



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION



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CHRISTOPHER D. CLEMENT, SR.
COMMISSIONER

JEFF BRILLHART, P.E.
ASSISTANT COMMISSIONER

Bureau of Traffic
 April 8, 2014

Her Excellency, Governor Margaret Wood Hassan
 and the Honorable Council
 State House
 Concord, New Hampshire 03301

REQUESTED ACTION

Authorize the Department of Transportation to enter into a contract with R & R Communications Incorporated, Swanzey, NH (Vendor # 154891) on the basis of a low bid in the amount of \$174,010.00 for the purpose of providing statewide service and repairs to the Department's land mobile radio system and amber alert message board battery systems, effective July 1, 2014 through June 30, 2016. 77% Highway, 20% Turnpike, 3% General Fund.

Funding is available as follows for FY 2015 and is contingent upon the availability and continued appropriation of funds for FY 2016.

	FY 2015	FY 2016
04-96-96-960515-3007 Highway Maintenance Bureau 024-500225 Contract Repairs; Machine, Equip.	\$65,544	\$65,544
04-96-96-961017-7022 Turnpike Administration 024-500225 Contract Repairs; Machine, Equip.	\$6,525	\$6,525
04-96-96-961017-7027 Central Turnpike Maintenance 024-500225 Contract Repairs; Machine, Equip.	\$3,646	\$3,646
04-96-96-961017-7032 Blue Star Memorial Highway Maintenance 024-500225 Contract Repairs; Machine, Equip.	\$3,645	\$3,645
04-96-96-961017-7037 Spaulding Turnpike Maintenance 024-500225 Contract Repairs; Machine, Equip.	\$3,645	\$3,645
04-96-96-960515-3052 Transportation Management Center 024-500225 Contract Repairs; Machine, Equip.	\$1,420	\$1,420
04-96-96-964010-2107 Administration & Support 024-500255 Contract Repairs, Machine, Equip	\$2,580	\$2,580
Total	\$87,005	\$87,005

EXPLANATION

The Department of Transportation operates a statewide radio communications network that consists of mountain top repeaters, dispatch centers, control (base) stations, and land mobile radios that link toll, bridge maintenance, traffic operations, and highway maintenance facilities with field staff. For the longevity and viability of this communication system it is necessary that maintenance be performed. This contract is established to provide regular maintenance inspections to the equipment as well as provide unscheduled and emergency maintenance, as needed at the contract prices bid.

Bid proposals were mailed to several radio shops and a bid invitation was advertised in the Manchester Union Leader newspaper on October 20, 2013. Two bids were received with R & R Communications of Swanzey, N.H. responding with the lowest bid price. Attached is a copy of the bid tabulation. The Department is satisfied that the bid prices are reasonable and that R & R Communications Inc., is qualified to perform the required work.

This contract has been approved by the Attorney General as to form and execution and the Department has verified that the necessary funds are available. Copies of the fully executed contract are on file at the Secretary of State office and the Department of Administrative Services office, and subsequent to Governor and Council approval will be on file at the Department of Transportation.

Your approval of this contract is respectfully requested.

Sincerely,

A handwritten signature in black ink, appearing to read "C. D. Clement, Sr.", with a stylized flourish at the end.

Christopher D. Clement, Sr.
Commissioner

Attachments

EXHIBIT-B

Section-8 Bid Tabulation Table				R&R	Ossipee	Estimated Costs
Subtotal from Section-1	Page 1 of 8	Preventive Maintenance (PMI)		\$8,240.00	\$35,227.00	\$22,700.00
Subtotal from Section-2	Page 2 of 8	Dispatch Preventive Maintenance		\$2,700.00	\$4,250.00	\$7,310.00
Subtotal from Section-3	Page 3 of 8	Repeater "Site" PMI		\$6,080.00	\$10,163.00	\$8,600.00
Subtotal from Section-4	Page 4 of 8	"Antenna" System Work		\$11,840.00	\$10,260.00	\$18,320.00
Subtotal from Section-5	Page 5 of 8	Mobile radio Installations		\$900.00	\$576.00	\$630.00
Subtotal from Section-6	Page 6 of 8	Unscheduled Maintenance		\$55,005.00	\$57,060.00	\$62,470.00
Subtotal from Section-7	Page 7 of 8	Unicom PMIs		\$2,240.00	\$2,450.00	\$1,190.00
Annual contract amounts				\$87,005.00	\$119,986.00	\$121,220.00

Subject: NHDOT R & R Communications Inc, Radio Maintenance


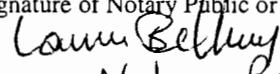
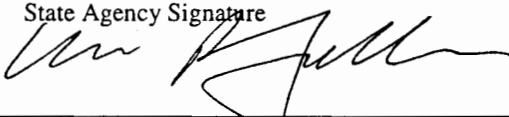
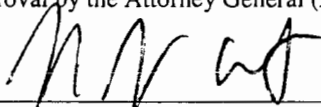
FORM NUMBER P-37 (version 1/09)

AGREEMENT

The State of New Hampshire and the Contractor hereby mutually agree as follows:

GENERAL PROVISIONS

1. IDENTIFICATION.

1.1 State Agency Name <u>NH Department of Transportation</u>		1.2 State Agency Address <u>Seven (7) Hazen Drive, Concord NH</u>	
1.3 Contractor Name <u>R & R Communications Inc.</u>		1.4 Contractor Address <u>526 Old Homestead Highway, Swanzey, NH 03446</u>	
1.5 Contractor Phone Number <u>(603) 352-1825</u>	1.6 Account Number <u>multiple, see attached</u>	1.7 Completion Date <u>6-30-16</u>	1.8 Price Limitation <u>\$174,010.00</u>
1.9 Contracting Officer for State Agency <u>William P. Janelle, Direction of Operations</u>		1.10 State Agency Telephone Number <u>NHDOT, Bureau of Traffic, TMC, (603) 271-6862</u>	
1.11 Contractor Signature 		1.12 Name and Title of Contractor Signatory <u>Jeffery Barden, President</u>	
1.13 Acknowledgement: State of <u>NH</u> , County of <u>Cheshire</u> On <u>1/17/14</u> , before the undersigned officer, personally appeared the person identified in block 1.12, or satisfactorily proven to be the person whose name is signed in block 1.11, and acknowledged that s/he executed this document in the capacity indicated in block 1.12.			
1.13.1 Signature of Notary Public or Justice of the Peace  [Seal] <u>Notary Public</u> My Commission Expires October 26, 2016			
1.13.2 Name and Title of Notary or Justice of the Peace 			
1.14 State Agency Signature 		1.15 Name and Title of State Agency Signatory <u>William P Janelle, Director</u>	
1.16 Approval by the N.H. Department of Administration, Division of Personnel (if applicable) By: _____ Director, On: _____			
1.17 Approval by the Attorney General (Form, Substance and Execution) By:  On: <u>4/4/14</u>			
1.18 Approval by the Governor and Executive Council By: _____ On: _____			

2. EMPLOYMENT OF CONTRACTOR/SERVICES TO BE PERFORMED. The State of New Hampshire, acting through the agency identified in block 1.1 ("State"), engages contractor identified in block 1.3 ("Contractor") to perform, and the Contractor shall perform, the work or sale of goods, or both, identified and more particularly described in the attached EXHIBIT A which is incorporated herein by reference ("Services").

3. EFFECTIVE DATE/COMPLETION OF SERVICES.
3.1 Notwithstanding any provision of this Agreement to the contrary, and subject to the approval of the Governor and Executive Council of the State of New Hampshire, this Agreement, and all obligations of the parties hereunder, shall not become effective until the date the Governor and Executive Council approve this Agreement ("Effective Date").
3.2 If the Contractor commences the Services prior to the Effective Date, all Services performed by the Contractor prior to the Effective Date shall be performed at the sole risk of the Contractor, and in the event that this Agreement does not become effective, the State shall have no liability to the Contractor, including without limitation, any obligation to pay the Contractor for any costs incurred or Services performed. Contractor must complete all Services by the Completion Date specified in block 1.7.

4. CONDITIONAL NATURE OF AGREEMENT. Notwithstanding any provision of this Agreement to the contrary, all obligations of the State hereunder, including, without limitation, the continuance of payments hereunder, are contingent upon the availability and continued appropriation of funds, and in no event shall the State be liable for any payments hereunder in excess of such available appropriated funds. In the event of a reduction or termination of appropriated funds, the State shall have the right to withhold payment until such funds become available, if ever, and shall have the right to terminate this Agreement immediately upon giving the Contractor notice of such termination. The State shall not be required to transfer funds from any other account to the Account identified in block 1.6 in the event funds in that Account are reduced or unavailable.

5. CONTRACT PRICE/PRICE LIMITATION/ PAYMENT.
5.1 The contract price, method of payment, and terms of payment are identified and more particularly described in EXHIBIT B which is incorporated herein by reference.
5.2 The payment by the State of the contract price shall be the only and the complete reimbursement to the Contractor for all expenses, of whatever nature incurred by the Contractor in the performance hereof, and shall be the only and the complete compensation to the Contractor for the Services. The State shall have no liability to the Contractor other than the contract price.
5.3 The State reserves the right to offset from any amounts otherwise payable to the Contractor under this Agreement those liquidated amounts required or permitted by N.H. RSA 80:7 through RSA 80:7-c or any other provision of law.

5.4 Notwithstanding any provision in this Agreement to the contrary, and notwithstanding unexpected circumstances, in no event shall the total of all payments authorized, or actually made hereunder, exceed the Price Limitation set forth in block 1.8.

6. COMPLIANCE BY CONTRACTOR WITH LAWS AND REGULATIONS/ EQUAL EMPLOYMENT OPPORTUNITY.
6.1 In connection with the performance of the Services, the Contractor shall comply with all statutes, laws, regulations, and orders of federal, state, county or municipal authorities which impose any obligation or duty upon the Contractor, including, but not limited to, civil rights and equal opportunity laws. In addition, the Contractor shall comply with all applicable copyright laws.
6.2 During the term of this Agreement, the Contractor shall not discriminate against employees or applicants for employment because of race, color, religion, creed, age, sex, handicap, sexual orientation, or national origin and will take affirmative action to prevent such discrimination.
6.3 If this Agreement is funded in any part by monies of the United States, the Contractor shall comply with all the provisions of Executive Order No. 11246 ("Equal Employment Opportunity"), as supplemented by the regulations of the United States Department of Labor (41 C.F.R. Part 60), and with any rules, regulations and guidelines as the State of New Hampshire or the United States issue to implement these regulations. The Contractor further agrees to permit the State or United States access to any of the Contractor's books, records and accounts for the purpose of ascertaining compliance with all rules, regulations and orders, and the covenants, terms and conditions of this Agreement.

7. PERSONNEL.
7.1 The Contractor shall at its own expense provide all personnel necessary to perform the Services. The Contractor warrants that all personnel engaged in the Services shall be qualified to perform the Services, and shall be properly licensed and otherwise authorized to do so under all applicable laws.
7.2 Unless otherwise authorized in writing, during the term of this Agreement, and for a period of six (6) months after the Completion Date in block 1.7, the Contractor shall not hire, and shall not permit any subcontractor or other person, firm or corporation with whom it is engaged in a combined effort to perform the Services to hire, any person who is a State employee or official, who is materially involved in the procurement, administration or performance of this Agreement. This provision shall survive termination of this Agreement.
7.3 The Contracting Officer specified in block 1.9, or his or her successor, shall be the State's representative. In the event of any dispute concerning the interpretation of this Agreement, the Contracting Officer's decision shall be final for the State.

Contractor Initials N.B.
Date _____

1-12-14

8. EVENT OF DEFAULT/REMEDIES.

8.1 Any one or more of the following acts or omissions of the Contractor shall constitute an event of default hereunder ("Event of Default"):

- 8.1.1 failure to perform the Services satisfactorily or on schedule;
- 8.1.2 failure to submit any report required hereunder; and/or
- 8.1.3 failure to perform any other covenant, term or condition of this Agreement.

8.2 Upon the occurrence of any Event of Default, the State may take any one, or more, or all, of the following actions:

- 8.2.1 give the Contractor a written notice specifying the Event of Default and requiring it to be remedied within, in the absence of a greater or lesser specification of time, thirty (30) days from the date of the notice; and if the Event of Default is not timely remedied, terminate this Agreement, effective two (2) days after giving the Contractor notice of termination;
- 8.2.2 give the Contractor a written notice specifying the Event of Default and suspending all payments to be made under this Agreement and ordering that the portion of the contract price which would otherwise accrue to the Contractor during the period from the date of such notice until such time as the State determines that the Contractor has cured the Event of Default shall never be paid to the Contractor;
- 8.2.3 set off against any other obligations the State may owe to the Contractor any damages the State suffers by reason of any Event of Default; and/or
- 8.2.4 treat the Agreement as breached and pursue any of its remedies at law or in equity, or both.

9. DATA/ACCESS/CONFIDENTIALITY/PRESERVATION.

9.1 As used in this Agreement, the word "data" shall mean all information and things developed or obtained during the performance of, or acquired or developed by reason of, this Agreement, including, but not limited to, all studies, reports, files, formulae, surveys, maps, charts, sound recordings, video recordings, pictorial reproductions, drawings, analyses, graphic representations, computer programs, computer printouts, notes, letters, memoranda, papers, and documents, all whether finished or unfinished.

9.2 All data and any property which has been received from the State or purchased with funds provided for that purpose under this Agreement, shall be the property of the State, and shall be returned to the State upon demand or upon termination of this Agreement for any reason.

9.3 Confidentiality of data shall be governed by N.H. RSA chapter 91-A or other existing law. Disclosure of data requires prior written approval of the State.

10. TERMINATION. In the event of an early termination of this Agreement for any reason other than the completion of the Services, the Contractor shall deliver to the Contracting Officer, not later than fifteen (15) days after the date of termination, a report ("Termination Report") describing in detail all Services performed, and the contract price earned, to and including the date of termination. The form, subject matter, content, and number of copies of the Termination

Report shall be identical to those of any Final Report described in the attached EXHIBIT A.

11. CONTRACTOR'S RELATION TO THE STATE. In the performance of this Agreement the Contractor is in all respects an independent contractor, and is neither an agent nor an employee of the State. Neither the Contractor nor any of its officers, employees, agents or members shall have authority to bind the State or receive any benefits, workers' compensation or other emoluments provided by the State to its employees.

12. ASSIGNMENT/DELEGATION/SUBCONTRACTS. The Contractor shall not assign, or otherwise transfer any interest in this Agreement without the prior written consent of the N.H. Department of Administrative Services. None of the Services shall be subcontracted by the Contractor without the prior written consent of the State.

13. INDEMNIFICATION. The Contractor shall defend, indemnify and hold harmless the State, its officers and employees, from and against any and all losses suffered by the State, its officers and employees, and any and all claims, liabilities or penalties asserted against the State, its officers and employees, by or on behalf of any person, on account of, based or resulting from, arising out of (or which may be claimed to arise out of) the acts or omissions of the Contractor. Notwithstanding the foregoing, nothing herein contained shall be deemed to constitute a waiver of the sovereign immunity of the State, which immunity is hereby reserved to the State. This covenant in paragraph 13 shall survive the termination of this Agreement.

14. INSURANCE.

14.1 The Contractor shall, at its sole expense, obtain and maintain in force, and shall require any subcontractor or assignee to obtain and maintain in force, the following insurance:

14.1.1 comprehensive general liability insurance against all claims of bodily injury, death or property damage, in amounts of not less than \$250,000 per claim and \$2,000,000 per occurrence; and

14.1.2 fire and extended coverage insurance covering all property subject to subparagraph 9.2 herein, in an amount not less than 80% of the whole replacement value of the property.

14.2 The policies described in subparagraph 14.1 herein shall be on policy forms and endorsements approved for use in the State of New Hampshire by the N.H. Department of Insurance, and issued by insurers licensed in the State of New Hampshire.

14.3 The Contractor shall furnish to the Contracting Officer identified in block 1.9, or his or her successor, a certificate(s) of insurance for all insurance required under this Agreement. Contractor shall also furnish to the Contracting Officer identified in block 1.9, or his or her successor, certificate(s) of insurance for all renewal(s) of insurance required under this Agreement no later than fifteen (15) days prior to the expiration date of each of the insurance policies. The certificate(s) of insurance and any renewals thereof shall be

Contractor Initials A.B.
Date 1-17-14

attached and are incorporated herein by reference. Each certificate(s) of insurance shall contain a clause requiring the insurer to endeavor to provide the Contracting Officer identified in block 1.9, or his or her successor, no less than ten (10) days prior written notice of cancellation or modification of the policy.

15. WORKERS' COMPENSATION.

15.1 By signing this agreement, the Contractor agrees, certifies and warrants that the Contractor is in compliance with or exempt from, the requirements of N.H. RSA chapter 281-A ("*Workers' Compensation*").

15.2 To the extent the Contractor is subject to the requirements of N.H. RSA chapter 281-A, Contractor shall maintain, and require any subcontractor or assignee to secure and maintain, payment of Workers' Compensation in connection with activities which the person proposes to undertake pursuant to this Agreement. Contractor shall furnish the Contracting Officer identified in block 1.9, or his or her successor, proof of Workers' Compensation in the manner described in N.H. RSA chapter 281-A and any applicable renewal(s) thereof, which shall be attached and are incorporated herein by reference. The State shall not be responsible for payment of any Workers' Compensation premiums or for any other claim or benefit for Contractor, or any subcontractor or employee of Contractor, which might arise under applicable State of New Hampshire Workers' Compensation laws in connection with the performance of the Services under this Agreement.

16. WAIVER OF BREACH. No failure by the State to enforce any provisions hereof after any Event of Default shall be deemed a waiver of its rights with regard to that Event of Default, or any subsequent Event of Default. No express failure to enforce any Event of Default shall be deemed a waiver of the right of the State to enforce each and all of the provisions hereof upon any further or other Event of Default on the part of the Contractor.

17. NOTICE. Any notice by a party hereto to the other party shall be deemed to have been duly delivered or given at the time of mailing by certified mail, postage prepaid, in a United States Post Office addressed to the parties at the addresses given in blocks 1.2 and 1.4, herein.

18. AMENDMENT. This Agreement may be amended, waived or discharged only by an instrument in writing signed by the parties hereto and only after approval of such amendment, waiver or discharge by the Governor and Executive Council of the State of New Hampshire.

19. CONSTRUCTION OF AGREEMENT AND TERMS.

This Agreement shall be construed in accordance with the laws of the State of New Hampshire, and is binding upon and inures to the benefit of the parties and their respective successors and assigns. The wording used in this Agreement is the wording chosen by the parties to express their mutual

intent, and no rule of construction shall be applied against or in favor of any party.

20. THIRD PARTIES. The parties hereto do not intend to benefit any third parties and this Agreement shall not be construed to confer any such benefit.

21. HEADINGS. The headings throughout the Agreement are for reference purposes only, and the words contained therein shall in no way be held to explain, modify, amplify or aid in the interpretation, construction or meaning of the provisions of this Agreement.

22. SPECIAL PROVISIONS. Additional provisions set forth in the attached EXHIBIT C are incorporated herein by reference.

23. SEVERABILITY. In the event any of the provisions of this Agreement are held by a court of competent jurisdiction to be contrary to any state or federal law, the remaining provisions of this Agreement will remain in full force and effect.

24. ENTIRE AGREEMENT. This Agreement, which may be executed in a number of counterparts, each of which shall be deemed an original, constitutes the entire Agreement and understanding between the parties, and supersedes all prior Agreements and understandings relating hereto.

EXHIBIT-A

SECTION-1, Scope of Services

- 1) Provide all labor, equipment, repair parts, software, transportation and lodging (prior approval for lodging required) necessary for maintaining the Department's two-way radio communication equipment to meet specifications of Item #2. The system is composed mainly of Harris (formerly M / A COM Inc.), Motorola Inc., Icom Inc. Kenwood, and Bosch Telex Communications , and Cambium microwave equipment. The system (as of Jan 1, 2013) consists of the equipment outlined in the UHF & VHF land mobile, VHF-Aeronautic, and VHF-Marine equipment counts. See Pages- 5, 7, 9 and 11 of Exhibit-A, Section-1.

These types and quantities may increase and decrease during the contract period as specified by the Department's highway equipment inventory (HEI). Services shall be provided for all such equipment not otherwise covered or restricted by manufacturers' warranty conditions but limited to equipment owned by the Department.

Note: The term *unscheduled* shall be synonymous with word *unplanned* when reference is made to; maintenance, service, and or repair. The term Failed shall be synonymous with a system or instrument that no longer function or meets speculations as defined by items #2

- 2) Specifications in addition to manufactures' shall include; the commissioning data or system acceptance, normal performance specifications, device functionality, previous acceptance level, as built diagrams, owner preferred (documented) configuration settings, and applicable Federal Communications Commission (FCC) authorization(s).
- 3) Provide requested service and or **unscheduled repair** to radio equipment governed by Federal Code of Regulation (CFR) 47, Part-80, **Maritime** and Part-87, **Aviation** services by retention of a FCC a licensed repair technician with a valid first or second class radiotelegraph operators license or a general radiotelephone operators license at a *cost per hour* as specified in Exhibit-B, Section-6.
- 4) Provide for **annual** physical and preventive maintenance inspections (PMI) of the **land-mobile radio system dispatch equipment, repeater stations, control stations and remote controls, DMS Battery banks, and Unicoms** completing all necessary adjustments *tasks and documentation* outlined in applicable NHDOT preventive maintenance lists to meet specifications as summarized in item #2 at the **fixed price** as submitted in Exhibit-B, The minimum-required preventive maintenance task list is included in Exhibit-A, Section-2.
- 5) Provide for certain amount of physical and **PMI of Department designated mobile and portable radios** on an annual basis including all associated equipment at their assigned location or a mutually agreeable site(s), completing all necessary updates and tasks to meet specifications as summarized in item #2 at the **fixed (unit) price** as submitted in Exhibit-B, Section-1. The minimum-required preventive maintenance task list is included in Exhibit-A, Section-1.

Contractor shall contact NHDOT, Communications Supervisor for Department generated work order number (s) for problems discovered during preventive maintenance that are outside the scope of a PMI or are found but not corrected during scheduled PMI.

- 6) Provide for **unscheduled repairs to a repeater system**, including but not limited to: repairs to the tower mounted antenna and cable system, repeater transceiver equipment, antenna combiner or multi-coupler equipment, repairs to restore alternating current (AC) power at communications sites from the power supplying wall outlet to the radio equipment, and repairs necessary to maintain or restore direct current (DC) power at the Mount Cardigan repeater site, Orange NH, consisting of wet-cell storage batteries, solar panels, propane-powered generator and related load management equipment at *cost(s) per hour* as specified in Exhibit-B, Section-4 and Section-6
- 7) Provide for **unscheduled repairs to control (base) stations** included but not limited to: repairs to control station equipment, repairs to failed station antenna systems with various mounting configurations, and repairs necessary to restore electric power from the AC power-supplying wall outlet to the communications equipment at a *cost per hour* as specified in Exhibit-B, Section-6.
- 8) Provide for routine and emergency **unscheduled repairs to dispatch locations** including but not limited to: repairs to dispatch locations radio or radio remote control equipment, console or remote control premise wiring, evaluation of end to end performance and functionality of leased telecommunications lines that compose the dispatch communication network, repairs necessary to restore electric power at dispatch locations sites from the AC power-supplying wall outlet to the communications equipment at a *cost per hour* as specified in Exhibit-B, Section-6.
- 9) Provide for **unscheduled repairs to desktop (radio) remote controls** including but not limited to: repairs to remote controls, interconnection cables & connectors, premise wiring, evaluation of end to end performance and functionality of leased telecommunications lines, and repairs necessary to restore electric power at the desktop remote sites from the AC power-supplying wall outlet to the communications equipment at a *cost per hour* as specified in Exhibit-B, Section-4 and Section-6
- 10) Provide for **unscheduled repairs to mobile radios** at their assigned locations, or at the Department's prerogative, a mutually agreeable site. Repairs to failed mobile radio equipment to include but are not limited to; transceiver, microphone, internal / external speaker, mobile antenna system, interconnection cables and connectors, power filters, power conditioners, DC to DC converters, DC power cables and connectors, repairs necessary to restore electrical power from battery (or pre-designated point of origin) to radio equipment at a *cost per hour* as specified in Exhibit-B, Section-6.

Note: The Department owns and operates approximately 50-each, 24-volt vehicles

- 11) Provide for **unscheduled repairs to (Aeronautic) Unicoms** at their assigned locations, or at the Department's prerogative, a mutually agreeable site. Repairs to failed equipment to include but not limited to transceiver, microphone, internal / external speaker, antenna system and connectors, repairs necessary to restore electrical power to radio equipment from the AC power-supplying wall outlet to the communications equipment at a *cost per hour* as specified in Exhibit-B, Section-6.
- 12) Results of all PMI inspections, requested evaluations, unscheduled repairs, adjustments or contractor recommendations shall be forwarded in written or electronic communications in a mutually agreed format within *3-days* of contractor action to NH DOT, Communications Supervisor / Contract Administrator. Electronic Communications is preferred

A-B.
1-17-14

- 13) **On-site response** to unscheduled maintenance request by Department shall be no greater than thirty 32 hours or four (4) normal business days (weather and travel conditions permitting). Department shall issue work order numbers for all such requested work. Contractor shall credit the Department 4-hours of contracted bid rate (per applicable radio equipment type and travel rate) for each eight (8) hours of delay in on-site response after thirty-two (32) business hours.
- 14) **Immediate on-site response**, of less than twenty-four (24) hours is required for **emergency** repairs to Items-3, 6, 7, 8, & 9 as requested by the Department. The Department will exercise discretion over prioritizing multiple service requests or failures. Contractor shall credit Department Eight (8) hours of contracted rate (per applicable radio equipment type and travel rate) for every four (4) hours of delay in immediate response after twenty-four (24) hours. Other unscheduled repairs shall be within normal (contractor) working hours per and shall be performed in accordance to item #13, weather and traveling conditions permitting, unless otherwise requested by Contractor then authorized or waived by the Department.
- 15) Provide for **installation** of Department spares for mission critical communication end item components. The use & distribution of supplied Departmental spares shall be at the discretion and authorization of the Department's Communication Supervisor.
- 16) Provide for (computer) drafting of configuration files and programming of equipment configuration files, firmware, software, and or feature updates, apart from preventive maintenance inspection tasks, at a **cost per hour** as specified in Exhibit-B, Section-4.
- 17) Provide mobile radio, antenna, and associated power system installations for trunk & dash mounted mobile radios with accessories. At the vehicles assigned location or location designated by Department for a fixed rate as specified in Exhibit-B, Section -5 (with travel allowance specified in Exhibit –B, Section -6)
- 18) Provide for new or replacement **installations of fixed base or repeater antennae** with (NHDOT) standardized grounding, bonding and lightning protection systems at a rate per by retention of a tower crew certified in tower climbing and personnel rescue at hourly rate that covers labor and travel cost for all personnel required to complete a specified installation as at a **cost(s) per hour** as specified in Exhibit-B, Section-4.
- 19) Travel Allowances (rate) to the job site(s) for installation work and unscheduled maintenance shall be computed **from** the Contractor's or Subcontractor's **closest** repair facility that are located within the State of New Hampshire or closest NH state border if outside of NH, and shall be identified by the hourly rate in Exhibit –B, Section-6 that covers all cost self-identified by contractor for a combination of vehicles and personnel.
- 20) **Annual** physical inspections and preventive maintenance of equipment at District and Bureau offices **shall be scheduled by the contactor** and shall result in the least disruption to ongoing operations as determined by District Engineer or Bureau Administrator. Contractor shall provide 48-hour advanced notice to the District Office for repeater and dispatch equipment preventive maintenance inspections. Travel allowances shall not be calculated or Invoiced for scheduled (PMI) maintenance.

Q.B.
1-12-14

- 21) To what extent a failure will permit, Contractor shall first document results of performed PMI procedures on failed equipment *prior* to undertaking other repairs necessary to restore equipment to conditions described in Item-2.
- 22) Repair costs for parts and labor covered under ongoing or remaining manufacturers' warranties are not included in this contract.
- 23) Where equipment repair involves a combined part and labor cost that is greater than (>) one-half (1/2) the (equal equipment) *replacement cost*, the contractor shall contact the NH DOT Communications Supervisor prior to facilitating repair.
- 24) The Department reserves the right to make additions or deletions to the Scope of Services as required by budgetary restraints, State or Federal regulation, or unrealized requirements.
- 25) The Department requests that bidders for this contract provide the following information which is believed to be critical in the overall maintenance of the Department's radio system. Failure to provide this information may result in the
 - a. *A brief profile of the contractor's employees* that would be charged with maintenance and repair of the Department's radio system. This information should include at a minimum, employees Name, job title, experience, qualifications, and FCC issued General Radio Telephone Operators (GROL) license number. Additionally, profile should describe any specific experience or training employee has maintaining or installing, Motorola Inc., Harris Inc, (formerly M / A Com Inc.) TX / RX Systems Inc., Bosch Telex Communications Inc., Cambium Networks Inc., equipment as well as all varieties of communications consoles and portable radios.
 - b. *A description of repair facilities*, radio and telecommunications test equipment, specialized repair and installation equipment, computer equipment, computer software, and service vehicles including all-terrain vehicles (ATV) and snowmobiles.

Note: The *successful bidder*, shall provide a certificate of calibration traceable to National Institute Standards & Technologies (NIST) shall be submitted for each piece of electronic test equipment intended for use maintaining Department's radio system that is to be used to measure parameters governed by ► FCC regulations and licensee authorizations such as, (RF) power, frequency and bandwidth.
 - c. *A description of the contractor's after hours service response plan* including a commitment to a guaranteed (phone) call back time with an estimated time of travel to contractor's repair facility including State and Federal holidays.
 - d. The successful bidder /contractor shall be responsible for insuring all existing, and future, employees charged with maintenance of Department systems, subsystems, and components, are familiar with the task list(s) associated with each preventive maintenance routine he or she shall be charged with performing.
 - e. A list of no less than three (2) radio communication systems composed of the same equipment type and complexity maintained by Contractor with contact information of references shall be submitted for consideration.
- 26) Billing for services will be presented to the Department's bureaus as detailed in Exhibit-A, Section-3.

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NHDOT Radio Dispatch Equipment Schedule per site for PMI

Lancaster District-1	Lancaster Office Remote Base Station-1	Remote Base Station-2	Mt Prospect, Lancaster Remote Base Station-1	Remote Base Station-2	No DOT console Bosch IP223 (only x2)
Enfield District-2	Enfield Office Remote Base Station-1	Remote Base Station-2	Moose Mountain, Hanover Remote Base Station-1	Remote Base Station-2	Console Bosch C-soft
Gilford District -3	Gilford Office Local Base Station -1		Mount Belknap, Gilford Remote Base Station -1		1-Remote Control RCN 1000
Swanzy District-4	Swanzy Office Remote Base Station-1		Hyland Hill, Westmoreland Remote Base Station-1		1-Zetron DDC 100 1- RCN 1000
Bedford District-5	Bedford Office Remote Station Base-1	Remote Base Station-2	Remote Base Station-3		Console Zetron 4010
Durham District-6	Durham Office Local Base Station -1				Console None
Portsmouth Bridge Maintenance	Ranger Way Office Local Base				Console None
Portsmouth Bridge Maintenance	Mildred Sara Long Bridge Remote Base	Marine Radio Base			Remote -Mic -1 Remote -Mic-1
Portsmouth Bridge Maintenance	Memorial Bridge Remote Base Station	Marine Radio Base			Remote Mic-1 Zetron DDC-100
Concord Highway Maintenance	John O. Morton Building Remote Base Station-1				1-Remote Control Zetron DDC 100

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2013 UHF Radio Equipment Counts

District or Bureau	Repeaters	Remote	Fixed Base	Mobiles	Portables
District One	5	0	14	99	71
District Two	5	0	4	69	43
District Three	3	1	8	86	115
District Four	4	4	2	69	54
District Five	5	2	3	115	36
District Six	2	0	1	63	18
Commissioner's Office	0	0	0	3	2
Safety Officer	0	0	0	0	1
Bridge Design	0	0	0	5	0
Bridge Maintenance	0	0	4	60	22
Construction	0	0	0	1	0
Highway Design	0	0	0	0	68
Mechanical Services	0	0	5	22	6
Materials Research	0	0	0	0	4
Traffic	10	0	18	61	4
Highway Maintenance	0	1	1	6	0
Aeronautics	0	0	0	1	0
Rail and Transit	0	0	0	2	0
Bureau of Turnpikes	4	4	19	112	24
Spares	0	1	2	0	0
Department Totals	38	13	81	774	468
Total Mobiles & Portables					1242

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2013 VHF Radio Equipment Schedule

District or Bureau	Fixed Base	MOBILE	PORTABLE
District One	0	1	0
District Two	2	0	0
District Three	0	1	0
District Four	0	1	0
District Five	0	2	0
District Six	0	0	0
Commissioner's Office	0	3	0
Bridge Design	0	0	0
Bridge Maintenance	0	4	16
Construction	0	0	0
Highway Design	0	0	0
Mechanical Services	0	0	0
Materials Research	0	0	0
Traffic	1	2	1
Highway Maintenance	0	2	0
Aeronautics	0	1	2
Rail and Transit	0	4	3
Bureau of Turnpikes	0	1	0
Spares	0	1	0
Department Totals	3	23	22
Total VHF LMR Mobiles & Portables			48

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VHF Aeronautics Radio Equipment Inventory

Location	Fixed Base	Utility Mobiles	Portables
Aeronautics-64	0	1	2
Traffic-54	1	1	0
Unicom	19	0	0
Spares	1	0	0
Totals	21	2	2

VHF Marine Radio Equipment Schedule

Bureau / Location	Fixed Base	Mobile	Portable
Memorial Bridge	1	0	0
Sara Long Memorial	1	0	0
Hampton River	1	0	0
Portsmouth Office	1	1	1
Totals	4	1	1

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Aeronautics Unicom Radios

Location	Make	Model	Year	Yr. Antenna	Lightning Protection
BERLIN		DX835	1993	Unknown	NO
COLEBROOK	KING	193	1979	Unknown	NO
CONCORD	ICOM	A200B	2003	Unknown	NO
CLAREMONT	ICOM	A200B	2005	Unknown	NO
ERROL	KING	193	1979	Unknown	NO
FRANCONIA	ICOM	A200B	2005	2006	YES
GORHAM	Removed due to lack of a fixed base operator				
HAMPTON	ICOM	A200B	2001	2003	NO
HAVERTHILL	JOHNSON	727	1989	Unknown	NO
HILLSBORO	MENTOR	MB-10	1990	Unknown	NO
KEENE	ICOM	A200B	2000	Unknown	NO
JAFFREY	JOHNSON	727	1989	Unknown	NO
LACONIA	ICOM	A200B	2005	Unknown	NO
LEBANON	Unicom owned by the fixed base operator				
MOULTONBOROUGH	MENTOR	MB-10	1991	Unknown	NO
NEWPORT	MENTOR	MB-10	1991	2002	YES
PLYMOUTH	KING	193	1979	Unknown	NO
ROCHESTER	JOHNSON	727	1993	2003	YES
TWIN MOUNTAIN	KING	193	1979	2005	YES
WHITEFIELD	ICOM	A200B	2010	Unknown	NO

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EXHIBIT-A

SECTION 2-PREVENTIVE MAINTENANCE TASK LISTS

Annual and bi-annual physical inspections and preventive maintenance to be performed on each type of land-mobile radio equipment shall include, but not be limited to, the following inspection items. The preventive maintenance inspection (PMI) is to be completed during an initial inspection and if any follow-up repairs or corrective action outside the scope of task list are required, this action should be self scheduled and completed as soon as practical. Work request numbers shall be requested and obtained from Department's Communications Supervisor or designee. The following types of corrective action shall be indicative of *preventive maintenance*; cleaning, tightening, securing and retying cables, replacing electrical or radio frequency (RF) connections, removing foreign debris & cleaning components or sub-assemblies, measurement, recalibration, adjustment of operating parameters of end item equipment. Replacement of worn or broken indicators and controls, replacement of broken or worn-out antenna whips, loading coils, microphone parts or assemblies. Equipment configuration file, software or firmware upgrades to end item equipment. PMI reports shall be submitted to the Communications Supervisor, or designee within 10 business days. All costs for travel time, including the use of vehicle(s), for physical inspections and preventive maintenance shall be included in the unit price for the PMI of the specific equipment type.

I. Repeater(s) & Site

A. Mechanical Inspection to Include:

1. Visual of antenna and cable system from ground with visual magnification aid. i.e. binoculars
 - a. Inspect antenna mount attachments
 - b. Inspect cable attachment to tower or fixture
 - c. Inspect for any signs of ice or other forms of damage to cables.
 - d. Inspect for loose, corroded, detached ground or bonding connection.
 - e. Inspect for physical mounting or electro magnetic field conflicts with co-site users.
2. Visual of infrastructure
 - a. Inspect the antenna supporting structure for any obvious signs of wear, damage, vandalism or loose guy wires.
 - b. Inspect equipment shelter for any obvious problems such as rodents, vandals, water leaks, and environmental controls that are detrimental to NH DOT equipment
 - c. Inspect ground and bonding connections between NH DOT equipment and external ground field elements.

3. Visual of repeater and antenna combiner system. (If applicable)
Note on report any deficiencies
 - a. Inspect cabinets for ease of access and security and integrity.
 - b. Inspect all cables, RF and ground connectors internal to the shelter for tightness cleanliness and electrical integrity.
 - c. Inspect for any signs of water or rodent damage.
 - d. Insect for proper electrical breaker labeling and manual cutoff operation.
 - e. Inspect utility connections for stress or damage.
 - f. Check for any missing terminations on combiner rack.
 - g. Verify service literature and hand mic' is stored in equipment cabinet.
 - h. Replace worn out door seals
 - i. Inspect cabinet electric fans and Clean air filters.
 - j. ▼Check for posting of transmitter's current Federal Communications Commission (FCC) authorization.

Please Note on the PMI report any items they warrant further inspection, major corrective action, or notification to responsible party. Contractor shall follow-up, follow through on corrective actions that are part of PMI.

As suggested by Contractor and then requested by NHDOT, Contractor shall perform closer inspection of tower mounted antenna system(s) by climbing the antenna mounting structures.

The New Hampshire Department of Resources and Economic Development (DRED) is the communications site manager for all NH Department of Transportation repeater sites with the exception of the following locations. Specific points of contact for each exception site and tower vary but are available by request. Existing site standards shall be provided to contractor.

Moose Mountain- New Hampshire Public Television
Mount Ascutney- Electronic Communications Association, Inc.
Saddleback Mountain- New Hampshire Public Television
Mahn Hill- New Hampshire Public Television
Mount Uncanoonuc- Town of Goffstown (Police)
Mount Whittier- Whittier Communications Inc.
Hackett Hill – NHDOT

B. Electrical Inspection to Include (Document as found values prior to adjustment)

1. Non-Switching Power Supplies

- a. Measure and record input voltage
- b. Measure and record the voltage while in standby and while under load (transmitting)

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2. Transmitter measurements- Adjust as required

- a. ▶ Measure and record RF power output from transmitter (TX) power amplifier (PA).
- b. Calculate and record voltage standing wave ratio (VSWR) between TX and combiner or duplexer cavity.
- c. Measure and record RF power at the output of combiner cavity.
- d. Calculate and record the VSWR between the output cavity or duplexer and TX antenna cable.

$$VSWR = \frac{1 + \sqrt{\frac{P_{rev}}{P_{fwd}}}}{1 - \sqrt{\frac{P_{rev}}{P_{fwd}}}}$$

Where P_{rev} = reverse power
 P_{fwd} = forward power

- e. ▶ Measure and record repeater voice frequency modulation (FM) deviation.
- f. ▶ Measure and record repeater continuous tone coded sub-audible squelch (CTCSS) FM deviation
- g. ▶ Measure and record carrier frequency of operation (error)
- h. Investigate PA alarm light. (if applicable)

3. Receiver measurements-Adjust as necessary

- a. Measure and record receiver (RX) sensitivity through RX multi-coupler or duplexer.
- b. Measure and record the signal level needed for the RXer to achieve 12-dB SNR without antenna system
- c. Using a directional coupler, measure and record both signal levels needed to achieve 12-dB signal-to-noise ratio (SNR) through RX multi-coupler or duplexer **with and without** RX site antenna. See Diagram-1
- d. Observe and note any co-channel users or adjacent channel interference that occurs while CTCSS decode is disabled.
- e. Calculate and record the difference (if any) in decibel signal level between the two SNR readings in step b.

- ▶ Denotes FCC license parameter
- ▼ Denotes Site Standard

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Signal to Noise test setup with Directional Coupler

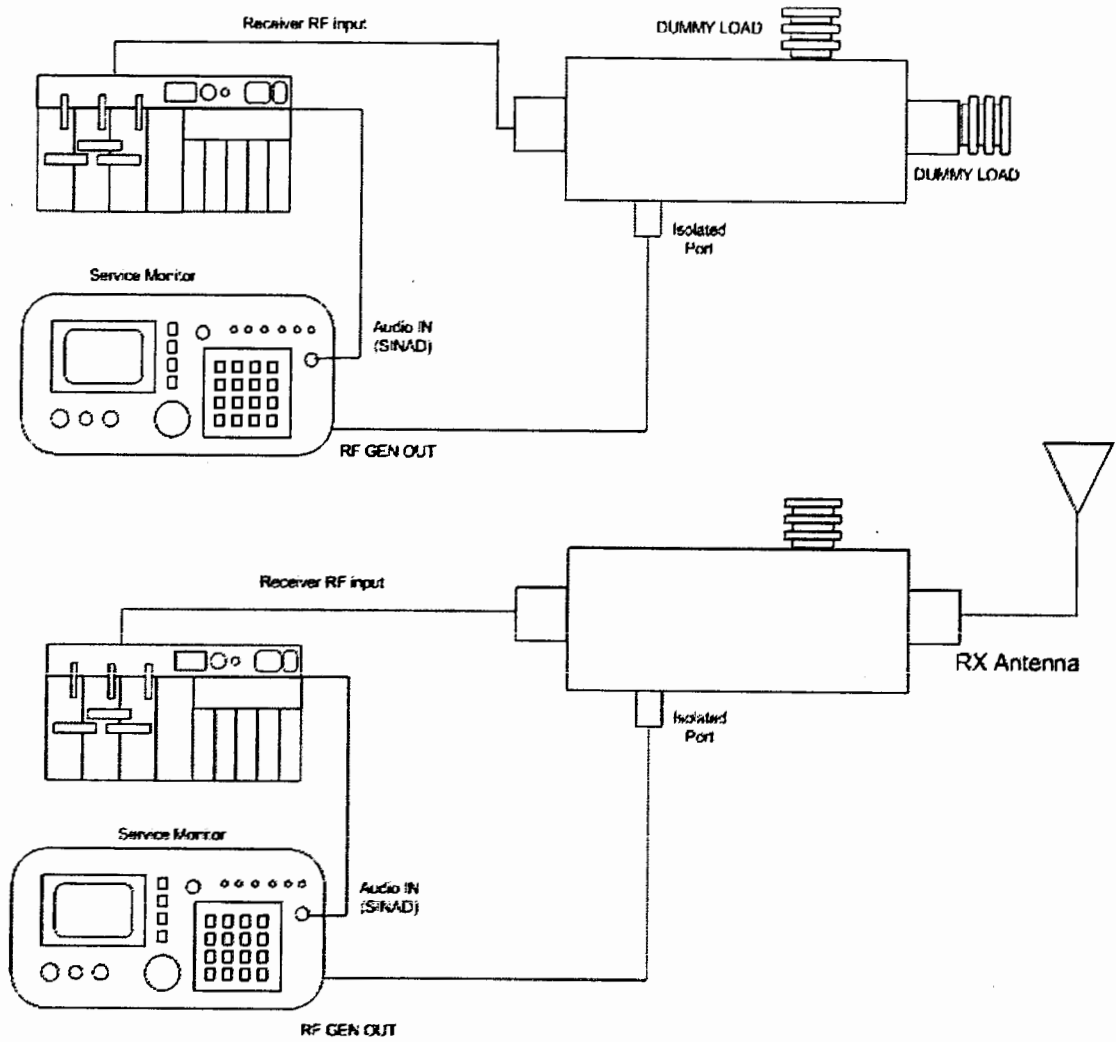


Diagram-1

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II. Control / Desk-Top Base Stations (Including those associated with Dispatch Facilities) Either Ericsson Orion, M7100 or Motorola XTL2500

A. Mechanical Inspection to Include:

1. Visual inspection of antenna and cable system from ground level with visual magnification aid. i.e. binoculars
 - a. Inspect antenna mount attachment(s)
 - b. Inspect cable attachment to mounting fixture
 - c. Inspect for any signs of damage to exposed cable.
 - d. Inspect for loose, corroded, detached ground or bonding connections.
 - e. Check for presence of a Polyphaser ® in antenna system
 - f. Note on inspection report the specific type (s) and estimated length of feedline cable.
 - g. ► Record on inspection report the polarization of the antenna.
 - h. ► Record on inspection report the height, in feet at the tip of the antenna to nearest foot.

2. Visual of infrastructure
 - a. Inspect the antenna supporting structure for any obvious signs of wear, damage.
 - b. Inspect equipment shelter for any obvious problems such as rodents, vandalism, water leaks, and environmental controls.
 - c. Inspect ground and bonding connections between equipment and external ground field elements.
 - d. Verify presence of an earth terminal ground rod that antenna system is attached to.
 - e. Inspect wall or ceiling outlet that provides commercial power to base station.
 - f. Inspect RF cable entry port weather seal. Maintain as needed.

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3. Visual of Control / Base Station

- a. Inspect for any signs of rodent or water damage.
- b. Inspect alternating current (AC) power cord and plug.
- c. Inspect telco interconnect wiring (for remote base)
- d. Inspect Main RF cable, RF Cable stub and connector that attaches to radio. Insure mini UHF tightness.
- e. Check for presence of a test microphone at remote sites. (leave removed from base at remote sites)
- f. Check physical condition of microphone at local control station.
- g. Note on report if station is bonded to central electrical ground. (i.e. third-electrical prong or better)
- h. Note on report if Chassis of station is bonded to site ground
- i. **Clean equipment as needed.**
- j. ▼Verify or post current FCC authorization (License)

B. Electrical Inspection to Include (Document *as found* values prior to changes or adjustment)

1. Power Supply

- a. Measure and **record** input voltage
- b. Measure and **record** the voltage while in standby and while transmitting.

2. Software / Firmware

- a. Read radio program file and save (until deemed unneeded)
- b. **Record** configuration *file name* if unique to the radio.
- c. Update file, flash, version as necessary. M / A Com Inc, flash version OG47402.
preserving any features function unique to radio.
- d. **Record**

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3. Transmitter (TX) measurements- Adjust as required. Document *as found* and *as corrected* values.
 - a. Verify local push-to-talk (PTT) TX operation.
 - a. ► Measure and record RF power output from transmitter.
 - b. Calculate and record voltage standing wave ratio (VSWR) between TX and antenna cable.
 - c. ► Measure and record TX voice frequency modulation (FM) deviation.
 - d. ► Measure and record TX CTCSS FM deviation.
 - e. ► Measure and record error of carrier frequency of operation.
 - f. Verify **remote** TX channel selection and TX PTT operation for all remote channels. (DDC-100 exempt from all remote channels requirement)
 - g. Measure and record **remote** voice FM deviation level.
 - h. Verify intercom operation with remote operator.

4. Receiver (RX) measurements & Scan operation

- a. Measure and record in dB RX sensitivity at antenna jack.
- b. Verify CTCSS decode, decode enable / disable operation.
- c. While CTCSS decode is disabled, over-modulate a test frequency with a 1-kHz test tone and document what level of (over) modulation the RX is unable to demodulate.
- d. Verify local and remote scan disable and enable.
- e. Verify scan, scan resume operation.
- f. Verify power-up default settings if applicable. (Channel, scan, audio level etc.)
- g. Note any adjacent or co-channel interference.
- h. For a remote station measure and record (in decibels) the *line out* audio level while terminated. (600 Ω)

- Denotes FCC license parameter
- ▼ Denotes Site Requirement

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III. Dispatch Equipment

A. Visual of infrastructure all locations

- a. Inspect 120-volt power source, check for proper electric breaker labeling and manual cutoff operation. Label if needed
- b. Inspect 12-volt power supplies and wiring for PC console, HB plus headset adaptor, and each IP-223.
- c. Verify uninterruptible power source (UPS) operation.
(This will require pre-coordination)
- d. Inspect any & all associated premise telecommunications network wires up to Fairpoint Demarcation point.

B. General Inspection of Bosch Console equipment at Lancaster, Enfield, and Bedford. (Note: Lancaster and Bedford only have IP223s and no PC)

1. Inspect PC monitor for quality and cleanliness. Correct screen justification if necessary and clean
2. Remove debris from beneath keys on keyboard.
3. Inspect physical condition and action of user controls, keys, buttons, displays, foot-switch, and microphone.
4. Remove dust and debris from inside equipment cabinets, Personnel Computer. This will require pre-coordination
5. Inspect condition of interconnection cabling. tie up and bundle cables as necessary

C. Electrical Measurements- Adjust as necessary

1. With 1,000 Hz test tone, measure and record in decibels (dB) the minimum audio signal level necessary to generate busy data generation on all channels of all IP-223. Note radio channel-name.
2. Measure and record in dB the average voice level during transmit on each wire line of each console channel.
Perform functional test with Telex test handset.
3. Measure and note presence of any direct current (DC) on leased telecommunications lines at the service providers demarcation point. Isolate NH DOT equipment if necessary.
4. Obtain IP-223 web page and verify and record revision number of firmware.
5. Update IP 223 firmware if necessary.

D. Bedford Dispatch Location (this will require two people)

1. General Inspection of 3-Channle Zetron 4010 Console equipment
 - a. Inspect labels for legibility and accuracy. Correct as necessary.
 - b. Remove debris from beneath keys on keyboard.
 - c. Inspect physical condition and action of user controls, keys, buttons, displays, foot-switch, and microphone.
 - d. Inspect for any corrosive damage to console positions.
 - e. **Remove dust and debris** from inside console equipment cabinets, Personnel Computer.
 - f. Inspect condition of interconnection cabling.
 - g. Check clock for time accuracy (Bedford)

2. Functional Check
 - a. Verify all push-to-talk (PTT) functions of console, microphone, and footswitch.
 - b. Verify TX indications of both consoles and channel cards.
 - c. Verify channel mute-functions.
 - d. Verify all channel bank and channel selection operation.
 - e. Verify any cross muting or interlock operation.
 - f. Verify audio volume adjustment / settings
 - g. Check reset function of each channel card.

3. Electrical Measurements- Adjust as necessary
 - a. Measure and record in decibels (dB) the audio signal level necessary to generate busy indication for both channels. A & B of both console channel cards as measured on the associated telco line input. Note channel name designation.
 - b. Measure and record in dB the average voice level from channels A & B of all channel cards as measured on the associated telco line.
 - c. Measure and record in dB the 1-kilohertz (kHz) alert tone level generated from the console and passed through channels A & B of all Zetron channel cards or at Base station line-in as measured on the associated telco line.
 - d. Measure and record in dB the audio telco line level input to the console system that is the result of a fully-quiet, over-the air 1-kHz. Direct modulation of all base radios
 - e. Simulate failure for Zetron dual, 12-volt power supply. Verify Dual power supply functionality of redundancy.

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IV. (Radio) Remote Controls

1. Visual

- a. Review network topography if communications network has multiple control points.
- b. Inspect power source, check for proper electric breaker labeling and manual cutoff operation.
- c. Inspect ground and bonding system. Maintain as necessary and recommend improvements.
- d. Inspect interconnecting telecommunications cables and connectors.
- e. Inspect any associated premise telecommunications network wires.
- f. Check for presence of a Polyphaser® in the remote's premise telecommunications wire(s). **Note** findings
- g. Verify radio loop number is posted at service provider's demarcation point when leased service is employed.

2. General Inspection

- a. Check for presence of channel labels. Inspect labels for legibility and accuracy. **Correct** as necessary.
- b. Inspect physical condition and action of user controls, keys buttons, displays, indicators and microphone.
- c. Perform internal visual inspection of device.
- d. Remove dust and debris from inside equipment.
- e. Inspect condition of interconnection cabling.
- f. Inspect condition of primary (AC) power cable.

3. Functional Check

- a. Review any user concerns
- b. Verify push-to-talk (PTT) functions of remote's, buttons and microphone.
- c. Verify Transmit (TX) indication for all PTTs.
- d. Verify TX voice operation.
- e. Verify channel indication for each channel of operation.
- f. Verify channel change function for each channel of operation. (Zetron DDC 100 exempt from each requirement)
- g. Verify audio volume adjustment operation.
- h. Verify receive busy indicator operation.
- i. Verify monitor enable, disable and reset function
- j. Verify scan operation and indications.
- k. Verify line termination and mark bottom of device "Terminated" or "Bridged"

4. Electrical Measurements- Adjust as necessary

Note: These tasks do not apply to Remote Control, Zetron, DDC-100 or Bosch 2002

- a. Measure and record in dB the average TX voice level measured when bridged across telecommunications network.

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V. Mobile Radios

A. Mechanical Inspection to Include:

1. Visual

- a. Inspect mobile antenna MOT roof mount and O-ring. Apply silicon as needed to O-ring
- b. **Document** any alternative method of antenna installation that does not incorporate a proper antenna ground plane. (in roof mount)
- c. Inspect mobile antenna loading coil and whip
- d. Inspect complete antenna for any signs of physical, weather or ultra-violet damage. Replace applicable parts
- e. Inspect antenna RF connector for looseness proper installation.
- f. Inspect exposed portions of antenna cable for damage.
- g. Inspect main DC power wire and connectors for condition, damage or corrosion.
- h. Inspect interconnection and option cables for condition, damage or corrosion.
- i. Verify that unused slack in interconnecting and power cabling is not vulnerable to physical damage or corrosion. *option cable connector.
- j. Inspect mounting of all radio components and accessories. Tighten or remount any component that are loose or have become uncounted.
- k. Inspect overall condition of main radio components: transceiver, control head, microphone. Note on inspection report
- l. Verify that the main power wire is fused at a practical and safe distance from point of connection to battery or designated source of power. (Preferably 1-foot)
- m. Inspect radio main lead direct current (DC) ground connection.

B. Software / Firmware

- a. Read radio program file(s) and save (until deemed unneeded)
- b. Record default serial number file name if unique to the radio.
- c. Program radio with latest DOT provided or DOT requested applicable Code plug program file.
- d. Update MDC code (h-number of Vehicle) features, flash, or version as necessary or requested, preserving any features function or soft-pots unique to radio.

C. Functional Checks and Corrosion Control

1. Functional Check

- a. Verify radio is configured for "switched ignition" on -off operation. **Record** any exceptions to not working with Key per user request.
- b. Operate all manual controls and verify proper travel and functions of user controls.
- c. Verify proper scan and monitor enable / disable with microphone.
- d. Verify microphone push-to-talk transmit indication and operation.
- e. Verify proper voice operation of microphone.
- f. Verify proper speaker operation.
- g. Verify MDC code is correct. (shall match h-number of vehicle)

2. Corrosion Control

- a. Remove any paint or corrosion inhibitor from brass MOT mount found during visual inspection.
- b. Perform any corrective action required for main DC power connection to source power.
- c. Perform any corrective action required for main DC ground. Apply anti-oxide if needed.
- d. Clean external surfaces of radio components. Remove dust debris, sand or grim.

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D. Electrical Measurements

1. Direct Current (DC) voltage

- a. Verify proper voltage (V) and power source at point of radio voltage supply (battery). Record vehicles operating voltage *if not* greater than or equal to 12.5-volts.
- b.
- b. Verify DC to DC converter output voltage & current if applicable.
- c. Verify proper ventilation for DC to DC converters.
- d. Record if DC to DC converter is configured for 24-volt 'switched ignition' operation

2. Radio Frequency measurements, ► Denotes FCC license parameter

- a. Transmitter (TX) -adjust, repair or correct as necessary.
 - I. ► Measure and record in watts TX RF power output.
 - II. Measure, calculate and record VSWR between TX and antenna.
 - III. ► Measure and record TX carrier frequency error.
 - IV. ► Measure and record TX voice modulation level
 - V. Insure mini UHF Connector is tightly connected when PMI is completed.
- b. Receiver (RX)
 - I. Measure and record in dB the level necessary to break RX critical squelch.

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VI. Portable Radios, including accessories

A. Mechanical Inspection to Include

1. Note manufacturer's model, make or trade name.
2. Inspect chassis, display, escutcheon, battery case, antenna, and carrying case and speaker microphone when applicable.
3. Inspect battery contact plating.
4. Check for portable to battery looseness
5. Inspect charger (battery) pocket for cleanliness Clean as needed
6. Record overall assessment of portable condition: New, fair, good, poor.
7. Record specific attributes that contribute to the condition such as damage, stress, cleanliness, corrosion, wear, etc.
8. Check for presence of (NHDOT) date inscription on battery case. Record date.
9. Clean items as needed. Add or Replace 16-channel Label

B. Test and Measurement

1. Portable Transceiver

a. Functional Check

- I. Will radio 'power up'?
- II. Will radio transmit a carrier?
- III. Will radio transmit a modulated carrier?
- IV. Will radio provide a receive indication?
- V. Will radio provide recovered receive audio?
- VI. Verify proper functions of applicable user controls
 - A. ON-Off /Volume
 - B. Channel monitor
 - C. Channel / channel bank selection
 - D. Scan, Scan channel add and delete
 - E. Hi-Low power setting
 - F. Back-Light

■ Please refer to Item #21-Scope of Services when a portable radio fails a functional check.

b. Receiver Test and Measurement

- I. Measure and record in dB the receiver sensitivity at a 50 Ω input point to the receiver.
* Alternatively a radiated sensitivity test may be employed when a suitable test input is not available. However, test and result must be repeatable.
- II. Verify proper receiver indications.
- III. Verify proper CTCSS decode.
- IV. Verify proper CTCSS decode enable and disable
- V. Verify proper Scan indication.
- VI. Verify proper Scan-receive operation.

c. Transmit Test and Measurement-document *as found* and *as corrected* values

- I. Measure and record HI output power.
- II. Measure and record Low output power.
- III. Measure and record voice modulation level.
- IV. Measure and record CTCSS modulation level
- V. Measure & record carrier frequency error either:

- For a single channel of operation if frequency synthesis is employed.

2. Battery

- a. Measure and record terminal voltage after a charge time of ½-Hour.
- b. Measure and record the milli-ampere hour rating the battery achieves after a cycle test. (only if proper terminal voltage is achieved)
- c. Inscribe battery with service Month and Year (M / YR) if a new battery is deployed to NHDOT

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VII. Unicom / Fixed Base Operator (FBO) Stations

A. Mechanical Inspection to Include:

1. Visual of antenna and cable system from ground with visual magnification aid.
 - a. Inspect antenna mount attachments
 - b. Inspect cable attachment to mounting fixture
 - c. Inspect for any signs of damage to exposed cable.
 - d. Inspect for loose, corroded, detached ground or bonding connections.
 - e. Check for presence of a Polyphaser ® in antenna system.
 - f. Inspect for bent, broken, or missing antenna elements.

2. Visual of infrastructure
 - a. Inspect the antenna supporting structure for any obvious signs of wear, damage. (eve-mount, pipe, building etc.)
 - b. Inspect ground and bonding connections between equipment and external earth terminal ground rod.
 - c. Verify presence of a ground rod that antenna system is attached to.
 - d. Inspect wall outlet that provides commercial power to station. Verify presence of grounded outlet.
 - e. Inspect cable entry port & weather seal. Maintain as needed.

3. Visual of Unicom
 - a. Inspect alternating current (AC) power cord and plug (and extension cord if used).
 - b. Inspect RF cable and connector that attaches to radio
 - c. Check physical condition of microphone and microphone cord.
 - d. Note on report if station is bonded to central ground.
 - e. Clean equipment as needed.
 - f. ▼ Verify or post current FCC authorization (License)

9-B.
1-12-14

B. Electrical Inspection to Include (Document *as found* values prior to changes or adjustment)

1. Power Supply

- a. Measure and record input voltage
- b. Measure and record input voltage in TX mode.

Note: a & b procedure may be waived for ICOM base stations

2. Transmitter (TX) Measurements- Adjust as required. Document *as found* and *as corrected* values.

- a. Verify local push-to-talk (PTT) TX operation.
- b. ► Measure and **record** RF power output in Watts from transmitter with no modulation, resting carrier.
- c. Calculate and **record** voltage standing wave ratio (VSWR) between TX and antenna cable.
- d. ► Measure and **record** percent % of voice amplitude modulation
- e. ► Measure and **record** carrier frequency of operation. (error)
- d. Document / **Record** Technician's General Radio - Telephone License (GROL) number as issued by FCC.

► Denotes FCC license parameter

3. Receiver (RX) Measurements & Test

- a. Measure and **record** in dB RX sensitivity needed to achieve 12 dB Sinad with 20% modulation 1000 HZ tone
- b. Measure and **record** in dB RX sensitivity needed to achieve 12 dB Sinad with 50% modulation 1000 HZ tone
- c. Measure and **record** in dB RX sensitivity needed to achieve 12 dB Sinad with 90% modulation 1000 HZ tone
- d. Note any adjacent or co-channel interference.
- e. Verify adequate /undistorted speaker audio

The use of DOT provided test fixture is required for ICOM A200B model Unicom

A.B.
1-12-14

SITE

Unicom Make

I	C	O	M			
---	---	---	---	--	--	--

UNICOM Model #

A	2	0	0	B		
---	---	---	---	---	--	--

UNICOM Serial No.

--	--	--	--	--	--	--

HEI Serial #

0	0				
---	---	--	--	--	--

Test Frequency

1	2	2				
---	---	---	--	--	--	--

Measured Frequency

1	2	2				
---	---	---	--	--	--	--

Power output

--

Watts

Ant. Power Readings

--

Forward

--

Reverse

VSWR

	:	
--	---	--

Modulation Envelope

--

%

RX Sensitivity

@

20%

--	--	--	--

dB

RX Sensitivity

@

50%

--	--	--	--

dB

RX Sensitivity

@

90%

--	--	--	--

dB

Date: M/D/Y

9-B-
1-12-14

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VIII. Wet Cell, Low & No Maintenance Batteries

1. Visual

- a. Inspect Battery Housing and note overall conditions.
- b. Inspect charger source, check for proper electric breaker or fuse labeling and manual cutoff operation.
- c. Inspect & check battery enclosure for proper ventilation
- d. Inspect ground and return side of system. Maintain as necessary and recommend improvements.
- e. Inspect for vegetation encroachment at Solar power /charger sites. Note recommendations.

2. General Inspection of

- a. Inspect labels for legibility and accuracy. Correct as necessary.
- b. Check & document battery In-Service-Date (month & year).
- c. Inspect physical condition, note any leakage, corrosion, bulging of battery case
- d. For wet cell, inspect and insure vented caps are properly installed.
- e. For wet cell, visually inspect water level of each cell. Document what battery-number takes water for later follow up gravity tests.
- f. Add distilled water to proper level as necessary.
- g. Inspect condition of interconnection cabling for insulation damage or terminal corrosion. Check tightness of connectors.
- h. Note presence and operating condition of load management device. (such as LED status lights)

3. Electrical & Gravity Measurements

- a. Measure and record in Volts the total difference of potential of a bank as configured, while isolated from the load and charge source.
- b. Measure and record the difference of potential at the negative & positive terminals of the battery bank while batteries are charging.
- c. Measure and record the difference of potential at the negative & positive terminals of the battery bank while batteries are under load unassisted by charging source.
- d. Measure or read **load** current with Clamp meter and document this value and document this value in Amperes.
- e. Measure or read **Charge** current and document this value in amperes.
- f. For wet cell batteries measure the gravity of each-cell of each-battery and document any that do not measure nominally.

A.B.
1-17-14

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SECTION-3a, Invoice and Billing Information

- 1) Invoices shall be addressed as specified.

All **Turnpike** related contract invoices

Mr. John Corcoran
Bureau of Turnpikes
PO box 2950
Concord, NH 03302-2950

All **Aeronautics** related contract invoices

Mrs. Tricia Lambert
Bureau of Aeronautics
PO Box 483
Concord, NH 03302-0483

All Other invoices for Department Bureaus related to land mobile, marine and Or battery maintenance.

ATTENTION TMC
Bureau of Traffic
PO Box 483
Concord, NH 03302-0483

- 2) Invoice(s) shall be mailed via US postal Service, or hand delivered to Bureau of Traffic, 18 Smokey Bear Boulevard, Concord NH no later than ten (10) business days after completed maintenance action. The NHDOT, TMC Program Manager shall make final determination of completed maintenance action, per work order (number).
- 3) No more than one (1) Contractor invoice shall be generated for one (1) corresponding NHDOT work order number
- 4) Each invoice shall have a corresponding (Contractor) invoice number and date.
- 5) Each Invoice shall identify the Department work order number, a description of work, the site and or equipment, the hours, parts and materials that are being billed for.
- 6) Contractor shall establish a NET-30 terms for the Department

A.B.
1-11-14

7) A dated statement for either Bureau Turnpike, Aeronautics, or Traffic shall accompany each invoice, or group of invoices delivered to the specified address that shows

- a) Outstanding invoice(s) with numbers, original invoice date.
- b) Credit for applied payment(s) and dates to previously paid invoices.
- c) Total outstanding monies

8) Successful vendor shall provide *accounts receivable* contact information as referenced in Section-4 that includes; name, title, mailing address, e-mail, and telephone number for mailing purposes and the resolution of all invoicing discrepancies.

SECTION 3b-GENERAL CORRESPONDENCE & REQUIRED NOTIFICATIONS

Mr. David S. Chase
Communications Supervisor
Bureau of Traffic
PO Box 483
Concord, NH 03302-0483

SECTION-4, Contractor Contact Information

Maintenance Supervisor:

- a) Name: James Barnes
- b) Title: Service Manager
- c) Address: PO Box 10383 Swanzey, NH 03446
- d) E-mail: Jim253@randrcomm.com
- e) Telephone number: 603-352-1825
- f) Cell Phone number: 603-209-4825

Accounts Receivable:

- a) Name: Evelyn French
- b) Title: Office Manager
- c) Address: PO Box 10383 Swanzey, NH 03446
- d) E-mail: Evelyn259@randrcomm.com
- e) Telephone number : 603-352-1825

Technician:

- a) Name: Michael Striker
- b) Title: Senior Technician
- c) Address: PO Box 10383 Swanzey, NH 03446
- d) E-mail: Mike268@randrcomm.com
- e) Telephone number: 603-352-1825
- f) Cell Phone number: 603-359-1606

A-B-
1-12-14

EXHIBIT-B

Appendix -A

- 1) Invoice(s) shall be mailed via US postal Service, or hand delivered to Bureau of Traffic, 18 Smokey Bear Boulevard, Concord NH no later than ten (10) business days after completed maintenance action. The NHDOT, TMC Program Manager shall make final determination of completed maintenance action, per work order (number).
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All Aeronautics related contract invoices

Mrs. Tricia Lambert
Bureau of Aeronautics
PO Box 483
Concord, NH 03302-0483

All Other invoices for Department Bureaus related to land mobile, marine and or battery maintenance.

ATTENTION TMC

Bureau of Traffic
PO Box 483
Concord, NH 03302-0483

Contractor Int. J.B.
Date: 04/14/14

EXHIBIT-B
Section 1-Preventive (scheduled) Maintenance Inspections

Sub-sysytem	Cost Per Unit	# of Units	Total Yearly Cost
Generic Repeater PMI (no site)	\$150.00	1	\$ 150.00
Control Stations none dispatch	\$ 75.00	30	\$2250.00
Desktop Remote Controls	\$ 20.00	6	\$ 120.00
Mobile radios all vehcile types with or with DC converters	\$ 20.00	220	\$4400.00
Portable Radios	\$ 20.00	40	\$ 800.00
ITS Battery System	\$ 20.00	26	\$ 520.00
Sub-Total for Preventative Maintenance (PMI)			\$8240.00

Contractor Int. *P.B.*Date: 1-19-14

EXHIBIT-B

Section-2

Dispatch Equipment Complete- per Site, Equipment Schedule, and PMI Task lists

Location	Location Detail	Site Bid Price Example \$1.11	Contractor Proposed Date DOT Work Order number
Lancaster District-1	Lancaster Office and remote site	400.00	DATE: D1DISP2014
Enfield District-2	Enfield Office and remote site	300.00	DATE: D2DISP2014
Gilford District-3	Gilford Office and remote site	300.00	DATE: D3DISP2014
Swanzey District-4	Swanzey Office and remote site	200.00	DATE: D4DISP2014
Bedford District-5	Bedford Office and Local site	300.00	DATE: D5DISP2014
Durham District-6	Durham Office only	200.00	DATE: D6DISP2014
Portsmouth Bridge Maintenance	Ranger Way Office only	200.00	DATE: BMDISP2014
Portsmouth Bridge Maintenance	Portsmouth Sara Long Bridge	300.00	DATE: SLDISP2014
Portsmouth Bridge Maintenance	Portsmouth Memorial Bridge	300.00	DATE: MBDISP2014
Concord Highway Maintenance	Concord John O. Morton Building	200.00	DATE: 58DISP2014
Disp. PMI Sub-Total This Page ▶		\$2700.00	

Contractor Int. A.B.
Date: 1-17-14

Repeater and Antenna System Preventive Maintenance Bid Table

Site Name and Town	Equipment & Quantity	Antenna System	Price per site example \$1.11	Contractor proposed Date DOT work order number
Holden Hill, W. Stewarts Town	Ericsson Mastr III, 2 each	TX / RX Combiner	320.00	Date: 54RPM1401
Milan Hill, Milan	Ericsson Mastr III, 1 each	Duplexer	160.00	Date: 54RPM1402
Mt Washington,	Ericsson Mastr III, 2 each	TX / RX Combiner	320.00	Date: 54RPM1403
Mt Prospect Lancaster	Ericsson Mastr III, 1 each	Duplexer	160.00	Date: 54RPM1404
Cannon Mountain, Franconia	Ericsson Mastr III, 3 each	TX / RX Combiner	480.00	Date: 54RPM1405
Cardigan, Orange	Kenwood + Solar power Plant	Duplexer	160.00	Date: 54RPM1406
Mt Belknap, Gilford	Ericsson Mastr III, 3 each	TX / RX Combiner	480.00	Date: 54RPM1407
Mt Kearsage, Warner	Ericsson Mastr III, 3 each	TX / RX Combiner	480.00	Date: 54RPM1408
Moose Mt, Hanover	Ericsson Mastr III, 1 each	Duplexer	160.00	Date: 54RPM1409
Mt Ascutney, Winsor VT.	Ericsson Mastr III, 2 each	3rd Party	320.00	Date: 54RPM1410
Mt Whittier, Tamworth	Ericsson Mastr III, 2 each	TX / RX Combiner	320.00	Date: 54RPM1411
Pitcher Mt., Stoddard	Ericsson Mastr III, 1 each	Duplexer	160.00	Date: 54RPM1412
Hyland Hill, Westmoreland	Ericsson Mastr III, 1 each	Duplexer	160.00	Date: 54RPM1413
Miller Park, Peterbough	Ericsson Mastr III, 3 each	TX / RX Combiner	480.00	Date: 54RPM1414
Warner Hill, Derry	Ericsson Mastr III, 1 each	Duplexer	160.00	Date: 54RPM1415
Mt Uncanoonuc, Goffstown	Ericsson Mastr III, 2 each	TX / RX Combiner	320.00	Date: 54RPM1416
Mt Uncanoonuc, Goffstown	Ericsson Mastr III, 1 each		160.00	70RPM1416
Hackett Hill, Hooksett	Ericsson Mastr III, 1 each	TX / RX Combiner	160.00	Date: 54RPM1417
Hackett Hill, Hooksett	Ericsson Mastr III, 1 each		160.00	70RPM1417
Saddleback Mt, Deerfield	Ericsson Mastr III, 2 each	TX / RX Combiner	320.00	Date: 54RPM1418
Saddleback Mt, Deerfield	Ericsson Mastr III, 1 each		160.00	70RPM1418
Mt Bluejob, Strafford	Ericsson Mastr III, 2 each	TX / RX Combiner	320.00	Date: 54RPM1419
Mt Bluejob, Strafford	Ericsson Mastr III, 1 each		160.00	70RPM1419

Sub-Total for Repeater Site Preventive Maintenance Inspections ►

\$6080.00

EXHIBIT-B, Page 3 of 8

Contractor Int. A.B.

Date: 1-17-14

EXHIBIT B

SECTION 4- ANTENNA SYSTEM INSTALLATION or INSPECTION

Personnel	Estimated Hours Per Year	Cost per Hour	Total Cost Per Year
Tower Climber-1	60	80.00	\$4800.00
Tower Climber -2	60	80.00	\$4800.00
Installation Technician	16	60.00	\$ 960.00
System Technician	16	80.00	\$1280.00
Subtotal yearly cost for Antenna System Installation			\$11840.00

Contractor Int. A.B.
Date: 1-12-14

EXHIBIT-B

Section-5 Installation Rates for Mobile Radios with Accessories (per unit)

Vehicle Type	Radio type	Estimated Number of Units Per Year	Cost per unit
Light Truck or Car	Trunk / Remote Mount	1	\$175.00
Light Truck or Car	Dash Mount	1	\$125.00
Light Truck or Car	Dual-Band / Remote	1	\$200.00
3-5 Ton Truck	Trunk / Remote Mount	1	\$175.00
Heavy Equipment 24-volt	Dash Mount w/ 24 volt converter	1	\$150.00
Radio removal all types	Both Dash and Remote mount	1	\$ 75.00
Sub-total yearly cost of Page-3 ▶			\$900.00

Contractor Int.

Date: 1-12-74

Accessories: Antennae, Standard Option Cables, Standard DC Power Cables, External and / or Internal Speaker(s), and Microphone(s)

EXHIBIT-B

Section-6 Unscheduled Maintenance


Repairs & Misc.	Cost per Hour	Estimated number of Hours / Yearly	Estimated Yearly Total
Repeaters	75.00	200	15,000.00
Base Stations	75.00	30	2,250.00
Dispatch Locations	75.00	24	1,800.00
Desk-top Remotes	75.00	10	750.00
Mobile Radios	75.00	100	7,500.00
Portable Radios	75.00	40	3,000.00
Marine / Aeronautics	75.00	8	600.00
File Preparation	30.00	2	60.00
Radio Programming	30.00	24	720.00
	Price Per Night	Estimated # of Nights Yearly	Estimated Yearly Cost
Lodging	100.00	1	100.00
	Price Adjusted for Minimum Hrs & OT	Estimated number of 4-hr Callouts Yearly	Estimated Yearly Cost
Emergency Callout	112.50	2	225.00
			Yearly Cost for replacement parts
Replacement Parts	This fixed cost shall be included in your Bid		\$15,000.00
	Cost Per Hour	Estimated Yearly Hours	
Travel Rate for Vehicle	40.00	100	4,000.00
	Cost Per Hour	Estimated Yearly Hours	
Travel Rate for Tech's	40.00	100	4,000.00
Yearly Sub-total Unscheduled Maintenance ▶			55,005.00

Contractor Int. *[Signature]*

Date: 1-17-14

Unicom, Preventive Maintenance Inspections

Site Name and Town	Equipment	Price per site example \$1.11	Contractor proposed Date DOT work order number
Mt Wasington Reg. Airport	Icom A200B	160.00	Date: 64UPM1401
Twin Mt, Town of Carol.	King	160.00	Date: 64UPM1402
Errol Municipal	DX835	160.00	Date: 64UPM1403
Berlin Municipal	DX835	160.00	Date: 64UPM1404
Dean Memorial, N Haverhill	Icom A200B	160.00	Date: 64UPM1405
Parlin Field, Newport	Icom A200B	160.00	Date: 64UPM1406
Claremont Municipal	Icom A200B	160.00	Date: 64UPM1407
Haythorn Feather, Deering	Mentor MB10	160.00	Date: 64UPM1408
Dillant Hopkins, Keene	Icom A200B	160.00	Date: 64UPM1409
Silver Ranch, Jaffrey	Johnson 727	160.00	Date: 64UPM1410
Hampton, N Hampton	Icom A200B	160.00	Date: 64UPM1411
Skyhaven, Rochester	Icom A200B	160.00	Date: 64UPM1412
Concord, Municipal	Icom A200B	160.00	Date: 64UPM1413
Laconia, Municipal	Icom A200B	160.00	Date: 64UPM1415
Yearly Subtotal for Unicom PMI ▶		2240.00	✓

Contractor Int. 

Date: 1-17-14

EXHIBIT-B

Section-8 Bid Tabulation Table

Subtotal from Section-1	Page 1 of 8	Preventive Maintenance (PMI)	8240.00
Subtotal from Section-2	Page 2 of 8	Dispatch-Preventive Maintenance	2700.00
Subtotal from Section-3	Page 3 of 8	Repeater "Site" PMI	6080.00
Subtotal from Section-4	Page 4 of 8	"Antenna" System Work	11840.00
Subtotal from Section-5	Page 5 of 8	Mobile radio Installations	900.00
Subtotal from Section-6	Page 6 of 8	Unscheduled Maintenance	55005.00
Subtotal from Section-7	Page 7 of 8	Unicom PMIs	2240.00
Annual contract amount, This is your Bid			\$ 87,005.00

Contractor Int. *AB*
 Date: *1-17-14*

EXHIBIT-B

Section-8 Bid Tabulation Table		R&R	Ossipee	Estimated Costs
Subtotal from Section-1	Page 1 of 8 Preventive Maintenance (PMI)	\$8,240.00	\$35,227.00	\$22,700.00
Subtotal from Section-2	Page 2 of 8 Dispatch Preventive Maintenance	\$2,700.00	\$4,250.00	\$7,310.00
Subtotal from Section-3	Page 3 of 8 Repeater "Site" PMI	\$6,080.00	\$10,163.00	\$8,600.00
Subtotal from Section-4	Page 4 of 8 "Antenna" System Work	\$11,840.00	\$10,260.00	\$18,320.00
Subtotal from Section-5	Page 5 of 8 Mobile radio Installations	\$900.00	\$576.00	\$630.00
Subtotal from Section-6	Page 6 of 8 Unscheduled Maintenance	\$55,005.00	\$57,060.00	\$62,470.00
Subtotal from Section-7	Page 7 of 8 Unicom PMIs	\$2,240.00	\$2,450.00	\$1,190.00
Annual contract amounts		\$87,005.00	\$119,986.00	\$121,220.00

EXHIBIT-C

Section-14. Insurance and Bond

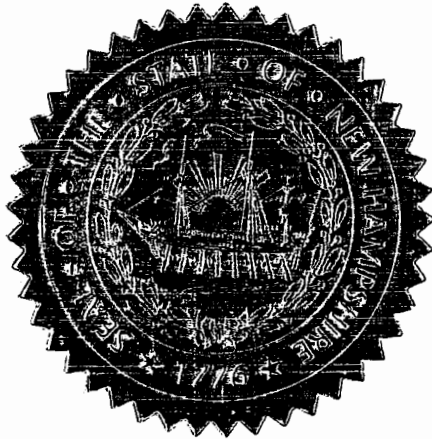
To include automobile insurance in an amount not less than a combined single limit of \$ 1,000,000 (amend 14.1.1).

A.B.
1-12-14

State of New Hampshire
Department of State

CERTIFICATE

I, William M. Gardner, Secretary of State of the State of New Hampshire, do hereby certify that R. & R. COMMUNICATIONS, INC. is a New Hampshire corporation duly incorporated under the laws of the State of New Hampshire on January 21, 1975. I further certify that all fees and annual reports required by the Secretary of State's office have been received and that articles of dissolution have not been filed.



In TESTIMONY WHEREOF, I hereto
set my hand and cause to be affixed
the Seal of the State of New Hampshire,
this 10th day of April, A.D. 2014

A handwritten signature in cursive script, appearing to read "William Gardner".

William M. Gardner
Secretary of State

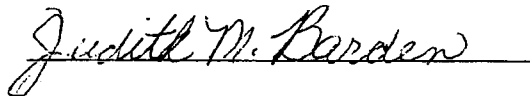
CERTIFICATE OF VOTE

I, **Judith M. Barden**, Secretary of **R&R Communications, Inc.**, hereby **CERTIFY** I am the Duly Elected Secretary of R&R Communications, Inc. and that the following is a true copy of a vote taken at a meeting of the Board of Directors of said corporation duly called and held on December 19, 2013, at which meeting a quorum of the directors being present and voting, it was

“VOTED: To authorize Jeffrey A. Barden, President, to meet with officials of New Hampshire Department of Transportation including the Communications Supervisor to discuss a contract to maintain and repair all State of New Hampshire Department of Transportation radio communication equipment and to execute any and all documents, contracts and agreements regarding said services. This authorization shall remain in full force and effect from December 19, 2013 through January 30, 2014.

I further certify that said vote has not been amended or repealed and that Jeffrey A. Barden is the duly elected President of R&R Communications, Inc.

DATED this 19th day of December 2013.



Judith M. Barden, Secretary

(corporate seal)



R & R Communications, Inc.

P.O. BOX 10383 Swanzey, New Hampshire 03446

603.352.1825 800.339.1825 FAX: 603.352.5697

office@randrcomm.com



Reference: Section 25 B

- 1) 3ea. NH locations – Swanzey, Lebanon and Manchester. Motorola Service Center for 58 years.
- 2) 2ea. Motorola R2600 Service Monitors.
- 3) 1ea. Motorola R2200 Service Monitor.
- 4) 1ea. Aeroflex 2975 Service Monitor.
- 5) 1ea. HP 8924C Service Monitor.
- 6) 6ea. Bird 43 Watt Meters.
- 7) Fluke, Helper, Simpson and various other Test Meters.
- 8) 6ea. Dell laptop computers for field service and programming.
- 9) 1ea. Arctic Cat 440 Snow Machine.
- 10) 1ea. Arctic Cat Prowler Tracked Snow Machine.
- 11) 1ea. Honda 4trax ATV.
- 12) 4ea. Ford Escape 4x4's. Fully stocked service vehicles.
- 13) 1ea. Ford F350 4x4 pickup.

Reference: Section 25 C

After hour's response time: 4 hrs. Call back within 1hr. Travel time for any of our technicians to their respective service shops is less that 1/2 hr. TOLL FREE NUMBER 1.800.339.1825





CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
1/15/2014

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Peter M. Bakker Agency, Inc. 302 W. Main Street Suite 206 Avon, CT 06001	CONTACT NAME: PHONE (A/C, No, Ext): (860) 676-1957		FAX (A/C, No): (860) 676-1927
	E-MAIL ADDRESS:		
INSURED R & R Communications Inc. Po Box 10383 Swanzey, NH 03446	INSURER(S) AFFORDING COVERAGE		NAIC #
	INSURER A : Peerless Insurance Company		24198
	INSURER B : Netherlands		24171
	INSURER C : Excelsior		11045
	INSURER D :		
	INSURER E :		
INSURER F :			

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	<input checked="" type="checkbox"/> GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOC			CBP 8943700	1/1/2014	1/1/2015	EACH OCCURRENCE	\$ 1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	\$ 100,000
							MED EXP (Any one person)	\$ 15,000
							PERSONAL & ADV INJURY	\$ 1,000,000
							GENERAL AGGREGATE	\$ 2,000,000
							PRODUCTS - COM/OP AGG	\$ 2,000,000
								\$
B	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS			BA8945300	1/1/2014	1/1/2015	COMBINED SINGLE LIMIT (Ea accident)	\$ 1,000,000
							BODILY INJURY (Per person)	\$
							BODILY INJURY (Per accident)	\$
							PROPERTY DAMAGE (Per accident)	\$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ 10,000			CU8946500	1/1/2014	1/1/2015	EACH OCCURRENCE	\$ 4,000,000
							AGGREGATE	\$
							Commercial Umbr	\$ 4,000,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	N/A	WC8946100	1/1/2014	1/1/2015	WC STATUTORY LIMITS	OTHER
							E.L. EACH ACCIDENT	\$ 500,000
							E.L. DISEASE - EA EMPLOYEE	\$ 500,000
							E.L. DISEASE - POLICY LIMIT	\$ 500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)
Two Way Radio Installation or service of equipment

CERTIFICATE HOLDER NH Department of Transportation PO Box 483 Concord, NH 03302	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE <i>Kathleen Campbell</i>