for additional 3 years. This SOW covers the LSS Program, which includes:

Proteus MX Radios Extended Warranty
Proteus MX Premium 24x7 Phone Support
Software Releases Support

Warranty

Our LSS program includes product Warranty, which provides return and repair of all Microwave Networks manufactured equipment.

All repairs will be handled through Microwave Networks service department at no charge. Standard repair turnaround time is 30 days from receipt of unit and may change subject to availability of parts.

All other equipment has a 1 year standard warranty from the 3rd party manufacturer. Warranty starts at shipment of equipment.

24-Hour Technical Support by Phone

Technical support is available 24 hours per day, seven days a week. Experienced Technical Support Engineers are available in the USA from 8:00am – 5:00pm (Central Time) Monday through Friday. At all other times, our Technical Support Engineers will return your call within 30 minutes.

Microwave Networks Standard Warranty

Following is Microwave Network's 2 year standard warranty:

Products manufactured by Microwave Networks Incorporated ("MNI") are warranted to be free from defect in material and workmanship under normal use and service for a period of two (2) years from the date of shipment. In the event of a defect during the warranty period, Buyer will return the defective item to the MNI depot repair facility for repair or replacement. Repair at MNI's option may include the replacement of parts or equipment and all replaced parts or equipment shall be the property of MNI. Parts or equipment replaced during the warranty period are warranted for the remainder of the original applicable warranty period or ninety (90) days, whichever is greater. This expressed warranty is extended by MNI to the original Buyer for commercial, industrial or governmental use. Such action on the part of MNI shall be the full extent of MNI's liability and Buyer's exclusive remedy for breach of warranty. Expenses of Buyer such as travel expenses are not covered by this warranty.
This warranty extends only to products manufactured by MNI, and it is expressly conditioned upon the equipment having been installed in accordance with the installation practices accepted by the telecommunications industry, the standard installation and configuration practices recommended by MNI, and the equipment having been maintained in accordance with MNI recommended standard maintenance practices.

Vendor products and other equipment not manufactured by MNI are excluded, but carry their own separate limited warranties.

This warranty shall automatically terminate if the product is used in other than its normal and customary use, has been subject to misuse, accident, neglect, or damage, is improperly disassembled, improper alterations or repairs, or if nonconforming parts are used in the product, unless done by a service facility authorized by MNI to perform warranty service. The warranty for Network Management Systems (NMS) shall automatically terminate if software is altered, added, or removed from the platform without the prior approval of MNI. NMS provided by MNI does not include virus protection software and this warranty does not cover damages caused by computer viruses.

Because each radio system is unique, MNI disclaims liability for range, coverage, or operation of a system as a whole under this warranty. This warranty shall not cover any damages caused by Acts of God including, but not limited to, flood, lightning, seismic activity; and events of *Force Majeure* such as fire, explosion, war, civil disturbance et al.

THIS MNI WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED, WHICH ARE SPECIFICALLY EXCLUDED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

An authorization to return products under this warranty must be obtained from a MNI Customer Service Representative prior to making shipment to MNI's service location, and all returns shall be shipped freight pre-paid. MNI shall be responsible for return freight charges only on repaired and replaced products found to be defective.

In the event that MNI provides services only, MNI warrants the performance and specifications of such services but does not warrant that services performed will fulfill the total system requirement of the Buyer.

SOW General Requirements:

Pricing and implementation are based on using a Microwave Networks Incorporated (MNI) selected non union work crew. Prevailing wage rates are included. MNI intends to utilize this crew in all locations and for all tasks. The requirements and tasks listed below are considered standard.

The MNI Program Manager (PM) will act as coordinator between the Customer and the MNI Installation Supervisor. All requests or needs with regards to the implementation should be directed to the MNI Program Manager. To avoid confusion, the Customer is asked to identify to the MNI Program Manager, in writing, all personnel who may authorize changes and perform site acceptance. This list is to be submitted to MNI prior to the start of installation.

Installation work performed by MNI or its authorized sub-contractors will conform to industry guidelines and will utilize quality materials from selected qualified suppliers. All special requirements are to be submitted in writing to the MNI Program Manager prior to the start of installation.

Unless otherwise stated in this SOW, the Customer will furnish equipment receiving, storage and staging space at the site locations. Customer will provide a staging area and secured room for MNI personnel to store documents, test equipment, and other necessary items required for the installation.

No changes to the Scope of Work (SOW) will be authorized unless agreed upon by the customer project coordinator or authorized representative and the Microwave Networks Program Manager. Changes to the SOW will be documented in writing by MNI. If the change(s) affect the sub-contractor, a request for quotation will be issued. Upon determination of cost and schedule impact, a Project Change Order Authorization (PCOA) detailing the requested changes will be forwarded to the Customer's Project Coordinator or authorized representative for signature. No changes will be performed until customer authorization is obtained.

MNI will submit the SOW, which includes the project timeline (sequence of installation tasks with completion dates); to the Customer for approval at least two weeks prior to the scheduled start for installation. The Customer is required to sign and return the SOW at least one week prior to the scheduled start date for installation to the MNI Program Manager. Failure to return the approved SOW could cause MNI to delay the start of installation until approval is obtained.

Site work will be performed in a progressive and contiguous manner, including working weekends without work stoppage due to non-MNI related tasks. Twelve (12) hours work days is assumed or mutually agreed to working schedule.

Relocation of existing equipment, unless otherwise specified, will be the responsibility of the Customer and is to be completed before installation work commences by MNI or their authorized personnel. Relocation of existing equipment, sites and/or paths is not included in this SOW.

The Customer will provide adequate & timely access to all sites.

All superstructure, Main Station Grounding, and required cable rack are assumed to be existing or to be installed by others.

Inspection of the site and verification of the installation design will be performed on initial entry to the site by MNI personnel or MNI's authorized subcontractor for engineering compliance.

General site clean up will be performed by MNI installers, on a daily basis with the trash neatly stacked for removal by the Customer or placed in a customer provided receptacle.

System acceptance will be based on the Acceptance Test Procedure (ATP).

Traffic activation of a hop, link or system prior to completion of final testing and system acceptance will constitute BENEFICIAL USE and ACCEPTANCE of the affected portion.

GENERAL ASSUMPTIONS

Vendor equipment such as MUX, DSX panels and Channel banks will be integrated at the factory. All intra rack wiring will be installed at that time.

The Customer will be responsible for all required licensing and permits unless otherwise directed by the terms and conditions of the contract.

All sites are accessible by 4x4 wheel drive vehicles.

Sites will have adequate space for the new equipment and suitable temperature control and lighting where work is to be performed or materials stored.

Existing towers are sized properly to support the new antenna systems. No tower analysis is included unless specifically detailed in this SOW.

Customer will provide approvals on documents (Designs, FCC licensing documents, Acceptance Test Plans, etc.) in a timely manner, within 20 business days.

SPECIFIC REQUIREMENTS:		
Function	**MNI**	**Customer**
PROJECT MANAGEMENT		
Provide a main point of contact as named Project Manager for both Customer and Microwave Networks to manage resources and schedules throughout the entire project lifecycle.	☒	☒
Supervise and coordinate day-to-day activities, schedule, deliverables, and milestone completions with respect to this Scope of Work.	☒	☐
Manage/supervise field installation and implementation teams to ensure that all on-site installation, integration, and optimization tasks are performed per contract requirements, industry best practices, and applicable standards and guidelines.	☒	☐
Develop, track, manage, and communicate both orally and in writing (hard copy or electronic format) the project plan, schedule, status of deliverables, risk items, change orders, action items, punch list, and other reporting deliverables as set forth in project Scope of Work.	☒	☐
Participate with Customer in a project kick-off meeting and weekly project status meetings/calls or as deemed necessary throughout the project lifecycle.	☒	☐
ENGINEERING		
Perform Transmission and System Engineering.	☒	☐
Furnish building and plot plan drawings and directions to the sites, if available prior to the commencement of Path survey.	☐	☒
Furnish floor plans and office drawings of existing sites, Showing new equipment locations, term block & fuse panel assignments, etc.	☐	☐
Perform Path Survey.	☒	☐
Perform Frequency Coordination and file PCN.	☒	☐
Prepare Frequency Coordination Applications.	☒	☐
Provide T1 channel assignments and dropping requirements at each location.	☐	☒
Furnish one complete set of installation specifications and measurements for the proposed equipment ATP.	☒	☐
STAGING AND ACCEPTANCE TESTING		
Provide Acceptance Test Plan for customer approval.	☒	☐
Provide Staging of equipment at Microwave Networks factory.	☒	☐
Provide Factory Acceptance Testing during staging to confirm proper operation of radios per Acceptance Test Plan.	☒	☐

SPECIFIC REQUIREMENTS:		
Function	**MNI**	**Customer**
TRANSPORTATION / STORAGE		
Provide transportation for equipment and materials from MNI factory to the final destination. Freight charges per terms of mutually agreed contract.	☒	☐
Provide adequate storage for all shipped equipment until transported to site locations.	☐	☒
Deliver all proposed equipment to the site locations from the local Customer warehouse and inventory for discrepancies.	☒	☐
SITE PREPARATION		
Furnish all site improvements (fences, roads, grading, tree removal, etc.). Access roads to all work areas of each site shall be suitable and accessible to concrete trucks, truck-trailers, and other construction equipment.	☐	☐
Provide suitable openings, channels, or ducts for cables and conductors for routing from floor-to-floor and from room-to-room.	☐	☐
Provide Ground Bar.	☐	☐
Install Ground Bar.	☐	☐
TOWERS		
Furnish and install all towers.	☐	☐
Determine structural capabilities of all towers and/or antenna mounting structures and perform all Structural modifications required to support, mount and adapt the proposed antennas.	☐	☐
Furnish and install antenna Pipe Mount(s).	☒	☐
Furnish and install antenna Ice Shields as quoted. Actual antenna ice shield requirements will be determined upon completion of site surveys and agreement from Customer.	☐	☐
Furnish and install Waveguide Bridge.	☐	☐
Furnish and install Waveguide Messenger.	☐	☐
ANTENNAS / TRANSMISSION LINE		
Install all antenna and transmission line. Actual Waveguide lengths will be determined upon completion of site surveys.	☒	☐
Install pressurization equipment for transmission lines.	☒	☐
Install Wall Feed-Thru's for coax/wave guide Transmission line.	☐	☐
POWER & GROUND		
Provide AC power and breakers as required.	☐	☐
Provide ready access (within 50 feet (15 meters) of proposed Equipment	☐	☐

SPECIFIC REQUIREMENTS:		
Function	**MNI**	**Customer**
locations) to a low resistance ground at each location.		
Follow Motorola R56 Grounding standards on microwave installation.	☒	☐
Furnish and install adequate AC receptacle within 6 feet (2 meters) of the battery charger rack.	☐	☐
Install DC chargers as per quote.	☐	☐
Furnish and install DC Power and Ground wiring to MNI provided racks per specifications.	☒	☐
Label DC breakers / fuses and newly installed wiring.	☒	☐
RADIO EQUIPMENT		
Install cable and test all radio and auxiliary equipment proposed.	☒	☐
Install DSX panel as a point of demarcation for DS1s. Panel will be installed within 30 feet (10 meters) of the radio.	☒	☐
Furnish and install DS1 cross-connections from supplied DSX panels to buyer's Channel Banks.	☐	☐
CHANNEL BANKS		
Channelization Engineering, develop MUX plan.	☐	☐
Install channel bank equipment.	☐	☐
Furnish jumper wire and install cross connections on the distribution frame to interconnect with the buyer's equipment.	☐	☐
Align multiplex /channel bank. (Options, levels, strapping, frequencies, etc.)	☐	☐
Furnish and install VF wiring from channel banks to D66 blocks.	☐	☐
ORDER WIRE AND ALARM		
Install and test Orderwire.	☐	☐
Install and test Alarm Master, install and test remotes and control wiring from the radio equipment at each site.	☐	☐
Furnish & Install D66 block or similar and connect to the alarm remote, to terminate alarms at each site.	☐	☐
Verify alarm system database is functional.	☐	☐
NETWORK MANAGEMENT SYSTEM		
Deliver and install server with SPARCS NMS software fully installed and operational to poll microwave radios.	☒	☐
Install any security software/hardware requirements required by the Customer for remote access to NMS.	☐	☒

SPECIFIC REQUIREMENTS:		
Function	**MNI**	**Customer**
TESTING/MISCELLANEOUS		
Provide complete set of Test Equipment consisting of; Digital Multi-Meter, BER/Ethernet Test Set (capable of the required data rates used in the system).	☒	☐
Coordinate system test and alignment with the Customer. Such testing will only include acceptability of MNI supplied and installed equipment.	☒	☒
Optimize and test system to MNI Acceptance Test Procedure (ATP).	☒	☐
Record test data for inclusion in the "as built" Documentation.	☒	☐
Prepare, submit and file, if applicable, all necessary environmental impact data.	☐	☒
DOCUMENTATION		
Furnish one complete set of electronic MNI Operation and Maintenance manuals with drawings for each rack.	☒	☐
Provide one complete set of vendor provided Operation and Maintenance literature with drawings for each location.	☒	☐
Sign a project completion notice upon completion of the activities detailed in this Scope of Work. The project completion notice may apply to the project on a per hop or per system basis, as mutually agreed upon by MNI and the Customer.	☒	☒
Prepare and submit a complete documentation package of equipment as installed and accepted (As Built's), three (3) weeks after system acceptance.	☒	☐

Additional requirements:

Microwave Networks is assuming no cranes are needed for installation.

For Water Towers:

Customer is responsible for providing an adequate microwave antenna mounting structure on the Water Tower.

Customer is responsible for providing the cable tray from top of tank to ground.

Customer is responsible for any required conduit.

Microwave Networks assumes no painting of equipment is necessary.

Microwave Networks is assuming no welding of any kind is needed for MNI to perform.

It is agreed that his Scope of Work (S.O.W.) is correct and complete for the responsibilities described above. It is further agreed that this SOW supersedes all previous agreements, proposals and discussions.

CUSTOMER

_____
Chair of the Board, Brad Thurman

ATTEST:

_____
Clerk of the Board, Briana Harvill

APPROVED AS TO FORM:

_____
General Counsel, Frank Randolph

_____
Date

Contractor

Signed:_____ Date:_____
MNI Representative

Microwave NETWORKS

Exhibit B
Commercial Payment Terms

Project Milestone Payment Schedule

Invoice to be sent upon:	%	$
Completion of Project kickoff meeting (virtual or in person)	25%	192,155
Completion of path & site surveys, frequency coordination, and release of Prior Coordination Notice (PCN)	15%	115,291
Upon accepted project timeline and delivery of all equipment	25%	192,155
Completion and acceptance of Final site acceptance for network and signoff by customer	25%	192,155
Retainage per Labor and Industries department (State of WA)*	10%	76,862
Total	**100%**	**768,618**

*****10% retainage of the cost of the project will be withheld until the State of Washington L&I gives authorization for Cowlitz 911 to release retainage.

Freight included
Payment due date: Net 45 after delivery of customer approved invoice

Project Cancellation Schedule (Minus 10% Retainage)

Milestone	%	$
After Project Kickoff	25%	192,155
After completion of Site Surveys and Frequency Coordination	40%	307,447
After receipt of equipment	65%	499,601
After start of installation services	65%	499,601

*__In addition__, any freight costs that have been incurred by contractor will be billed separately at the time of shipments