GOVERNMENT OF BERMUDA

Ministry of National Security

RFP MNS HEAD 83-34

# Request for Proposal for the Supply of Public Safety Radio Communications System

Ministry of National Security Headquarters

P.O. BOX HM1364, Hamilton HM FX

Issued Date: October 6, 2017

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# INSTRUCTIONS TO PROPONENTS

These conditions will govern this procurement process.

## 1.0 Introduction

### 1.1 Invitation to Proponents

The Government of Bermuda is seeking competitive proposal for the provision of a Public Safety Radio Communications System

**The Ministry of National Security ["MNS"] reserves the right to withdraw this Request for Proposal ("RFP"), to change any specific terms and conditions or all of a contract prior to signing by MNS, or not to award a contract at any time.**

**Failure to submit information in accordance with this RFP's requirements and procedures may be cause for disqualification from this process**

**All submitted tenders become the property of the Government. All information in connection with a tender provided to the Government as a result of this RFP shall become and remain Government's property.**

**All draft contracts provided are in draft only and are subject to change or refusal without reason or notice. A contract is not final unless fully executed by all parties.**

You shall indemnify, keep indemnified and defend the Government, its Ministers, public officers and consultants against any actions, claims or demands for any costs, fees, losses (including loss of opportunity to make a profit), or for expenses (including legal expenses) ("**expenses**") suffered or incurred in the preparation or submission of your tender for this RFP. All expenses remain your responsibility as a result of engaging in this process for the tender of this RFP, or undertaking any work in preparation for this RFP.

This is an invitation by the Ministry of National Security Headquarters to prospective Proponents to submit proposals for the provision a public safety communications radio system employing state of the art digital radio technology for use by all Bermuda Government entities**,** as further described in Schedule 1–Scope of Project and Deliverables (the "Deliverables"). For Bermuda Public Sector bodies (Police, Fire Services, Public Transportation Board and Ministry of Public Works, and other non-departmental public bodies, and local authorities.)

Proponents must submit proposals for the provision of the required services in accordance with the terms, conditions and proposal response format as specified in this RFP. The purpose of the RFP is to identify those Proponents capable of meeting the requirements in a feasible, economical and timely manner, and with whom a contract can be negotiated. By responding to this RFP, each proponent thereby acknowledges that it has reviewed the process, terms, conditions and reserved rights contained in this RFP, and has elected to participate in this RFP subject to those procedures, terms, conditions and reserved rights.

For the purposes of this procurement process, the **"Ministry Contact**" shall be: Mr. Vernon Wears Jr., Policy & Project Coordinator, Ministry of National Security HQ, P.O. Box HM 1364, Hamilton HM 12, Bermuda or vswears@gov.bm.

## 1.2 Ministry of National Security

The Headquarters office of the Ministry of National Security provides leadership, oversight and coordination of Ministry business; programme management and departmental operations, including the formulation and implementation of policy and legislation.. Headquarters directs and coordinates operations and the activities within the Ministry including Public Safety, and Border Control.

## 1.3 Brief Description – Project Summary

**Background**
The existing radio systems operated by Bermuda Public Sector bodies were implemented more than 20 years ago and have become technologically obsolete. The RFP encompasses a **turnkey** goods and services project to provide the Ministry of National Security (MoNS) with a new digital trunked radio system that meets current and future communication needs, both reliably and functionally. "Turnkey" is defined as providing all necessary design, hardware, software, interfaces, project management, documentation, installation/engineering, and training services that meet requirements and performance standards for one price.

**Goals and Benefits**
The objective of the procurement is to:
**1.** Replace obsolete radio equipment
**2.** Provide a common technology platform between all users on Bermuda
**3.** Provide the capability of transmitting and receiving data that can be interfaced into existing and future planned data networks including field users
**4.** Improve radio coverage Island wide and increase the level of performance of all public safety and government radio equipment

**Project Structure**
The selected bidder will report directly to Mr. Vernon Wears Jr., Policy & Project Coordinator and interact with key members of the radio review committee and ministry management for this project.

**Project Duration**
The term of any resulting contractual agreement will be based upon the contract term with an option to extend subject to the mutual agreement of all parties, to be negotiated prior to the end of the then current term.

## 1.4 Timetable of Events

The following table outlines the schedule associated with this procurement.

i. This schedule provided is for information only. The Government does not guarantee that the dates referred to this section may depend on variable factors beyond the control of the Government. Therefore, the timing and sequence of event may vary and the Government will ultimately determine the sequence of events.

ii. Should the Government, at its discretion, decide to extend the submission deadline, it shall promptly communicate its intentions by issuing and extension to all Proponents before the submission deadline via an addendum.

**Key Actions, Dates and Times**

| Actions | Dates and Times |
|---|---|
| **Issuing of the bidding documents**(Published on https://www.gov.bm/procurement-notices and in the Official Gazette, posting of E-mail notices - if needed or to list of pre-qualified Proponents) | October 6, 2017 |
| **Pre-Bid meeting and Site Visits**<br>**E-mail Mr. Wears for acknowledgment of attendance and location of meeting** | October 24, 2017 through October 25, 2017.<br>10:00 am until 4:00 pm ADT |
| **Deadline for Clarifications and Questions from Proponents.**<br>Requests must be made in writing and transmitted by e-mailing [vswears@gov.bm] | October 16, 2017 at 4:00 pm ADT |
| **Posting of the responses to Proponents questions and/ or Government Addenda**<br>Published on https://www.gov.bm/procurement-notices . | October 18, 2017 |
| **Submission Deadline (Closing)**<br>***(Late Bids will not be considered)*** | November 29, 2017 at 4:00 pm ADT |
| **Bid Opening** | November 29, 2017 |
| **Step 1 Review and Evaluation** | December 14, 2017 |
| **Step 2 Oral Presentations for proof of concept**<br>Oral Presentation(s) Proponent(s) finalist(s). | The exact times and dates slots will be communicated to finalist(s) in due time |
| **Step 3 Complete Selection and Evaluation Process** | January 17, 2018 |
| **Award of Contract(s)** | **TBD** |

## 1.5 Public Access to Information

Any information collected or used by or on behalf of the Government of Bermuda under this solicitation document is subject to the Public Access to Information Act 2010 ("Act"). The information belongs to a class of information that might be made available to the general public unless it is contained in a record that is exempt from disclosure under the Act. Any questions regarding the collection, use, or disclosure of the information should be directed to the public authority that issued this solicitation document.

## 1.6 Sustainable Procurement

The Government is committed to sustainable solutions whereby both the environmental and socially responsible practices are incorporated into our procurement practices, and impacts the products and services we procure. This is achieved through pre-determined evaluation criteria that take into consideration the social enterprise of providing opportunities for Bermudan owned small business, apprenticeship and training opportunities, and a variety of environmental considerations. We ask that you take this under consider this when bidding on Government Contracts.

## 1.7 Pre-bid meeting and Site Tour

1.7.1 A pre-bid meeting will be held on October 24, 2017 and October 25, 2017 at 10 a.m. until 4:00 PM at Ministry of National Security Headquarters, Global House Ground Floor, 43 Church Street, Hamilton HM12. The Proponent, at its own risk and responsibility is encouraged to visit and examine the site of works and its surroundings and obtain all information that may be necessary for preparing the bid and entering into a contract. Proposers are urged to attend these visits in order to understand the unique requirements of access and usage of some of the sites.

1.7.2 The costs of visiting the site and attending the pre-bid meeting shall be at the Proponent's own expense.

## 1.8 Submission Deadline (Closing Date)

1.8.1 The bid submission must be delivered no later than November 29, 2017 at 4:00 p.m. ADT

1.8.2 All submissions become the property of the Government of Bermuda and will not be returned. All conditions contained in the solicitation documents are considered accepted by the Proponent in any information submitted.

1.8.3 Late bid "WILL NOT BE CONSIDERED". The deadline is absolute and bids received after the due date and time shall be rejected. Proponents must select a method of delivery that ensures their bid will be delivered to the correct location by the due date and time.

1.8.4 Bids received after the stated deadline will be considered as 'NO BID' and 'VOID'. The time stamp for bids submitted electronically will be that of the Information Technology Office (ITO) mail server. It is the Proponent's

responsibility to allow enough time for electronic transmission and delivery, especially in the case of large files.

1.8.5 Bid shall be submitted on the *forms provided as noted in* REQUIREMENTS *Section 6.4* sealed in an envelope that is clearly marked.

1.8.6 Bids may be delivered in person, mailed or emailed to the Government. Any bid which is mailed, but does not reach the Department by the date and time set forth above will not be accepted, regardless of postmark.

## 1.9 Eligibility and Qualifications

This opportunity is open to Proponents who meet the additional terms and conditions described herein.

1.9.1 A professional team and necessary equipment capable of meeting all requirements for the proposed communication system

1.9.2 The Proponent and the Proponent's subcontractors must meet certain requirements, specified herein in order to be considered as eligible Proponents for the project.

1.9.3 Proponents, sub-contractors and contracting teams, which fail to meet the requirements specified herein, will not qualify for this project, and their Bid will not be accepted.

1.9.4 Bid submitted by a Proponent with subcontractors shall comply with the following requirements:

1.9.4.1 The Proponent shall note the names of proposed subcontractors in their submission;

1.9.4.2 The Bid and any Contract pursuant hereto shall be signed by the Proponent only; and

1.9.4.3 The Proponent shall be liable, solely, for the execution of the Contract in accordance with the Contract terms.

1.9.5 Submissions by a joint venture of two or more firms as partners shall comply with the following requirements:

1.9.5.1 The Bid and any contract pursuant hereto shall be signed so as to be legally binding on all partners;

1.9.5.2 The joint venture shall identify the partner or person(s) who shall be authorised to incur legally binding obligations on behalf of the joint venture. Such authorisation shall be evidenced by a fully executed Power of Attorney, joint venture agreement, resolution of the joint venture or such other documentation as the Government may determine to be acceptable, in its sole

discretion;

1.9.5.3 All partners of the joint venture shall agree to be held jointly and severally liable for the execution of the Contract in accordance with the Contract terms; and

1.9.5.4 A copy of the Agreement entered into by the joint venture partners shall be submitted with the Proposal.

## 1.10 Certificate of Confirmation of Non-Collusion

The Certificate of Confirmation of Non Collusion is a mandatory requirement for all Proponents. Any forms of bid or agreement submitted which do not include a signed copy of this Certificate will be wholly rejected and will not be included in the evaluation process. If it is later found that the undertakings made below have been breached at any stage of the process, the Proponent will be expelled from the process immediately. In the event that this is discovered after a contract award, legal action may be taken against the Proponent and/or any party involved in the matter. False submissions may also exclude the Proponent, and any other person or company involved in collusion, from involvement in future contracts with the Government of Bermuda.

## 1.11 Cost of Preparation of the Proposal

The Proponent shall bear all costs associated with the preparation and submission of his Proposal and the Government will not be responsible or liable for these costs, regardless of the outcome of the bidding process.

## 1.12 Site Inspections

1.12.1 Site inspections are mandatory.

1.12.2 The Proponent shall be deemed to have satisfied themselves as to the form and nature of the sites, the quantities and nature of the service and materials necessary for the completion of the service, and in general to have obtained all necessary information as to the risks, contingencies and other circumstances which may influence or affect his Proposal.

1.12.3 Proponents will be granted permission by the Government, upon application, to enter upon the sites of the service for the purpose of inspection, but only upon the express condition that such person will release and indemnify the Government from and against all liability in respect of personal injury, loss of or damage to property and any other loss.

1.12.4 Proponents shall make their own assessment of existing facilities, conditions and difficulties which will attend the execution of the service called for by the proposed contract; including local conditions, constraints due to maintenance of traffic, labour conditions, uncertainty of weather, difficulties with access, and all other reasonable

contingencies. Proponents shall satisfy themselves by personal examination of the sites of the proposed Service and by such other means as they choose as to the actual conditions and requirements, and as to the quantities required.

1.12.5 The Proponent shall make and will be deemed to have made the fullest inquiries in Bermuda as to the availability of skilled and unskilled labour, which he may require in the execution of the Contract and shall employ, to the extent practicable and reasonable, staff and labour from sources within Bermuda.

1.12.6 No subsequent claim will be allowed or considered for any work that may be required for the proper execution and completion of the Services, due to failure by the Proponent to examine the site and make proper allowances for the prevailing conditions.

## 2.0 SOLICITATION DOCUMENTS

### 2.1 Content of the Solicitation documents

**2.1.1 Examination of RFP/Tender document**, The Proponent must examine all corresponding instructions, conditions, forms, terms, specifications and drawings in the documents. Failure to comply with these documents will be at the Proponent's risk and may affect the evaluation of the Proposal.

2.1.2 The solicitation document are those stated below and should be read in conjunction with any addenda thereto issued in accordance with clause 2.3.

a) Letter of Invitation (provided separately)

b) Instructions to Proponents

c) Terms of Reference/Scope of Services/Works/Statement of Requirements

d) Particular Specification (See REQUIREMENTS and ATTACHMENT A)

e) Forms: Letter of Intent
   i. Company Profile
   ii. Addenda Acknowledgement
   iii. Contract Acknowledgement
   iv. Certification of Confirmation of Non-Collusion
   v. Schedules

f) Contract General Conditions
   i. Contract Particular Conditions

### 2.2 Clarification of Solicitation Documents

2.2.1 Prospective Proponents requiring any clarification of the solicitation documents may contact the department appointed contact by email~~ing~~ indicated below in 2.2.3. Proponents should not rely on communication with any other person(s) with regard to this process and should use the appointed department contact only.

2.22 It is the responsibility of the Proponent to request any clarification or additional information arising from analysis of the RFP~~/T~~ in writing, and

(a) Shall report any errors, omissions, or ambiguities; and

(b) May direct questions or seek additional information in writing.

2.2.3 The Government will respond in writing by email to any request for clarification which they receive earlier than October 16, 2017 at 4:00 p.m. ADT

**2.2.4 Submissions of written queries shall be sent to the Government at the following address:**

Attention: Mr. Vernon Wears Jr.

Email: vswears@gov.bm

2.2.5 Written copies of the Government's response, where necessary (including a description of the inquiry, (without identifying its source), will be sent to all prospective Proponents who have provided contact details and posted on https://www.gov.bm/procurement-notices.

## 2.3 Amendment of Solicitation Documents

2.3.1 At any time prior to the deadline for submission of Proposals, the Government may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Proponent, modify the solicitation documents by the issuance of an Addendum.

2.3.2 The Addendum will be posted on the Bermuda Government Procurement portal. Prospective Proponents shall promptly acknowledge receipt thereof by email to:

Attention: Mr. Vernon Wears Jr.

Email: vswears@gov.bm

2.3.4 In order to afford prospective Proponents reasonable time in which to consider all Addenda in preparing their Proposals, the Government may, in its sole discretion, extend the deadline for the submission of Proposals in accordance with Clause 4.4.

# Section 3 PREPARATION OF PROPOSAL

## 3.1 Language of the Proposal

3.1.1 The Proposal prepared by the Proponent and all correspondence and documents relating to the Proposal shall be written in English.

## 3.2 Documents Comprising the Proposal

**Proposal:** The information outlined below is the minimum submittal requirement. Proponents may supply additional information if desired. The Proposal, at a minimum, shall consist of:

**1. Executive Summary:**

Each Proposal shall include an introduction to the Proponent's company and an overview of the Proponent's response. The executive summary should include an outline of services

offered by the company, a company history, the number of current employees with the company, and any other information about the Proponent that may help the Government better understand the company's capabilities.

**2. Proponent Background:**
Proponents should provide answers to the following for **each** company in the partnership or joint venture (if the complete provisioning of the requirements in the solicitation document will be met by multiple companies).

1. How long has your company been in existence?
2. Does your company owe outstanding taxes to the Bermuda Government?
3. Does your company have any pending litigations?
4. How many clients your company currently service?
5. Does your company have experience working with Government entities?
6. Describe your company's proposed Service Level Agreement Describe the process for providing status information and problem resolution timeframes
7. Describe your company's proposed service level agreement structure– Build and Hosting
8. What is the physical location of the hosting service and over which geographies is the data transmitted?

**3. Description of Services:**
Each Proposal must include a description of the Services offered by the Proponent.

**4. Financial Proposal/Pricing and Signature Sheet:**
Each Proposal must include a completed Financial Proposal Form as provided with authorised signature. Pricing should include all recurring and non-recurring costs that the -Government will incur over the term of the Contract with the Proponent, including startup costs, installation fees, telecommunication costs, labor, travel, overtime, supplies, shipping, fees, services and any other expense as may be required or necessary to successfully provide the services.

**5. Technical Proposal:**
Each Proposal must include a completed Technical Proposal

**6. References:**
Each Proposal must include three references. Each reference shall include the name of the organisation and the name, title and telephone number of a contact person within the organisation as well as the URL of the site developed. The reference information is to be provided on the reference sheet.

**7. Proposal Exceptions:** Exceptions that a Proponent may have to any of the requirements found in this solicitation documents must be fully explained and outlined in the Proponent's submitted response in a separate section under the heading "Proposal Exceptions".

**8. Assumptions:** The Proponent shall list any assumptions made in formulating their Proposal in a separate section under the heading "Assumptions". Any questions about the specifications/Statement of Requirements/scope of works/services should be

addressed during the Proponent question period ending October 16, 2017 through the contact insertname@gov.bm prior to submitting a Proposal response.

9. **Additional Information:** Additional information not specifically required as a part of our requirement may be provided in a separate section under the heading "Additional Information".

10. **Work Plan**

In this section you should propose:

- the main activities of the assignment, their content and duration
- phasing and interrelations of the main activities
- milestones - including interim approvals by the Client and delivery dates of the documentation

The proposed work plan should be consistent with the technical approach and methodology, showing understanding of the scope of work and ability to translate them into a feasible working plan.

- A list of the final documents, including technical reports, drawings, and tables to be delivered as the final output, should be included here.
- The work plan should be consistent with the Work Schedule.

11. **Organisation and Staffing**

In this section, you should propose the structure and composition of your team. Proponent should list the main disciplines of the assignment, the key expert responsible, and the tasks to be addressed by each team member and proposed technical and support staff. Please provide resumes for the key staff positions you are proposing for this project.

12. **Agreement to Specifications**

By submitting a Proposal, Proponent agrees to the specifications (Statement of Requirements) presented except as noted in Proponent's Proposal Exceptions. The Contract between the Government and the successful Proponent will include and fully incorporate the successful Proponent's Proposal.

## 3.3 Proposal Prices

3.3.1 Currencies - The fixed rates shall be quoted in Bermuda dollars. Other currencies are available for payments and the exchange rate will be set to correspond with the date and time of submission closing.

3.3.2 The Proponent shall provide a detailed schedule of values supporting the proposed Lump Sum Price for the Statement of Requirements/Scope of Services.

3.3.3 Items against which no price is entered by the Proponent will not be paid for by the Government when executed and shall be deemed covered by the other **lump sum prices** in the form provided.

3.3.4 The Proponent price shall include all labour, materials, equipment, tools, and expenses necessary to perform the Terms of References/Scope of Services.

Include overhead and profit in the rates and prices listed. The price shall include, indicate separately, the cost of any work permits, and taxes.

3.3.5 Include an estimated schedule for progress payments, if any.

3.3.6 All duties, taxes and other levies payable by the Proponent under the Contract, or for any other cause, as of the closing date for submission of Proposal, shall be included in the rates and prices and total Proposal.

3.3.7 If this solicitation is amended, all terms and conditions that are not amended remain unchanged

3.3.8 Unless stated otherwise in the solicitation documents, the Contract shall be for the specific works as detailed in the Proposal, Terms of References/Scope of Service documents and based on the completion and submission of the requested Forms.

**3.4 Period of Validity of Proposals**

3.4.1 All prices shall remain firm for One Hundred and eighty (180) calendar days from the deadline for Proposals specified in unless the deadline is modified by an amendment to this solicitation. A Proposal valid for a shorter period may be rejected as non-responsive pursuant to *Clause 6* of these instructions to Proponents.

3.4.2 In exceptional circumstances, prior to expiry of the original period of validity, the Government may request that the Proposal validity period be extended. The request and the responses thereto shall be made in writing by email. A Proponent may refuse the request and withdraw his Proposal. A Proponent agreeing to the request will not be required, nor permitted to modify his Proposal.

**3.5 Safety and Health**

3.5.1 All works must be carried out in strict accordance with the Bermuda Occupational Safety and Health Act, 1982, and the Occupational Safety and Health Regulations of 2009.

**3.6 Alcohol, Smoke and Drug-Free Policy**

3.6.1 All Government buildings and work sites are designated as alcohol, smoke and drug-free.

**3.7 Confidentiality Agreement:**

3.7.1 The successful firm and key individuals may be required to sign a project confidentiality agreement limiting information that may be discussed outside the team due to national security.

## Section 4 SUBMISSION OF PROPOSAL

**4.1 Format and Signing of Proposal**

4.1.1 The Proponent shall prepare one original and three copies of the Proposal,

clearly marking each "original Proposal" and "Copy of Proposal" as appropriate. In the event of any discrepancy between them, the original shall govern. The original and copies of the Proposal shall be typed or written in indelible ink and all be signed by the Proponent or a person or persons who are duly authorized to bind the Proponent to the contract.

4.1.2 A Proposal shall contain no interlineations, erasures, or overwriting except , as necessary to correct error made by the Proponent, in which case the person or persons signing the Proposal shall insularity such corrections.

4.1.3 Only one Proposal may be submitted by each Proponent. No Proponent may participate in the Proposal of another for the same Contract in any relation whatsoever.

**4.2 Sealing and Marking of Proposals**

4.2.1 Proposals should be submitted by [Hard copy or electronic mail] as noted below.

1. Mailed, delivered or electronic sealed Proposal envelopes/packages must be clearly marked on the outside as described below in 4.1.4.5

2. **Proposals submitted by electronic mail,** the time stamp for Proposals submitted electronically will be that of the Bermuda Government's Information Technology Office (ITO) mail server. It is the Proponent's responsibility to allow enough time for electronic transmission and delivery, especially in the case of large files.

3. All submissions must be in Microsoft Word (or pdf); and at least one signed, printed copy must be included, or with one signed electronic copy on in Word, .pdf or other common format.

4. The Proponent shall seal the original and each copy of the Proposal in separate envelopes, duly marking the envelopes as "ORIGINAL" AND "COPY". The envelopes shall be sealed in an outer envelope.

5. Proponents must submit one (1) hard copy ORIGNIAL, three hard (3) COPIES, and one electronic copy in PDF format.

6. The inner and outer envelopes shall:
   Be addressed and delivered to the Ministry of National Security at the address listed below no later than **4:00 p.m. Atlantic Daylight Time (ADT) on November 29, 2017**

   Be addressed to the Address given below

   Mr. Vernon Wears Jr.,
   Policy & Project Coordinator
   Ministry of National Security HQ,
   P.O. Box HM 1364, Hamilton HM 12, Bermuda

RFP MNS HEAD 83-34
Supply of Public Safety Radio Communications System

And a statement "DO NOT OPEN BEFORE", 4:00pm on November 29, 2017.

7. The inner and outer envelopes shall also indicate the name and address of the Proponent to enable the Proposal to be returned unopened in case it is declared "late".

8. If the envelope is not sealed and marked as instructed above, the Government will assume no responsibility for the misplacement or premature opening of the Proposal submitted.

9. A Proposal opened prematurely for this cause will be rejected by the Government and returned to the Proponent.

10. Proponents may be withdrawn at any time by written notice, only provided such notice is received at the office of the Government prior to the date/time set as the closing time for receiving Proposals.

**4.3 Deadline for Submission of Proposals**

4.31. Proposals must be delivered to the office on or before November 29, 2017, 4:00 pm ADT.

4.3.2 Any Proposal received by the Government after the deadline for submission of Proposals will not be accepted and will be rejected and considered as nonresponsive.

**4.4 Extension of Deadline for Submission of Proposals**

4.4.1 The Government may, at its discretion, extend the deadline for submission of Proposal by issuing an amendment in which case all rights and obligations of the Government and the Proponents previously subject to the original deadline shall thereafter be subject to the new deadline as extended.

4.4.2 Any Proposal received by the Government after that deadline for submission of Proposals will be rejected and returned unopened to the Proponent.

**4.5 Modifications and Withdrawal of Proposals**

4.5.1 The Proponent may modify or withdraw his Proposal after submission, provided that the modification or notice of withdrawal is received in writing by the Government prior to the deadline for submission.

4.5.2. The Proponent's modification or notice of withdrawal shall be prepared, sealed, marked and delivered in accordance with the provisions of clause for the Submission of Proposals with the envelope additionally marked "MODIFICATION" or "WITHDRAWAL" as appropriate.

4.5.3 No Proposal may be withdrawn in the interval between the deadline for submission of Proposals and the expiration of the period of Proposal validity.

**4.6 Late Submissions "WILL NOT BE CONSIDERED".**

4.6.1 The deadline is absolute and Proposals received after November 29, 2017 at 4:00 pm. ADT shall be rejected.

4.6.2 Proponents must select a method of delivery that ensures Proposals will be delivered to the correct location by the due date and time.

4.6.3 The time stamp for Proposal submitted electronically will be that of the Information Technology Office (ITO) mail server. It is the Proponent's responsibility to allow enough time for electronic transmission and delivery, especially in the case of large files.

## Section 5 OPENING AND EVALUATION

### 5.1 Opening

5.1.1 The Proposal opening will not be held in public.

**5.1.2 The Proposals for which an acceptable notice of withdrawal has been submitted pursuant to Clause 4.5 shall not be opened nor considered further for evaluation, irrespective of the circumstances. Withdrawn Proposals will be returned unopened to the Proponents.**

5.1.3 The department will prepare minutes of the Proposal opening for the project file and audit purposes.

### 5.2 Process to be Confidential

5.2.1 Information relating to the examination, clarification, evaluation and comparison of Proposals and recommendations concerning any award of contract shall not be disclosed to Proponents or other persons not officially concerned with such process until a decision is made.

5.2.2 Any efforts by a Proponent to influence the Government in the process of examination, clarification, evaluation and comparison of Proposals, and in decisions concerning any award of Contract, shall result in the rejection of the Proposal.

5.2.3 All submissions shall be regarded as containing proprietary information and shall remain confidential, however, details regarding the final contract award (name of recipient and price) may be publicly announced.

### 5.3 Preliminary Examination – Determination of Responsiveness

**5.3.1 Prior to the detailed evaluation, the Government will determine whether each Proposal is substantially responsive to the requirement of the Request for Proposals.**

5.3.2 The Government will examine the Proposals to determine whether they are complete, whether any computational errors have been made, whether the documents have been properly signed, and whether the Proposals are generally in order. Government may reject any Proposal or all Proposals at this stage.

5.3.3 For the purpose of this clause, a substantially responsive Proposal is one which conforms to all the terms, conditions and specifications of the Proposal documents without material deviation or reservation.

5.3.4 A material deviation or reservation is one which affects or could affect, in any substantial way, the scope, quality, or performance of the Services or which limits, in any substantial way, the Government's rights or the Proponent's obligations under the Contract and rectification of which deviation or

reservation would affect unfairly the competitive position of other Proponents presenting substantially responsive Proposals.

5.3.5 A Proposal determined as not substantially responsive will be rejected by the Government.

5.3.6 Evaluation and Selection Committee composed of representatives of Government will evaluate all Proposals that have passed the preliminary examination stage. There evaluation will be based on the pre-determined quantitative and qualitative criteria.

**5.4 Correction of Computational Errors**

5.4.1 Arithmetical errors will be rectified on the following basis:

5.4.1.1 Where there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If the Proponent does not accept the correction of errors, its Proposal will be rejected.

5.4.1.2 Where there is a discrepancy between the amounts in figures and in words, the amounts in words will govern; and

5.4.1.3 Where there is a discrepancy between the individual lump sums and the total amounts derived from the sum of the individual lump sum, the individual lump sum as quoted will govern, and the total amount will be corrected.

**5.5 Clarification of Proposals**

5.5.1 To assist in the examination, evaluation and comparison of Proposals, the Government may at its discretions ask Proponent for clarification of its Proposal. The request for clarification and the response shall be in writing and no change in price or the substance of the Proposal shall be sought, offered or permitted, except as required to confirm the correction of arithmetic errors discovered by the Government during the evaluation of the Proposals in accordance with Clause 5.4. The Government may revisit and re-evaluate the Proponent's Proposal or ranking on the basis of such information.

**5.6 Evaluation**

5.6.1 Evaluation Process

Each Proposal will be reviewed by an evaluation committee to determine if it meets the Proposal requirements. Failure to meet the requirements for the Request for Proposals may be cause for rejection of the Proposal.

5.6.1.1 The final selection of a Proponent will be determined following the review of all Proposals, the Technical and Financial Proposals, and the formal oral presentations. The Proposal price alone will not be the sole determining factor in be selection of the Proponent for this work. The Government will consider the Proposal prices for all Proposal items identified herein, together with the Proponent's qualifications, references, and understanding of the scope of work to form the basis for its decision on who will be selected. The Government reserves the right to reject any or

all Proposals and to determine which Proposal is, in the Government's judgment, the most responsive.

5.6.1.2 The evaluation committee may, at its sole option, ask for interviews or oral presentations by any Proponent(s) participating in this process. Attendance at any such interview will be at the Proponent's expense.

**5.6.2 Phases of the Proposal Evaluation**

The Government will conduct the evaluation of Proposal in the following phases.

Proposals will be evaluated to determine the best value offered to the Government.

5.6.2.1 Phase 1 - Proposal Responsiveness - Pass/Fail

5.6.2.1.1 Required documentation: Proposals will be reviewed to determine if all required documentation was included with Proposal submittal as described in this solicitation document.

5.6.2.1.2 Phase 1

Each Proposal will be reviewed by an evaluation committee to determine if it meets the Request for Proposals (RFP) mandatory requirements. Failure to meet the requirements -will be cause for rejection of the Proposal.

5.6.2.2 Phase 2 – Technical Evaluation

5.6.2.2.1 The submissions will be evaluated according to the Evaluation/Weighting Criteria described in **ATTACHMENT F**.

5.6.2.2.2 The evaluation committee may seek written clarification from any or all prospective Proponents in order to better understand and evaluate the responses.

5.6.2.3 Phase 3 - Presentations/Oral Interviews

5.6.2.3.1 Responses determined to have scored in the competitive range may be invited to present oral presentations for the purpose of introducing key members of the evaluation team, and allowing the Government to fully understand the prospective Proponent's ability to meet the evaluation criteria. Oral presentations will not be scored separately. Instead the Government may modify scores and resulting rankings based on the oral presentation.

5.6.2.3.2 The project manager identified in the Proposal should be the lead presenter in the oral presentation. This process may not be used as an opportunity to submit missing documentation or

to make substantive revisions to the original Proposal.

5.6.2.4 Phase 4 - Financial Evaluation

5.6.2.4.1 After the technical and oral presentations, the financial offers will be evaluated last.

5.6.2.5 Evaluation weighted scoring – (Evaluation matrix)

5.6.2.5.1 Proposals will be evaluated and scored in accordance with the table shown in **ATTACHMENT F** to this RFP

5.6.2.5.2 Cumulative Score

At the conclusion of Phase 4, all the scores for the prior phases will be added and the highest ranking Proponent will be recommended from contract award.

## SECTION 6 AWARD OF CONTRACT

### 6.1 Award Criteria

6.1.1 The Government will award the contract to the highest ranked Proponent.

6.1.2 Proponent whose Proposal has been determined to be substantially responsive to, the solicitation documents and who, in the opinion of the Government, has offered the best overall submission, taking into consideration the price, the contractor's capability and available resources to carry out the contract effectively and the Proponent's schedule. This may not be the lowest priced Proposal received.

6.1.3 The Government does not bind itself to accept the lowest or any Proposal and reserves the right to reject any Proposal and, and to annul the tendering process and reject all Proposals, at any time prior to award of contract, without thereby incurring any liability to the affected Proponent or Proponents, or being under any obligation to inform the affected Proponent or Proponents of the grounds for the Government's action.

6.1.4 Prior to expiration of the period of the Proposal validity, the Government shall award a single or multiple contract(s) to the qualified Proponent or Proponents with the highest total score based on the evaluation method stated within the instructions to Proponents;

6.1.5 The Government may declare the bidding process void when it is evident that there is a lack of competition or there has been collusion.

### 6.2 References

Before awarding any contract, the Government reserves the right to require the Proponent to submit such evidence of qualifications as it may deem appropriate. This evidence may be concerning financial, technical and other qualifications as well as the relevant experience and skills of the Proponent. At least three written references from product end users are required prior to the offer being made.

**6.3 Negotiation**

6.3.1 The Government reserves the right to enter into negotiation in writing or with one or more Proponents.

6.3.2 The Government reserves the right to enter into multiple contracts resulting from this bidding process or to enter into a contract on a non-exclusive basis. The Government may contract with others for the same or similar products and/or services or may obtain the same or similar products and/or services internally or may otherwise obtain the same or similar products and/ or services by other means.

**6.4 Government Right to Vary Requirement at time of Award**

6.4.1 The Government reserves the right at the time of making the award of contract to increase or decrease items in the Bill of Quantities, if possible, without any change in unit price or other terms and conditions, by the amount of 10 percent. This shall only be done in a manner that does not affect the overall completion of the works.

**6.5 Notification of Award**

6.5.1 Prior to the expiration of the period of Proposal validity prescribed in clause 3.5 of these instructions. The Government will notify the successful Proponent by email and/or registered letter that its Proposal has been accepted. This letter (hereinafter and in the Conditions of Contract called "Letter of Acceptance") shall name the sum which the Government will pay to the Contractor in consideration of the execution and completion of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Conditions of Contract called "the Contract Amount").

6.5.2 The successful Proposal together with the Letter of Acceptance will constitute the formation of a binding contract unless and until a formal agreement is executed.

6.5.3 The Contract may only be accepted by the Contractor signing and returning the acknowledgment copy of the contract. Such acceptance shall effect a contract between the parties under which the rights and obligation of the parties shall be governed solely by the terms and condition of this contract.

6.5.4 The Government will promptly notify the unsuccessful Proponents in writing.

6.5.6 Registration should be concurrent with the commencement of business activities and the consultant will be provided with instruction to complete the relevant returns. The Government will advise the contractor of the

requirement to register whether they are Bermuda Resident or not.

The contractor is required to register with the following:

1. Tax commissioner as required by Payroll; Tax Act 1995
2. Social insurance as required by the Contributory Pension Act 1970
3. Consultants are responsible for their own health insurance

**6.6 Signing of the Contract**

At the same time that the successful Proponent is notified that his Proposal has been accepted, the Government will arrange for a draft contract to be presented for review and once agreed, for full execution.

**6.7 Proof of Insurance**

The successful Proponent shall furnish the Government with certificates showing the type, amount, class of operations covered, effective dates, and date of expiration of policies as may be expected. Such certificates shall also contain substantially the following statement: The insurance covered by this certificate will not be cancelled or materially altered, except after thirty (30) days written notice has been received by the Government. Endorsements to the Policy that name the Government as an Additional insured and establishment of cancellation notice are required

**6.8 Payment**

**6.8.1 Time of Payment: unless otherwise indicated in the special terms and conditions of the contract. Government will normally effect payment within 30 days after receipt of a commercial invoice, certification of site work (if applicable) or other supporting documents.**

6.8.1.1 It is not the normal policy of Government to approve advance payments, unless specifically stated in the payment terms and prior approval is granted

6.8.2 Currency of Payment; Payment will be made in the currency in which the contract is issued.

**6.9 Governing Law:**

This Request for Proposals (RFP) and any agreement resulting from this RFP will be governed by the Laws of Bermuda.

**6.10 Complaints**

If at any time during the Procurement process, a Proponent considers that it has been unfairly treated, the Proponent must first notify Mr. Vernon Wears in writing. If the matter is not resolved, the Proponent may then contact the nominated procurement complaints officer below, and request in writing for the issue to be dealt with in accordance with the Office of Project Management and Procurement (OPMP) complaint management process.

Director of Office of Project Management and Procurement

Email: procurement@gov.bm

## END OF INSTRUCTIONS TO PROPONENTS

## FORMS
## Forms to be Completed by the Proponent

**Letter of Intent**

### LETTER OF INTENT TO SUBMIT PROPOSAL
***(To be completed by the Proponent and returned by mm/dd/yr)***

Date: _____

Mr. Vernon Wears Jr.
Policy & Project Coordinator
Ministry of National Security HQ
P.O. Box HM 1364
Hamilton HM FX, Bermuda

Reference: RFP MNS HEAD 83-34

Dear Mr. Wears

This is to notify you that (insert company's name) intends to submit a bid response on the above noted RFP for the Supply of Public Safety Radio Communications System

The individual to whom all information regarding this RFP (e.g. addenda) should be transmitted is:

Sincerely,

_____
Name Title

_____
Company (Registered Name)

_____
Street Address City Country
Post/Zip code

(____)_____ (____)_____
Phone Fax

_____

E-mail address:

Company Profile
(To be completed by Proponent and included with their proposal)

**COMPANY INFORMATION/QUALIFICATIONS AND REFERENCES**

Registered Name of Company

_____

**THE COMPANY SHALL COMPLETE THE FOLLOWING STATEMENTS:**

**1. Principal(s) and Director(s) of the Company:**

_____

_____

**Physical Address**

**Email:**

**Website**

**2. Company Insurance details:**

Workers Compensation Insurance carried: BMD$ _____

Professional Indemnity Insurance carried: BMD$ _____

Commercial Grade Liability Insurance carried: BMD$ _____

**3. Company Bermuda Payroll Tax No.:** _____

**4. Company Bermuda Social Insurance No.**: _____

**5. Company Banking Details:**

Name and address of primary bankers:

_____

_____

Company Legal: _____

**THE COMPANY SHALL COMPLETE THE FOLLOWING STATEMENTS:**

**6.** Do you have any involvement with other entities that may be seen as a conflict of interest?

If so, please provide details:

_____

_____

**7.** The Company has been engaged in business, under the present business name for _____years.

**8.** Experience in work of a nature similar to that covered in the RFP documents extends over a period of _____ years.

**9.** The following contracts have been satisfactorily completed in the last three (3) years for the persons, companies or authorities indicated:

References should be from agencies with similar environments that are made up of Tetra radio systems. References from similar geographic environment agencies, North American, Caribbean, western Europe or South America are preferred.

| | **Year** | **Type of Work** | **Contract Amount** | **Location and for Whom Performed** |
|---|---|---|---|---|
| (a) | | | | |
| (b) | | | | |
| (c) | | | | |

**10.** The following person may be contacted for information concerning the work listed above (list a reference for each contract named):

| | **Name** | **Title and email** | **Address** | **Telephone** |
|---|---|---|---|---|
| (a) | | | | |
| (b) | | | | |
| (c) | | | | |

**11.** The following contracts are <u>no longer current</u> but have been satisfactorily completed in the last five (5) years for the persons, companies or authorities indicated:

| | **Year** | **Type of Work** | **Contract Amount** | **Location and for Whom Performed** |
|---|---|---|---|---|
| (a) | | | | |
| (b) | | | | |
| (c) | | | | |

**12.** All of the above statements as to experience, financial qualifications are submitted in conjunction with the bid, as a part thereof and the truthfulness and accuracy of the information is guaranteed by the Company.

**13.** **Attach a copy of the Company`s Certificate of Incorporation.**

## 14. Sub-Contractors

In the event that we, the undersigned, are awarded the Contract for the work, we will employ the firms listed below as sub-contractors. All sub-contractors shall be approved by the Government; such approvals being finalized prior to the contract award. The successful bidder will not be permitted to change any sub-contractor without the Government's approval.

In the event that we employ a sub-contractor not approved by the Government, we will agree to immediately replace this sub-contractor with an approved sub-contractor. We will accept full responsibility for all damages and costs incurred by the Government (including, but not limited to, any and all costs relating to the discharging of liens brought on by any unapproved sub-contractor) as a result of employing an unapproved sub-contractor.

| **Trade** | **Sub-Contractor** |
|---|---|
| | |
| | |
| | |
| | |

**#Note: Note: Continue on another page if necessary**

## 15 Sustainable workforce

The Bermuda Government is committed to having a sustainable workforce and therefore makes it a compulsory requirement for all bidders to provide a company profile of employees [the number and names of Bermudians and non-Bermudian employees, their job categories and information with respect to training that is provided for employees] with their bid for these works.

| **Employee Name** | **Bermudian Yes / No?** | **Job Category** |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

## 16 FINANCIAL STABILITY

We confirm that we, the undersigned, are conducting business as a proper legal entity and are not delinquent in making payments for outstanding debts to the Bermuda Government-including but not limited to Social Insurance contributions; Land Tax and Payroll Tax.

This bid is submitted by the authorised representative of the company.

**SIGNED:**
(Signature)
(Block letters)

**ON BEHALF OF:**

(Company)
(Mailing address)

(Email)

(Contact #'s) (Telephone) (Cell #)_____

DATE:

**Addenda Acknowledgement**

To be completed by Proponent and included with proposal

**FOR THE SUPPLY [insert name of requirement]**

We confirm having completed all parts of this form; and received and complied with all addenda (if any) as follows:

Insert addenda # _____

**SIGNED:**
(Signature) _____

(Block letters) _____

**ON BEHALF OF:**
(Company) _____

(Mailing address) _____

_____

(Email) _____

(Contact #'s) (Telephone)_____

(Cell #)_____

DATE: _____

**Contract Acknowledgement**

To be completed by Proponent and included with proposal

Sample Contract is attached as ATTACHMENT E

We confirm we have read and accept the attached Sample contract.

**SIGNED:**

(Signature)

(Block letters)

**ON BEHALF OF:**

(Company)

(Mailing address)

(Email)

(Contact #'s) (Telephone)

(Cell #)

DATE:

# CERTIFICATE OF CONFIRMATION OF NON-COLLUSION

**Notes for the tenderer/bidder**

The essence of Open Tendering is that the Government of Bermuda shall receive bona fide competitive Tenders from all persons tendering. In recognition of this principle, each company that submits a tender will be required, by way of the signature of a duly authorized representative of the company, to confirm that the tender has been submitted without any form of collusion.

All tenderers must complete and sign a Certificate of Confirmation of Non-Collusion. Any tenders submitted which do not include a signed copy of the Certificate will be wholly rejected and will not be included in the evaluation process.

If it is later found that the undertakings made below have been breached at any stage of the procurement process, then the tenderer will be expelled from the process immediately. In the event that this is discovered after a contract award, legal action may be taken against the tenderer and/or any party involved in the matter.

Any tenderer that submits false information in response to a tender, and any other person or company involved in collusion, may be excluded from tendering for future contracts tendered by the Government of Bermuda.

**Confirmation of non-collusion**

I/We certify that this is a bona fide Tender, intended to be competitive and that I/We have not fixed or adjusted the amount of the Tender or the rates and prices quoted by or under or in accordance with any agreement or arrangement with any other person.

I/We confirm that we have not received any information, other than that contained within the tender pack, or supplementary information provided to all bidders.

I/We also certify that I/We have not done and undertake that I/We will not do at any time any of the following acts:

(a) communicating to a person other than the tender administrator the amount or approximate amount of my/our proposed Tender (other than in confidence in order to obtain quotations necessary for the preparation of the Tender for insurance) or

(b) entering into any agreement or arrangement with any other person that he shall refrain from tendering or as to the amount of any Tender to be submitted; or

(c) offering or agreeing to pay or give or paying any sum of money, inducement, gift /hospitality or valuable consideration directly or indirectly to any person in relation to this tender.

Signed

(1)_____Title _____ Date _____

(2)_____Title_____ Date _____

for and on behalf of_____

SCHEDULES

**Schedule 1 Insurance Requirements**

See ATTACHMENT G

**Schedule 2 Statement of Requirements**

See Attachment A

**Schedule 3 Pricing**

See Attachment B

# REQUIREMENTS

## 1. Purpose

These requirements encompass a **turnkey** goods and services project to provide the MoNS with a new digital trunked radio system that meets current and future communication needs, both reliably and functionally. "Turnkey" is defined as providing all necessary design, hardware, software, interfaces, project management, documentation, installation/engineering, and training services that meet the RFP's requirements and performance standards for one price.

Any additional equipment or services not specifically included in the response to this RFP that are required to provide a complete and acceptable system shall be provided by the contracted vendor without claim for additional payment.

These requirements define key functional and technical aspects of a standards-based digital radio communications system utilizing state of the art digital radio technology that is acceptable for public safety use.

It is envisioned that other local agencies who are not presently on the MoNS radio system may want to utilize this new digital radio system. Pricing established in this procurement must be available to these agencies.

The MoNS recognizes the most important aspect of any public safety radio system is coverage reliability coupled with premium audio quality in all working environments. Proponents should have sufficient flexibility to optimize and meet MoNS desires, performance and coverage expectations defined in **Section 6.1.6**. The MoNS prefers to use the existing radio sites on the Island; however no specific antenna site placement, antenna system hardware, or minimum number of sites is specified to achieve the desired coverage requirement. These requirements describe MoNS expectations for performance; reliability, and near and long term infrastructure compliance.

Interoperability must be maintained between the MoNS first responders and other agencies.

The long-term goal of this project is to provide a broadband capable communications network to Bermuda for government and public safety use. Proposals must include a migration concept plan for the creation and implementation of such a network. See Section 6.2 of RFP response requirements.

## 2 Response Layout

For proper comparison and evaluation, MoNS **REQUIRES** that proposals be in the following format:

Letter of Intent. See FORMS Section 7.1

a. Project Team: See Section 5 of REQUIREMENTS ATTACHMENT A
b. Project Management Methodology: See Section 5.2 of REQUIREMENTS
c. General Characteristics of Proposer's Solution: See Section 6.1 of REQUIREMENTS ATTACHMENT A
d. Technical Requirements: See ATTACHMENT A
e. Exceptions to Functional Response: See Section 6.3
f. Pricing: See Section 6.4

## 3 Evaluation Criteria

Each proposal will go through a stringent evaluation process based on the following criteria ranked in order of importance:

1. Guaranteed radio coverage and capacity
2. System features and functional requirements
3. System design and growth capabilities
4. Ability to migrate to broadband technology
5. System pricing for all equipment and services
6. Installation management, maintenance, and support
7. Proposer's qualifications and experience with similar projects

The Specific Evaluation Criteria is shown in **ATTACHMENT F**.

## 4. Existing Public Safety Radio System

The existing radio systems consist of a Motorola Smartnet system and a Motorola Smartzone system that are privately owned. These provide most of the radio operations on the Island. Other government users operate on DMR radios or TETRA radios also on privately owned systems. They both operate in the 100 MHz range.

### SmartNet infrastructure

The SmartNet system is a type II+ product with a T5165A controller. This analogue trunked radio system was originally installed in 1998, so has been operational for approximately 20 years, and therefore has to be considered at the end of its operational life. It operates in the 800MHz band, and comprises a single high-power radio site at Prospect to give near island wide coverage. This radio site is equipped with 17 radio channels, giving one control channel and 16 traffic (voice) channels.

The radio site equipment is supported through power outages, initially via battery back-up, and then via a diesel generator for longer power outages.

There are an estimated approximately 600 emergency and ancillary users on the SmartNet system. All police mobiles and portables are programmed to access SmartNet in addition to the SmartZone system described below.

### SmartZone infrastructure

The SmartZone system is a type 3.0 product with a T5165A controller. This is a mixed-mode digital and analogue trunked radio system, which was installed during 1991. It comprises of three radio sites, each with five base stations, interlinked by a microwave system that operates in the 2.3 GHz band in a duplicated hot-standby mode. It is interlinked to the SmartNet system via an audio channel permitting a basic level of talkgroup interconnect. The three radio sites are located at Prospect, St George and at Warwick, and are linked to the central HQ site Ambassador Electronics Bank central switch via a microwave network. Two additional sites have been provided to the system. They are located at Fort Scaur and the Government Quarry.

The five base stations located on each of the three radio sites are configured to provide a single control channel on each site with four traffic channels. Thus, a talkgroup set-up on the control

channel will be allocated one of the traffic channels, permitting four concurrent conversations. The basic operation is understood to be that each talkgroup call set-up will occupy a traffic channel on each of the three sites, offering island-wide coverage for all talkgroups. There are approximately 700 Government users in total that access the SmartZone system, of which approximately 600 are police users.

The reliability of SmartZone has generally been good, although, as reported elsewhere within this sub-section, there are a number of locations where coverage is poor. Radio site tower and antenna design has been adequate to survive the majority of hurricanes that have struck the island. In the event of an inter-site communication failure, for example a major microwave system failure, each radio site will behave in an isolated, single site trunked mode. The Ministry will expect any new system to provide the same level of resilience as a minimum.

The Ministry, through the previously described individual departments, owns all portable, mobile terminals and control centre equipment and infrastructures. However, the current SmartNet and SmartZone systems are owned, operated and maintained by Telecom Bermuda, with a leased airtime agreement with the Ministry to provide access to the SmartNet and SmartZone systems. A key issue concerning the Ministry is that both systems are approaching their end of life. Consequently there is a strong requirement to move to a more modern and feature-rich technology that can accommodate the Ministry's requirement for enhance voice and data services.

**User Profiles**

**Bermuda Police Service**

The Bermuda Police Service has access onto both the Motorola SmartZone and SmartNet radio infrastructures.

The primary radio bearer for the police service is the SmartZone system, although access may also be had via SmartNet, as certain radio terminals are programmed with a mix of SmartZone and SmartNet talkgroups. Generally, the SmartNet talkgroups are used if there is a major problem with the SmartZone system. Common with many police forces, the majority of talkgroups are monitored at the police control room facility at the Police HQ.

The control room is configured as a five-seat facility, where up to five control room operators may be seated at a number of computer screens. Each seat or operator position typically comprises the following:

- two AS400 Computer Aided Dispatch (CAD) screens
- Centracom Radio Dispatch Terminal (RDT) for access to the SmartNet and SmartZone radio systems
- General purpose screen for email and intranet access.

Control room operators generally have two main roles, either as a call taker, or as a radio dispatcher. Incoming telephony 911 emergency calls are answered by the call taker, and the details of the incident are entered into the CAD system. These details are transferred to a control room dispatcher with the radio access to mobilise the appropriate resources over the SmartZone or SmartNet systems. When a control room becomes very busy with a high incidence of incoming 911 calls, it

is normal practice for call dispatchers to assume the role of call takers (all operators at police control room are call takers and do dispatching at the same time).

All voice calls are recorded on existing voice recording facilities, a recorder from NICE. In the event of a major system outage within the control room, conventional fallback arrangements are available in the form of fixed mobiles to access the radio systems. In the unlikely event of a total radio system outage, the majority of radio terminal users will use a direct radio-to-radio mode of operation.

**Bermuda Fire and Rescue Service**

Similar to the Police Service, the Bermuda Fire and Rescue Service operates into both the SmartNet and the SmartZone radio systems. The police and fire services share a common AS400 CAD platform with separate user profiles on a single resilient server suite. The presentation of the AS400 CAD facilities is similar at both the fire and police services.

Within the Fire Service HQ building in Hamilton there are primary operator positions. Each of these operator positions comprises a number of different screens, which are typically:

- Two AS400 CAD screens
- Centracom radio dispatch terminal (RDT) for access to the SmartNet and SmartZone radio systems
- General-purpose screen for email, address database and intranet access.

All incoming emergency 911 calls are handled initially by the police control room, and forwarded onto the fire control when appropriate. This same forwarding process is also undertaken for calls requiring emergency medical assistance, with the Fire Service handling all fire and ambulance call-outs. Incoming 911 calls are received by the call taker in the fire control room and incident details are input into the AS400 CAD then passed to the dispatcher for required mobilisation. As with the police, all 911 calls are recorded the NICE voice recorder.

At this point, depending on the 911 incident details entered by the call taker, the AS400 CAD system recommends the corresponding resources for mobilisation from the fire stations. There are four manned fire stations located across the island, including one at the airport, and one unmanned station at St George. To instigate a mobilisation, a number of mobilisation messages are simultaneously sent by various means to the appropriate fire stations, to ensure that at least one message arrives correctly. These mobilisation messages include a data message to the station printer, a pager alert and a voice message over the radio system.

Mobilised fire crews keep in contact with the fire control room by voice over the radio, as there is currently no provision for data-based operational status messages, or other data update transactions. It is a requirement of any new radio system to support both status updates and data reporting of vehicle location, obtained through use of Global Position Satellite (GPS) technology.

**Health Department**

The Health Department operates on the Motorola SmartZone system. The medical response fleet is equipped with handportable radios, of which three are station-based, and six mobile radios installed into ambulances. There is also one central dispatch radio located at the hospital in Hamilton. Emergency calls received via this radio are first assessed by the Urgent Care Centres, within the hospital, and the appropriate medical unit dispatched accordingly. The level of calls

received for medical specific response averages between five and seven calls per day, including non-emergency calls.

Currently, notifications of requests for emergency medical support from the public are received from the Fire Control HQ by telephone line. The original emergency 911 public call request, relayed by the Police Service, is then passed through to the Fire Service for onward resource allocation via a radio call to the Urgent Care Centre at Hamilton hospital. Throughout the call the Police Service maintains a conference call connection to all parties.

The existing radio terminal equipment was purchased approximately one year ago, and permitted the migration from the single site SmartNet system to the three-site SmartZone system both operated by Telecom Bermuda. Backup communication is provided by mobile phones in the event of equipment failure, as there are no spare radios available for distribution.

**Bermuda Regiment**

The Bermuda Regiment has its own independent private mobile radio system (PMR) operating in the VHF mid frequency band. The Regiment currently has 147 mobile and portable units available, of these a large number of radio units are over 16 years old and non-operational, this is largely due to the relative age of the equipment, 16 years plus.

The Regiment currently operates in two basic communication modes. One mode is when the regiment is stationed on the island, and operates in a semi-duplex operational mode via a tactical command centre based at Warwick Camp to individual units through their brigade commanders. The second mode for communication is when the regiment is conducting exercises and training away from Bermuda, where a number of transportable mobile repeaters are used. In this case, all radio units are frequency programmed in accordance with the host country's frequency plan before leaving Bermuda.

It is envisaged that the Regiment will have access to the new common communications system for general on-island communications. However, in addition Suppliers will be expected to include within their response to the RFP, an independent radio communications system. This additional system will offer a high degree of resilience to military specifications and must be capable of being easily reprogrammed to operate on RF frequencies primarily in US and Caribbean. The Supplier will be expected to recommend suitable portable radios and terminals, including repeater equipment.

**HM Customs**

The majority of HM Customs makes extensive use of mobile phones to meet their communication needs. They have approximately eight handheld radio users located at the airport and within St George. These radio users operate into the single-site analogue SmartNet system, under a memorandum of understanding with the Police Service.

A concern identified has been the relative expense of the use of conventional cellular mobile phones for day-to-day business with approximately 15 in regular use. This is expense is justified as the cellular phone network is considered to provide to a greater degree of security and confidentiality versus the current private mobile radio infrastructure.

HM Customs key operational areas include the inside and the outside of buildings at the airport and at the port facilities at Yacht Reporting Centre at St George; Dockyard; Hamilton and St George. A key coverage requirement not currently adequately provided for is voice communications within parked aircraft at the airport and within cruise ships moored at the St George's cruise ship terminal, the Dockyard cruise ship terminal, and at the quayside at Hamilton. In certain situations, the Police Service and the HM Customs work together on joint operations. In these cases, both parties will use encrypted communications on the SmartZone system.

**Department of Correction**

The Department of Correction operates three detention location facilities on the island: Prison Farm near the airport at the eastern end of the island, Corrections HQ in the Clock Tower Mall at the Royal Navy Dockyard, and Westgate Correction Centre, at the western end of the island near the Old Naval Dockyard. These users operate in a shift pattern, with handheld radios shared amongst the users. There are also a relatively small number of vehicle mounted mobile radios fitted into vehicles.

Basic dispatcher facilities are provided at the three detention facilities, with single positions at two of the three locations, and two positions at the third location.

All existing radio terminals operate into the three sites SmartZone system as described above. As such, the radio users of the Department of Correction share radio resources with that of the Police. This system provides reasonable island-wide coverage for both portable and mobile use; however some issues exist of poor in-building coverage, and coverage within the Warwick parish.

**Department of Marine and Ports (Bermuda Radio)**

This 24-hour facility has extensive communication capabilities, ranging from terrestrial to satellite communications as part of the safety, security and pollution response operations. Coastal surveillance of vessel movements is also undertaken primarily using radar. The operations provide for the covert alerting by ships in port in the event of a terrorism or other security incident.

Marine Rescue (search and rescue) co-ordination capabilities are directly accessed through the 911 Emergency Medical Dispatch system answered at Communication Operations (COMOPS) in Prospect and routed to the respective primary response agency (i.e. Police, Fire, Medical, Marine Rescue). Two dedicated 911 landlines from Prospect to Bermuda Radio at Fort George were established for this purpose. A dedicated landline on the Police telephone exchange also provides connectivity between Bermuda Radio and the Yacht Reporting Centre (Customs/Police), as well as to COMOPS. The majority of telephone lines and radio channels are recorded.

Direct connectivity with the Police SmartZone system exists, and utilisation of the island-wide communications infrastructure (towers, buildings, generators) is well established and jointly managed on an inter-service basis, including fault reporting and repairs. While the majority of Marine and Ports public safety communications occurs in the Marine VHF band, use of the SmartNet and SmartZone systems is made when interacting with other government departments with a marine interest.

The need for a secure communication capability for marine law enforcement efforts has led to this facility having direct access to police talkgroups and the fitting of a SmartZone radio dispatch console. Other government inter-service communications requirements include Bermuda Fire and

Rescue Services for airport (crash) emergencies and seaport (ship fire) emergencies, Airport Operations, HM Customs (Yacht Reporting Centre), Environmental Protection (Fisheries law enforcement and pollution incidents), Bermuda Regiment, Parks Department and Works Engineering (Marine Pollution incidents).

Back-up SmartZone capabilities on site include two Spectra fixed mobiles built into the Operations Room radio control consoles for interconnect with police, fire and airport services, and an additional hand portable that is used in the event of an evacuation of the Operations Room due to an on-site emergency, such as fire or hurricane damage.

The average age of the above communications equipment is ten years old. There is some additional redundant SmartZone console equipment currently not in use, due to damage resulting from a lightning strike.

The VHF marine band radio coverage around the island's coastline is estimated at better than 91%, while SmartZone radio equipment coverage would fall in line with the Police/Fire experience of possibly 10% island-wide, given the nature of the Bermuda terrain versus the positioning of the primary radio sites. This number improves dramatically for ship to shore operations across open water, or when utilised air to ground. A marine radio coverage area highlighted as being historically weak exists on the South Shore from the former Sonesta Hotel to the area of Hungry Bay because of the small bays/beach areas adjacent to steep terrain. In addition, the landline telephone links between Fort George and Prospect and the wireless microwave link supporting radio communications from Fort George to Prospect have been identified as a significant single point of failure for operations. Redundant wireless links could be considered with the potential for expansion to support other island wide marine systems in use, for example radar, CCTV, vessel tracking.

A secondary back-up marine operations centre capability could be considered as part of any government communications master plan, in the same manner as an alternate for COMOPS could be considered in a disaster scenario.

**LF Wade International Airport**

LF Wade International Airport operations utilise approximately 55 radio terminals, of which 35 are portables. These radio terminals operate into the SmartNet system, which is described above. The main area covered includes the airport building and the airfield itself; however, other operations require island-wide coverage.

There are inter-working arrangements with both the Fire and Police services in the event of major incidents. Currently there are no permanent control room facilities at the airport, however, the addition of such an operational control facility is being considered to cover the main terminal areas and outside ramp areas. However, a temporary mobile command post may be set-up to give operational support.

There is a voice audio link to the COMOPS location. However, the ability to adequately communicate with the emergency services has been recorded as currently inadequate.

In addition, there are interoperations with Air Traffic Controllers (ATC) requiring simple speech exchanges. ATC voice air traffic is recorded currently, but the ground-based Airport Operations voice traffic is not.

The current issue of portables are the Motorola type XTS1500 and XTS2250 portables, which may be configured to operate either as currently in an analogue trunked radio system environment, or, alternatively, within an ASTRO digital environment, or Project 25, if required.

**Works and Engineering Department**

The Works and Engineering Department is responsible for four key areas: waste management including the incineration plant, roads maintenance, government building maintenance and the government quarry. The total fleet consists of between 200 – 300 vehicles mainly fitted with Motorola radios on the SmartNet system, there is also a number of portable radios also used across the island, which are controlled via a radio dispatch facility, comprising two or three fixed mobile units within a small control room.
The Works and Engineering Department also makes use of mobile phones currently under contract. Communication with utility suppliers and their maintenance teams is largely via phone, both fixed line and mobile. There is currently no interoperability with government agencies and services.

**Parks Department**

The Parks Department currently have 47 handportables, 37 mobiles, and two fixed mobiles located at the Botanical Gardens, that have access into the SmartNet system. In addition, a small number of cell phones are used for day-to-day operations.

The main role of the Parks Department is the maintenance of all public parks and gardens associated with government property. Generally, radio communications use is internal to the department, but interoperations with the following departments is occasionally needed, particularly following hurricanes when the Parks Department staff assist with clear-up operations and search and rescue operations:

- Fire
- Police
- Marine and Ports
- Works and Engineering.

The general operational communication is all-informed talkgroup in nature, but supervisors have the ability to call individuals on a ‘private channel’ (talkgroup) for one-to-one conversations.

For future requirements, an interest with vehicle location was expressed, with the possibility of linking it to the Works and Engineering mapping system to show the geographical locations of radio units. In addition, any new system must incorporate facilities such as radio unit stun/kill and timeouts to ensure that the impact of system misuse is minimised.

**Education Department**

The Education Department has two areas of radio usage requirement. One is school ground preparation for sports activities, which has two portable radios allocated to this role. The other user is the Stores, which has two mobile radios installed into heavy delivery trucks. Calls to and from both groups of users are managed via a dispatch radio located in the finance office in St George and a further dispatch radio is located in the stores office.

All call types are operated on a talkgroup basis without any individual calling to specific handsets. The radio users operate into the single-site analogue SmartNet system and the typical age of the Education Department radio equipment is between two and eight years.

There are also a number of smart phones used by the Education Department's IT support team; these are used predominately for email and phone communications for school IT support.

Current emergency communication is limited to a direct emergency phone link from the Education Department to the Fire Department. Future requirements should include a dedicated radio link between each school and the Education Department's central office; it is intended that the primary use of these radios should be as an emergency backup, should telephone communications fail.

Although radio communication coverage is generally considered adequate, it has been acknowledged that coverage in the Hamilton Parish area is particularly poor.

**Passenger Transport Board**

The Passenger Transport Board (PTB) operates bus services for the public throughout the island via its Pink Bus service. The service operates 120 buses on 11 bus routes across 13 location zones.

The communication requirements for managing the bus fleet are currently served by an independently leased airtime agreement on the SmartNet system, which is separate from all other Government agencies arrangements. This system is operated by Telecom Bermuda. There is generally no interaction between the PTB talkgroup and the various emergency and government services talkgroups except for one handportable on loan from the police. There is no PTB access onto the SmartZone system. The age of existing radio equipment is in excess of 15 years
The current radio fleet consists of 146 radio units divided into three groups: Operations, Technical and Engineering and Office Management. The Operations group is headed by the Assistant Director of Operations, who uses a portable radio, and is ultimately responsible for 120 buses fitted with SmartNet mobiles and managed by 11 bus supervisors using portable radios. Within this group there are also four additional vehicles with mobile radios.

The Technical and Engineering team is managed by the Assistant Technical and Engineering Director, the fleet consists of four maintenance vehicles fitted with mobile radios and two portables. There is also an additional stores vehicle fitted with a radio unit.

The vehicle fleet is managed by the Office Manager, who has two mobile units, one of which is probably a dispatch radio located at the Devonshire headquarters. The Director of PTB also has a vehicle fitted with a mobile radio.

Maintenance of the radio equipment is conducted by Telecom Bermuda, with a two to three hour response time.

**ATTACHMENT A**

**Proposal Technical Requirements**

## 5 Project Team

This section should include the qualifications, experience and credentials of the Proposer's key personnel. Provide contact information for the person who will serve as your firm's chief Point of Contact (POC) to the MoNS. Proposer must include an organizational chart of the project team.

### 5.1 Team Members

The named members of the project team of the selected vendor shall not be changed without prior approval of MoNS.

### 5.2 Project Management Methodology

Describe your project management approach. Describe the phases of installation, major milestones and include a timeline. For each phase, describe your general responsibilities and those of the MoNS Staff. Describe your implementation services, with particular emphasis on planning, migration, and process change management.

Proposers shall assign a Project Manager as the single point of contact (POC) with the MoNS's Project Manager. The Proposer's Project Manager shall be approved in writing by the MoNS prior to assignment. The MoNS reserves the right to require replacement of the Proposer's Project Manager at any time or phase of the project. The Project Manager shall provide, at a minimum, monthly project status reports, system design review, planning, scheduling, coordination, implementation, Acceptance Testing, migration and cutover planning, maintenance support, and subcontractor management services. The Project Manager may be required to remain in the MoNS during periods of installation, implementation, acceptance testing and system cutover, as required by the MoNS Emergency Communication Manager. The Project Manager shall attend a weekly conference call and monthly on-site meeting with the Director of HMCI to review the project status.

### 6.1 General Characteristics of Proposer's Solution

Provide a response to each of the following items.

1. Describe the proposed system and identify its advantages and disadvantages.
2. Describe how the implementation will migrate the MoNS from its existing radio system to the new digital system.

#### 6.1.1 Minimum Operating Requirements

##### 6.1.1.1 General

The minimum-operating requirements for each group using the MoNS's Radio System are described in this section. From this information, Proposers can better determine the scope of services needed to satisfy talk group structure requirements for their solution. The MoNS's radio users are divided into three major groups, Public Safety, General Government, and Dispatch Centre. Operating requirements for these groups are discussed in the following sections.

**6.1.1.2 Public Safety**

The MoNS's Public Safety group consists of the Police, Fire Department, Emergency Medical Services and several departments of the island. There are requirements on a regular basis to support several mutual aid agencies. Each department has similar radio configurations and templates relevant to the user agencies.

MoNS operates on assigned talkgroups with geographic considerations. Fire operations talkgroup assignments are generally coordinated through the incident commander or the dispatch centre. The assigned talkgroup is used for coordination between Fire Department first responders and the responding EMS ambulance.

**6.1.1.3 General Government**

General Government operations provide communications for CI departments. Individual departmental talkgroups are used to conduct daily operations.

**6.1.1.4 Dispatch Centers**

The 911 Centre is located at the Prospect Police compound. Fire related calls are transferred to Hamilton Fire Station.

**6.1.2 Identified User Requirements**

**6.1.2.1 General**

The MoNS's radio users operate on a wide variety of portable, mobile, and control station equipment. The Public Safety user group utilises accessories such as shoulder microphones, earpieces and motorcycle helmet kits.

**Proposers must meet the minimum RFP requirements with any proposed solution.**

**6.1.2.2 Talk Groups**

Each department utilizes individual talk group structures to maximize system efficiency. Additionally, departments share several groups of interoperability and special operations talk groups that allow seamless interoperability between agencies during special and mutual aid events.

Every Government radio has common talkgroups for disasters. There is also a mutual aid channel between police, fire and EMS.

Proposers shall utilise talkgroup structures, that allow for a 40% future capacity growth factor, in the development of their proposed solution.

**6.1.2.3 Call Privacy**

There is a need for privacy of communications. The new radio system shall include provisions for call privacy whereby identified users within the system can be excluded from certain talk groups or individual conversations. This provision must offer sufficient flexibility in that the desirable features of monitoring can be retained, while permitting privacy to conversations that are potentially confidential. This provision must also include the ability of third party equipment (i.e. Logging Recorders) to monitor call assignments transacted via the system's digital control channel.

The new system shall incorporate technical features preventing unauthorised listeners from monitoring any system calls. Ideally, the new system should inhibit the ability of non-system users

from monitoring any type of voice transmissions as well as preventing such persons from monitoring those call assignments transacted via the system's digital control channel.

Proposers shall describe the scope and operation of such provisions inherent within their proposed solution that prevents these types of undesired radio monitoring.

**6.1.2.4 Over the Air Programming**

Proposers shall provide a wireless "Over-the-Air" radio-reprogramming feature whereby user radios (mobiles, portables, and control stations) will accept new talk group profiles, frequency sets, features, and radio functionality changes via the radio system's infrastructure. This radio reprogramming feature shall utilize inherent voice/data capabilities of the radio system infrastructure whereby new programming/profile information can be transmitted to remotely located user radios, so long as they are located within the normal coverage service area and are powered on to receive the data payload. The completed programming transaction shall be monitored at a central point.

This "Over-the-Air" reprogramming feature shall not overwrite existing radio personality/profile information until the complete data payload has been successfully and accurately received by the target radio unit.

Proposers shall provide a complete technical and functional description of its proposed "Over-the-Air" programming technology, identification of record management processes used to acknowledge and assure successful completion of reprogramming of field units. Describe hardware and/or equipment modifications necessary to support the "Over-the-Air" programming feature.

**Note: Proposed costs for this feature shall be separated from infrastructure and user equipment pricing.**

**Proposers must explain these over the air programming capabilities and any limitations they present.**

**6.1.2.5 Logging Recorder**

The MoNS presently utilizes a radio system logging recorder. This system records all radio, E9-1-1 trunks, and dispatch administrative phone traffic. Pricing for a new logging recorder is a requirement of this procurement.

**6.1.2.5.1 Logging Recorder minimum specifications**

The logging recorder must record at least 25 user talkgroups and system operating data. Detailed functionality and capacity must be provided in the proposal.

**6.1.2.6 700MHz User Equipment Compatibility**

700 MHz is now a viable addition to communications with dual band radios readily available. This band must be considered as a primary communications band for the proposed radio system.

Proposers shall describe how their proposed equipment specifically conforms to the above stated requirements and the form(s) of field modification(s) necessary to support such proposed digital operations.

**6.1.2.7 Other Requirements**

Other minimum operational and functional equipment requirements shall include, but are not necessarily limited to:

- Digital working channels
- Automatic Unit Identification upon key up
- Emergency communications priority routing
- Centralised System Controller with Management Capabilities
- Multiple, Software-Controlled Talk Groups
- Priority Talk Path Scanning
- Lost/ Stolen Radio Inhibit
- User Priority Levels
- Dynamic user regrouping
- Automatic talkgroup switch on dispatch
- Talk Permit Tones

Proposers shall describe how its products comply with each of these features.

**6.1.2.8 Public Safety**

**6.1.2.8.1 Encryption**

Digital voice encryption is a required feature of the new system as follows:

1. Unit-to-unit, where conversations in an encrypted talkgroup are secure.
2. Console-to-unit, where conversations between the Dispatch Center and field units are secure.

Proposers shall describe, in detail, how each mode is accomplished. Some (quantity to be defined in new system contract) of the MoNS's radio units shall be capable of digital voice encryption. All units equipped with encryption shall be able to scan between and communicate on clear talk groups. All dispatch console positions shall be able to transmit and receive encrypted voice operations.

Encryption is required on Police/Customs/Immigration/Prison and EMT radios.

The coverage range of the systems in encrypted mode shall equal the range of the system in clear mode. The encryption process shall not degrade the audio quality of the system. Encryption shall be available in trunked, conventional, and talk-around modes.

Multiple encryption keys shall be provided in the fixed equipment and the subscriber units. Proposers shall fully discuss the intended encryption scheme.

The system shall support Over-The-Air-Rekeying (OTAR) of mobile and portable radios.

**6.1.2.8.2 Conventional Backup**

The MoNS utilises conventional backup repeaters at several of its radio system sites. Subscriber units must be capable of conventional operation.

**6.1.2.9 Backup Consoles**

Proposers should provide optional remote dispatch console solutions. These solutions shall be in the form of a software application that runs on user's existing PC's. These consoles should be capable of operation over existing network connectivity or via RF linking.

**Proposers shall provide this configuration as an optional cost and provide three contacts at**

**other agencies where this technology is deployed.**

**6.1.2.10 Dispatch Centers**
There are presently two console sites. These are the 911 Centre located at the Prospect Police Compound and the dispatch centre at the Hamilton Fire Station.

911 currently operates four Motorola Centracom Gold consoles and the Fire station with two Motorola Centracom consoles. Proposers must maintain all existing features and functionality with its proposed new consoles. These include, but are not limited to talkgroup patching, unit id PTT display, announcement talkgroup (ATG) calls, talkgroup multi-selects, system-wide calls, access to all MoNS, talkgroups.

**6.1.3 Interoperability**
Interoperability is an important factor for public safety users of the radio system. Interoperability must be maintained between the proposed radio system and any other systems currently interoperable.

There must be connectivity between the proposed radio system and VHF marine channels.

**Proposers shall describe and demonstrate how their solution will maintain and expand the MoNS's current interoperability environment.**

**6.1.4 Minimum Equipment Requirements**

**6.1.4.1 General**
The radio system must be designed primarily for portable radio operation throughout Bermuda. In building portable radio coverage problems are known to exist. Since general government services are provided inside of buildings all radios must meet the coverage specifications for public safety. Further complicating the design of portable-based systems are desired mechanical and ergonomic features, as summarized below:

- The radio package, itself, must be simple to operate and have a minimum of operator controls or feature selections.
- Radios contain a microphone, speaker, talk group selector, volume control, power switch, emergency button, and normal transmit push-to-talk button.
- User must be able to disable message authorization tones.
- The volume control must be fully adjustable from zero to maximum audio output level.
- Units must be operable, within the coverage requirements of **Section 6.1.6** using the smallest flexible antenna available.
- Radio unit battery packs must operate to provide sufficient power for a fully operational twelve-hour work period. A range of accessories must be available for support in-field battery charging.
- Radio units must be equipped with alphanumeric displays to more readily identify selected talk groups and operating modes, i.e. clear voice, encrypted voice, etc.

In addition to the specific desired features indicated above, all furnished equipment must meet minimum equipment requirements identified in the following sections of this RFP.

This Section describes the minimum-acceptable requirements for mobile, portable, control station, fixed-site radio, and microwave equipment. All radio equipment installed by the Proposer shall be FCC type accepted under Part 90 of the FCC Rules and Regulations, ITU Region II and EU EMC. Additionally, all equipment shall be in current production, supported for a minimum of ten years. Proposers shall be specific in their responses and shall avoid ambiguous statements such as "digital capable, digital ready", P25 capable", etc.

All base station/repeaters shall support mixed-mode modulation formats such as analog voice and digital voice. As an option, base station/repeaters shall support or be readily upgradeable to support trunked mobile data technology. If substantial upgrading is involved to support these types of operations, Proposers shall clearly identify what will be required to "upgrade" a base station/repeater to support mobile data computing and supportive application software.

The existing MoNS analog trunked radio system is supported by a privately owned microwave/fiber system. While Proposers are encouraged to reuse existing facilities, the MoNS would prefer to upgrade or replace the microwave system due to network and equipment reliability concerns. Therefore proposers are required to include a full design and pricing for a microwave option.

#### 6.1.4.2 Mobile Radio Equipment

- Replacement mobile radios must also conform to the specifications in this RFP.
- Replacement mobile radios shall be supplied with all necessary mounting hardware, radio controls, inter-cabling, and 3db gain antennas for a complete installation in existing vehicles.
- Incorporate heavy-duty construction, weather-sealed enclosures and weather-sealed controls to meet IP 67 or Military Standard 110 C, D, E and F and TIA/EIA 603 paragraph 3.3.2.2 through 3.3.5.2 for water, shock, vibration, dust, humidity and high/ low temperature performance. Equivalent standards such as IP66 are acceptable.
- Front mount control-head with single rear mount radios and dash mount radios with single control-head configurations must be available to meet the needs of the different users. Rear mount radios require weatherproof control heads, speakers, microphones and other accessories. Some mobiles may require dual control heads.
- Multi-band mobile radio configurations (using one control head/speaker/microphone to simultaneously control three mobile radio transceivers) are desirable to allow for multiband operations, depending upon the types of radio transceivers employed.
- The mobile radio shall be powered from a 12-volt DC negative ground. Proposer shall specify required current levels.
- Digital voice encryption, must incorporate AES/DES or TEA 2 coding.
- Incorporate alphanumeric displays to provide visual indication of system availability, channel/talk group selection, incoming user ID/Alias, call alerts, and operational status such as scan and channel busy.
- Capable of receiving, displaying and sending real-time messages from a selection pre-defined data messages.
- Emergency priority button on radio display head to initiate an emergency priority call.
- External alarm dry-contact closure to provide activation of a horn, light, etc. whenever the radio unit is individually called.
- Data transmission capability.
- Radio operating information shall be contained in an electrically erasable memory device. Unit will be fully programmable from an Intel Based Windows 7 or higher Operating System computer via appropriate cables or over the air. Three sets of programming software and cables

shall be part of the delivered equipment. If possible, programming via an Android is desirable but not a requirement.

- A palm-type microphone shall be provided with the radio. A separate external speaker capable of producing a minimum of five watts shall be provided. The speaker must be contained in a housing sufficiently durable to prevent damage to the speaker.
- Time-Out Timer to warn the user of excessive transmission length. Time out timer should automatically disable the radio's transmitter after a pre-determined period.
- Radios must be operable on 800MHz public safety frequencies as well as 700/800 MHz conventional and trunked frequencies.
- Internal GPS shall be priced as an optional feature.
- Mobile radio installation location shall be coordinated with a representative from each system user.
- Channel Capacity shall be 255 or more.
- Talkgroup Capacity shall be 16 or more, per system.
- Output power shall be sufficient to achieve required coverage defined in **Section 6.1.6**, not be less than 10 watts.
- Standard radio package consists of radio, control head, cables, microphone, gain antenna.

**6.1.4.3 Portable Radio Equipment**

- Replacement portable radios must conform to the specifications in this RFP.
- Replacement portable radios shall be supplied with one battery, single-unit 120VAC rapid charger, flexible gain type antenna, leather-carrying case (public safety only), and shoulder speaker/microphone without antenna (public safety only).
- Radio dimensions shall be such that they are physically small enough to facilitate easy carrying by the operator.
- Radios must be self contained in a heavy duty constructed, weather-sealed single ruggedized housing that meets IP 67 or Military Standards 110 D, E and F and TIA/EIA 603 paragraph 3.3.2.2 through 3.3.5.2 for shock, vibration, dust, humidity, high/low temperature and blowing rain. The housing must meet or exceed EIA drop test requirements.
- Top-mounted rotary controls with positive stops for volume/channel selection. For Fire use radios control placement must be sufficient to allow gloved-hand operation, as is typically needed by the fire service.
- Incorporate alphanumeric displays to provide visual indication of system availability, channel/talk group selection, incoming user ID/Alias, call alerts, and operational status such as scan, transmit or low battery.
- Capable of receiving, displaying, and sending real-time messages from a selection of pre-defined data messages.
- Time-Out Timer to warn the user of excessive transmission length. Time out timer should automatically disable the radio's transmitter after a pre-determined period.
- No protruding push-to-talk button, thereby preventing damage to the button as caused by impact and accidental transmitter operation.
- Protected emergency button allowing easy access when needed but incorporating an ergonomic design whereby the emergency function cannot be accidentally activated.
- An accessory connection shall be provided for the attachment of external devices such as single and combination remote speaker/microphone units (with or without antenna), vehicular adapters, and mobile data computer equipment.
- Radio operating information shall be contained in an electrically erasable memory device. Unit will be fully programmable from a Windows 7 or higher Operating System computer via

appropriate cables or Over the Air. Three sets of programming software and cables shall be part of the delivered equipment.

- Portable radios, accessories, and batteries (used by the Fire Department) proposed must be Factory Mutual approved as intrinsically safe for the following hazardous environments: Class I and II Division I, groups C, D, E, F and G and non-incentive for Class I, Division 2, Groups A, B, C and D. As an alternative these units may meet ATEX, Cenlec or other approved standard.
- Vendor shall work with the Fire Department to ensure that the radios and accessories are compatible and configured with the optimal system settings to maximise audio intelligibility in high noise environments.
- Carrying case options should include leather-carrying case with swivel mounts and rings to accommodate shoulder straps typically used by the Fire Department. Additionally, battery belt clips should be included to match the number of non-public safety portable radios supplied for all agencies.
- Optional surveillance accessories such as miniature microphones, earpieces and remote microphones and headset speaker microphones must be available.
- Digital voice encryption, using AES/DES coding, or TEA 2 to provide security during transmission and reception of sensitive communications shall be an option.
- Single-unit 120VAC rapid charger shall be capable of fully charging a discharged high capacity battery pack within a one-hour period. Provide optional single-unit 12VDC rapid charger for vehicular operation
- Battery shall operate the proposed radio equipment a minimum of ten hours using a duty cycle of 5% transmit, 5% receive and 90% standby.
- Radios must be operable on 800MHz public safety frequencies as well as 700/800 MHz conventional and trunked frequencies
- **GPS shall be priced as an optional feature.**
- Data transmission capability.
- Channel Capacity shall be 255 or more.
- Talkgroup Capacity shall be 16 or more, per system.
- Output power shall be sufficient to achieve required coverage defined in **Section 6.1.6**, not be less than 4 watts.
- Standard radio package for public safety consists of radio, gain antenna, desk charger, high capacity battery, spare battery, speaker microphone and carrying case.
- Standard radio package for general government consists of radio, gain antenna, desk charger, high capacity battery.

#### 6.1.4.3.1 GPS Incorporation

The MoNS requests that proposers provide the prices and specifications for a GPS based user location system to be implemented. It is preferred that the GPS technology be integral to the radio equipment but the use of GPS equipped speaker-microphones is also acceptable. A complete description of the GPS system must be included in the proposal. Basic requirements include;

- Positional accuracy of 15 meters or better
- Emergency button located on microphone
- Operates from radio battery
- Flame retardant polycarbonate housing
- Shirt or belt clip
- Water resistant

#### 6.1.4.3.2 Unit location system

Proposers must include the description and pricing for a unit location system that will interface with the MoNS CAD system and be capable of displaying the location of a unit on a monitor based upon the GPS signal being received.

### 6.1.4.3 Control Station Equipment

- Replacement control station radios must also conform to the specifications in this RFP.
- Replacement control station radios shall be supplied with all necessary mounting hardware, radio controls, inter-cabling, and 3db gain or yagi antennas for a complete installation.
- Multi-band control station configurations must be available to allow VHF/operations, depending upon the types of radio transceivers employed.
- Available either as an integrated 120VAC-powered desktop radio cabinet or a remotely located, AC-powered radio package with separate remote control unit.
- Control station and control unit shall have optional provision to operate from standby 12VDC source upon failure of AC power.
- Provision shall be provided for local and remote control operation of the control station.
- Digital voice encryption, using AES/DES coding, or TEA 2 to provide security during transmission and reception of sensitive communications shall be an option.
- Incorporate alphanumeric displays to provide visual indication of system availability, channel/talk group selection, incoming user ID/Alias, call alerts, and operational status such as scan and channel busy.
- Time-Out Timer to warn the user of excessive transmission length. Time out timer should automatically disable the radio's transmitter after a pre-determined period. Control station packaging shall incorporate sufficient electro-magnetic shielding of radio and power supply components to allow multiple control stations to be located at the same site without causing unit-to-unit interference.
- A desk-type microphone shall be provided with the control station.
- Capable of receiving, displaying, and sending real-time messages from a selection of pre-defined data messages.
- Radio operating information shall be contained in an electrically erasable memory device. Unit will be fully programmable from an Intel Based Windows 7 or higher Operating System computer via appropriate cables or Over the Air. Sufficient quantities of programming software and cables shall be part of the delivered equipment.
- Proposed control stations must be operable on 800MHz public safety frequencies as well as 700/800 MHz conventional and trunked frequencies.
- Channel Capacity shall be 255 or more.
- Talkgroup Capacity shall be 16 or more, per system.
- Output power shall be sufficient to achieve required coverage defined in **Section 6.1.6**, not be less than 15 watts.
- Standard package for control stations shall include all necessary mounting hardware, radio controls, inter-cabling, and 3db gain or yagi antennas for a complete installation.

### 6.1.4.4 Fixed Site Equipment Radio

- The RF infrastructure must comply with ITU Region II and EU EMC standards and/or FCC Part 90 Rules and Regulations for stability, deviation, spurious and harmonic emissions depending upon the technology being proposed. All base/repeaters shall be configured to provide trunked voice and data transmissions to user radios. They shall be configured as either

a control channel or working channel, and any working channel repeater shall be capable of automatically assuming the role of the control channel in the case of a failure of the control channel repeater.

- Base/repeater stations must be designed for continuous-duty, 100% operation at full manufacturer's specification.
- The base/repeater stations shall be housed in standard 19-inch EIA rack mount freestanding cabinets.
- The system shall provide the ability to reconfigure individual base/repeater stations remotely either through the system's backhaul interface or over the air. The proposer shall indicate the extent to which parameters can be configured remotely.
- Base/repeater stations shall provide automatic call sign identification that meets the ICTA requirements for identifying trunked repeater sites.
- Infrastructure shall incorporate site monitoring and alarm systems having the ability to report major/minor infrastructure functionality, antenna system, microwave links, temperature, site intrusion, and AC/DC failure alarms to multiple dispatch console displays, (option – the ability to notify via email, and smart phone devices)
- All existing transmitter sites shall utilise existing battery backup subsystems and auto/transfer propane fueled standby generator systems. Proposers shall provide any necessary upgrades to these systems to support the addition of the new Project radio system. Proposers shall provide new transmitter sites with a 41 volts DC or 24 volts DC battery backup subsystem sized of a minimum eight-hour full load capacity and an auto/transfer propane fueled standby generator systems to power new equipment. Existing and new transmitter sites shall also comply with all requirements in sections 6.1.5.2.3 Site Power Systems and 6.1.1 Special System Requirements.
- The proposed infrastructure shall include a "Fail-Soft" trunking scheme designed to maintain system performance and notify system administrators as critical site components fail. Proposed system solutions must be fault tolerant with redundant levels of computer hardware/software, as necessary, to maintain trunked operation during equipment failures.
- System infrastructure equipment shall support special services, i.e. encrypted voice, data transmission, telephone interconnect, audio recording of all talk groups, and collection of system operational data.
- The proposed infrastructure solutions shall have the ability to expand, without having to replace previously installed like equipment. The proposed infrastructure hardware must be configured to readily accept the installation of additional infrastructure sites above that included in the Proposer's design, to accommodate future population expansion and growth within the nation.
- Output power shall be sufficient to achieve required coverage defined in **Section 6.1.6**, and not be less than 100 watts.

#### 6.1.4.5 Site to Site Connectivity

The existing radio system utilizes E-1 circuits for connectivity between sites. Proposers must provide solutions and costs for two options.

- Using existing networking connectivity
- Implementation of a new microwave system connecting the sites.

A third option for connectivity will be a hybrid network made up of both existing E-1's and microwave. Proposers are invited to recommend alternatives.

#### 6.1.4.6 Microwave Requirements (New)

- The digital microwave backhaul network shall consist of, monitored hot standby (MHSB) or ring protected, point-to-point licensed microwave hops.
- Microwave terminal equipment shall include transmitter, receiver, modem, power supply, automatic switching device, multiplexer, service channel(s), and all associated interconnections to provide a complete and functional system.
- It is preferred that all microwave units be ground mounted in racks in the equipment building for ease of maintenance. Tower mounted RF units will be considered if there are significant advantages to them.
- The radio shall deliver two-frequency, full-duplex operation. Space diversity configurations are acceptable if necessary to meet reliability requirements.
- Digital voice/data technology shall be used to eliminate audio-phase delays and/or incompatibility of audio levels within the proposed system solution. Where VoIP techniques are used to interconnect infrastructure sites, in lieu of traditional PCM multiplex channel schemes, a robust means must be provided thereby assuring the highest priority possible is given to voice packet delivery to maintain quality of service (QoS).
- An order wire channel with individual site handsets shall be provided to link all microwave locations for testing and troubleshooting.
- The proposed microwave subsystem system shall be initially configured for 40% excess capacity and be easily expandable to allow for future radio communication needs.
- Each microwave hop shall be designed to meet or exceed a one-way end-to-end annual reliability of 99.999% at the required capacity.
- Each microwave hop shall be designed to meet or exceed a one-way end-to-end annual quality performance of 99.999% at the required capacity.
- The microwave subsystem shall share the trunked radio physical facilities, such as sites, towers, power systems, etc.
- The operating frequency for the microwave system shall be no higher than 11GHz. All radio frequency coordination, license application preparation, and engineering activities associated with the development of the radio license submittal, including path surveys, shall be the responsibility of the Proposer. Any proposed use of unlicensed spread spectrum microwave links will not be accepted.
- All aviation coordination, applications, and engineering activities associated with the microwave system shall be the responsibility of the Proposer. All coordination and licensing fees will be paid by the MoNS.
- An alarm system shall be provided to monitor microwave functions and provide alarm status of abnormal operational parameters of equipment associated with the microwave system. The alarm system shall have visual status indications and be capable of sending alarm notifications to console displays, email and smartphone devices.
- Proposed microwave antennas, radomes, and antenna mounts shall be capable of maintaining reliable operations during sustained hurricane force winds of up to 140mph or the current version of the EIA/TIA 222 tower standard, whichever is greater. Each furnished antenna system must be equipped with dual stiff arms/mounts to limit antenna vibration and flexing during high wind events. If space diversity is required because of the necessity for higher frequencies and the engineering constraints of longer distances, these requirements and all necessary materials shall be part of the proposal.
- Minimum operational service parameters of each microwave link shall be as follows:

**Unfaded Bit Error Rate (BER):**
Calculated RF Link Fade Margin, Including Circulator,

Connector and Transmission Line Losses: Not Less Than $10^{-10}$

**Maximum Faded BER:** Not Less Than $10^{-6}$
Link Outage Level: To coincide with $10^{-3}$ BER, to occur at a signal level not less than 3 db in excess of the calculated RF link fade margin.

### 6.1.5 Infrastructure System Configuration

#### 6.1.5.1 General

Proposers shall furnish and install transmit and receive site equipment/configurations to meet **Section 6.1.6 (Coverage Requirements**) and adhere to minimum technical requirements identified in **Section 6.1.4.6** for fixed site and microwave equipment.

Physical modifications to newly proposed MoNS-owned sites, rental sites, or existing MoNS-owned sites, as necessary, to accommodate newly proposed system solutions, will be the responsibility of the Proposer and must be factored into each proposal's cost estimate. **A Proposer's failure to disclose physical plant modification costs is contrary to MoNS's turnkey-project requirement and additional costs, after contract will not be considered.**

Proposers shall provide all information concerning their equipment, relative to electrical, mechanical, structural, and physical space requirements. Proposers must consider enhanced security and environmental issues in preparing their proposal response. Any known deficiencies in newly proposed MoNS-owned sites, rental sites, or existing MoNS-owned sites that factor into the proposed solution (inclusive of electrical or lightning protection systems) shall be stated in the proposal response.

It is the responsibility of the Proposers to provide a turnkey system and to install industry accepted standard electrical grounding systems and lightning protection devices to protect proposed equipment from damage due to electrical transients on the antenna systems, power, telephone and/ or control cables.

Sites determined by the Proposers to be potentially prone to flooding or other environmental issues must be so noted by the Proposers in their proposal response. Engineering remedies must be based on historic flood plain data.

This new digital trunked radio system will be initially sized to support the existing System user load but is anticipated to grow by approximately 20% within the next five years. Therefore, the proposed new radio system must be capable of channel expansion, without requiring the replacement or removal of previously installed equipment to support user needs.

The MoNS has determined that standards-based TETRA technology will adequately serve present and anticipated future needs for their departments and shall be provided by the successful Proposer. **Future service requirements may involve the use of broadband and LTE cellular systems. Proposers must include a detailed description on how their backbone infrastructure equipment can be upgraded to support this technology.**

All necessary permitting is part of this project and shall be furnished by the Proposer.

All transmit/receive site-related equipment shall be remotely controlled via digital microwave from

the Dispatch Centre, management terminals or remote desktop personal computers (PCs).

To provide the best value to the MoNS, the proposer shall maximise the use of commercial, off-the-shelf Transmission Control Protocol / Internet Protocol (TCP/IP) networking technologies for interconnectivity of network elements.

**6.1.5.2 Control Point Equipment**

The Control Point equipment site shall contain, minimally, the following major equipment groupings:

- Main System Controller (network switch) and Associated Equipment
- Console Electronics/ Audio Controller
- Remote Sites Microwave Link
- Battery & Power Systems
- Interoperability Link Base Stations/Networks
- Link Control Equipment
- Radio/ Microwave Alarm System
- System Management Equipment

Note: System management provides reports on such items as system activity by agency, talkgroup and user, calls, PTT's, grade of service, system busies, radio affiliations etc.

The MoNS is concerned over the potential vulnerability of a single Control Point location, as it could inadvertently become a single-point failure mode for the new digital radio system. Therefore, Proposers are required to incorporate an optional geographically redundant control point design into their proposed solution. The optional back-up control point shall include as a minimum a redundant system controller (network switch). This submittal is a mandatory requirement and proposals failing to include such a dual-site redundancy option will be considered as being unresponsive to these specifications.

**Note: The optional Redundant Control Point design shall be priced as a separate line item.**

**6.1.5.2.1 Site Power Systems**

All existing sites have adequate power for the existing radio system. It is up to the Proposer to determine if the existing power and facilities are suitable for the proposed radio system. Should upgrades or replacements be required the following requirements apply.

All existing sites utilize AC mains power with UPS systems for system power. Proposers are required to propose AC power systems **AND** optional DC power systems meeting the following requirements.

The site power system shall be adequate to meet the requirements to accommodate new and existing equipment. The digital radio system infrastructure sites shall operate from a 24 volt DC or 48 volt DC power source, sized to sustain full trunked-feature operation for a minimum four-hour period. The battery power system shall utilise sealed non-spillable batteries. An automatic low voltage disconnect device shall be provided to protect the battery power system from discharge-related damage. Electrical power disconnect/switching capability shall exist at all sites so that rectifiers and batteries as well as commercial power sources may be separately isolated so that each component can be worked on safely. This disconnect/switching capability must be designed and

configured so that radio system operation is unimpaired and uninterrupted during any maintenance or repair cycle. It must include a manual bypass directly to utility power and the path shall completely bypass all UPS and battery equipment. In addition, a static bypass shall be provided to allow battery maintenance to be conducted.

A minimum of four DC-operated repeater stations will be housed in any equipment cabinet. No more than six repeater stations shall be located in a single equipment cabinet. Equipment cabinets shall be power-supported by redundant, metered DC/DC power converters sufficient to sustain the continuous operation of repeater stations installed within that one cabinet.

Primary battery chargers, low voltage disconnects, and a primary DC circuit breaker panel will be installed in a freestanding enclosed relay rack unit. System controller and console/audio controller equipment shall also be housed in freestanding equipment cabinets similar to those used for repeater stations.

Controllers shall be powered either directly from the DC battery plant or by individual, redundant DC/120VAC power inverters whose minimum site/system capacity must be twice that of calculated controller loads.

Auxiliary site loads essential to proper system operation (i.e. redundant GPS reference clocks, tower-top preamps and receiver multi-couplers) shall be interconnected directly to the radio site's battery system. The redundant GPS reference clocks shall have a properly sized UPS.

**6.1.5.2.2 Infrastructure Functionality**

The proposed digital radio system's basic operational mode will be determined by the successful Proposer. Redundant control channels shall be capable of automatically rotating to support this digital control channel scheme.

System reliability and fault tolerance is a major objective in the design of the system. The system shall be designed such that there are no situations where a single failure in a Proposer's supplied equipment will disable wide area operation. The proposed solution must also be robust in design to maintain continued operation should any of the following failures (or combination thereof, but not limited to) occur:

A. Failure of entire single site
B. Loss of Prime Site/Control Point
C. Loss of Control Channel(s)
D. Failure of console/audio controller
E. Loss of transmitter(s) operation
F. Loss of receiver(s) operation
G. Failure of dispatch console terminal(s)
H. Failure of one site controller
I. Loss of DC-DC power converter(s)
J. Loss of Network Management System

Proposers shall describe in detail the effect each of the above listed loss and failure will have on their proposed system configuration. Proposers shall also describe mitigation and restoration steps involved with each loss and failure that returns the system to full operational capability.

**6.1.5.2.3 Site Antenna Systems**

Proposers shall design, provide, and install new antenna systems to meet the specific coverage requirements and objectives described by **Section 6.1.6. It is emphasised that all exterior equipment must operate and survive in a tropical marine environment**.

All existing antennas and feedlines must be replaced. Replacement antennas must be rated to at least 150 miles per hour.

Transmission lines shall be one continuous length with a copper conductor and weatherproof jacket. Transmission lines shall be grounded at the antenna, the top most part of the tower location, 100 ft tower intervals, the midpoint (for all towers greater than 200 feet in height), the location where the transmission lines enter the cable tray bridge, and at the equipment building's transmission line copper entry port. Proposers shall provide grounding strap kits that are manufacturer-approved for the type of transmission line installed. All cables shall be neatly installed and shall be securely fastened per manufacturer recommendations and presenting the minimum wind load for the location. All manufacturer approved mounting hardware, cable hangers, and other miscellaneous items shall be the type and size sufficient for the cable. All antenna system mounting brackets, components and associated transmission line attachment hardware shall be either stainless steel or hot-dipped galvanized steel. Tie wraps or electrical tape will not be allowed for attaching cables to towers.

All RF connectors shall be weather tight with gold or silver-plated contacts. All connectors shall be solder type; **crimp type connectors are not acceptable**. All coaxial cable elements used as interconnecting jumpers for outdoor-mounted equipment or transmitter components shall be at least 1/2" Andrew FSJ4-50B or equal. Receiver multi-coupler interconnecting cables shall be at least 1/4" Andrew FSJ1-50A or equal.

Proposers shall equip all antennas with Polyphasor or equivalent lightning arrestor devices.

The transmitter combiner equipment shall be the expandable type supplied with the number of ports specified.

The receiver multicoupler shall be the expandable type supplied with the number of ports specified with all unused ports terminated with 50 ohms.

**6.1.5.2.4 System Control**

The proposed radio system shall incorporate high levels of redundancy to assure continued trunked system operation. To provide the highest level of trunked reliability, site/system control schemes must be IP-based, fully redundant, and utilize distributed processor technology to the maximum extent possible. Site/System control schemes shall include protected power supply equipment so the loss of a single power supply will not interrupt control scheme operations.

Site/System controllers shall minimally provide the following features:

1. Assignment of call priority
2. Verification of user identification
3. Working talkgroup/channel assignment
4. Electronic documentation of call type, caller/called, call time, channel assignment, etc
5. Ability to enable/disable call access to specific field units

The proposed console/ audio control scheme must be sized to expand by 40%. The console/audio control scheme shall be configured to interface to a new radio and 9-1-1 phone traffic audio logging system.

**6.1.5.2.5 Radio Network Alarm System**
Proposers shall furnish and install an automatic alarm system of monitoring and detecting the failure of all major and minor equipment failures at each radio system site, including at a minimum:

Major Alarm Conditions
1. Control Channel Failure.
2. Site Controller Failure.
3. Console/Audio Controller Failure
4. Receive Amplifier/Multiplexer Failure
5. Dehydrator Failure
5. AC Power Failure
6. High Reflected Power, Tx Ant.
7. Battery Charger Failure, Major
8 Generator Failure
9. Tower Light Failure
10. Status of Microwave Link
11. HVAC Failure (Over/under temperature alarm)

Minor Alarm Conditions
1. Door Intrusion Alarm
2. Tripped DC Breakers(s)
3. Low Transmitter Output (each transmitter)
4. Battery Charger Failure, Minor
5. Low Generator Fuel

Alarms must be indicated as a conspicuous "flag" area on a flat-screen display field or as a text message or email. An alarm indication shall also be both audible and visual and shall remain active until reset by authorized personnel. Determination of specific alarm point conditions shall be obtainable from any device mentioned above.

The alarm system must have additional connectivity for the MoNS to add additional alarm circuits as required. Sensors may be dry contact, Modbus, current loop or 5 VDC.

**6.1.5.2.6 Voice Encryption**
Each of the trunked digital RF channels shall be equipped to support voice encryption utilising AES, DES or TEA2 standard.

Encrypted mobile, portable, and control station units shall be of the same physical size and general configuration as non-encrypted units. Encryption for subscriber units shall be specified as a per unit cost option. Accessory equipment shall work compatibility wise with all types of units.

Proposed radio coverage throughout Bermuda, in the digital encrypted mode, shall be equal to that in the digital clear mode. Encryption shall be available in trunked, conventional, and talk-around modes.

**Proposers may be required, as part of an oral presentation, to demonstrate both clear and encrypted voice audio quality using portable/mobile equipment identical to that offered in their proposal response.**

**6.1.5.2.7 Logging Recorder**

There is a requirement for voice logging for all public safety functions in the dispatch center. The capabilities of the voice logger must include:

- Record all radio traffic by talk group.
- Record all radio traffic by channel.
- Record all E-911 voice traffic
- Record all dispatch console voice functions (i.e. dispatching, telephone, intercom, etc.)
- 24 hour, 7 days per week operation

MoNS requires that the voice logging recorder system will utilise the latest technology, efficiently and reliably record all phone and radio audio transmissions, and provide quality recordings to be used by MoNS and other agencies. The recording system should have the following primary characteristics:

- Is proven technology currently operating in multi-disciplinary, multi-agency implementations serving a population of similar size to Bermuda
- Can be supported and maintained by MoNS staff (e.g., system administration)
- Offers user-friendly, basic functionality
- Is cost effective
- Offers ad-hoc and flexible reporting capabilities
- 24/7 On site maintenance must be included in the procurement
- Recordings must be security coded in order to be used as evidence

**6.1.6 Coverage Criteria**

**6.1.6.1 General**

The MoNS's trunked Radio System shall be configured to support portable hand-carried radio equipment, operated on the street, and within residences/building structures, at physical locations throughout the MoNS's coverage area. Proposers shall fully identify and guarantee the coverage predicted for their proposed solution, per the operational and functional requirements of this specification. Proposers must take into account the following operational characteristics in the development of their coverage guarantee:

A. Portable subscriber units with shoulder microphones and waist-mounted radios must be the normal configuration considered for the purpose of coverage design. Both talk-out and talk-back- coverage analyses must use these parameters.

B. Portable subscribers units will use flexible, quarter wavelength antennas. Coaxial-skirt type antennas are not acceptable due to size and other mechanical limitations.

C. Vehicular antennas should be considered as trunk mounted or roof mounted and obstruction losses must be considered in the proposed system design for both talk-out and talk-back- coverage analyses.

**6.1.6.2 Service Area**

The system shall provide the ability to place and receive calls to and from any point in contiguous Bermuda and islands as well as offshore in the territorial waters

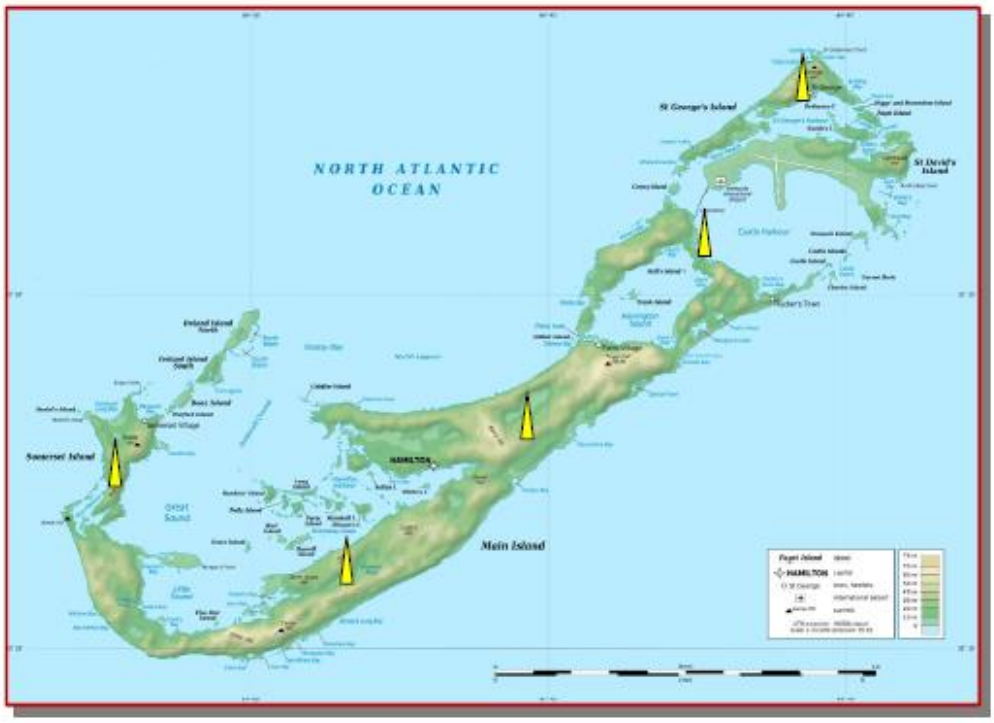
Portable radio on street and in-building portable radio coverage must extend throughout no less than 95% of the land area within Bermuda and three miles beyond its borders in any direction. Mobile coverage must extend throughout no less than 95% of the above-defined areas.

**Figure 1** shows the locations of the existing radio sites of the radio system.

In building coverage is required in several buildings throughout Bermuda. Proposers should address these types of structures as to how acceptable in building performance can be obtained Cost estimates must be included for bi-directional amplifier (BDA) systems and a portable repeater system.

The portable repeaters will be used by the Bermuda Rescue and Fire Service and the Bermuda Regiment when on field operations as well as the Police Department for special circumstances.

**Figure 1 – Existing Radio Sites**




All references to coverage reliability in this specification refer to statistical area reliability. For example, the phrase "95% coverage" indicates that the total area described shall exhibit at least 95% statistical probability that coverage areas, if tested, would be found to support electrical performance, which equals or exceeds that minimum signal level necessary to deliver a Delivered Audo Quality (DAQ) of 3.4, as specified by this contract and specification. It will not be acceptable to provide a coverage guarantee, which includes a relatively large number of failed points within any one vicinity, while still meeting the overall 95% coverage goal.

The marine areas surrounded by the Island require outdoor portable coverage.

### 6.1.6.3 Propagation Analysis

#### 6.1.6.3.1 Sites

Proposers are free to select sites that they deem appropriate. The MoNS requires that all selected sites meet the following criteria:

- Sites are available for MoNS use
- There must be no cost or minimal cost to utilize the site
- Site must be readily accessible for maintenance

Proponents must provide documentation verifying the above criteria with their RFP responses.

#### 6.1.6.3.2 Propagation Studies

Proposers must provide a formal statement, within their proposal, that coverage objectives specified in **Section 6.1.6.1 and 6.1.6.2** are met by their proposed solution. **ANY** disclaimer or exception taken to the specified coverage requirements shall be clearly identified with a detailed description of the extent of the disclaimer or exception and the reason for which it was taken, in order for full consideration to be given to the Proposer during the evaluation process. Proposers must provide written descriptions of the processes and propagation models used to calculate proposed area coverage.

Coverage maps and other relative calculations shall be submitted with the following minimum information clearly defined for each map or submittal:

A. Antenna height
B. Transmitter site power output
C. Antenna gain and type (Includes transmission line losses)
D. Effective signal level required, at both infrastructure and user radio antenna ports, to produce DAQ 3.4 and 3.0 in the typical land mobile radio environment
E. Transmitter site talk out range, individual site as well as composite coverage
F. Portable unit talk-in range, individual receiver sites as well as composite coverage
G. 95% mobile and portable radio on street and in-building portable radio coverage. In-building coverage maps shall depict 9db, 15db, and 25db loss profiles.
H. Maps must be of the latest issue available and show geographic references.
I. The Longley-Rice Mathematical model should be used for propagation studies. Okamura studies are not acceptable.

Talkout is defined as transmissions from the radio site (tower) to the radio unit in the field. Talkback is defined as transmissions from the field unit back to the tower.

### 6.1.6.4 Coverage Acceptance Criteria

In order to avoid subjective interpretation of coverage test results to the maximum extent possible, mobile coverage testing must be done with computer-controlled test equipment. This equipment must automatically record the position of the test vehicle (by means of GPS positioning) at the time of a reading, and record the signal strength of at least 200 signal samples over a 40-wavelegth period for each reading taken within a specific test grid. Signal strength measurements must be made continuously along the drive route.

Grids throughout the land portion of the service area shall utilise grid sizes no greater than 0.25 miles. Offshore grids shall be no greater than 1/2 mile. The MoNS Project Manager and the Proposer's Project Manager shall be required to mutually determine the size/location of grids and a suitable drive route plan that encompasses the entirety of accessible grids.

Field strength test data obtained throughout the coverage area, in accordance with minimally required reliability percentages, must be of sufficient level to produce a (DAQ) rating of 3.4 or higher throughout the predicted service area to be considered passing.

Mobile radio signal strength measurements must be made from a vehicle moving at approximately 30 mph.

The device used to measure field intensity must be stable and have a dynamic range suitable for the conditions under test. Prior to the execution of these test activities, all test equipment and data gathering equipment to be used must be fully certified by an independent testing laboratory having calibration tools traceable to a recognised standards laboratory. If requested, these certification documentations must be presented to the MoNS prior to coverage testing for verification.

The test output will be fed into a laptop PC or an equivalent computer device. The Proposer will submit a written and graphical report containing an analysis of the test results to the MoNS Project Manager daily and a formal report will be required at the conclusion of the test. The results must depict mobile, portable on street and portable in-building coverage. The analysis must include maps of the coverage area divided into grids, with the test results for drive tests displayed in each grid on a separate map. All test data, in its raw form, must also be made available for independent review.

The MoNS reserves the right to disapprove any instrumentation or procedures. No adjustments will be made to the transmitter(s), portable/mobile radio units or test instrumentation after appropriate calibration of all involved equipment.

A successfully tested grid is defined as one where communications from a dispatch console to a portable radio unit, as well as for the reverse path, are not less than DAQ 3.4. Ninety-five percent of the grids must meet exceed these defined requirements for the system to be considered coverage compliant.

If a grid is in an inaccessible area, it will be counted as follows;

- If all adjacent grids pass the coverage test then the inaccessible area will be considered as passing.
- If any adjacent grid fails to pass the coverage test then the entire inaccessible area will be considered as failed.

Portable radio voice quality testing must be performed using a minimum of ten phonetically balanced phrases, to be supplied by the Proposer. A successful test measurement will be one that requires no repetition to understand the spoken phrase and with a DAQ of 3.4.

In addition to drive testing, the MoNS will select a number of specific buildings, of key interest to the MoNS, for in-building audio quality testing. These buildings will be agreed to in the final contract.

The test procedure will be developed with the successful vendor prior to system testing. The MoNS shall specify the test team to participate in coverage testing. The team must include, at a minimum in each team, a MoNS representative, and a Proposer's representative.

Final system acceptance will not be accomplished until the constructed radio system successfully concludes performance test requirements and the as-built radio system equals or exceeds the coverage performance guaranteed by the successful proposal or as otherwise amended by the contract.

Hurricane season in Bermuda is from June until November. Therefore, it is critical to the acceptance testing phase that installation and implementation is conducted on a schedule that facilitates coverage and performance testing during those specified periods that are agreed upon by the MoNS and the Proposer. The Bermuda is in an area prone to tropical storms and hurricanes where such extreme weather events could disrupt or delay coverage testing. Proposers must consider this factor when developing their proposed implementation schedule and project completion timeframe.

Acceptance testing dates will be detemined in the final contract.

**6.1.6.5 Operation of Radios in a High Noise Environment**

As part of the evaluation process, the proposers may be required to demonstrate portable radio digital voice quality in a test specifically designed to demonstrate the audio performance of portable radios in high noise environments such as encountered by the fire service. The test will take place using fire personnel from local departments and will demonstrate performance near the normal high noise of pumper trucks and extrication tools. The actual test parameters will be finalised with each proposer at a date, location and time determined by the MoNS during the evaluation of proposals.

The noise conditions to be tested are;

- K-12 Saw
- Chain Saw
- PASS Device
- Vibra-Alert
- Fire Engine at High Idle while engineer is at the pump panel
- During airport ramp operations

**6.1.7 Dispatcher Console Requirements**

**6.1.7.1 General**

It is a functional requirement that the existing SmartZone 100 MHz trunked system remain operational during the installation and acceptance phases of the new Digital Voice Radio System. **Any proposal causing interruption of the public safety communications system for any duration will not be acceptable, by the MoNS**. Installation of new radio dispatcher equipment must, likewise, be achieved in a manner that causes no interference with the operation of the existing trunked system.

The dispatch consoles shall provide all the necessary functions to operate trunked or conventional two-way radio base or repeater stations.

All dispatch consoles are identical within each center.

**Note: All consoles and associated equipment, wherever located must be properly and adequately grounded and surge protected to industry standards for operator safety.**

### 6.1.7.2 Radio Console Types

Normal dispatch consoles shall include all controls that apply to the various channel/talk groups and auxiliary functions for a console. These console positions shall have the capability to monitor and control pre-configured talk groups, conventional channels, and dispatcher-controlled interoperability links. Each console position shall contain as a minimum:

- Select Speaker – one speaker where audio from selected channels/ talk groups is presented, with volume control.
- Unselect speaker – one speaker where audio from unselected channels/ talk groups is presented, with volume control.
- Transmit Function – a color-coded transmit function to control the push-to-talk (PTT) function for the selected transmitter(s), talk group(s), and/or channels.
- Clock – shall display time in multiple formats – i.e. 24-hour format.
- VU Meter or Audio Level Display.
- Keypad representation for numeric data entry.
- Desktop microphone.
- Dual Headset Jack – a dual headset jack will be provided which allows for use of a headset equipped with RJ-327 type plug with modular adapter. Separate headset volume controls for radio and telephone audio output must be provided.
- Intercom – intercom between operator positions must be provided. A visual display must be provided to identify both the called and calling parties by console name. Multiple simultaneous intercom conversations between individual consoles must be possible.
- Private Call – Selected users shall have the ability to selectively communicate "privately" with another individual users system regardless of what talk group either unit is in. The call shall allow the two users to utilise a single channel resource to communicate without the participation or monitoring of other units in their respective talk group.
- Caller ID display on the channel window for standard calls and emergency calls.
- All Receiver Mute Function – a function that mutes the received audio from all unselected channels, shall be provided. This muting function will be in programmable predetermined increments.
- Talk group/Channel Cross Patch – a function that temporarily combines two or more talkgroups or channels into one new group. All members of the new group can communicate with every other member. Each console shall be able to support up to five simultaneous patches at one time. Consoles shall also support pre-configured patches.
- Simultaneous Select and Instant Transmit Function – a function which temporarily sums two or more talkgroups or channels into one module. Simultaneous select merges the members for the benefit of the dispatcher; however, it does not create a super group. Only the dispatcher can hear all the members. Each console shall be able to support up to five simultaneous select calls at one time. Consoles shall also support pre-configured simultaneous selects.
- Emergency/ Reset – consoles shall receive emergency alerts from the trunked radio system regardless of the status of the channel control window. Emergency messages will be indicated by a visual flashing ID, emergency ID character, and an audible alert. Dispatcher acknowledgment of the message must silence the audible alert and stop the flashing display. Multiple emergency messages will be queued in the display stack and the emergency ID character will continue to flash until all messages are viewed and subsequently cleared by the dispatcher. Emergency unit identification will be in real time. GPS coordinates, if provided, will be displayed at each console position.
- Alert Tones – Three distinct tones shall be used for alerting purposes over the air. Each alert tone must be immediately broadcast, when activated, on the selected radio channel. Each tone

shall be readily identifiable and unique.

- Call Indication – a color-coded status call indicator must be provided for each module in a channel control window on the display screen.
- Individual Volume Adjust – shall be provided for each talkgroup/channel on the console. Associated color-coded status indicators must continuously show whether the channel is in the full or adjustable volume control state. The volume control shall be automatically bypassed when a talkgroup/channel is placed in select status.
- Talkgroup/Channel Name – designated talkgroup/channel control modules shall include a minimum of eight character alphanumeric display symbols to identify the talkgroup/channel.
- Talk Group/Channel Busy Identifier
- Text Messaging – each console shall have the ability to send and receive to and from field units.
- Cross Mute Function – each console shall be capable of muting the audio from other consoles.
- Instant Playback – each console shall be capable of playing back the last call/radio transmission with the push of a button.

At least one console in the dispatch center must have the capability of monitoring the status of the radio system.

- Ability to remotely disable and re-enable selected field units.
- Ability to regroup individual radios into special talk groups.
- Assignment of user priority levels.
- Monitoring and retrieval of special feature activity i.e. encrypted voice transmissions, etc.
- Retrieval of system activity i.e. types of calls, call duration, when made, user identification, etc.
- Ability to monitor summed major site/system alarm status.

The actual location of this monitoring system will be determined by the MoNS upon contracting.

#### 6.1.7.2.1 Optional remote console capability

As an option, proposers shall provide information and pricing for remote console software capable of basic functionality that includes, at a minimum, the ability to transmit and monitor standard talkgroup/channel calls. This software shall run on a standard laptop PC or desktop workstation and will require no additional equipment. Transmissions and monitoring shall be done from a standard PC headset/microphone. These console positions shall have the ability to access the radio system from any location via any wired or wireless high-speed internet connection using VPN technology**. Proposers shall provide per unit pricing on this option.**

### 6.1.7.3 Desired Functionality

#### 6.1.7.3.1 Dispatch Console Reliability

Due to the critical nature of the communications services provided by the dispatch centre, a high degree of reliability for the new radio dispatch console subsystem is required. The console subsystem shall:

- Be availability with uptime of 99.999%.
- Provide automatic and continuous self-testing and diagnosis.
- Alert the dispatch operator in the event of component or sub-system failure.
- Allow continued operation of the remaining consoles in the event of failure to a specific console, through isolation of the defective console.
- Be designed with no single points of failure.

- Interconnectivity between consoles and dispatch locations shall be IP based, in lieu of traditional circuit switched, technologies.

A high degree of modularity will be utilised to reduce the number of sub-systems affected by a single component failure. Repair of sub-systems without totally disabling multiple radio console positions shall be required, as continued console operation is required during repair.

**6.1.7.3.2 Diagnostics**
The new radio dispatch console subsystem must be equipped with a number of self-diagnostic elements that continuously monitor and verify the correct operation of each distributed microprocessor, all audio paths in the console electronics, and between the console electronics and the new radio system. Diagnostic capability must be distributed among independent and redundant subsystems and must not rely on one central diagnostic circuit.

**6.1.7.3.3 Power Supply**
External power to each console shall be supplied by an existing nominal 120 volts AC, 60 Hz, single-phase power source. All dispatch console equipment shall also be connected to an outlet on a circuit or circuits that are supported by the building's existing primary uninterruptible power supply (UPS) and emergency power generator system. The Proposer shall maintain at least 30 minutes of backup operation on the existing UPS system. The Proposer may recommend modifications to the existing power that may be necessary to the existing circuits, UPS, or emergency power generator system and grounding to support the radio dispatch console subsystem.

**6.1.7.3.4 Flat Panel Display**
Console monitors must be flat screen digital monitors. The physical size of each monitor will be determined by the use of the associated console. Monitors are to be mounted in the existing 911 furniture.

Regardless of the number of screen functions the console must operate with a single mouse.

**6.1.7.3.5 Headset Jack Configuration**
All radio consoles shall be setup for dual headset jacks and local microphone operations. Each console shall provide independent transmit audio level settings for audio inputs from the headset microphone and console microphone, such that dispatchers may freely switch operation without affecting dispatch audio quality. Headset jacks shall be compatible with six wire headsets. Radio consoles shall support both radio and telephone communications using the same operator headset. Proposers shall be responsible for this interconnection and the equipment that supports it.

**6.1.7.3.6 Footswitch**
A single pedal footswitch with high durability shall be included to provide Push-To-Talk (PTT) for the headset. The footswitch shall be heavy-duty and non-skidding. The Proposer shall supply and install a foot switch for each console.

**6.1.7.3.7 Time Generator System**
The MoNS requires a high accuracy timing clock system. Proposer shall provide and interface a time generator system that references the Global Positioning System (GPS) to synchronize all 911 dispatch, CAD, radio, and audio recorder clocks at all radio console positions. This time generator system shall be fully interfaced to and control the event-time display of the radio consoles, console

audio recorder, radio system management tools, radio system alarm system, microwave alarm system, E911 and CAD systems at each radio dispatch location. A large remote display unit connected to the time generator system shall be installed within view of all console positions. The system shall provide for tamperproof recordings to be made from the master recorded log for evidence purposes.

The clock output must be capable of sending signals throughout the Dispatch Center, radio sites and other remote locations from the clock location.

**6.1.7.3.8 Operating System and Network Management Functions**
The console application shall run on Window's 7 or higher operating system platform. The consoles shall be software driven to allow for access to future features and technologies. The Proposer shall set-up each radio console so that all dispatch personnel shall have their own unique system login.

**6.1.7.4 Console Electronics**

**6.1.7.4.1 Description**
Console electronic circuitry will be housed in equipment cabinet/enclosures specific for each dispatch console position. Sufficient space for front and rear servicing of the equipment shall be provided. Proposers are required to provide a network based system that utilizes TCP/IP Protocol.

**6.1.7.4.2 System Interfaces**
The digital voice system's radio dispatch subsystem must include circuitry required to operate remotely controlled base stations and trunked as described by this specification and in the Proposer's submittal. At a minimum, each base station interface must consist of a plug-in circuit card (or the software equivalent) containing VoIP-related circuitry, line driver amplifiers, two-wire and four-wire receive amplifiers, digital automatic level adjustment circuitry, and fault-diagnostic circuitry. The interface must be capable of remotely controlling base stations via E/M multiplex-channel and 2175Hz tone-burst signaling.

Control of the existing marine radios (VHF-FM) must be provided.

Proposers shall also interface the dispatch subsystem, either directly or through other subsystems, to the MoNS existing logging recorder system.

**6.1.7.5 Console Furniture**
Proposers are permitted to subcontract the provision of radio consoles. The Proposers are urged to have a representative of their console provider attend the site visit.

**6.1.7.5.1 Furniture System Grounding**
The furniture system shall be grounded in accordance with an industry-accepted standard.

**6.1.7.5.2 General Information –Dispatch Centers**
The primary Dispatch Center is the 911 PSAP location. The functions of both Dispatch and 911 are housed in single consoles. All console functions must operate with a single mouse.

**6.1.8 New Site Requirements – Existing Site Upgrades**
If any new sites are required for this procurement, the following specifications are to be used. Additionally, if any existing site requires upgrades the following requirements apply. Proposers

must make the proper recommendations if current facilities are not adequate. NOTE: If new or alternate sites are proposed, the proposer must include documentation demonstrating that the proposed new or alternate site is available for MoNS use.

**6.1.8.1 Generator Requirements**

Standby power generator and UPS systems, if needed, shall be furnished by the Proposer for each proposed radio site and control point site. Proposers must include the necessary labor and materials, as required, to furnish and appropriate fuel lines, filters, automatic transfer switches, manual-operated auxiliary generator connector facilities, generator/fuel tank foundations/platforms, alarm functionality and electrical wiring services to provide fully operational standby power systems. Generators must be housed within outdoor equipment enclosures in accordance with the manufacturer's specifications for shock and vibration mounting, ventilation, fuel supply and electrical connections. Bermuda has a highly corrosive environment that the generator equipment must be capable of withstanding.

**6.1.1.8.1 General Requirements**

It shall be the responsibility of the proposer to supply, install, and test a complete and operable standby power generator with automatic transfer switch. Equipment shall be new and factory tested at a 0.1 power factor for 3-hours, and must be installed adjacent to the required radio equipment shelter(s), in accordance with local area building and electrical codes.

**6.1.1.8.2 Documentation**

Manufacturer's warranty, installation instructions, specification sheets, interconnection wiring diagrams showing all external connections, operator's and maintenance manuals, and transfer switch manuals shall be supplied by the proposer upon delivery and installation of the units.

**6.1.1.8.3 Start-Up Service**

On completion of the installation, initial start-up, and on site acceptance testing shall be performed by a factory-trained dealer service representative with a MoNS representative present. Load test records for the installed generator system must be furnished to the MoNS as part of the installation documentation.

**6.1.8.1.4 Type of Generator**

The generator shall be diesel fueled. Units requiring premium fuels shall not be considered. Each generator package shall include an engine-driven set coupled with low reactance, brushless 120/240vac single-phase generator. Each generator package must be equipped with a temperature compensated automatic voltage regulator; under/over-speed protection function; a control panel; and high ambient-temperature cooling system.

**6.1.8.1.5 Ratings**

Output power rating of each generator shall be sized for the full-calculated load for the referenced site, inclusive of a 50% excess load factor. Each generator will be capable of continuous 120-hour operation, full single-phase output at a 1.0 pf.

**6.1.8.1.6 Generator Control**

Each generator must be a remote-start type compatible with the automatic transfer switch to be supplied pursuant to this procurement. Manual starting and stopping must be provided from the control panel.

Each site generator shall automatically shut down and lock out upon:

- Failure to start (over-crank)
- Over speed
- Low lubricating oil pressure
- High engine temperature

Alarm contacts shall be supplied to allow transmission of fault alarms for any of the above conditions, plus high coolant temperature pre-warning, low oil pressure pre-warning, low coolant temperature, low fuel, and an alarm indication when the generator set is running and at shut off. These alarm contacts shall be wired into and be reported by the radio network alarm system being supplied pursuant to this procurement.

Meters shall be supplied and located both at the generator and within the equipment shelter, to indicate output current, output voltage, runtime and frequency/RPM. An AC rheostat shall be provided for fine-tuning of the generator's output voltage. These devices shall be installed on either the transfer switch door or a separate, remote panel.

**6.1.8.1.7 Fuel Supply**

Where applicable, Proposers shall supply a new, fully painted diesel storage tank to be installed and secured to a concrete pad at a location near the equipment shelter that is accessible for refueling. The fuel tank shall provide sufficient fuel to provide 120 hour of continuous operation of the generator unit, at full load under nominal temperature conditions. The tank must be refilled after the conclusion of onsite acceptance test.

The fuel line shall be insulated to reduce condensation at the regulator at any point where the line exits above grade. A low fuel level alarm shall provide adjustable monitoring of fuel level and shall be initially set to alarm when the fuel level drops below a 24-hour supply. This condition shall also be reported by the radio network alarm system being supplied pursuant to this procurement.

**6.1.8.1.1 Battery and Charger**

A lead acid starting battery set, rated for the engine type to be furnished, shall be supplied and installed with each generator package. This battery shall be float charged by a voltage-regulated charger that is powered by a protected 120VAC source. The battery set shall be of sufficient capacity to provide for 3 minutes total cranking time without recharging. Float, taper, and equalize charge settings will be provided. The battery charger shall be physically located within the generator transfer switch enclosure.

**6.1.8.1.9 Cooling System**

A radiator-cooled engine is a requirement. The radiator shall be filled with a water/coolant mixture in accordance to the engine manufacturer's recommendations. A thermostatically controlled water jacket coolant heater shall be supplied and installed in accordance with the manufacturer's recommendations.

**6.1.8.2 Transfer Switch Requirements**

An automatic transfer switch that provides switching of the equipment shelter electrical load between commercial power and generator power shall be provided and installed for each installed standby generator. Each transfer switch shall be completely factory assembled and will contain

electronic controls designed for surge voltage isolation, with voltage sensors on all phases of both input power sources. Permanently attached manual handles must also be installed on the transfer switch. The switch must provide positive electrical and mechanical interlocking and mechanically-held contacts. Quick break and Quick-make contact mechanisms shall be supplied for manual transfer under load.

Each switch shall be provided in a key locking, UL listed, NEMA cabinet, mounted within the radio equipment shelter. The switch shall be fully wired and integrated with the engine generator set in accordance with local electrical and fire codes and the manufacture's specifications.

A manually operated transfer switch and power connectorisation shall be provided to allow the interconnection of an auxiliary, tailored generator should the permanently located generator fail in operation.

All transfer switches and accessories shall be listed by Underwriters Laboratories under UL 1001 and shall be approved for use on emergency systems.

**6.1.8.2.1 General Specifications**
Transfer switches shall be of the double-throw electrically and mechanically interlocked type and mechanically held in both positions.
Main switch contacts must be high-pressure silver alloy. Each main switch position shall contain Form-C contacts for alarm reporting purposes. These contacts shall be interfaced to the radio network's alarm system for reporting transfer status.

Transfer switches shall be rated, minimally, to carry the generator's full rated output, inclusive of the 50% added capacity over calculated equipment loading.

The line and generator terminations for the automatic transfer switch shall be protected from lightning transients using a combination of MOV and varistor technologies. Alarm and instrumentation wiring from the generator entering the equipment shelter must likewise include appropriate lightning surge protection in the form of solid-state, fast-acting voltage clamp devices whose clamping voltage is closely matched to normal individual-alarm signal amplitudes.

**6.1.8.2.2 Automatic Control**
Transfer switch control shall be solid state and equipped for a high level of immunity to power line surges and transients. The device shall be tested in compliance with IEEE Standard 517-1910 (or latest revision). Controls are required to have optically isolated logic inputs and isolation transformers for AC inputs. Relays will be installed on all outputs.

Solid state under voltage sensors shall simultaneously monitor all phases of standby and commercial power sources. Adjustable Pick up and drop out voltage settings shall be provided. Voltage sensors will allow for adjustment to sense partial loss of voltage on any phase.

Solid state over voltage sensors, adjustable from 100-130% of nominal input voltage to monitor the source, along with an adjustable time delay shall be provided.

Controls shall signal the engine-generator to start upon signal from normal source sensors. A variable 0 to 5 seconds time delay start shall be provided to avoid nuisance start-ups.

The switch shall transfer when the emergency source achieves the set point voltage and frequency. A time delay shall be supplied for transfer that shall be continuously variable from 0 to 120 seconds.

The time delay shall be automatically bypassed if the emergency source fails and the normal source is available. The time delay shall be field adjustable from 0 to 25 minutes.

An unloaded engine running time delay to permit emergency generator cool-down shall be provided. The time delay shall be field-adjustable from 0 to 5 minutes.

**6.1.8.2.3 Front Panel Control Devices**

A key-operated selector switch provides the following functions:

Test - simulates commercial power loss to allow testing with or without transfer of the load.
Normal - normal operating position
Retransfer - a momentary position which provides an override of the retransfer time delay and cause immediate return to the commercial power source (if available).

**6.1.8.2.4 Automatic Exercise Timer**
Each transfer switch shall be equipped with an automatic exercise timer to start and operate the system under normal load for up to 30 minutes (adjustable) each week at a preset time. Tests under load or with no load shall be selectable.

**6.1.8.2.5 Generator Training**
Training on basic generator operation and maintenance must be included.

**6.1.9 General Equipment Building/Tower Requirements**
All building design and grounding must meet the guidelines of accepted industry standards such as R-56, NEC and TIA-222.

**6.1.9.1 Buildings**

**6.1.9.1.1 Building Design Considerations**
Equipment buildings, where necessary, shall be of a bullet-resistant, prefabricated concrete aggregate type. Buildings must be designed to be above the potential flood level of a hurricane.

They shall be designed to house radio communications and sensitive electronic equipment.

The interior wall measurements shall be of adequate size for the ultimate system development specified in this specification, plus all ancillary equipment required at each site to meet requirements of this specification plus five (5) future racks and an area for a desk and documentation storage.

Exterior dimensions shall include nominal wall, roof and skid dimensions that will be determined by the Proposers.

Equipment shelters must provide an interior dust proof, watertight, and airtight climate suitable for

the operation of sensitive electronic equipment.

Each equipment building shall be supported by a concrete pad with attachment anchored devices appropriate to withstand applicable wind loads and meet Bermuda Building Codes. The Proposer shall submit calculations, working drawings, and shop drawings of building anchorage. Drawings submitted shall be sealed by a Bermuda registered civil engineer.

The exterior wall finish shall have an aggregate finish. Seeding of aggregate for an exposed aggregate finish will not be accepted.

Exterior walls must be bullet proof resistant as defined below.
The building's roof shall be a flat, tapered type having a minimum slope of 1/2" per foot from the roof centerline. The Proposer shall address the impact resistance of the roof relative to the height of the towers.

All exterior wall, floor and roof joints must be sealed using a compressible, resilient sealant. There will be no exposed roof-to-wall or wall-to-floor joints.

Exterior concrete surfaces shall be sealed with a minimum of one coat of Thoroglaze H Sealer or equal.

The interior floor shall be covered with a commercial grade inlaid 1/1 inch thick vinyl floor covering, light in color, held in place with commercial grade glue. Self-sticking tile is not acceptable.

The minimum R-value in the floor and walls shall be R=11. The minimum R-value in the roof shall be R=19.

Interior walls and ceiling shall be a minimum one inch thick plywood covered with white fiberglass fire rated paneling.

Building openings for the door, air-conditioners, transmission line entrance and other entries shall be framed and sealed, so that moisture cannot penetrate the insulation within the walls or the interior walls of the structure.

A single insulated bulletproof steel door, equipped with a three-point latch, shall be provided. All door hardware shall be stainless steel and utilize three external hinges. Door shall open outward to maximize internal building area utilization. The term 'bulletproof" is defined, as unable to be penetrated by a .30-06 or .301 commercial cartridge firing a lead tipped, 165-grain projectile, at not more than 2100 fps muzzle velocity at a range of 100 yards The structure/material shall not be completely penetrated at that distance.

Stainless steel reinforced, fiberglass coated exterior awnings shall be provided to protect the building entrance and air-conditioner units.

All hardware used on exterior surfaces of this shelter shall be either hot-dipped galvanized or stainless steel.

Wafer or particleboard wood products will not be an acceptable construction material for this

project.

Roofs must meet Bermuda building requirements.

**6.1.9.1.2 Building Electrical Requirements**
Each building, where necessary, shall be equipped with the following:

Overhead cable trays located above all planned equipment cabinet groupings. Auxiliary cable trays shall be provided to support transmission lines and telecommunications cables, as necessary.

All cable tray joints shall be electrically bonded with a No. 6 AWG copper wire jumpers with approved compression fittings. Trays shall be bonded to interior ground halo.

A rack mounted single phase 120 volt, 30A power distribution unit (PDU) with a minimum of eight 120 volt AC, 20A electrical receptacles shall be provided to each equipment rack and cabinet. This PDU shall be mounted on the cable tray directly above the center of each planned equipment cabinet and include a Hubble Twist Lock connection. PDU's shall be connected through individual electrical circuits and to each battery charger unit. Sufficient flexible conduit shall be supplied above the rack to permit interconnection to chargers at the bottom of the rack.

DC wiring for the radio network's battery plant and interconnection to the various equipment groupings shall be furnished and installed, where required.

Two 240 volt AC electrical circuits shall be supplied for the HVAC system. Sizing of these circuits will be determined by the Proposer.

Install six quad 120 volt AC convenience outlets per the equipment placement drawing. A total of three 15-ampere circuit breakers shall be supplied (two quads per breaker).

Furnish and install a 120/240 volt AC automatic generator transfer switch and Natural Gas/LPG/Diesel generator set, per **Section 6.1.8.1**, Generator Equipment Requirements. All circuits and outlets for all equipment installed in the building shall be on the emergency power system

Proposers shall supply and install one circuit breaker panel board. Panel board shall be sized for all indicated branch circuits, equipment loads plus a fifty percent growth factor.

Proposers shall supply and install an interior and exterior electrical ground halo and power surge protection for each location, as follows:

Electrical Grounding Systems to meet industry standard, such as Motorola R-56, shall be supplied and installed by the Proposer.

A single No. 2AWG copper conductor ground halo will be installed on all four interior walls, spaced approximately six-inches below ceiling level. The halo shall have a twelve-inch gap/break at the furthest point from the single-point ground attachment.

Ground halo will be mounted on six-inch standoffs, located on twelve-inch centers. It shall be attached to the transmission line ground entry port, buss bar.

All equipment cabinets, racks, transmission line entrance and cable trays will be individually bonded to the halo using No. 6AWG copper conductors with approved compression fittings.

Interior halo shall be bonded to an exterior, buried ground network utilizing low impedance copper conductors.

Electrical lightning protector will be Polyphasor model IS-IL 240BP or equal.

A single, stranded No. 00 AWG copper exterior ground system shall be installed around the building and tower perimeter, located approximately 11" below grade and exothermically bonded to the building frame, interior halo, transmission line ladder, generator system, and radio tower legs. All grounding must meet a required 3 Ohms or less.

Install 4-foot, 2-bulb, 10-watt fluorescent light fixtures, as necessary, to provide effective illumination for each equipment rack and cabinet. Emergency exit and inter-lighting shall be installed as required by fire code.

Exterior lights above the door shall be controlled by light switches located 41" above the floor, just inside the door opening on the side away from the hinges. Exterior light fixtures shall be those of a waterproof material.

**6.1.9.1.3 HVAC Requirements**

**NOTE:** Proposers must determine if the existing HVAC systems are adequate for the new radio system.

Each building, where necessary, shall be equipped with the following:

Proposers shall supply and install a dual, wall-mounted heating and air-conditioning system appropriately sized for each shelter/equipment heat load.

Each HVAC unit shall incorporate equipment circuitry to ensure that both compressors do not attempt to restart at the same time.

There shall be timer circuits used to rotate use of the air conditioner units on a weekly basis. Additionally, sensors shall cause both air conditions to run simultaneously as needed to reduce the internal temperature to a safe operating level.

Equipment shall be supplied with compressor anti-cycle circuitry to prevent short-cycle starts against high compressor head pressure.

Equipment shall be supplied with a compressor hot gas bypass to minimize electrical power surges as a result of compressor cycling.

Design of HVAC system shall take into consideration the below environmental conditions:

- Desired Interior Temperature: 21 degrees C (70 degrees F)
- Maximum Outdoor Temperature: 50 degrees C (120 degrees F)
- Minimum Outdoor Temperature: 10 degrees C (50degrees F)

- Interior heat generation determined by the proposer's list of equipment to be included in the building plus a 25% excess cooling capacity.

Buildings shall include a thermostatically controlled fan system designed to operate in the event of a total HVAC failure and where the building's interior temperature exceeds 90°F. This system shall include appropriate dampers, screens, and filters to limit dust and insect entry into the building.

**6.1.9.1.4 Alarm Systems**

Proposers shall supply and install an over/under temperature and humidity sensor, continuously adjustable over the range of 30°F to 91°F, having independent Form-C output contacts suitable for high/ low temperature alarm activation.

Proposers shall supply and install a door entry alarm sensor, magnetic type, having a Form-C contact closure output.

Proposers shall supply and install a single-loop smoke/ fire alarm system. Smoke/fire alarm sensors shall be installed above battery charger equipment, and in vicinity of AC power distribution panel board.

- Smoke/fire alarm panel shall have visual indicators showing individual alarm sensor status.
- Smoke/fire alarm panel shall function from both 120 volts AC and 12 volts DC battery power sources.

All buildings shall be equipped with a static gas fire suppression system that is environmentally approved and not injurious to communications staff. The system shall be connected to the communications and building fire/ smoke system alarms. Trigger of the system causing a gas discharge shall cause the air conditioners to shut off automatically. All necessary plumbing and overhead dispersal equipment will be provided. The system must have modes for test and maintenance that do not trigger activation. In the event of a discharge during testing by the vendor, the MoNS shall not be responsible for replacement or refill of the system. Refill of the system primary tank, by the vendor, due to an actual event, the spare tank shall be placed in line and the discharged tank shall be refilled and returned as the spare within 24 hours by the vendor. The vendor must have a representative within the MoNS who must respond within two hours of a discharge or system failure.

**6.1.9.2 Towers**

**6.1.9.2.1 Requirements**

It is permissible to use existing towers at established sites. The additional loading placed on these towers must be described in the Proposer's submittal. The existing towers shall be analyzed and reinforced as required for the new loading conditions. Cost of the tower analysis shall be included in the base price.

Proposers shall supply a tower loading report detailing the tower analysis within 60 days of contract execution.

The basic design standard of newly or existing required steel antenna towers, wave guide bridges and supporting structures, shall be ANSI/EIA-222-G or latest version Design shall also conform

to local land development ordinances.

Any new towers proposed shall be a self-supporting structure having an overall height to be determined by the Proposer, based on the requirements of area coverage and availability of clear microwave paths for site connectivity.

Each tower shall be designed with the full complement of necessary antennas, required lights, and other nationally required equipment. Proposal must take into consideration any current antennas that must be retained by the MoNS for other communications needs

Antenna loads will be as determined by Proposer, however, the design shall include a minimum 25% growth factor.

All tower assemblies and parts shall be hot-dipped galvanized after fabrication per ASTM Standard A123. All hardware shall be galvanized per ASTM Standard A153 and B695. Other types of zinc coating or plating will not be accepted.

Rather than having a cable ladder, the MoNS prefers that all cables be mounted to tower legs to reduce tower wind load.

Towers shall be equipped with an outside climbing ladder/ cable type safety device and strobe-lighted (LED Type) in accordance with CIAA, EIA requirements.

Antennas, tower top pre-amps, and transmission lines as specified by the licensed frequencies and system design, shall be supplied and installed by the Proposer.

Electrical Grounding Systems to meet industry standard, such as Motorola R-56, shall be supplied and installed by the Proposer in accordance with the following minimum practices:

- Install a sub-surface ground ring around the base of the tower, consisting of ground rods driven to a depth essential to meet the required resistance measurement of the specifications, adjacent to the foundation of each tower leg. Ground rods are to be interconnected by a minimum #00AWG solid copper wire that is Cadwelded to each top most ground rod. Copper wire and ground rods must be installed in a trench of a minimum depth of 11-inches below finished grade. Maximum spacing between rods must be 15-feet. Each tower leg shall be bonded to the ground ring by #00 stranded copper wire that has been Cadwelded to the factory provided tab, manufactured onto the tower leg and to the closest ground rod, avoiding any acute bends in the wire. All paint shall be detached from the tab on the tower leg (if painted) at the point where the ground connection is made. At the completion of the Cadwelding process, the welded area will be resealed with a cold galvanizing compound and repainted if originally painted.
- The ground rod/ring system shall extend around the perimeter of the equipment building, transmission line copper entrance port into the building, and to the perimeter fence.
- Fencing shall be grounded to the ground ring via #2AWG solid copper wires, bonded, utilizing Cadweld fittings at each fence post. All Cadwelding locations shall be cold galvanized as above.
- Antenna mounts shall be grounded to the tower structure. A copper ground rod shall be mounted to the top most area of the tower that will be the highest point on the structure. A #00AWG stranded copper wire shall run down the tower leg closest to the building

entrance port and all to ground connections of antenna cables and fixtures on the tower shall be made to this copper wire. This shall terminate at the copper ground rod at that closest leg foundation and be fully bonded to the ground ring.

- A ground test well shall be supplied at a minimum of two points along the ground ring. The test wells must consist of 4"x 2' PVC pipe, with a screw type cap installed. The test well shall allow measurement of ground system resistance at the opposite corners of the tower.
- Grounding system resistance shall be 3-ohms or less between any point on the ground system and earth ground.

**6.1.9.2.2 Ground Resistance Test**

All existing towers being utilized for the new radio system must be tested for effective ground resistance. Vendor will supply a report to MoNS describing existing tower conditions.

**6.1.9.2.3 Required Tower Submittals**

Proposers shall provide wind-load stress and foundation calculations used in the design of the proposed tower structure.

Proposers shall submit documentation approved by a Bermuda registered professional civil engineer, certifying that the proposed tower and foundation meets the requirements of ANSI/EIA-222G or latest version and is in accordance with these specifications.

At their own expense, proposers shall, prior to the proposal submission, make investigations on site conditions, as necessary, for the successful and accurate completion of their proposal submittal. The MoNS shall permit site inspection access during normal business hours with an escort from the MoNS.

Proposers shall provide documentation as to any special condition or restriction applied to the use of materials, products, or equipment contained in their proposal. Proposers shall provide to the MoNS a minimum of two sets of completed as-builts on each tower and building installed in this project within 45 days of acceptance of the system. This shall include engineering and design documentation from the tower and building manufacturer.

Proposers shall provide written certification that all installed tower components have been assembled and hot-dipped galvanized in accordance with these minimum requirements.

Proposers shall furnish a detailed report of electrical ground resistance measurements of the completed, as-installed, electrical grounding system, on a per-site basis with field drawings to indicate the measurement at a specific location.

**6.1.10 Site Work Requirements (if required)**

**6.1.10.1 Submittals**

For each site, Proposers shall submit sketches with the proposal indicating the following:

- Fenced area
- Parking and turnaround area for new sites.
- Location of building, tower and emergency power.
- Access road.

**6.1.10.2 Tower Site Access Road**
A 10-foot wide gravel access road shall be provided by the Proposer to the fence gate at new sites.

**6.1.10.3 Parking Areas**
Proposers shall provide, outside each new fenced site, adequate space for parking and turnaround for two pick-up trucks. The area shall be cleared, sterilised, and covered with 6 inches of graded aggregate base course, compacted by roller.

**6.1.10.4 Site Preparation and Sub-grading**

**6.1.10.4.1 General**
Site clearing, initial earthwork, and rough/final grading as needed for installation of towers and equipment buildings are the responsibility of the Proposer. Site work will require meeting existing local building code standards and construction best practices.

**6.1.10.4.2 Drainage**
Drainage ditches and culverts shall be provided where required to adequately maintain drainage around new sites or additions to sites and new roadways. Drainage ditches shall conform to all ~~federal, state, and~~ local design requirements.

**6.1.10.4.3 Fences, Gates (Chain-Link Security Type), and Screening**
Proposers shall provide standard chain-link fencing, gates, screening, signage, and all accessories around buildings and tower at all new sites.

- Fencing shall be eight (1) feet high with three strands of barbed wire on top extending outward.
- Fencing and screening shall comply with all local design requirements.
- All applicable governmental regulatory signs shall be provided and posted at all new and existing sites.
- All fencing at any site must be exothermically bonded to the site's electrical grounding system. All major posts, gates and fabric must be integrated into this bonding scheme.
- All locations of exothermic bonding must be properly treated by recoating with a compatible and similar coating to prevent corrosion.

**6.1.10.5 Submittals for existing sites**
Proposers must include drawings for all existing sites showing any exterior or interior modifications. Interior drawings must reflect current layouts along with overlaid additional equipment.

**6.1.11 Installation Guidelines**

**6.1.11.1 Engineering Drawings**
Proposers shall provide detailed engineering drawings <u>prior to installation</u> of each major portion of the system as follows:

- Transmitter Site(s)
- Receiver Site(s)
- Site Antenna System(s)
- Receiver Voter Equipment
- System Controller Equipment

- Dispatcher Console Equipment
- Microwave Equipment Terminal(s)

Drawings shall, as a minimum, detail:

- Relative cabinet/rack locations
- Equipment power wiring (primary and emergency)
- Equipment interconnection wiring (signal and control)
- RF component interconnection details i.e. transmitter, combiner, antenna, TTA, etc.
- Appropriate signal/voltage levels facilitating alignment of level-sensitive components.

Civil drawings showing detailed locations of equipment to be placed in existing or new facilities shall be provided by the Proposer.

Proposers shall furnish a comprehensive test record of alignment levels, settings, and software versions installed within both infrastructure and user equipment. The scope and detail of the comprehensive equipment test and acceptance plan will be completed prior to contract execution with the successful Proposer. Prior to commencement of acceptance testing procedures, the proposer shall ensure all installed equipment has been supplied with the latest software releases available for those equipment items/groupings.

Proposers shall supply true copies of Final Project Record Documents which will include the Engineering Drawings, software releases and alignment details listed above, but amended to show system and equipment "as built" at the time of acceptance by the MoNS. The total number of document sets to be provided shall include one site-specific set for each infrastructure site and three comprehensive network sets for department use.

Final Project Record Documents must be submitted to the MoNS's Project Manager within 45 days after system acceptance testing has been successfully concluded. Final payment for contracted services shall not be released by the MoNS until this documentation submittal has been successfully completed by the Proposer and reviewed and approved by the MoNS Project Manager.

**6.1.11.2 Workmanship**

All workmanship will be of the highest standard, in accordance with Industry-accepted practices. Bermuda follows the Interntional Building Code. Work areas must be maintained in a neat, orderly fashion. Work sites shall include Proposer-provided trash containers and residue of the work shall be discarded, as the work is underway.

The installation of audio, signal and control cables within equipment cabinets, enclosures, racks and cable trays shall be properly routed such that wires/cables do not cross over each within cable bundles. Cables shall be properly labeled, routed and secured. To the maximum extent possible, cables carrying AC power, low-level audio, RF and digital signals shall be grouped separately.

All DC wiring, particularly those areas where battery terminals and power distribution bus bars are situated, must incorporate insulation barriers to prevent the accidental short-circuiting of otherwise exposed conductors.

The MoNS's Project Manager shall have the ability to temporarily stop work progress by the Proposer if workmanship falls below acceptable levels. Manager will have the authority to require

the Proposer to remove and/or correct all observed instances of poor wiring practice, inappropriate use of installation materials, and other obvious installation defects as a result of apparent poor workmanship. Approval to resume installation work activities shall be provided to the Proposer once agreement is reached in resolving observed workmanship defects.

The determination of Proposer's workmanship acceptability, as well as the suitability of any proposed rework plans offered by the Proposer, shall remain with the MoNS's Project Manager.

### 6.1.12 Phasing/Implementation Schedule

#### 6.1.12.1 Phasing of New System

Proposers must arrange and submit a comprehensive migration plan that prevents disruption of communications on the existing trunked radio system and provide a smooth transition to the new digital voice radio system:

- Proposers shall supply a detailed project schedule that shows the sequence of events for the installation of the new system showing any effect the different stages of installation may have on existing systems. Any relocation or modification to existing equipment shall be predetermined and will require prior written approval obtained from the MoNS's Project Manager.
- Proposers shall provide a project completion time period (in days), based on the MoNS's execution of a Notice to Proceed. Proposers must provide a schematic representation of the implementation process as well as a hypothetical migration plan.
- These required submittals will be used by the MoNS to evaluate the Proposer's ability and understanding of specification requirements to perform this work in a method that offers no disruption to ongoing public safety communications operations.
- Proposers shall provide a time schedule for system managers, dispatchers, and user personnel training. Proposers shall supply time schedules for the orderly transfer of departments onto the new system and estimated time period when the transfer could be completed.

Proposers shall direct the orderly transfer of services to the new system only after having successfully concluded equipment alignment and installation procedures, successful completion of the system acceptance test and completion of manager, dispatcher, and user training programs.

Proposers must not dismantle or change the existing radio systems without prior written approval of the MoNS's Project Manager. Some portion of the existing system may remain operational after acceptance of the new system. The MoNS Project Manager will notify the Proposer when elements of the old analog infrastructure equipment may be reallocated to meet interoperability requirements or otherwise can be decommissioned.

Proposers shall assist the MoNS Project Manager and all user groups in preparing user talkgroup fleet mapping, initial priority levels, and shall complete the necessary user equipment installation, programming, and record keeping, as required. This activity shall be completed prior to service cutover.

Prior to contract execution, the successful Proposer shall commence negotiations with MoNS's Project Manager to develop a comprehensive test and acceptance plan that addresses, minimally, the following major functionality and operability issues:

A. Transmitter Equipment

- Provide RF power stage measurements at different levels of the transmitter system such as transmitter, combiner, cable, antenna, etc.
- Test R.F. components for specified insertion loss.
- Test for proper frequency, modulation, digital signaling, and stability.
- Coverage testing and report of DAQ and signal margins throughout proposed service area, in all required configurations (portable in-vehicle, portable on-street, portable in-buildings, Mobile on-street, etc)

B. Receiver Equipment

- Test of compliance to specifications of equipment provided.
- Provide log of signal gain or loss to equipment within the receiver system such as antenna, cable, preamp, splitter, and receiver antenna port.
- Test of audio quality and level (reciprocal of that necessary for the transmit path) of system balance.

C. Console Audio/ System Controllers

- Test of compliance to manufacturer's published specifications of provided equipment.
- Test of audio level and quality.
- Verification of system failure modes in response to forced failures of individual communications/control lines, sub-systems, and complete site failures. A complete written explanation is required.

D. Dispatch Centers

- Testing of operational features per dispatch position.
- Test system operation during simulated failures of system components i.e. console electronics, sites, power loss, etc.

E. Subscriber Equipment

- Vendors must provide samples of each subscriber model being proposed for the system. Each will be tested for the following;

    1. Validate compliance with vendor specifications for transmitter, receiver, and control circuitry
    2. Check for compliance with RFP specifications and originally proposed functionality
    3. Validate proper user profile programming of equipment and operation on the system
    4. Testing of supportive accessory equipment, i.e., speaker/microphone, DTMF signaling, chargers, batteries etc.

- Proposers shall supply all test equipment, diagnostic services, documentation, software, personnel, vehicles, and other items necessary to test the delivered and installed radio system in accordance with the contracted test and acceptance plan, including operational features, to complete a total system functional test.

- Proposers must disclose test procedures and equipment that will be used to verify radio system coverage as specified in **Section 6.1.6**.

- Proposers shall present within their proposal submittal a sample test and acceptance plan that is representative of the scope and complexity of the proposed radio system. This plan must address all items described in **Section 6.1.12.1 A to E**.

**6.1.12.2 Parallel Implementation**

The new system shall be installed in a parallel implementation. This requires infrastructure equipment to be fully installed and operationally ready before the existing voice system can be decommissioned. The current system is the MoNS's only public safety voice communications trunked system, thus requiring 24/7/365 operation. No interruptions in service of any duration shall be allowed without prior written approval of the MoNS Project Manager. Therefore, fully duplicated voice radio systems may coexist for some period of time. This period of time of parallel installation shall be used to perform operational and functionality testing of the entire system, dispatch consoles, mobiles, portables, control stations, system connections, features, interoperability, high capacity receiver-voting, system management applications, and simulcast transmitter operations. After the new system has been fully tested on a subset of radio channels and later accepted, the Proposer must remove all existing system equipment, inclusive of any surplus antenna system components and equipment, as directed by the MoNS.

Proposers shall be responsible for developing the plan to accommodate both existing and proposed systems during the parallel and transitional periods of installation and implementation.

Proposers will be responsible for provisions and cost of warehousing, insurance, storage, and security of radio system infrastructure and user equipment prior to and during the construction and installation phases of the project.

Proposer furnished engineering drawings are subject to MoNS approval prior to the installation of any portion of the system as specified in **Section 6.1.11.1**.

Proposers must furnish comprehensive training on user operation of portable and mobile radios, control stations, dispatcher consoles, and other user equipment as required by the contract. Proposers must also furnish comprehensive training for system diagnostics, management systems, preventative and routine maintenance and system operation for System Managers. The new system must comply with all technical parameters specified in the approved Testing and Acceptance plan.

Proposers shall be responsible for any site modifications required to accommodate infrastructure equipment proposed for location in the MoNS-owned as well as in non-MoNS-owned properties.

All radio frequency coordination, license application preparation, technical support, and engineering activities/fees associated with the modification of existing radio licenses and/or the acquisition of additional licenses required to facilitate the operation of the proposed digital radio system shall be the responsibility of the Proposer.

Any modification or relocation of existing equipment will require prior written approval by the MoNS's Project Manager. The Proposer shall supply "as built" drawings and complete written documentation of modifications or relocations to existing systems to facilitate maintenance of this MoNS-owned equipment in the future.

**6.1.13 Warranty, Spare Parts, and Maintenance Guidelines**

### 6.1.13.1 Warranty

#### 6.1.13.1.1 Warranty of System Performance

Proposer acknowledges that it has carefully reviewed the functional requirements and warrants that the digital radio system proposed in its response to the RFP shall function according to equipment specifications, industry standards, and the minimum operative characteristics specified in **Sections 6.1.1, 6.1.2**, and **6.1.3** of this RFP for a period of 12 months, after the date of system acceptance.

Proposer shall further be responsible for providing radio system coverage as defined in **Section 6.1.6**. All costs and expenses incurred in order to fulfill the functional, operational, and technical requirements of this RFP shall be the responsibility of the Proposer.

#### 6.1.13.1.2 Equipment Warranty

Proposers shall warrant all supplied system equipment furnished as part of the contract and associated radio infrastructure, subscriber, and related user equipment and software for a period of 12 months, after the date of system acceptance. There shall be no disclaimer of implied warranties. Warranty shall commence at the time of final acceptance and shall provide all labor and parts for maintenance and repair, including preventive maintenance, of the system and equipment provided. Proposers shall be responsible for all costs associated with the 12-month warranty. The MoNS requests that the Proposer provide an optional cost proposal for a long-term (minimum 5 years) maintenance agreement for all system materials and functionality. The MoNS may choose to accept or deny this additional cost maintenance agreement.

The following conditions shall additionally apply:

- Proposers will have qualified technicians available on-site, in response to a reported major service outage, within 30 minutes, 24/7/365. Proposers will have qualified technicians available on-site, in response to a reported minor service outage, within four hours during normal working hours (1AM to 5PM Monday through Friday)
- Response default penalties: In the event of default on the response time on reported major service outages, Proposers agrees to pay the MoNS the following response penalties. Proposers shall pay a $500 penalty for each occasion where its fails to meet the response time obligation. Proposers shall pay a $1,000 penalty per twenty-four hour period in which defective infrastructure site equipment is not restored to operational status.
- Should any specific equipment item (such as a specific mobile radio, repeater station, microwave link, station circuit board, power amplifier, etc.) fail three times during the warranty period, Proposers will replace that equipment item and warranty the replacement for one additional year from the time of replacement.
- Proposers must provide, as part of infrastructure pricing, a list of quantities and costs for recommended spares for major system components
- Proposers shall guarantee the radio system's operating software, including user equipment software, for a one-year period following system final acceptance.
- Proposers will provide software updates, at no additional cost, for the entire period under which the MoNS has committed for Proposer-provided after warranty maintenance services.

### 6.1.13.2 Spare Parts

Adequate spare parts shall be kept on site for the entire warranty period.

Replacement parts shall be of new or current manufacture and meet or exceed the specifications of the original provided equipment.

Proposers shall maintain an initial supply of spare parts required to maintain all components of the system's infrastructure for a one-year period. Proposers will provide spare parts, at no additional cost, for the entire period under which the MoNS has committed for Proposer-provided after warranty maintenance services.

As spare parts are used in the course of routine or repair maintenance, Proposers shall replenish its stock of locally housed spare parts. Spare parts may be subject to audit.

Vendor must provide at least one spare console monitor.

**6.1.13.3 Parts Availability**

Proposers shall provide written guarantee in the contract that all system components and repair parts (or comparable and compatible replacement) shall be available for at least ten (10) years from the date of system acceptance. Replacement end user equipment (i.e. portables, mobile, etc.) repair parts (or comparable and compatible replacement) shall be available for at least seven (7) years from the date of system acceptance.

Proposers shall provide full written disclosure of the end-of-life status of each major equipment grouping and associated parts proposed in response to this RFP. That is, end-of-production dates should be supplied, at a minimum, for base stations, microwave radios, system controllers, power supplies, dispatch consoles, audio switches, simulcast optimization subsystems and all models of user equipment. It is the intent, to the maximum extent possible; to avoid the purchase of any system and subscriber equipment that is nearing (within 36 months) the end of its production cycle.

**6.1.13.4 Maintenance**

Proposers shall be responsible for the following during the initial 12-month warranty period:

- Preventive Maintenance (PM) visit of infrastructure and end-user equipment.
- Repair and maintenance of infrastructure equipment, including antenna systems.
- Repair and maintenance of subscriber and related user equipment

Maintenance during the warranty period will be monitored by a representative of MoNS.

Proposers shall provide weekly service logs listing the site(s) where service is performed, the equipment involved, and service details. These logs must, at a minimum, include unit identification (description and serial number), explanation and cause of failure and corrective action taken.

Proposers shall provide a single 24/7/365 contact point responsible for Proposer maintenance issues.

Proposers must include in their proposal a detailed Disaster Recovery Plan, stating the processes used to assist clients in the immediate aftermath of events such as tornadoes, floods, hurricanes, and acts of terrorism. Proposers must provide information detailing processes for maintaining adequate spare parts stocking levels to support extraordinary needs; their ability to furnish emergency quantities of portable radios, chargers, battery packs, and the ability to furnish transportable emergency trunked radio systems; and their ability to provide skilled technical

resources. Proposers must supply summaries, that include client references, of Disaster Recovery Support provided in response to at least two recent disaster events (i.e., events must have occurred within the past four years).

**6.1.14 Radio Programming Requirements**

Proposers shall assist the MoNS with development of user identification and talkgroup assignments.

Proposers shall program all portables, mobiles, control stations, network, consoles, and infrastructure equipment supplied by the Proposer to operate on the properly licensed operating frequencies and the talk paths necessary.

Proposers shall furnish the MoNS "as programmed" documents for each radio type (infrastructure & subscriber) placed on the system.

Proposers shall provide two sets of radio and equipment programming software and all other support equipment and special cables necessary to program each type of equipment supplied by the Proposer.

**6.1.15 TRAINING**

Proposers shall provide all user, dispatcher, technician and system management training.

User and dispatcher training shall be done on-site by the proposer's personnel. Dispatcher training shall be more extensive and will involve all designated full and part time dispatchers employed by the MoNS at the time of system operational testing.

Proposers shall provide comprehensive training to the department's management and technical staff in the proper system management skills needed to quickly adjust system parameters (i.e. talkgroup creation, channel steering, etc.) to optimise performance and to diagnose equipment malfunctions as well as microwave backhaul operational problems. Proposers shall provide operational and full maintenance training for personnel, either on site or at remote factory locations. This level of training will be equivalent to the level of service training required by the Proposer for its proposed maintenance providers. Additionally, Proposers shall train MoNS Facility Maintenance personnel in those aspects of operation and maintenance of backup power and generator systems. Proposers shall be responsible for all direct or indirect costs of user, dispatcher, and manager level training, such as meeting rooms, travel, lodging and transportation for on site and remote factory locations as necessary for MoNS and proposer's personnel.

Proposers agree that MoNS representatives shall be permitted to observe user equipment installation, system implementation, and all optimisation/testing phases.

Proposers shall provide a detailed list of required training and number of anticipated visits and coordinate all training sessions with the MoNS Project Manager. All training must be approved in writing by the MoNS.

Users, dispatchers, and system manager follow-up training will be provided and scheduled no more than ninety (90) days after system acceptance for the purpose of training reinforcement

### 6.2 Broadband Communication Network

Broadband technology brings versatility and efficiency to public safety communications. For example, The United States is currently implementing a nationwide broadband network dedicated to public safety called FirstNet. Proposers must describe how they would migrate the system being proposed into a broadband network and provide estimated costs and time lines.

Proposers must also include, as an option to the proposed radio system, an interim solution that could incorporate the proposed radio system into the existing cellular network as an interim partial broadband component to be added to the proposed radio system. Pricing must be included for this option to the proposed radio system.

### 6.3 Exceptions to Functional Response

Any exceptions, deviations, substitutions, etc. between the MoNS specifications and the proposal must be adequately explained. **Exhibit C must be submitted with the RFP response**. Each item of the checklist must be checked as "Read and Agreed," "Variation or Alternative" or "Exception". For each item listed as "Variation or Alternative" or "Exception" the proposer must provide an explanation. The reason(s) for the exception, deviation, or substitution are an integral part of this proposal. Describe any alternative functionality that may suffice. List each exception by the referenced requirement number(s).

### 6.4 Pricing

#### 6.4.1 Proposal Pricing Summary Sheets (ATTACHMENT B)

Proposers must provide detailed price breakdown submittals for infrastructure and subscriber equipment items, system integration/project management, training, maintenance, interfaces and installation/engineering services. In the event of any price discrepancies, the lowest RFP unit cost will prevail. Any errors or omissions in submitting pricing for the equipment or services shall be the responsibility of the Proposer.

As this is a turnkey system, any pricing omission of a scope that is normally considered part of a trunked radio system will be provided for by the Proposer at no additional cost to the MoNS.

Subscriber equipment (mobiles, portables, control stations and accessories) is included in this RFP. Some or all user subscriber equipment purchases and quantities ordered may be delayed or not ordered depending on the MoNS's financing options and capabilities. Pricing of this equipment for both initial and future purchases will be considered in determining the most advantageous price. The MoNS shall enjoy any benefits from future proposer pricing discounts not identified in their proposal.

This procurement is structured for the purchase of both infrastructure and future user equipment from a turnkey provider. Therefore, proposals for subscriber equipment only will not be accepted.

#### 6.4.2 Site Modification Costs

##### 6.4.2.1 MoNS-Owned Sites

For equipment to be installed at MoNS-owned sites which have requirements for site preparatory work involving architectural, mechanical, electrical, civil or structural construction modifications, a description and cost of the modifications necessary must be provided by the Proposer for each individual named site.

**6.4.2.2 Third Party Owned Sites**
For equipment installed at rental sites that have requirements for site work involving architectural, mechanical, electrical, civil or structural modifications in order to meet the functional requirements stated herein, the Proposer will be responsible for all work. It is the Proposer's responsibility to insure that the selected site can be modified for the equipment selected to occupy that site.

Proposers shall also provide the annual operating costs of any proposed rental site, including space rental, antenna placement rental, and utilities costs. Proposers shall also provide a letter from the rental site owner that confirms the availability of the necessary space to accommodate the proposed facilities and that such space has been reserved for the full duration of the proposal evaluation and contract award period.

**6.4.3 Maintenance Costs**
The MoNS plans to use outside contract labor for maintaining its infrastructure equipment on government owned towers. An annual maintenance cost for each infrastructure-related site, to become effective after expiration of the initial warranty period, shall be provided. Total site maintenance costs are to be subdivided by the individual major components groupings that reside at each site. All site infrastructure maintenance costs must be totaled. Additionally, Proposers are required to provide maintenance cost escalation percentages through the fifteenth year of system ownership and to indicate their method for determining the percentage cost escalation.

**6.4.4 Future Purchase Considerations**
It is the intent of the MoNS to operate this new radio communications system for, minimally, the next fifteen years. It is important that the MoNS receive reasonable safeguards in regards to future pricing.

**6.4.4.1 Immediate Future Discounts**
The MoNS requires guaranteed fixed pricing, at the beneficial initial contract costs, of all equipment, components, materials, software and service agreements for a minimum of 5 years.

For all purchases within five (5) years after the system acceptance date, the discount percentage received by the MoNS shall be identical to the discount percentages derived from list-price unit equipment and proposed unit costs. Proposers will define the discount structure for radio infrastructure, subscriber equipment, Proposer-provided technical services as well as markup percentages used for outside subcontractor services. The list unit price for equipment shall be determined by the manufacturer's published equipment list price, as provided to their authorised sales agents, at the time of actual purchase.

The MoNS shall also enjoy any benefits from future proposer pricing percentage discounts that are lower than identified in their proposal.

**6.4.5 Subscriber Equipment Pricing**
The MoNS envisions several tiers of portable and mobile radio units for use by the various public safety and non-public safety agencies. Proposers shall develop cost proposals for replacement low, mid and high-tier radio products using the following general base format and the requirements of this specification:

<u>High-Tier Portable</u>

1. At least 255 modes/talk groups/channels
2. 700/800MHz operation (if 800 MHz is proposed)
3. Multi-line alpha-numeric LCD text display
4. Radio/ System status icons
5. 9-button keypad
6. Private/Individual Call
7. Emergency Button
8. Programmable option buttons
9. Talk group scan
10. System Scan
11. Flex antenna
12. AC Charger

Mid-Tier Portable

1. At least 255 modes/talk groups/channels
2. 700/800MHz operation (if 800 MHz is proposed)
3. Multi-line alpha-numeric LCD text display
4. Radio/ System status icons
5. 3-button keypad
6. Private/Individual Call
7. Emergency Button
8. Programmable option buttons
9. Talk group scan
10. System Scan
11. Flex antenna
12. AC Charger

Low-Tier Portable

1. At least 121 modes/talk groups/channels
2. 700/800MHz operation (if 800 MHz is proposed)
3. Single-line alpha-numeric LCD text display
4. Radio/ System status icons
5. Private/Individual Call (receive)
6. Emergency Button
7. Flex antenna
8. AC Charger

High Tier Mobile Radio

1. At least 255 modes/talk groups/channels
2. 700/100MHz operation (if 800 MHz is proposed)
3. Dash mount and remote mount configurations
4. Multi-line alpha-numeric LCD text display (minimum 12 characters)
5. Radio/System status icons
6. 9-button keypad
7. Private/Individual Call

8. Emergency Button
9. Programmable option buttons
10. Talk group scan
11. System Scan
12. Palm Mic
13. Installation

Low Tier Mobile Radio

1. At least 121 modes/talk groups/channels
2. 700/800MHz operation (if 800 MHz is proposed)
3. Dash mount and remote mount configurations
4. Multi-line alpha-numeric LCD text display (minimum 12 characters)
5. Radio/System status icons
6. Private/Individual Call
7 Emergency Button
8. Talk group scan
9. System Scan
10. Palm Mic
11. Installation

### 6.5 Legal Agreements

Please provide any warranty, license agreements, boilerplate contract, support agreements, etc. that you propose be used to form the contract with the MoNS.

The RFP's requirements shall be included in the final contract and provisions inconsistent with this RFP shall not be included.

Payment schedule shall be determined in the final contract.

The MoNS will withhold from payments due to Proposer ten percent (10%) until acceptance of system by the MoNS and final payment.

Dispute resolution provisions may be required.

## ATTACHMENT B

## COST PROPOSAL FORMATS

A separate cost proposal must be submitted detailing all costs that the MoNS will incur for the vendor's Proposal. Costs shall be submitted according to the formats shown on the following "Cost Sheets" to facilitate analysis.

The proposer must respond to this RFP with a detailed cost proposal following the format required in the following pages.

Separate cost sheets shall be submitted showing the FACILITIES and RADIO SYSTEM costs for each site/location included in each Proposal.

Facilities costs must include all costs broken down to all specific identifiable functions and major components (i.e. shelter, generator, electrical, grounding, and trenching, etc.)

Separate cost sheets shall be submitted for each proposed system.

Shipping and delivery costs and import duties are to be included in the system price.

Cost information shall be detailed as to item number, quantity, model number, description, unit cost and total cost. Each major assembly shall indicate the assembly's cost followed by a list of the sub-assemblies included.

All optional item costs and alternative item costs shall be clearly identified in this cost proposal.

All costs of installation, programming, program management, training, documentation, etc. shall be indicated as separate items and clearly identified.

Installation costs of user equipment must be broken down by model. If costs vary due to location or type of vehicle this must be clearly indicated. Costs of all installation hardware must be clearly identified as to item, description, unit cost and total cost.

***All cost sheets for each proposal must be submitted in a sealed envelope clearly identified with the proposer's name and the proposal to which it belongs.***

**IT IS ASSUMED BY THE GOVERNMENT OF BERMUDA THAT ALL COSTS FOR A TURNKEY RADIO COMMUNICATION SYSTEM ARE SHOWN IN THE PROPOSAL. ANY ITEM OF HARDWARE OR SOFTWARE WHICH IS NECESSARY FOR THE COMPLETION OF THE RADIO SYSTEM IS ASSUMED TO BE PROVIDED AT NO ADDITIONAL COST IF THE COST IS NOT SEPARATELY IDENTIFIED IN THE COST PROPOSAL.**

**IN ADDITION TO THE FOLLOWING COST PROPOSAL SHEETS THE PROPOSER MUST ENCLOSE A SOFTWARE COPY OF THE COST PROPOSALS IN EXCEL FORMAT (VERSION 2007 OR LATER)**

## PROPOSAL COST DETAIL

## RF SITE FACILITIES & RADIO SYSTEM

## (DUPLICATE FOR EACH SITE)

SITE NAME: _____

Existing:_____ New:_____ (Check One)

### FACILITIES

Provide an itemised listing including labor, parts, materials, and any other costs applicable to accomplish each of the work elements involved to establish, expand, or otherwise modify facilities (buildings, generators, HVAC, towers, utilities, grounding, etc.) at this location.

| | |
|---|---|
| Tower cost (includes all tower related items) | $ |
| Building cost (includes all contents) | $ |
| Grounding cost | $ |
| Other costs as itemized in listing | $ |

| | |
|---|---|
| Installation and Labor cost | $ |

| | |
|---|---|
| **Total Facilities Site Cost (A)** | $ |

### RADIO SYSTEM

Provide an itemised listing including descriptions, quantities, unit costs, extended costs, and total costs of all equipment, materials, supplies, and installation work related to this location.

| | |
|---|---|
| Fixed System site equipment cost | $ |
| Other costs as itemized in listing | $ |

| | |
|---|---|
| Equipment Site installation and labor cost | $ |

| | |
|---|---|
| **Total Radio System Site Cost (B)** | $ |

| | |
|---|---|
| **Total Site Cost (A+B) (less networking)** | **$** |

**Networking Options**

| | |
|---|---|
| Microwave Link | $ |
| Existing E-1 Link | $ |
| Alternative link | $ |

## PROPOSAL COST DETAIL

## CONTROL POINT (SYSTEM CONTROLLER) FACILITIES

## (DUPLICATE FOR EACH CONTROL POINT)

SITE NAME: _____

Existing:_____ New:_____ (Check One)

Provide an itemizsed listing including labor, parts, materials, and any other costs applicable to accomplish each of the work elements involved to provide the system control aspects of the project at this location.

| | |
|---|---|
| Trunking System Controller | $ |
| ISSI Interface to legacy radio networks | $ |
| System status monitor sub-system | $ |
| Base Station Alarm and Monitoring Equipment | $ |
| System control terminals | $ |
| UPS/Standby power | $ |
| System management tools if not integrated into controllers | $ |
| Other (list) | $ |
| Installation | $ |

| | |
|---|---|
| **Total Site Cost (less networking)** | **$** |

**Options**

| | |
|---|---|
| Redundant System Controller | $ |
| Controller installation and labor cost | $ |

**Networking Options**

| | |
|---|---|
| Microwave Link | $ |
| Alternative link | $ |

## PROPOSAL COST DETAIL

## DISPATCH RELATED EQUIPMENT

| Item | Quantity | Unit cost | Extended Cost |
|---|---|---|---|
| Dispatch Console | | | |
| Console Control System | | | |
| Power Systems (UPS, etc.) | | | |
| System Monitoring consoles | | | |
| Logging Recorder | | | |
| Installation | | | |
| Miscellaneous (add items as required for complete system) | | | |
| | **Total Dispatch related costs** | | $ |

**Networking Options**

| | |
|---|---|
| Microwave Link | $ |
| Alternative link | $ |

## BACKUP (PORTABLE) CONSOLE EQUIPMENT

| Item | Quantity | Unit cost | Extended Cost |
|---|---|---|---|
| Console | | | |
| Installation | | | |
| Miscellaneous (add items as required for complete system) | | | |
| | **Total Dispatch related costs** | | $ |

## PROPOSAL COST DETAIL

## PORTABLE, MOBILE AND DESKTOP RADIO EQUIPMENT STANDARD RADIO PACKAGE AS DESCRIBED

| Type | Model Name Or Number | Unit Price |
|---|---|---|
| **Portable (PS)** | | |
| High Tier | | |
| Mid Tier | | |
| Low Tier | | |
| **Portable (Gen Gov)** | | |
| High Tier | | |
| Mid Tier | | |
| Low Tier | | |
| | | |
| **Mobile** | | |
| High Tier | | |
| Mid Tier | | |
| Low Tier | | |
| | | |
| **Desktop Fixed** | | |
| High Tier | | |
| Low Tier | | |

## PROPOSAL COST DETAIL

## CELLULAR CONNECTIVITY

| MAJOR COMPONENT | Quantity | Unit cost | Extended Cost |
|---|---|---|---|
| (List all major components of the cellular link option | | | |
| Installation | | | |
| Miscellaneous (add items as required for complete system) | | | |
| | **Total cellular related costs** | | $ |

## IN - BUILDING AMPLIFIER SYSTEM OPTION

| MAJOR COMPONENT | Quantity | Unit cost | Extended Cost |
|---|---|---|---|
| Bi-directional amplifer | TBD | | |
| Installation **(ESTIMATE)** | | | |
| Miscellaneous (add items as required for complete system) | | | |
| | **Estimated BDA System** | | $ |

## PORTABLE REPEATER SYSTEM FOR ON-SITE USE

| MAJOR COMPONENT | Quantity | Unit cost | Extended Cost |
|---|---|---|---|
| Portable repeater | 1 | | |
| Local repeater antenna | 1 | | |
| Miscellaneous (add items as required for complete system) | | | |
| | **Portable repeater System** | | $ |

## SUBSCRIBER UNIT OPTION COSTS

These costs are for additional available items beyond the per unit cost of option items purchased with subscriber units as described in the RFP

| **Option Description** | **Per unit cost** |
|---|---|
| DES/AES Voice Encryption | |
| Intrinsically Safe | |
| Integrated voice/data capability | |
| Over-the-Air Programming | |
| Private Call capability | |
| Text | |
| GPS | |
| Leather Carrying Case | |
| Belt Clip | |
| Spare Battery | |
| Shoulder Mic without Antenna | |
| Shoulder Mic with Antenna | |
| Covert Microphones | |
| 12 volt vehicular chargers | |
| AC Gang Charger (6 unit) | |
| AC single unit charger | |
| Programming | |
| Vehicular repeater | |
| Converta-com | |
| Wireless microphone | |
| Misc (Define in Detail) | |

(Add pages as required)

## PROPOSAL COST DETAIL
## INSTALLATION AND PROGRAMMING

List the installation costs of all mobiles, desktop radios and remotes. Identify the individual types of radios, quantities, unit costs and extended costs for all items. Installation costs include programming, remote wiring, etc. where necessary.

| Radio / vehicle Type | Installation Description | Unit Cost | Extended Cost |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Add lines if necessary to completely describe installation/programming costs

| Total Installation Cost | $ |
|---|---|

## PROPOSAL COST DETAIL
## TRAINING

| Type of Training | Included? | | | | Cost |
|---|---|---|---|---|---|
| User Training | Yes | | No | | |
| Dispatcher Training | Yes | | No | | |
| System Management Training | Yes | | No | | |
| Maintenance training | Yes | | No | | |
| **Total Cost of Training** | | | **$** | | |

**NOTE:** If training is not broken down by type, check appropriate boxes and enter total amount.

## PROPOSAL COST DETAIL - MAINTENANCE CONTRACT

Proposer may breakdown maintenance costs as appropriate. As a minimum, the following items should be defined.

| Description | Years 2-5 | Years 6-10 | Years 11-15 |
|---|---|---|---|
| RF Infrastructure | | | |
| System Control | | | |
| Dispatch Consoles | | | |
| Subscriber Units-mobile | | | |
| Subscriber Units-portable | | | |
| Subscriber Units-base | | | |

**Purchase Price Discount**

For years six (6) through fifteen (15) after the system acceptance date, the MoNS's discount from the manufacturer's published equipment list price, as provided to their authorised sales agents, will be as follows:

| Item | Discount Percentage | |
|---|---|---|
| | Years 6-10 | Years 11-15 |
| Fixed Site Equipment | | |
| Microwave Related Equipment | | |
| Console Equipment | | |
| Control Station Equipment | | |
| Subscriber Equipment | | |
| Accessories | | |
| Spare Parts | | |

**All variations, alternatives and exceptions must be described in detail following this checklist**

| | | Read and Agreed | Variation / Alternative | Exception |
|---|---|---|---|---|
| | **INSTRUCTIONS TO PROPONENTS** | | | |
| | Certificate of Non-Collusion | | N/A | N/A |
| | Executive Summary | | | |
| | Proponent Background | | | |
| | Forms - Letter of Intent | | | |
| | Forms - Company Profile Statements | | | |
| | Forms - Incorporation | | | |
| | Forms - Subcontractors | | | |
| | Forms - Sustainable Workforce | | | |
| | Forms - Financial Stability | | | |
| | Forms - Addenda | | | |
| | Forms - Draft Contract | | | |
| 1. | Purpose | | | |
| 2. | Response Layout | | | |
| 3. | Evaluation Criteria | | | |
| 4. | Existing Public Safety Radio System | | | |
| **5.** | **Project Team** | | | |
| 5.1 | Team Members | | | |
| **5.2** | **Project Management Methodology** | | | |
| **6.** | **Proposal Requirements** | | | |
| **6.1** | **General Characteristics of Proposer's Solution** | | | |
| 6.1.1 | Minimum Operating Requirements | | | |
| 6.1.1.1 | General | | | |
| 6.1.1.2 | Public Safety | | | |
| 6.1.1.3 | General Government | | | |
| 6.1.1.4 | Dispatch Centers | | | |
| 6.1.2 | Identified User Requirements | | | |
| 6.1.2.1 | General | | | |
| 6.1.2.2 | Talk Groups | | | |
| 6.1.2.3 | Call Privacy | | | |
| 6.1.2.4 | Over the Air Programming | | | |
| 6.1.2.5 | Logging Recorder | | | |
| 6.1.2.5.1 | Logging Recorder minimum specifications | | | |
| 6.1.2.6 | 700MHz User Equipment Compatibility | | | |

| | | Read and Agreed | Variation / Alternative | Exception |
|---|---|---|---|---|
| 6.1.2.7 | Other Requirements | | | |
| 6.1.2.8 | Public Safety | | | |
| 6.1.2.8.1 | Encryption | | | |
| 6.1.2.8.2 | Conventional Backup | | | |
| 6.1.2.9 | Backup Consoles | | | |
| 6.1.2.10 | Dispatch Centers | | | |
| 6.1.3 | Interoperability | | | |
| 6.1.4 | Minimum Equipment Requirements | | | |
| 6.1.4.1 | General | | | |
| 6.1.4.2 | Mobile Radio Equipment | | | |
| 6.1.4.3 | Portable Radio Equipment | | | |
| 6.1.4.3.1 | GPS Incorporation | | | |
| 6.1.4.3.2 | Unit location system | | | |
| 6.1.4.3 | Control Station Equipment | | | |
| 6.1.4.4 | Fixed Site Equipment Radio | | | |
| 6.1.4.5 | Site to Site Connectivity | | | |
| 6.1.4.6 | Microwave Requirements | | | |
| 6.1.5 | Infrastructure System Configuration | | | |
| 6.1.5.1 | General | | | |
| 6.1.5.2 | Control Point Equipment | | | |
| 6.1.5.2.1 | Site Power Systems | | | |
| 6.1.5.2.2 | Infrastructure Functionality | | | |
| 6.1.5.2.3 | Site Antenna Systems | | | |
| 6.1.5.2.4 | System Control | | | |
| 6.1.5.2.5 | Radio Network Alarm System | | | |
| 6.1.5.2.6 | Voice Encryption | | | |
| 6.1.5.2.7 | Logging Recorder | | | |
| 6.1.6 | Coverage Criteria | | | |
| 6.1.6.1 | General | | | |
| 6.1.6.2 | Service Area | | | |
| 6.1.6.3 | Propagation Analysis | | | |
| 6.1.6.3.1 | Sites | | | |
| 6.1.6.3.2 | Propagation Studies | | | |
| 6.1.6.4 | Coverage Acceptance Criteria | | | |
| 6.1.6.5 | Radios in a High Noise Environment | | | |
| 6.1.7 | Dispatcher Console Requirements | | | |
| 6.1.7.1 | General | | | |
| 6.1.7.2 | Radio Console Types | | | |
| 6.1.7.2.1 | Optional remote console capability | | | |
| 6.1.7.3 | Desired Functionality | | | |
| 6.1.7.3.1 | Dispatch Console Reliability | | | |
| 6.1.7.3.2 | Diagnostics | | | |
| 6.1.7.3.3 | Power Supply | | | |
| 6.1.7.3.4 | Flat Panel Display | | | |

| | | Read and Agreed | Variation / Alternative | Exception |
|---|---|---|---|---|
| 6.1.7.3.5 | Headset Jack Configuration | | | |
| 6.1.7.3.6 | Footswitch | | | |
| 6.1.7.3.7 | Time Generator System | | | |
| 6.1.7.3.8 | Operating System and Network Management Functions | | | |
| 6.1.7.4 | Console Electronics | | | |
| 6.1.7.4.1 | Description | | | |
| 6.1.7.4.2 | System Interfaces | | | |
| 6.1.7.5 | Console Furniture | | | |
| 6.1.7.5.1 | Furniture System Grounding | | | |
| 6.1.7.5.2 | General Information –Dispatch Centers | | | |
| 6.1.8 | New Site Requirements – Existing Site Upgrades | | | |
| 6.1.8.1 | Generator Requirements | | | |
| 6.1.1.8.1 | General Requirements | | | |
| 6.1.1.8.2 | Documentation | | | |
| 6.1.1.8.3 | Start-Up Service | | | |
| 6.1.8.1.4 | Type of Generator | | | |
| 6.1.8.1.5 | Ratings | | | |
| 6.1.8.1.6 | Generator Control | | | |
| 6.1.1.8.7 | Fuel Supply | | | |
| 6.1.8.1.1 | Battery and Charger | | | |
| 6.1.8.1.9 | Cooling System | | | |
| 6.1.8.2 | Transfer Switch Requirements | | | |
| 6.1.8.2.1 | General Specifications | | | |
| 6.1.8.2.2 | Automatic Control | | | |
| 6.1.8.2.3 | Front Panel Control Devices | | | |
| 6.1.8.2.4 | Automatic Exercise Timer | | | |
| 6.1.8.2.5 | Generator Training | | | |
| 6.1.9 | General Equipment Building/Tower Requirements | | | |
| 6.1.9.1 | Buildings | | | |
| 6.1.9.1.1 | Building Design Considerations | | | |
| 6.1.9.1.2 | Building Electrical Requirements | | | |
| 6.1.9.1.3 | HVAC Requirements | | | |
| 6.1.9.1.4 | Alarm Systems | | | |
| 6.1.9.2 | Towers | | | |
| 6.1.9.2.1 | Requirements | | | |
| 6.1.9.2.2 | Ground Resistance Test | | | |
| 6.1.9.2.3 | Required Tower Submittals | | | |
| 6.1.10 | Site Work Requirements | | | |
| 6.1.10.1 | Submittals | | | |
| 6.1.10.2 | Tower Site Access Road | | | |
| 6.1.10.3 | Parking Areas | | | |

| | | Read and Agreed | Variation / Alternative | Exception |
|---|---|---|---|---|
| 6.1.10.4 | Site Preparation and Sub-grading | | | |
| 6.1.10.4.1 | General | | | |
| 6.1.10.4.2 | Drainage | | | |
| 6.1.10.4.3 | Fences, Gates and Screening | | | |
| 6.1.10.5 | Submittals for existing sites | | | |
| 6.1.11 | Installation Guidelines | | | |
| 6.1.11.2 | Workmanship | | | |
| 6.1.12 | Phasing/Implementation Schedule | | | |
| 6.1.12.1 | Phasing of New System | | | |
| 6.1.12.2 | Parallel Implementation | | | |
| 6.1.13 | Warranty, Spare Parts, and Maintenance Guidelines | | | |
| 6.1.13.1 | Warranty | | | |
| 6.1.13.1.1 | Warranty of Performance | | | |
| 6.1.13.1.2 | Equipment Warranty | | | |
| 6.1.13.2 | Spare Parts | | | |
| 6.1.13.3 | Parts Availability | | | |
| 6.1.13.4 | Maintenance | | | |
| 6.1.14 | Radio Programming Requirements | | | |
| 6.1.15 | Training | | | |
| **6.2** | **Broadband Communication Network** | | | |
| **6.3** | **Exceptions to Functional Response** | | | |
| 6.4 | Pricing | | | |
| 6.4.1 | Proposal Pricing Summary Sheets | | | |
| 6.4.2 | Site Modification Costs | | | |
| 6.4.2.1 | MoNS-Owned Sites | | | |
| 6.4.2.2 | Third Party Owned Sites | | | |
| 6.4.3 | Maintenance Costs | | | |
| 6.4.4 | Future Purchase Considerations | | | |
| 6.4.4.1 | Immediate Future Discounts | | | |
| 6.4.5 | Subscriber Equipment Pricing | | | |
| **6.5** | **Legal Agreements** | | | |

Signature _____ Title _____

Company _____

**ATTACHMENT D**
**Current Inventory**

| | Bermuda Regiment | Customs | Department of Corrections | Fire Rescue EMS | Health Department | Parks | Post Office | Public Transportation | Lifeguards | Police |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| **Portable** | 135 | 12 | 93 | 23 | 0 | 30 | 7* | 0 | 17 | 578 |
| **Mobile** | 0 | 0 | 0 | 35 | 18 | 5 | 0 | 8 | 1 | 0 |
| **Base Unit** | 3 | 0 | 7 | 3 | 0 | 3 | 0 | 3 | 0 | 10 |

GOVERNMENT OF BERMUDA

**ATTACHMENT E**
**SAMPLE SERVICES AGREEMENT**

## SERVICES AGREEMENT

THIS SERVICES AGREEMENT is made the ____ day of _____ 20___ (the "**Effective Date**")

BY AND BETWEEN:

(1)

**Ministry:** **NATIONAL SECURITY**

**Department:**

**Address:**

(hereinafter called the "**Government**") of the one part; and

(2) The supplier as identified and set out in Schedule A (hereinafter referred to as the "**Supplier**" or "**you**") of the other part.

The Government and you are individually referred to as a "**party**" and collectively as the "**parties**".

This Agreement including the Schedule and Appendix sets out the terms and conditions upon which you will provide services to the Government.

**IN WITNESS WHEREOF**, the parties, or their authorized representatives, have read and agree to the terms and conditions of this Agreement on the Effective Date.

| | |
|---|---|
| **SIGNED** by a duly authorised officer/ representative for and on behalf of the **Government** | Signature: |
| | Print Name: |
| | Title: |
| **SIGNED** by the **Supplier** or a duly authorised officer/representative for and on behalf of the **Supplier** | Signature: |
| | Print Name: |
| | Title: |

**SCHEDULE A**

**STATEMENT OF WORKS**

**This Schedule is incorporated into the Agreement. Capitalized terms used but not defined in this Schedule will have the meanings given to them in the Agreement. If a term in this Schedule conflicts with a term in the Agreement, the provisions of this Schedule will prevail to the extent of such conflict. References in this Schedule to Sections and Exhibits will refer to the Sections and Exhibits of this Schedule unless otherwise noted.**

**1. Supplier Name and Contact Information:**

**Supplier:** _____

**Address:** _____

_____

**Tel:** _____

**Mobile Tel No:** _____

**Email:** _____

**2. Term and Termination**

2.1 This Agreement shall be effective on the Effective Date. The Services shall commence on the Commencement Date and continue until the Completion Date, whereupon this Agreement shall end and expire unless terminated earlier in accordance with its terms.

**Commencement Date:** _____

**Completion Date:** _____

**Termination Notice Period:** **30 days prior written notice**

2.2 In the event that services are provided to the Government beyond the Completion Date of this Agreement, the terms and conditions of this Agreement shall continue on a day-to-day basis terminable without cause upon 24 hours prior written notice by either party to the other.

**3 Fee**

3.1 The Government will compensate you the fee as set out below and all such amounts are to be paid in arrears, unless otherwise stated:

| Rate | Fee |
|---|---|
| You will be paid the following for the Services: | **BMD$_____ monthly in arrears** |
| Installation or other one-time charge. | **BMD$_____ one-time fee (if applicable)** |
| **Total** | **BMD$** |

3.2 The Fee will be subject to deductions by law in the event that you have not registered as a service provider with the relevant Government department.

3.3 The Fee will be subject to further deductions for the following reasons:

a) Where there has been an overpayment to you for any reason;

b) Where the Government has suffered loss by your failure to follow instructions or exercise due diligence;

c) If you cause damage to Government's property (including software), the value of replacement or repair of the damaged property (including damage to any software or Government systems by intrusion of viruses or malware as a result of your errors or omissions) shall be deducted from the Fee;

d) If you leave or terminate this Agreement without giving the required notice, the value of the Fee for the notice period may be deducted;

e) When you no longer provide Services to the Government, there will be a deduction of any overpayments or advances of payment taken in excess of the Fee; and

f) Where you have outstanding payroll taxes or social insurance contributions.

**4 Insurance**

If required by the Government, you shall acquire the Insurance Policies in the amount as set out below, subject to the insurance section of the General Terms and Conditions:

| Insurance coverage | Minimum Coverage Amount |
|---|---|
| Professional Liability | **BMD$1,000,000** |

**5 Expenses**

5.1 Any Expenses (as defined below) associated with this Schedule, in addition to the Fees (as defined below), shall be those Fees and Expenses associated with providing the Services in accordance with this Agreement.

**If applicable, while performing the Services in or from Bermuda, the Representative may require accommodation in connection with the provision of Services. In the event that accommodation is required, the Government may assist you or the Representative in acquiring accommodation but the Government shall not be liable to pay for such accommodation. You shall be liable for all Expenses and utility fees (including water, telephone and other charges) incurred by residing or otherwise staying at a property of your own choosing. You agree to abide by the rules and regulations of the property owner and you shall indemnify the Government against any losses the property owner may suffer as a result of your or the Representative, residing or staying at that property.**

5.2 All requested Expenses shall be provided to the Government in writing prior to any such Expenses being incurred. All air travel shall be at economy class, unless otherwise agreed in writing. You, the Representative, and any other person engaged by you, are not permitted to incur additional expense, costs or charges without the prior written consent of the Government.

5.3 Approved Expenses shall be paid in accordance with this Agreement.

**6 Taxes**

6.1 You shall be responsible to register with the appropriate Government Department and to pay for all taxes associated with the provision of Services, including but not limited to payroll tax or social insurance ("**Taxes**") and you consent to the Government deducting due or outstanding Taxes from the Fee on your behalf, at the Government's option.

6.2 Your tax information:

| Payroll Tax No | Social Insurance No. |
|---|---|
| | |

6.3 In the event that the Government has not made deductions on your behalf, you shall provide to the Government proof of payment of amounts due to the Government such as any Taxes and all other receivables to the Government, prior to you receiving your final payment.

**7 Invoicing Terms**

7.1 You shall provide a monthly invoice for the Services as set forth herein, with supporting documentation and itemizing the following:

a) Your name, invoice date and invoice number;

b) Change Order number, if applicable;

c) Details of Services performed;

d) Time and services rendered in hourly (or less than daily) increments with sufficient detail to determine appropriate expenditure of hourly efforts;

e) Other supporting documentation (including copies of any invoices or receipts for reimbursable expenditures as provided for herein);

f) Mailing address and the person to whom payment is to be sent or the banking institution and full account information for payment by wire transfer (unless such information has previously been provided to the Government); and

g) Telephone number, fax number and e-mail address.

7.2 Government shall pay all fees and/or undisputed invoices **60 days in arrears**. The Government may dispute an invoice within **90 days of receipt**, however, the Government reserves the right to dispute payments made on an invoice at any time if it suspects fraud, willful misconduct, errors, duplication of work or negligence on your part ("**Faults**"). In the event that any Faults are discovered in relation to payments made to you, the Government reserves the right to recover such payments from you, at your cost (which shall include all legal and collection fees and expenses) or to set off any disputed amounts against unpaid invoices.

7.3 Your failure to timely submit a proper invoice as set forth in this section may result in a delay in payment by Government. No interest shall be paid with regard to any late payment to you or your Representatives resulting from your failure to submit a proper invoice or otherwise comply with the terms of this section. You agree that the Government is not responsible, nor will it be liable to you or under law or equity for any and all expenses that you or your Representative's may incur resulting from any delays in payment caused by your failure to comply with the terms of this Agreement.

7.4 Government reserves the right to refuse to pay an invoice in the event that the invoice is presented 6 months after the time when it should have been presented for payment.

**GENERAL TERMS AND CONDITIONS**

**IN CONSIDERATION** of the premises and mutual promises in this Agreement the parties, intending to be legally bound, agree as follows:

That in this Agreement, capitalized terms have the respective meanings referred to in this Agreement, words by their context importing the plural shall include the singular and vice versa, references to either gender includes any other gender or a neutral entity where appropriate, and a reference to any statute or regulation or law means as amended from time to time and include any successor legislation, regulations or laws. Where the contexts requires, the word "Supplier" shall include the word "you" and vice versa.

# 1 Definitions

In this Agreement unless the context otherwise requires, the expressions set forth below have the following meanings in the Schedule or the Appendix hereto:

"**Agreement**" means this Services Agreement and includes these General Terms and Conditions, Schedule A, the Appendix or annexes attached in accordance with the obligations or deliverables under this Agreement;

"**Appendix 1**" contains the objective, instructions or other information related to the provision of the Services not contained in Schedule A;

"**Business Days**" means Monday to Friday between 9am – 5pm in Bermuda;

"**Claims**" means any written or oral claims, actions or demands for money (including taxes or penalties) or services or for any allegation of a breach in rendering or failure to render any Services performed or which ought to have been performed. Claims also includes patent, trade secret, copyright, or other intellectual property right claims, claims connected to Equipment, costs, penalties, fees and expenses (including legal and professional fees, charges or expenses);

"**Commencement Date**" means the date of the commencement of the Services as set out in Schedule A;

"**Completion Date**" means the date of the completion of the Services as set out in Schedule A;

"**Confidential Information**" means the terms of this Agreement as well as any information or Data disclosed to you which (i) if in tangible form, is marked clearly as proprietary or confidential, (ii) if oral, is identified as proprietary, confidential, or private on disclosure or (iii) any other information which is not in the public domain, which upon receipt by the Government should reasonably be understood to be confidential, provided, however, that such information or data is provided under or in contemplation of this Agreement;

"**Contact**" means the Public Officer appointed as the liaison between you and the Government;

"**Consents**" means any qualifications, rights, permits, licenses, authorizations or other consents;

"**Data**" means logbooks, records or data files used or created pursuant to the Services (including electronic storage media, software data, data base and data base rights, personal or personally identifiable information relating to an identified or identifiable individual voice and data transmissions including the originating and destination numbers and internet protocol ("**IP**") addresses, date, time, duration), and other relevant data connected with the Services;

"**Equipment**" means any Supplier provided equipment including any hardware, software or cables used to provide the Service;

"**Expense**" means all expenses, charges and costs (including all costs, fees, charges, fines and penalties related to travel and accommodation), penalties and fines;

"**Fee(s)**" means the fees to be paid to you for the Services provided in accordance with the terms of this Agreement;

**"Good Industry Practice"** means the exercise of that degree of skill, care, accuracy, quality, prudence, efficiency, foresight and adherence to timeliness as would be expected from a professional individual or leading company within the relevant industry or business sector in Bermuda or in England;

1.1.1 "in writing" shall mean any fax, letter or purchase order on the Government's letterhead bearing the signature of an authorised person or an e-mail emanating from the personal e-mail address of an authorised person;

**"Insurance Policies"** means an amount of not less than the minimum level of insurance required by law or regulatory body or that is required to cover for similar services as are provided in this Agreement or the amount as set out in Schedule A, whichever is greater, covering you, or your officers, directors, employees, agents, or subcontractors, professional negligence and errors and omissions, and shall be on an "occurrence" basis. "The Government of Bermuda" shall be endorsed as an additional insured on the required policy or policies and the insurances afforded to the Government of Bermuda shall be primary insurance;

"**Materials**" means written advice, project specifications, designs, drawings, plans, specifications, reports, tenders, proposals or other information and related documents provided by you or the Representative related to the Services;

**"Loss"** means all losses, Claims, damages, costs, fees, charges, penalties, expenses including legal and professional fees, expenses and disbursements, costs of investigation, litigation, settlement, judgment and interest, lost revenue, loss of opportunity to make money, loss of contracts or for the inability to fulfill customer contracts, lost or damaged data or other commercial or economic loss, whether based in contract, tort (including negligence) or any other theory of liability or other loss not limited to those contemplated at the time of entering into this Agreement and whether such loss or liabilities are direct, indirect, incidental, special or consequential;

**"Outcomes"** means the targets, results or goals to be achieved as specified in Schedule A;

"**Public Officer**" means any person employed by, or acting as an agent for, the Government; "**Representative(s)**" means**,** the person(s) providing the Services on your behalf and includes any person engaged by you, if applicable;

"**Services**" means the provision of all services and deliverables and includes the use of any Equipment in support of the services;

"**Schedule A**" means the schedule which forms a part of this Agreement and contains instructions for the performance of the Services, Fee, Expenses and Term; and

**"Security Procedures**" means rules and regulations governing access to, and health and safety procedures while on, Government premises; and information technology security protocols;

"**Term**" means the term of this Agreement as set out in Schedule A.

**Provision of Services**

- You and the Representative agree to perform and complete the Services in accordance with and subject to Schedule A, Appendix 1 and these General Terms and Conditions and the Government agrees to pay the Fee for the Services.
- In the event that it is required and with Government prior due diligence and written approval, you may appoint a Representative who shall have full authority to act and provide Services on your behalf. The Representative shall be named in Appendix 1.
- You may not subcontract your obligations under this Agreement beyond using the Representative, without Government's prior written consent.
- You shall, and ensure that the Representative co-operates with the Government's employees where this is necessary to effectively carry out your obligations under this Agreement.
- The Government may request, by notice in writing to you, the replacement of the Representative, and agreement with such request shall not be unreasonably withheld. You shall use your best endeavors to replace the Representative with another qualified

individual employed by you, and such replacement shall be subject to approval by the Government.

- You shall provide Materials as requested or by the date as agreed between the parties and the Government shall have the right to take possession of and use any completed or partially completed portions of Material notwithstanding any provisions expressed or implied to the contrary.
- You acknowledge that the Government will be:
  a) relying on the Materials on the basis that they are accurate and complete in all material respects and are not misleading;
  b) relying on your and the Representative's skills, expertise and experience concerning the provision of the Services;
  c) relying on the accuracy of all Outcomes and all the information and materials included in the Materials; and
  d) using your reports, Outcomes and any other advice and assistance provided under this Agreement.
- The Services shall be provided in such place and location as instructed by the Government.
- If the Services are required to be provided on the Governments' premises or use Government IT systems, you and the Representative will conduct yourselves in a professional and safe manner and you and the Representative shall at all times comply with and be subject to Security Procedures.
- Failure to adhere to the Security Procedures and the requirements of this section may be considered a material breach of this Agreement and may result in termination for default.
- The Government shall inform you of the Contact, i.e. whom you or the Representative shall be reporting to and who will accept the Services.
- Services are provided on a **non-exclusive** basis to the Government in Bermuda.

**Section 2. Additional Services**

- Additional services or variations in the Services may be required after the date of execution of this Agreement and may be performed upon written approval of the Government. Such written approval shall be evidenced by a change authorization order ("**Change Order**") or such other written authorization as approved and signed by the Contact or a duly authorised Public Officer. In such case, a Change Order shall be issued within a reasonable time thereafter.
- All Change Orders are subject to the terms and conditions of this Agreement.
- Fees for additional services shall be agreed by the Government in writing prior to any additional services being performed.
- Only services which are not required for performance of the Services to be provided hereunder shall be deemed additional services.

**Fee and Taxes**

- The Government shall pay you the undisputed Fee within **60 days** of receiving a valid invoice setting out information required with the invoice in accordance with Schedule A.
- The Government may withhold payment of any Fee or Expenses in respect of which it has queries or where the Contact reports unsatisfactory performance of Services. You will cooperate promptly and fully to resolve any such queries. Where the unsatisfactory performance continues for at least 30 days, the Government may suspend payment of the Fee related to that unsatisfactory performance, at no liability to the Government.
- Except for the Fee as set out in

Schedule A, no other amounts are payable by the Government to you or the Representative. Government may set off any amounts owed by you to the Government against any Fee or Expenses.

- The Government shall pay by direct transfer into your bank account. It is your responsibility to inform the Government of your current contact details in order that the Government can contact and pay you.

Taxes: You will be responsible for payment of payroll tax and social insurance contributions and for providing information in accordance with Schedule A.

**Representations and Warranty**

- You represent and warrant that you and the Representative, will perform all activities relating to the Services:
  a) in accordance with Good Industry Practice and in a professional and lawful manner;
  b) if applicable, using appropriately skilled and experienced personnel whose identity, address and right to live and work in Bermuda and (to the maximum extent permissible) whose absence of relevant criminal records has been verified;
  c) in strict accordance with the standards and timelines set out in Schedule A and Appendix 1, free of defects, errors or faults, in order to meet the needs of the Government; and
  d) in accordance with applicable law; rules, regulations, manuals, guidelines or policies, including the current financial instructions issued by the Accountant General of the Government.
- You represent and warrant that this Agreement is executed by you or by your duly authorized Representative and that you have obtained all required authorizations and capacity in order that you can fulfill your obligations.
- You are responsible for all acts or omissions of a Representative relating to the Services and for ensuring their compliance with the requirements of this Agreement.
- You will seek prior permission from the Government prior to outsourcing any service. In the event of any outsourcing, you will be responsible for all outsourced services or personnel.
- You shall procure the benefit of any warranties or guarantees in respect of goods and materials you supply to Government and provide copies of such warranties or guarantees.
- You will provide information or sign any other agreements necessary or as requested by the Government, in order that either you or the Government can fulfill their obligations under this Agreement.
- You acknowledge and warrant that you are fully satisfied as to the scope and nature of the Services and of your obligations under this Agreement and that you have the corporate power and authority to enter into, and perform your obligations under, the Agreement.

**Remedies**

- If the Service does not conform to the warranty as set out in this Agreement, you shall, at your cost and Expense, use all reasonably commercial efforts to correct any such non-conformance or non-availability promptly, or provide the Government with an alternative means of accomplishing the desired performance.
- Without prejudice to any other rights available to the Government, you shall, at your cost and Expense:
  a) repair or replace Equipment where the Equipment is damaged as a result of your, or the Representative's negligence, error, omission or willful misconduct in providing the Service.

b) if the Materials are inaccurate or misleading or the Services are not performed in accordance with this Agreement, then the Government, in its sole discretion, may:

i) require correct Materials;

ii) require, in whole or in part, the Services to be re-performed during the Term or within 6 months of the Completion Date;

iii) carry out an assessment of the value of the defective Materials or Services and deduct that value from amounts that Government is required to pay you; or

iv) obtain the Materials or Services from another service provider and you will be required to pay all amounts payable by the Government in obtaining alternative Materials or Services from another service provider to make good the defective Materials or Services.

- Without prejudice to any other rights available to it, the Government may, at your cost and Expense:

a) repair, replace or otherwise fix the Service where the Equipment is damaged as a result of your, or any person providing services on your behalf, negligence, error, omission or willful misconduct, in providing the Service; or

b) obtain Services from another service provider and terminate this Agreement.

**Section 3. Progress Report**

- If required, you shall submit progress reports in connection with the Services ("**Reports**") on at least a monthly basis, or as otherwise required, to the Government. The Reports shall include a summary of the activities and accomplishments during the previous reporting period.
- The Reports will relate to your itemized invoice for time spent in the prior month and include an itemized forecast of the intended time to be spent on known activities in the coming month (which will require ratifying by Government). It will also include YTD totals for payments received and work completed (expressed in $).
- Any decisions and/or actions required of the Government during the upcoming reporting period(s) should be included in the Report. The specified date for submission of the Reports for the reporting period shall be determined by the Government.

**Inspection and Approval of Services**

- The Government shall at all times retain the right to inspect the work provided by you or the Representative and you consent to visits to your premises in order to inspect the Services or Materials and Government shall have the right to review, require correction or additional follow up, if necessary, and accept or reject the Services and any Materials submitted by you or the Representative.
- Review(s) of any written work product shall be carried out within 30 days of receipt, unless extended to a date certain by the Government, so as not to impede your work.
- You shall make any required corrections promptly at no additional charge and return a revised copy of the written work product to the Government within 7 days of notification or a later date if extended by the Government. In the event that you are required to implement changes with respect to your performance of Services, such change shall be implemented within a reasonable time, as determined by the Government in consultation with you.
- Your failure to proceed with reasonable promptness to make necessary corrections shall be a default. If your corrected performance or written work

product remains unacceptable, the Government may terminate this Agreement, reduce the Fee and/or reject the hours submitted in connection with such work to reflect the reduced value of services received.

**Time of the Essence**

- You are responsible for managing time in order to complete your obligations under this Agreement and shall complete any portion or portions of the Services in such order as the Government may require rather than working a specified amount of time and you recognize that working outside of regular work hours may be necessary in order to fulfil your obligations and responsibilities without additional compensation of any kind.
- In the event that there are no specified hours for you to provide Services, you will be required to be available to provide Services during the period as set out in Appendix 1 in order to achieve your objectives and the Services, subject to the needs of the Government. When there is no unscheduled or urgent work involved, any provision of Services will be confined to a 5 day work week.
- The Government shall give due consideration to all Materials submitted by you or the Representative, and shall make any decisions which are required to be made in connection therewith within a reasonable time so as not to delay the progress of the work.

**Equipment**

- You shall ensure that all Equipment used in order to provide the Service will perform according to published technical specifications for such Equipment and Government's interface specifications for such Equipment and otherwise complies with Government's specifications for the Service.
- Where software is provided with Equipment that you provide, you grant to Government a non-exclusive and non-transferable license to use such software, including any related documentation, to enable Government to use a Service.
- You retain title and property rights to the Equipment that you provide under this Agreement, whether or not the Equipment embedded in or attached to real or personal property. Unless specifically stated in the Agreement, Government neither owns nor will acquire any right of ownership to any Equipment, including, but not limited to, copies, and any related patents, copyrights, trademarks, or IP addresses assigned to you.

**Indemnity, Limitation of Liability, Insurance, Force Majeure and Business Continuity**

Indemnity: You shall indemnify, keep indemnified and defend the Government against:

a) any Loss arising from any breach by you or the Representative; or

b) any Loss arising from a third party as a result of negligent act, errors, omission or wilful misconduct by you or a Representative,

of your obligations under this Agreement.

- The Government may satisfy such indemnity (in whole or in part) by way of deduction from any payment due to you.
- If the use of a Service is enjoined as a result of a Claim or Loss, in addition to the indemnity set forth above, you shall (at your expense): (i) obtain for the Government the right to use the infringing Service; (ii) modify such Service in a manner that does not infringe any third party intellectual property rights; or (iii) substitute equivalent services that are acceptable to the Government and does not infringe any third party intellectual property rights.
- No Liability: In no event shall the Government or a Public Officer be

liable to you for Loss, damage (including loss or damage to Equipment) or for any other losses.

- Limitation of Liability: Without limiting the provisions of this Section, Government's maximum aggregate liability, for all Claims or Loss in connection with this Agreement or the performance thereof arising during its entire term shall be limited to the Fees paid to you under this Agreement for the three (3) month period immediately preceding the date the on which the latest Claim(s) or Loss first arose.
- Nothing in this Agreement shall exclude or limit any liability for wrongful use of Confidential Information, fraud, misrepresentation, willful misconduct, negligence, personal injury/death or any liability which cannot be lawfully limited or excluded and you shall accordingly maintain in force during the engagement full and comprehensive Insurance Policies.
- All Claims against the Government must be commenced in court within one (1) year after the cause of action has accrued or the act, omission or event occurred from which the Claim arises, whichever is earlier, without judicial extension of time, or said Claim is barred, time being of the essence.
- Insurance: If required by the Government, you shall maintain at your sole expense, on a primary basis, and an "occurrence basis', at all times during the Term, the Insurance Policies. The Insurance Policies shall be evidenced by delivery to the Government of certificate(s) of insurance executed by the insurer(s) listing coverages and limits, expiration dates and terms of the policy or policies and all endorsements, and upon request a certified copy of each policy including all endorsements. Failure to provide acceptable proof of insurance as required by the Government shall entitle the Government to **either obtain or maintain the Insurance Policies on your behalf at your sole cost and expense, or to** terminate this Agreement without **prejudice to any other of the Governments rights or remedies in connection with this Agreement.**
- You shall be responsible for the payment of all deductible amounts on such policy or policies and shall on request supply to the Government copies of such Insurance Policies and evidence that the relevant premiums have been paid.
- You shall notify the Government forthwith of any changes to any of the policies, or of any claims or potential claims which have arisen to which the insurer(s) of the above policy or policies may be required to respond.
- The policy clause "Other Insurance" or "Excess Insurance" shall not apply to any insurance coverage currently held by The Government of Bermuda, or to the Government of Bermuda's Self-Insured Retentions of whatever nature.
- If you subcontract any work under this Agreement, you shall ensure that each subcontractor maintains insurance coverage with policy limits of at least the amounts stated above.
- The insurance requirements set forth above do not in any way limit the amount or scope of your liability under this Agreement. The amounts listed indicate only the minimum amounts of insurance coverage that the Government is willing to accept to help ensure full performance of all terms and conditions of this Agreement.
- Force Majeure: Neither of the parties shall be liable for failure or delay to perform obligations under this Agreement to the extent that this delay is caused by flood, fire and other event beyond its reasonable control (not

caused by its own act or negligent omission) ("***force majeure***") but each party shall use its best efforts to perform its obligations notwithstanding the *force majeure* event.

- Business Continuity: Where applicable, you shall maintain, test and where appropriate implement business continuity procedures to reduce the risk of force majeure impacting the provision of the Services and upon request, provide such evidence to the Government.

**Non-Solicitation**

During the Term and for a period of 12 months after expiration or termination of this Agreement, you shall not solicit (whether directly or indirectly) any employee or consultant of the Government who was involved in the performance or receipt of the Services, unless otherwise agreed to in writing by the Government.

**Non-Disclosure of Confidentiality Information**

- You must ensure that all Confidential Information held by you is protected against unauthorized access, use or disclosure. You acknowledge that the improper use or disclosure of such information could be unlawful.
- You will comply with Government's instructions if it has access to personal data as a result of providing the Services.
- You may disclose information related to this Agreement to your personnel on a '*need to know*' basis as required for the performance of the Services. You will keep strictly confidential any other Confidential Information and you shall only use such Confidential Information as required for providing the Services (and no other purpose).
- A breach or anticipated breach of the confidentiality provisions of this Agreement, will cause Government irreparable harm and you agree that monetary damages alone may not be an adequate remedy and, accordingly, that the Government will, without prejudice to any other rights or remedies that it may have, be entitled, without proof of special damages and without the necessity of giving an undertaking in damages, to seek an injunction or specific performance together with all other remedies as may be available in law or equity.
- If either you or the Representative fail to abide by the confidentiality provisions at any time, then such failure shall constitute a material breach of this Agreement and you shall pay the Government the equivalent of the Fee paid to you for a 3 month period as liquidated damages, in addition to any attorney's fees and costs of enforcement. You and the Representative shall be jointly and severally liable to the Government under this section.

**Intellectual Property, Copyright and Ownership**

- Intellectual Property: You warrant to the Government that you or the Representative have created the Materials for and on behalf of the Government or has obtained a written and valid consent and assignment of all existing and future intellectual property rights in the Materials.
- Materials created under this Agreement shall be original works created by the you or the Representative and shall:
  a) not include intellectual property owned by or licensed to a third party except for intellectual property which you have the right to use (including the right to use such intellectual property for the purposes of this Agreement); and
  b) not subject the Government to any claim for infringement of any intellectual property rights of a third party.
- You shall do all things necessary to assign to the Government all existing

and future intellectual property rights in the Materials embodying such rights to the fullest extent permitted by law. Insofar as they do not so vest automatically by operation of law or under this Agreement, you shall hold legal title in such rights on trust for the Government.

- Copyright: Copyright and other intellectual property in work produced by you in the course of providing the Services to the Government shall belong to Government, which may utilise those deliverables freely (including by adapting, publishing and licensing).
- You and the Representative agree that all Materials and other works created in full or in part by you or the Representative may be maintained, changed, modified and/or adapted by the Government without the consent of either you or the Representative. Notwithstanding the foregoing, you and the Government may agree in writing that certain identified and designated intellectual property rights will remain with you.
- Intellectual property, Materials or Confidential Information may not be used or copied for direct or indirect use by you after expiry or termination of this Agreement without the express written consent of the Government.
- Government acknowledges that you and Representative possess knowledge and expertise relating to the subject matter of the Services and Deliverables ("**Supplier Know-How**"), which may include intellectual property rights in certain pre-existing tools and materials used by you in performing the Services. Nothing in this Agreement is intended to transfer to Government any rights in the Supplier Know-How, which shall remain your property. To the extent that any Supplier Know-How is included in any Materials or Outcomes, you hereby grant to Government a perpetual non-exclusive right and license to use and reproduce the Supplier Know-How to the extent reasonably necessary to exercise Government's rights in the Outcomes.
- Government logo: You may not use Government's name or logo for any publicity or marketing purposes, unless consent for such use is provided in writing.

**Term, Termination and Suspension**

- The Term of this Agreement shall be as set out in Schedule A.
- Either party may terminate a Service or this Agreement, in part or in whole, during the Term upon prior written notice without cause in accordance with the termination notice period as set out in Schedule A.
- Government may terminate this Agreement at any time based upon your default of your obligations under this Agreement. The Government, in its sole discretion, may provide you with a notice to cure ("**Cure Notice**") the breach that would otherwise amount to a basis to terminate this Agreement as a result of your failure to fulfill your obligations hereunder. You shall respond to any such Cure Notice within a reasonable time or within such time as provided therein, and you shall either cure the specified breach or provide assurances to cure the same which the Government, in its sole discretion, deems adequate.
- Either party may terminate this Agreement immediately, if the other party:
  a) commits a material breach of this Agreement, which is not remedied within 30 days of notice by the other party informing them of the material breach; or
  b) commits an irremediable breach; or
  c) is subject to a change of control or chooses to discontinue its business; or

d) if the other party has a lack of funding or becomes or is deemed insolvent; or

e) if the other party's performance is affected by a *force majeure* event which lasts 7 days or more.

- In the event of termination of this Agreement, all Fees due and payable shall be paid to you.
- Upon expiry or termination of this Agreement, you shall return all Government property or information or you shall irretrievably delete, as commercially practicable as possible, all Confidential Information, stored in any way using any device or application and all matter derived from such sources which is in your possession, custody or power and provide a signed statement that you have fully complied with your obligations under this section.
- Upon expiry or termination of this Agreement, you shall provide Government with all such assistance as may be reasonably necessary in order to end the relationship in a manner which causes the least inconvenience to the Government including assisting with the transfer of Data.
- The Government may temporarily suspend the Services hereunder and shall confirm such instruction in writing to you.
- Upon any such suspension, the Government shall pay all Fees and Expenses up until the time of such suspension of Services. If, following suspension of the Services, there is no resumption within 6 months, this Agreement may be terminated by you, and the Government shall make a payment of all outstanding Fees and Expenses in accordance with this Agreement if such amounts are due.
- The Government may issue a written order to resume the provision of Services within 6 months of suspension in accordance with the terms and conditions of this Agreement.
- The rights arising under this termination clause represent your sole remedy and excludes common law rights to terminate and claim damages for Loss you may suffer under this Agreement.

**Transfer of Data**

- Upon request by the Government prior to or within sixty (60) days after the effective date of termination, you will make available to Government a complete and secure (i.e. encrypted and appropriately authenticated) file of Government Data in a format to be agreed at the time including all schematics and transformation definitions and/or delimited text files with documented, detailed schematic definitions along with attachments in their native format.
- You will be available throughout this transfer of Data period to answer questions about all elements of the Data transfer process so that Government may fully access and utilize the transferred Data.

**General**

- Any notice or other communication required to be given under this Agreement shall be duly given or served if it is in writing (for the purposes of this section, a notice shall be deemed to be in writing if it is in the form of a printed or hand-written letter or other document, or in the form of an e-mail message), signed and delivered by hand or sent by prepaid recorded post to the address of the party as first set out above (or such other address as is notified in writing to the other party from time to time); or sent by e-mail to the e-mail address of the party as provided by that party (or such other e-mail address as is notified in writing to the other party from time to time).
- This Agreement is effective on the Effective Date. Where this Agreement

refers to past or current obligations, this Agreement applies retrospectively from that date.

- This Agreement together with any documents referred to in it supersedes, extinguishes and replaces all previous agreements, promises, assurances, warranties, representations and understandings, whether written or oral including whether in invoices, emails or otherwise between the parties relating to the Services and is the complete agreement between the parties.
- Any amendments to this Agreement shall be made in writing and signed by each party.
- You may not assign or transfer any rights or obligations under this Agreement (for example assigning or factoring invoices) without the Government's written consent. Any such transfer by you in breach of this section shall be void and be an irremediable material breach of this Agreement. Government may transfer its rights and obligations under this Agreement.
- You will be an independent contractor and nothing in this Agreement shall render you an employee, worker, agent or partner of the Government and you shall not hold yourself out as such.
- No one other than a party to this Agreement, their successors and permitted assignees, shall have any right to enforce any of its terms.
- The doctrine of *Contra Proferentem* shall not be applicable in this Agreement.
- Expiry or termination of this Agreement in any manner shall not release you from any liability or responsibility with respect to any representation or warranty. Sections related to indemnification, limitation of liability, non-disclosure of information and intellectual property shall survive termination of this Agreement.
- Waiver of any breach of this Agreement must be in writing to be effective and shall not be a waiver of any subsequent breach, nor shall it be a waiver of the underlying obligation. Should any court determine that any provision of this Agreement is not enforceable, such provision shall be modified, rewritten or interpreted to include as much of its nature and scope as will render it enforceable.
- You consent to the Government processing data relating to you for legal, personnel, administrative and management purposes and in particular to the processing of any sensitive personal data relating to you, as appropriate. The Government may make such information available to those who provide products or services to it (such as advisers and payroll administrators), regulatory authorities and governmental or quasi-governmental organizations including those outside of Bermuda.

**Governance**

- You will inform Government promptly of all known or anticipated material problems relevant to the delivery of Services.
- You shall be responsible for payment of all taxes associated with the provision of Services, including but not limited to payroll tax, social insurance and health insurance.
- You agree to provide the Government (and, if Government requests in writing, its auditors and competent regulatory authorities) with full information on the provision and delivery of the Services in an open and cooperative way and attend meetings with the Government to discuss the Services and this Agreement. The Government may disclose any information relating to this Agreement to a regulator or auditor.
- You declare that you are in possession

of all Consents necessary for the provision of Services and you will maintain such Consents at all times while providing Services.

- You will notify the Government immediately if you have any actual or potential conflict of interest which might affect your ability to provide the Services.
- You confirm that all payments to Government, including but not limited to, taxes and social insurance, are current. In the event that any payments are delinquent, the Government may deduct, in part or in full, any payments made to you under this Agreement.
- In connection with the Services, you will not, and will not attempt to, bribe, corrupt or offer any improper inducement or bribe to any person at any time.

**Retention of Confidential Information, Records and Audit**

You will retain any part of, or all, Confidential Information during the Term and following expiry or termination of this Agreement until all appeals processes are complete in the event of any litigation in connection with the Services. The Government will have full access to and the right to examine any documents connected to the Services, at any time during this period. The Government must be notified, in writing, prior to any of the aforementioned documents being destroyed.

- You shall retain all records pertinent to this Agreement for a period of 3 years following expiration or termination hereof.
- You shall establish and maintain books, records, and documents (including electronic storage media) in accordance with Canadian Generally Accepted Accounting Principles and practices which sufficiently and properly reflect all revenues and expenditures of funds provided by the Government, including all receipts, invoices, payroll records and/or other documentation used to substantiate requests for payment hereunder. At any time or times before final payment and for 3 years thereafter, the Government may cause your records to be audited by a duly authorized Public Officer. Records required to resolve an audit shall be maintained for a period of not less than 3 years following resolution of the audit or any arbitration or litigation arising hereunder.
- The Government reserves the right to conduct periodic visits to your premises and/or audits after the commencement of this Agreement to ensure continued compliance.
- Any payment or payment request may be reduced by amounts found by the Government not to constitute allowable costs. In the event that all payments have been made to you by the Government and an overpayment is found, you shall reimburse the Government for such overpayment within thirty (30) days following receipt of written notification thereof.
- Duly authorized Public Officers shall have full access to and the right to examine any of the records pertinent to this Agreement at all reasonable times for as long as such records are required to be retained hereunder.
- You shall include the aforementioned audit and record keeping requirements in all subcontracts and assignments, if any, made in accordance with this Agreement.

**Electronic Communication**

Government may communicate with you by email. The internet is not secure and messages sent by email can be intercepted. You shall use your best efforts to keep your security procedures current and all communications by email secure.

**Governing law**

This Agreement is subject to Bermuda law

and you and the Government submit to the exclusive jurisdiction of the Bermuda courts in relation to this Agreement.

**Dispute Resolution**

- Where the parties are unable to resolve a dispute in accordance with this Agreement the parties, upon agreement, may submit such dispute for resolution by arbitration. The tribunal shall consist of a sole arbitrator appointed by agreement between the parties or failing such agreement by the Appointments Committee of the Chartered Institute of Arbitrators, Bermuda Branch. The procedure to be followed shall be that as laid down in the Bermuda International Conciliation and Arbitration Act 1993 and the UNCITRAL Arbitration Rules presently in force. The place of arbitration shall be Bermuda and Bermuda law shall apply. The language of the arbitration shall be English.
- The decision and award of the arbitrator shall be delivered within three (3) months of his or her appointment, unless otherwise agreed between the parties, and shall be final and binding on the Parties and enforceable in any court of competent jurisdiction. Nothing in this section prevents or in any way restricts either party from seeking specific performance, injunctive relief or any other form of equitable remedy. The parties shall continue to perform their respective obligations during the dispute resolution process set out in this section, unless and until this Agreement is terminated in accordance with its terms.
- The costs of the arbitration, including administrative and arbitrators' fees, shall be shared equally by the parties and each party shall bear its own costs and attorneys' and witness' fees incurred in connection with the arbitration unless the arbitrator determines that it is equitable to allocate such costs and fees differently and so orders in rendering judgment.
- In rendering judgment, the arbitrators may not provide for punitive or similar exemplary damages.
- The arbitration proceedings and the decision shall not be made public without the joint consent of the parties and each party shall maintain the confidentiality of such proceedings and decision unless otherwise permitted by the other party, except as otherwise required by applicable law or statutes.

# APPENDIX 1

## 1. Service Objective

*[please provide brief summary of why services are required by the supplier- delete this once provided]*

**Specific hours of availability to provide Services:** **Monday to Friday 9am – 5pm**

## 2. Representative

The following person or organization has been designated as the Representative and will be providing the Services to the Government:

| Resource | Contact Details | Role |
|---|---|---|
| | Tel Number: | |
| | Mobile Number: | |
| | email: | |
| | Tel Number: | |
| | Mobile Number: | |
| | email: | |
| | Tel Number: | |
| | Mobile Number: | |
| | email: | |

You agree to promptly inform the Government should there be any changes to the Representatives.

## 3. Services provided by Supplier

3.1 You will report to your contact [title of officer], and provide the following services:

(a) ;

(b) ;

(c) ; and

(d) .

3.2 You shall undertake any other supplementary services that may be delegated to you.

GOVERNMENT OF BERMUDA

**SERVICES AGREEMENT**

THIS SERVICES AGREEMENT is made the ____ day of _____ 20___ (the "**Effective Date**")

**BY AND BETWEEN:**

(1)

**Ministry:** **NATIONAL SECURITY**

**Department:**

**Address:**

(hereinafter called the "**Government**") of the one part; and

(2) The supplier as identified and set out in Schedule A (hereinafter referred to as the "**Supplier**" or "**you**") of the other part.

The Government and you are individually referred to as a "**party**" and collectively as the "**parties**".

This Agreement including the Schedule and Appendix sets out the terms and conditions upon which you will provide services to the Government.

**IN WITNESS WHEREOF**, the parties, or their authorized representatives, have read and agree to the terms and conditions of this Agreement on the Effective Date.

| | |
|---|---|
| **SIGNED** by a duly authorised officer/ representative for and on behalf of the **Government** | Signature: |
| | Print Name: |
| | Title: |
| **SIGNED** by the **Supplier** or a duly authorised officer/representative for and on behalf of the **Supplier** | Signature: |
| | Print Name: |
| | Title: |

DRAFT

## ATTACHMENT F - EVALUATION MATRIX

| Tender Ref: | *Public Safety Radio System* | | SCORES - please see notes & scoring tab | | | Weighted scores | | |
|---|---|---|---|---|---|---|---|---|
| **ITEM** | **CRITERIA** | **WEIGHTING** | **Tender 1** | **Tender 2** | | **Tender 1** | **Tender 2** | **Comments** |
| **1** | **Experience & Capability:** | | | | | | | |
| **1.1** | Does the bidder clearly demonstrate the ability to deliver the requirements of the tender? | | 0.00 | 0.00 | | | | |
| **1.2** | Does the bidder's team show experience in similar projects | | | | | | | |
| **1.3** | Were the bidders referees positive about their experience of working with the contractor/supplier, and would they use them again? | | | | | | | |
| **1.4** | Does the bidder comply with the RFP specifications? | | | | | | | |
| **1.5** | Do the proposed system have coverage and capacity guarantees equal to or greater than the requirements | | | | | | | |
| **1.6** | Are the proposed radio console design features equal to or greater than the requirements | | 0.00 | 0.00 | | | | |
| **1.7** | Has the bidder demonstrated fault tolerance and redundancy equal to or greater than the requirements | | 0.00 | 0.00 | | | | |
| **1.8** | Does the bidder's training program meet the RFP specifications | | 0.00 | 0.00 | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **1.9** | Does the bidder's warranty, and support programs meet or exceed the specifications | | 0.00 | 0.00 | | | | |
| **1.10** | Does the bidder's maintenance program meet or exceed the RFP specifications | | 0.00 | 0.00 | | | | |
| **1.11** | Are there any superior design features and added value components to the bidders proposal | | 0.00 | 0.00 | | | | |
| **1T** | **Total Score - Section 1** | 55% | 0.00 | 0.00 | | 0.00 | 0.00 | |
| **2** | **Financial Analysis** | | *Supplier Name* | *Supplier Name* | | *Supplier Name* | *Supplier Name* | |
| **2.1** | Tender price (include all costs) | | 0.00 | 0.00 | | | | |
| **2.2** | The bidder is in a stable financial position. | | 0.00 | 0.00 | | | | |
| **2.3** | The bidder has no outstanding Government debt | | 0.00 | 0.00 | | | | |
| **2T** | **Total Score - Section 2** | 25% | 0.00 | 0.00 | | 0.00 | 0.00 | |
| **3** | **Social, Environmental & Economic criteria** | | *Supplier Name* | *Supplier Name* | | *Supplier Name* | *Supplier Name* | |
| **3.1** | Percentage of workforce that are Bermudian | | 0.00 | 0.00 | | | | |
| **3.2** | Does the bidder offer evidence of providing apprenticeships/training positions or being willing to offer them? | | 0.00 | 0.00 | | | | |
| **3.3** | Does the bidder have an environmental policy in place? | | 0.00 | 0.00 | | | | |
| **3.4** | Has the bidder given evidence that they have participated in appropriate business skills training e.g. The BSBDC Construction Incubator? | N/A | 0.00 | 0.00 | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **3T** | **Total Score - Section 3** | 20% | 0.00 | 0.00 | | 0.00 | 0.00 | |
| | | | | | | | | |
| | | 100% | | | | | | |
| | | | | | | | | |
| | **Fully weighted scores** | | | | | **0.00** | **0.00** | |
| | | | | | | | | |

| | |
|---|---|
| **General Notes** | |
| **Issuance of tenders** | All tenders issued must contain a summary of the evaluation criteria and weighting to be used. The Accountable Officer for the tender must ensure that all mandatory evaluation criteria are covered in the tender specification/information requirements |
| **Yellow Cells** | Yellow cells are ***not to be changed*** as they contain calculation formulae and/or mandatory information |
| **Blue cells** | Blue cells are for the evaluation team to fill in. Supplier names should be inserted prior to circulation to the full team to ensure continuity |
| **Weighting** | The weighting of sections 1&2 can be amended, however; Section 3 weighting of 20% is mandatory |
| **Amendments** | Amendments to the criteria (except yellow areas) are permissible according to the tender requirements, **but must be authorised in advance by the OPMP** |
| **Section / Scoring** | |
| ***n.b. In some cases, multiple bidders can achieve the same score where they have submitted the same level of evidence.*** | |
| **1.1** | Award a maximum of 5 points to each bid based on their technical knowledge and understanding of the tender requirements |
| **1.2** | 5 = more than 3 project at a similar level, 3 = two project at a similar level, 0 = no projects at a similar level. |
| **1.3** | 5 = more than one positive referee submitted and checked, 3 = one positive referee submitted and checked, 0= no referees in submission / negative responses from referees |
| **1.4** | 5 = Takes no exceptions or variation/alternative solution, 4 = Takes no Technical exceptions or variation/alternative solution but takes but takes no more than 2 administrative or operational exceptions or variation/alternative solution, 1= Takes 4 or more exceptions or variation/alternative solution |
| **1.5** | 5 = exceeds requirements, 4= meets all requirements, 2=meets critical requirements, 0=does not meet requirements |
| **1.6** | 5 = exceeds requirements, 4= meets all requirements, 2=meets critical requirements, 0=does not meet requirements |
| **1.7** | 5 = exceeds requirements, 4= meets all requirements, 2=meets critical requirements, 0=does not meet requirements |
| **1.8** | 5 = exceeds requirements, 4= meets all requirements, 2=meets critical requirements, 0=does not meet requirements |
| **1.9** | 5 = exceeds requirements, 4= meets all requirements, 2=meets critical requirements, 0=does not meet requirements |

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| **1.10** | 5 = exceeds requirements, 4= meets requirements, 2=meets critical requirements, 0=does not meet requirements |
| **1.11** | 5= bidder offers features and added value compononents throughout proposal, 4=bidder offers features and added value compononents in some parts of proposal, 0= no extra features or added values offered |
| | |
| 2.1 (non construction) | 5 = lowest bid, 4 = within 10% of lowest bid, 3=next lowest etc until 0 = most expensive |
| 2.1 (construction) | 5 = equal to or within 15% of estimate, 4 = between 16% to 30% (over or under) of estimate , 3 = between 30% to 40% (over or under) of estimate, 2 = between 40% and 50% (over or under) of estimate, 0 = over 50% more or less than estimate |
| 2.2 | Following financial checks, i.e. checking a bank reference, the following scores should be awarded - 5 = all financial checks sound, 3 = minor financial concerns, 1 = major financial concerns, 0 = no evidence provided / evidence of severe financial instability |
| 2.3 | Following checks with Social Insurance and Tax Commissioner check the following scores should be awarded - 5 = all financial checks sound, 3 = minor financial concerns, 1 = major financial concerns, 0 = no evidence provided / evidence of severe financial instability |
| | |
| 3.1 | 5 should be awarded to the bidder with the highest percentage of the workforce being Bermudian, down to 0 for the least percentage of Bermudians |
| 3.2 | 5 = substantive evidence that apprenticeships/training positions in place, 3 = some evidence of apprentiships/training in place, 0 = no evidence of apprenticeships/training in place |
| 3.3 | 5 = yes, 0= no |
| 3.4 | 5 = graduated from Incubator, 3 = other business skills training evident, 0 = no business skills training evident |