

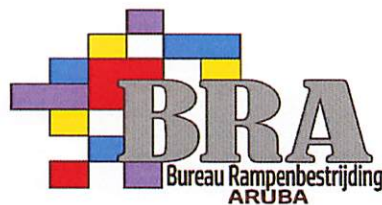
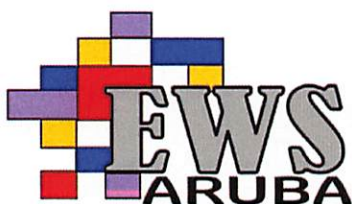
ARUBA'S RISK REDUCTION and PUBLIC SAFETY INITIATIVE

Terms of References

Multi Hazard Early Warning System Aruba

Output 01.2.2: Technical Specifications for the Hardware part of the Voice Alarm & Public Address (VA/PA)

Ref:23-SB0600/RESEMBID/EXPERTISE FRANCE



Funded by the European Union
Financé par l'Union européenne



Implemented by Expertise France
Mits en coursje par Expertise France



In collaboration with GFDRR
En collaboration avec la GFDRR

TERMS OF REFERENCE

Output 01.2.2: Technical Specifications for the Hardware part of the Voice Alarm & Public Address (VA/PA)

I Overview

The Ministry of General Affairs of the Government of Aruba, represented by the Crisis Management Office and the RESEMBID/EXPERTISE FRANCE, is implementing the Multi Hazard Early Warning System Aruba.

Aruba is a small island nation in the Caribbean Sea, located approximately 20 miles north off the coast of Venezuela. The island's area is 70 square miles (180 square kilometers) and the terrain is mostly flat with a few hills.

The island has a population of 112,000 people. According to the latest statistics (2nd quarter 2022 Central Bureau of Statistics) 54% of the population are natives (born on the island) while the rest are from different nationalities. In addition to the local population, tourism is the most important economic pillar. Yearly, the island receives between 800,000 to 1 million visitors. This means that at any given point in time on the island there would be between 180,000 to 200,000 people on the island (population and visitors). The most popular languages spoken in Aruba are Papiamentu (local creole language), Dutch, English and Spanish.

Aruba is at risk of multiple hazards such as hurricanes, floods, earthquakes and tsunami, oil spills, and aircraft or marine incidents. Aruba is classified at medium risk to tsunamis and as such, the impact of tsunamis should be considered for any activities located near the coast. Approximately 60% of Aruba's population lives in the coastal zone, and tourism accommodations and activities are concentrated on the southwest side of the island. While Hurricane Irma in 2017 did not hit Aruba directly, it caused large storm surges on the island and devastated nearby territories. Climate change may result in the increase in number or intensity of hurricanes and may also change their tracks.

Open Tender Notice

Project: Output 0.1.2.2 - Hardware for Voice Alarm & Public Address (VA/PA)

Tender ID: 2023.0.1.2

Issuing Authority: Crisis Management Office of Aruba

Issuing Date: 10th of October 2023

Closing Date: 15 November 2023

The Crisis Management Office of Aruba, hereinafter referred to as "the Issuing Authority," invites qualified and experienced suppliers to submit sealed tenders for the procurement of Hardware for Voice Alarm & Public Address (VA/PA) systems as detailed in the project "Output 01.2." The complete tender document is in section 10 of this document for reference.

I. Tender Overview

Project Title: Output 01.2.2- Hardware for Voice Alarm & Public Address (VA/PA)

Location: Aruba

Tender Type: Open Tender

Eligibility: Qualified and experienced suppliers

II. Scope of Work

The scope of this tender includes the procurement and implementation of Hardware for Voice Alarm & Public Address systems as specified in the project document available at the Crisis Management Office. The successful bidder shall deliver, install, and configure the Hardware solutions as per the project requirements

III. Eligibility Criteria

Interested suppliers must meet the following eligibility criteria:

Legal Status: The bidder must be a registered legal entity.

Experience: The bidder should have a proven track record of successful delivery of similar hardware solutions.

Financial Capability: The bidder must demonstrate financial capability to undertake the project.

Compliance: The bidder should comply with all legal and regulatory requirements in Aruba.

IV. Submission of Tenders

Tenders must be submitted in sealed envelopes marked "Tender for Output 01.2.2: Hardware for Voice Alarm & Public Address (VA/PA)" and addressed to:

Eurico (Rino) Hermans
Director
CRISIS MANAGEMENT OFFICE ARUBA
Wayaca 33-e
Oranjestad, Aruba

The deadline for submission of tenders is 15 November 2023 at 24:00.
Late submissions will not be considered.

V. Evaluation Criteria

Tenders will be evaluated based on the following criteria:

Compliance with Tender Requirements
Technical Proposal
Financial Proposal
Past Performance
Compliance with Aruban Law

VI. Award of Contract

The contract will be awarded to the bidder who submits the most responsive and competitive tender, meeting all the specified criteria.

VII. Contact Information

For inquiries and clarifications regarding this tender, please contact:

Marie Jane(Nikita) Croes
Mj.croes@crisis.aw
+297 588 0100

VIII. Important Dates

Issuing Date: 10 Oktober 2023

Deadline for Submission: 15 November 2023

Bid Opening Date: 20 November 2023

Contract Award Date: 15 December 2023

IX. Disclaimer

The Issuing Authority reserves the right to accept or reject any or all tenders without assigning any reason whatsoever. This notice does not constitute a binding agreement to procure services, and the Issuing Authority reserves the right to cancel or amend the tender process at any stage.

By order of the Crisis Management Office of Aruba.

Eurico (Rino) Hermans

Director

CRISIS MANAGEMENT OFFICE ARUBA

October 10, 2023



Please note that you should fill in the specific details, such as the Tender ID, Issuing Date, Closing Date, contact information, and other relevant information as per your requirements. Additionally, ensure that you comply with all legal and regulatory requirements in Aruba when issuing and conducting the tender.

10.1 VA/PA TECHNICAL SPECIFICATIONS

EWS Proposed System Architecture

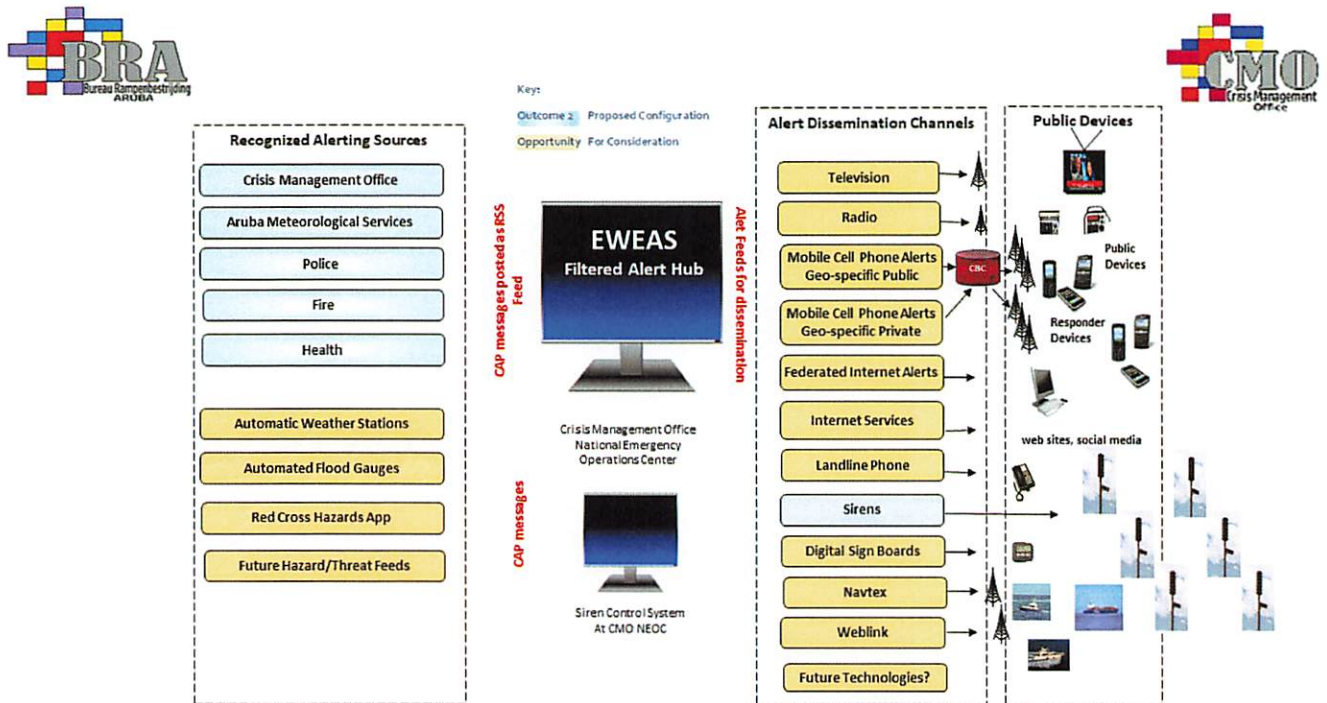


Figure 1 - Proposed System Architecture for Aruba

The EWS Architecture shown in Figure 1, identifies how the VA/PA System is integrated into an overall all hazards alert and warning system.

At the center of Figure 1 is the filtered alert hub (FAH) where alerts are posted and pulled to activate various dissemination methods.

The areas in light orange identify future integration possibilities. On the left are **sources of alerts** and on the right the **dissemination methods**.

In the case of sirens there are two paths both utilizing the reliable internet capability to site locations in Aruba.

The siren system provided **shall** be activated by a CAP message posted directly to the siren control point as well as posted to the FAH for retrieval by both siren and other dissemination methods for activation of alerts and messages.

The proposed VA/PA Hardware Part of the VA/PA System for Aruba are shown as a part of **Figure 1, Proposed System Architecture** for Aruba, and the components are listed and described in this TOR.

Specific requirements follow in the paragraphs below preceded by a bullet and use the imperative “**shall**” language, which is in bold font, to guide potential bidders of the system on minimal procurement requirements.

It is important that any system is integrated to provide a holistic warning capability for Aruba. Currently, there are no outdoor warning systems on the island of Aruba.

Hardware

10.1.1 Statement of Objectives (Scope)

The following Statement of Objectives (SOO) defines the requirements for the Contractor to:

- Engineer,
- Design,
- Furnish,
- Install, and
- Test a turnkey VA/PA System to cover the critical areas of Aruba.

10.1.2 Overarching Requirements

1. The VA/PA system(s) **shall** be able to communicate over the existing, highly reliable internet communications infrastructure.
2. The VA/PA system(s) **shall** provide sufficient intelligible voice coverage for the identified areas with real time emergency alerting messages and accurate health system activities.

10.1.3 Technical Objectives:

The contractor **shall** utilize the existing internet system to support two-way communications infrastructure.

3. The audible siren speaker messages **shall** be optimized, tested, controlled, and adjusted to prevent bleed-over noise into the surrounding communities, i.e., have volume control capabilities.
4. The contractor **shall** install the PC based Central Controllers Consoles (stations), alert graphics display, Central Communication Units and two-way communication alert software with detailed graphics screen and customized range map for control, activation, monitoring, and display of siren status and VA/PA system health status.
5. The contractor **shall** provide a VA/PA solution for six (6) new siren controller units (SCU), new omni-directional speaker arrays to provide adequate and intelligible live voice and pre-recorded messages for the entire critical area.
6. The VA/PA system **shall** provide weather warnings, test, exercises, physical and procedural security, mass notification and alert warnings, and local accident information affecting the area.

7. The Contractor **shall** utilize pre-proposal walk through information to analyze the project requirements, provide sound propagation analysis, perform engineering design tasks, and develop the data deliverables.
8. The contractor **shall** provide all personnel, equipment, installation, configuration management, labor, material, documentation, and services in support of this project.
9. Services **shall** include project management and systems engineering services in support of the design, system staging, site preparation/development, equipment installation and optimization, acceptance testing, training, and warranty.

10.1.4 Technical System Requirements

General Requirements

10. The VA/PA system **shall** communicate over the existing reliable internet infrastructure for all six (6) systems.
11. Systems **shall** be located atop existing buildings with full access to internet and power. No new pole sites are envisaged.
12. The contractor **shall** provide all equipment, software, omni-directional speakers, wiring, electrical power, tools, materials, supplies, transportation, labor, supervision, management, and other incidentals necessary for the turnkey VA/PA system as stated in this SOO.
13. All equipment, supplies, and materials provided **shall** be new and not refurbished.
14. Contractor **shall** show and explain in their proposal/quote how they will meet the requirements specified in this SOO and provide a list of the major equipment and materials to be purchased and installed under this project.

Safety Requirements

15. The Contractor **shall** meet with the CMO Safety Officer upon arrival on site for review of the specific safety requirements prior to installation and attend a formal safety briefing.
16. The Contractor **shall** be responsible for ensuring all personnel engaged in the performance of this contract observe all host country laws concerning safety.
17. The Contractor **shall** develop a site-specific plan for operational safety.

Security Requirements

Site Access.

18. The Contractor **shall** have access to the sites with CMO escort or prearranged introduction.

Environmental Management

19. The Contractor **shall** comply with the most stringent environmental, Aruba local laws and regulations, policies, instructions, plans, and directives.
20. The Contractor **shall** maintain an awareness of changing environmental regulatory requirements to avoid environmental deficiencies for activities in Aruba.
21. The Prime Contractor **shall** ensure their sub-contractors (as applicable) comply with these specifications.

Permits

22. No digging, construction, or alteration of real property is anticipated as part of this project since the intent is to use the existing infrastructure.
23. If the pre-proposal site visit or a submitted proposal reveals the need for construction work, the contractor **shall** meet any applicable certification requirements to be considered for award.

Integrated Product Team (IPT)

24. The contractor **shall** chair a weekly IPT meeting that includes Contractor representatives, the CMO and all required personnel.
25. The contractor **shall** provide a virtual meeting Telecon capability for the duration of the project. The purpose of this meeting is to discuss project progress, problems being encountered, and other discussions necessary/beneficial to ensure success and timely completion of the effort.
26. The contractor **shall** be responsible for the meeting minutes.
27. A copy of the minutes **shall** be provided to each attendee and disseminated via e-mail addresses.

Quality Assurance

28. The Contractor **shall** provide a Quality Control Program for the entire life of the project.
29. The Contractor's quality assurance evaluator **shall** assist the Government representative in performing random spot checks and system acceptance tests.
30. The Contractor **shall** be responsible for identifying system and outside plant deficiencies and/or discrepancies throughout the life of the project.
31. A weekly report (soft copy) **shall** be submitted indicating progress/status and listing any deficiencies/discrepancies found and actions to correct them.

Contractor Personnel

32. Project Management. The Contractor **shall** provide a Project Manager (PM) and alternate(s) responsible for contract performance and continuity.
33. The Contractor **shall** identify the Project Manager's or alternate's range of authority to act for the Contractor relating to daily contract operation.

Site Point of Contact (POC).

34. The Contractor **shall** designate the Contractor's on-site team leader and alternate(s) as the Site POC.
35. The site POC or alternate(s) **shall** be on site during duty hours until project completion.
36. The Site POC **shall** be the interface for all work site communications with the Government, including quality, safety, and discrepancy matters.

Personnel Requirements.

37. The Project Manager, Site POC, and respective alternate(s) **shall** be able to read, write, speak, and understand English.

Warranty.

38. The Contractor **shall** warranty the products of its manufacturer to be free from defective materials and workmanship.
39. Break-fix support for hardware, software, speakers, wiring, and any and all other unspecified components of this system related to the VA/PA system **shall** be provided

for one year after system acceptance date, to include all field trips, telephone support, and shipping costs.

Manuals and Practices

40. The Contractor **shall** provide the latest version of operation, installation, overview system schematics, maintenance manuals and practices, users guide for each system installed, as provided by the original manufacturer with all new equipment.

In-brief/Out-brief

41. The Contractor **shall** conduct a briefing with the site POC or designated representative at the beginning and conclusion of the project.
42. The in-brief **shall** inform the customer of the implementation plan and necessary support issues.
43. The out-brief **shall** inform the customer of implementation results and necessary maintenance issues (including warranties)

Specific Requirements

Outside Requirements.

44. The contractor **shall** engineer, design, furnish, install and test the two-way, internet communications infrastructure for the turnkey VA/PA system.
45. The contractor **shall** provide new siren speaker arrays, and new solar power panels.
46. The Contractor **shall** install six (6) new omni-directional speakers, to provide the sufficient audible voice coverage for the designated areas of Aruba. See Table 1 and Figure 1. Add proposed picture of possible locations.
47. The contractor **shall** mount sirens on existing roof top structures with locations as depicted in Figure 1.
48. The contractor **shall** ensure the appropriate voltage and current are provided to the VA/PA siren speakers and Siren Controller Units' electrical load.
49. The contractor **shall** test the voltage, current, wire size, distance, transformer size, fuses, breakers, batteries, solar power regulator, current limiting devices, and other variables to ensure they are correctly utilized to drive the load. Primary power is provided by the building.
50. The contractor **shall** coordinate with the building personnel and the CMO before energizing any new power loads.
51. The Contractor **shall** install the proper weatherproof head and liquid tight devices and weatherproof sealants to prevent moisture, water, and insects from entering the dedicated electrical, communication systems and enclosures.
52. The Contractor **shall** install the 2in electrical PVC tubing conduits, weatherproof and waterproof sealants, connectors, couplings, straps, tape, and cable ties for securing power cables and siren speaker wires.
53. The Contractor **shall** install six (6) new solar power panel units with a voltage regulator to provide the backup electrical power to the sirens and display the battery voltage status.
54. The Contractor **shall** ensure proper grounding for the infrastructure and associated speaker assemblies, IAW NECs, NFPA 780 and UL96A standards (check appropriateness of these specs for Aruba).

55. The Contractor **shall** ensure proper lightning protection for the siren control units.
56. The siren control units **shall** be sized with the appropriate number of 12VDC batteries for the speaker arrays.
57. All sirens **shall** be powered by primary 220V AC power source and backed-up by solar power panels.
58. The contractor **shall** coordinate and confirm with and site location for power requirements, if necessary.
59. Contractor **shall** install the GPS time server, GPS antenna, antenna cable, power supply, switch, and mounting bracket for maintaining accurate synchronization and timing of the Primary CP, Alternate CP, and Radio Shop central control station desktop consoles. (check on this requirement).
60. Upon project completion the contractor **shall** provide configuration management, the as-built drawings (visio, pdf), detailed system communications schematics, and documentation of the installed system, in PDF format, including the predicted and tested audible coverage areas.
61. Contractor **shall** provide new battery backup unit that has backup power capacity capable of supporting operation under quiescent (non-alarm) load for a period of 72 hours and operation under an emergency condition for 60 minutes at maximum connected load IAW NFPA 72 statements.
62. All new batteries **shall** be maintenance free and sealed.
63. A separate SCU-attached ventilated compartment or NEMA-4X rated enclosure **shall** be required for the new battery backup unit to isolate the batteries from the SCU electronic circuitry.
64. Any compartment/enclosure vent **shall** be completely covered with a bug screen.

Installation Requirements

Restoration

65. Any wall penetration **shall** be restored to meet NFPA 1, NFPA 70 and NFPA 72 and Local CE (civil engineering) standards. (verify appropriateness of the standards)

Grounding

66. The contractor **shall** properly ground the VA/PA equipment, associated devices, wirings, siren speakers, SCUs, poles, all site facilities, structures, inside and outside, for personnel safety and equipment protection.
67. Grounding and lightning strike protection **shall** meet requirements as set forth in MIL-STD 188-124C, Grounding, Bonding and Shielding; electrical power IAW NFPA 780 and UL 96A standards, and base, local, state and federal codes, laws, and National Electric Code's most recent edition, and Technical Order (TO) 31-10-24 "Installation Practices – Communication Systems Grounding, Bonding, and Shielding." (may need to provide these as a reference and check on other standards).

Bonding

68. Shield bonding connectors, bond bars, braids, ribbons, clamps, etc., **shall** be provided to maintain cable shield continuity at splices and at ground connections.

69. Bonding connectors **shall** be provided IAW the Rural Utilities Service (RUS) Bulletin 1753F-803 (PE- 33), building electrical system Articles 230, 250, 280, 800, 810 of the NEC, and MIL-HDBK 419A Vol. I and II, Grounding, Bonding & Shield for Electronic.

Equipment & Facilities.

70. The Contractor **shall** ensure adequate electrical power for the SCUs and Central Control Units.
71. The SCU at each site **shall** operate on the primary electrical (220V AC) power and backup solar power panels that charge the 12VDC batteries.

10.1.5 VA/PA System Installation

72. The contractor **shall** install a turnkey VA/PA system to provide prerecorded and intelligible voice alert messages, informational messages, action to be taken, designated tones (Westminster chimes, taps or other customer specified tones), announcement messages to all persons in the affected area in the event of an emergency, threats, test, and exercises.
73. The contractor **shall** use the most stringent of the directives and standards, including (but not limited to) those in para 5.1 (use same table of standards after review, check numbering).
74. The Contractor **shall** provide secure, digital, end-to-end communications method via 256-bit AES encryption package to prevent malicious, unauthorized access, or accidental operation of the system and to protect user data. Refer to Table 1 and Figure 1-check.

Outdoor Units

75. The Contractor **shall** provide and install six (6) new outdoor siren controller units and SCU enclosures.
76. The enclosures **shall** be weatherproof, waterproof, and NEMA 4X rated.
77. The contractor **shall** install the lightning arrestors for protecting the communications equipment.
78. The new solar power panels **shall** be installed and positioned in the direction to garner maximum sunlight energy possible.

Lights

79. The contractor **shall** install six (6) new obstruction lights on top of six sites. Obstruction lights must be incandescent and comply with ETL 11-29.
80. The height **shall** not exceed 60ft. (verify this requirement)

Pre Recorded Messaging

81. The new VA/PA system **shall** provide pre-recorded voice alert messages, informational messages, action to be taken, playing of customer selected audio (song, greeting, etc.), and other messages, to all persons in the area in the event of an emergency, test, and exercises.
82. The pre-recorded messages **shall** be provided upon contract award.

Features and Capabilities.

83. The new VA/PA system **shall** provide the following features and capabilities:

Siren Speakers

84. The contractor **shall** provide a solution to install the new weatherproof omnidirectional, high power speaker arrays and controllers at the identified siren locations.
85. The new siren speaker arrays **shall** provide adequate and intelligible live voice and prerecorded message coverage for the identified coverage areas. (see Figure 1).
86. The siren speakers **shall** deliver alert, warning and informational messages of what to do before, during and after an emergency, threats, exercises or disaster by the operators at the CMO located at Wayaca 33-E Oranjestad, Aruba.
87. The Primary Control Point **shall** transmit emergency announcements as live voice messages to alert and warn persons through remote siren speakers via microphone to any individual zone, group of zones, or all zones' speakers.
88. The Contractor **shall** ensure the locations of the speakers.
89. The Contractor **shall** provide sufficient intelligible voice and tone coverage.
90. The new VA/PA system **shall** have volume control capability that can be remotely controlled.
91. The software **shall** have the ability of providing dB adjustments for all sites, groups, or individual sirens without having to physically visit each location.

Wind Load

92. The sirens must be roof-top mounted and **shall** be designed to support full weight of the sirens and components to withstand a wind load of Category 3 hurricane (sustained wind 111 to 129 mph) and 140 mph 3 second gust.
93. Intrusion detection: The Contractor **shall** provide for intrusion detection with notification to the control point.
94. Padlocks or equivalents **shall** be used to secure all equipment enclosures.
95. The padlocks or equivalent **shall** be rust-resistant and keyed-alike (i.e., same key fits all padlocks or equivalents).
96. All keys/codes **shall** be delivered to the Government at project completion.
97. A detailed sound propagation analysis **shall** be performed to determine the exact siren speaker's size and intelligible voice coverage.
98. Sirens' speaker output levels **shall** not exceed the safety threshold and limitations IAW standards in paragraph 5.1. The approximate sound propagation and coverage is depicted in Figure 1.
99. Each Speaker Array **shall** be equipped with a siren controller unit, solar power panels, new J/F12 approved digital operation VHF radio (Motorola APX6500 or equivalent), and 256-bit encrypted control and status monitoring. The Siren Controller Unit utilizes a separate vented battery cabinet that isolates the batteries from the electronic circuitry. (May not be a requirement for Aruba)
100. The Siren Controller Unit **shall** use extremely efficient hot swappable pulse width modulated amplifiers or single board amplifiers to provide the highest reliability and efficiency in a small modular weatherproof enclosure. Controller units **shall** be powered from standard 12VDC batteries.
101. The sirens **shall** operate continuously for at least 30 minutes in tone and voice on battery backup.

- 102. The amplifier **shall** be a modular component, which is hot swappable or single board amplifier, allowing easier maintenance and increased redundancy.
- 103. The remote siren controllers **shall** allow for multiple activation sequences to be programmed from the primary or alternate control stations or locally at the siren site.
- 104. The VA/PA system **shall** be programmed to perform automatic testing of all speakers in the system, weekly and/or monthly routine report, quiet testing, growl testing, or a full system test.

Pre-programming

- 105. The VA/PA system **shall** be pre-programmed with the following list of messages in English. This is intended as a general list. An exact list of messages **shall** be provided by the CMO to the selected vendor, after the contract has been awarded.

Broadcasting Messages

(Shall be customized as part of the deliverable)

- | | |
|--------------------------------|------------------------|
| 106. Active Shooter | 136. Retreat |
| 107. Reveille/To the Colors | 137. Tornado Watch End |
| 108. Active Shooter End | 138. Flood Watch End |
| 109. Heat Advisory | 139. Retreat/Anthem |
| 110. Severe Warning | 140. Whoop |
| 111. All Clear | 141. Revei |
| 112. Heat Advisory, Black Flag | |
| 113. Severe Warning End | |
| 114. Alt. Steady | |
| 115. Lightning Warning | |
| 116. Severe Watch | |
| 117. Attach Warning | |
| 118. Lightning Warning End | |
| 119. Test Disaster Tone | |
| 120. Bugle Taps | |
| 121. Lightning Watch | |
| 122. Test Message | |
| 123. Chime | |
| 124. Lightning Watch End | |
| 125. To the Colors | |
| 126. Disaster Warning | |
| 127. Lockdown | |
| 128. Tornado Warning | |
| 129. Flash Flood Watch | |
| 130. Military Colors | |
| 131. Tornado Warning End | |
| 132. Flood Warning | |
| 133. Pulse Steady | |
| 134. Tornado Watch | |
| 135. Flood Warning End | |

Broadcasting Tones

- 142. Alt Steady
- 143. Alt Wail
- 144. Pulse Steady
- 145. Pulse Wail

Broadcasting Voice

- 146. Public Address
- 147. Audio level (line-level) input

- 148. Control System Functions
- 149. Reset – **shall** be used to reset all sites
- 150. Cancel – **shall** be used to cancel a message in mid-stream
- 151. Test Message – **shall** be preprogrammed or as needed
- 152. Silent Test – **shall** be available

Electrical Power

- 153. The Contractor **shall** use the existing electrical power sources to provide power to the VA/PA system.
- 154. The CMO will identify the facility and power for supplying the electrical power.
- 155. The Contractor **shall** work with the CMO to coordinate with and obtain approvals for access to power removal, modification, and/or installation feeds at each site.
- 156. Installations **shall** comply with NFPA 70 (National Electric Code) and UFC 3-520-01 low voltage requirements.

Coordination

- 157. All support **shall** be coordinated with, and approved by, the CMO.

Audible Signal

- 158. When broadcasting tone alerts for different warnings and when used as a vocal VA/PA system for command-and-control instructions, the speaker system **shall** produce an audible signal and intelligible voice messages to any persons in the designated area.
- 159. The speech intelligibility **shall** be .99 or greater.
- Siren manufacturers **shall** produce documented and published DB ratings of all sirens. Sirens **shall** produce 126db @ 100', conforming to the FEMA guidelines for decibel loss of double the distance.

Music and Voice

The VA/PA system **shall** be capable of broadcasting standard music selections and pre-recorded voice messages.

Onsite Training

- 160. Upon completion of the installation process, the Contractor **shall** provide User Training to the designated Site Staff in accordance with the customer requirements.
- 161. User training **shall** include step-by-step instructions on the utilization of all features of the system as well as basic system troubleshooting. The Contractor **shall** provide operational training to the users and system training to the Operators/Maintainers as needed.
- 162. Instructional sessions **shall** be permitted to be videotaped for future training purposes.

163. The Government **shall** retain the right to duplicate and distribute the training material for future training purposes.
164. This training **shall** include setup, configuration, operations, and user diagnostic, repair and replacement.
165. The contractor **shall** coordinate with the CMO to obtain a classroom for the instruction on the system, include the operational and maintenance requirements of the system for up to twenty (20) students.

Debris Removal and Site Restoration

166. The Contractor **shall** remove equipment (electronics, cabling, and power) which is not used in the project, to include all spares.
167. If needed, the Contractor **shall** coordinate with CMO on power removal, modification, and/or installation feeds at each site.
168. The contractor **shall** coordinate the disposal of all equipment and residuals from this project including amplifiers, wiring, conduits, and cabling with CMO, and as directed by the contracting officer, environmental laws and regulations in Aruba.
169. Prior to project completion, the contractor **shall** remove all debris and surplus materials from the workplace.
170. Equipment and materials required to complete the work effort may remain on site if they are organized/stored in a manner that does not cause a safety hazard.
171. The contractor **shall** restore the rooftop, and all disturbed areas to their original conditions upon completion of the installation.

Final Acceptance

172. The Contractor **shall** schedule a final project walk-through and complete system test of all work completed prior to close out with the government representative from CMO.
173. Final acceptance **shall** be scheduled at least 5 calendar days prior to the acceptance.
174. The contractor **shall** perform testing and inspections of the VA/PA systems and the approved test plan.
175. When any system, subsystem, component or requirement test fails to meet the requirements of a test, Government acceptance will be withheld until such time as the cause of the failure is corrected to the Government's satisfaction.
176. After appropriate corrective action has been taken, all tests including those previously completed, related to the failed test and the corrective action **shall** be repeated and successfully completed prior to Government acceptance.

Service Outages

177. The Contractor **shall** be responsible for preventing any unscheduled (i.e., cutting or disabling any in-service cables or equipment), Contractor-caused interruptions of communications capabilities.
178. It is recommended the Contractor coordinate all planned, known outages with CMO, prior to start of installation. Notification and coordination **shall** be 7 days in advance of the outage if the implementation necessitates disruption of services, (e.g., communications, electrical, or other utilities).

Identification/Marking

179. The Contractor **shall** clearly mark all Contractor-Furnished Property and Equipment (CFP/CFE) with their company's name.
180. The Contractor **shall** place an easily read, very visible, sign (minimum 8.5" x 11") on large containers, construction equipment, vehicles during the project indicating the company name and both the Contractor and Site POC's names and local telephone numbers.
181. The contractor **shall** label all equipment and cables they install in accordance with ANSI/TIA/EIA-606-A-2002.
182. The Contractor is responsible for coordinating and paying any repairs to Aruba infrastructure caused by damage made by the Contractor through negligence or failure to adhere to installation guidance on existing infrastructure (cables, power lines, equipment, etc.).

Installation Schedules

183. The Contractor **shall** provide a complete milestone schedule that denotes project activities to include time-phased start and completion dates for the project and sub-projects associated with the installation of the components and system.

Weekly Status Reports

184. The Contractor **shall** prepare a Weekly Status Report and distribute it to CMO. The purpose of the report is to inform IPT members of project progress, problems being encountered, and other topics necessary/beneficial to ensure success and timely completion of the contract requirements.

Red-Line and As-Built Drawings

185. The contractor **shall** submit drawings showing the "as built" configuration in Visio format, along with PDF format.
186. The As-Built Drawings **shall** include the locations of all site locations; the GPS coordinates of each site location, the logical diagram of the integrated VA/PA system, the facility location of the equipment, a floor plan of the room location, power source facilities and connections, a rack elevation plan of the integrated equipment, and tested coverage areas.
187. The coverage area drawings **shall** be shown on a satellite image of the coverage areas with the street names, facility locations and other geo-references shown.

Test Plan

188. The contractor **shall** submit a written test plan that details how they will test the VA/PA system and ensure compliance with Unified Facilities Criteria (UFC) 4-021-01.
189. In addition, the contractor **shall** submit written step-by-step and troubleshooting instructions to system operator(s) for conducting periodic system tests.
190. The VA/PA system **shall** be tested and demonstrated to the Government that the system is fully operational and meets or exceeds the specified requirements and that the system is fully ready to be placed into service.
191. The Contractor **shall** also test and demonstrate the VA/PA system to the Government Quality Assurance evaluator (e.g., clear intelligible live voice announcements at approximately 2000 ft. away from the siren site)Acceptance/Installation Test Report
192. The contractor **shall** provide an installation test report of the results of the testing accomplished under the installation test plan.

Testing Requirements

193. The Contractor **shall** furnish all test equipment and personnel required to conduct all required testing.
194. The Contractor **shall** perform the testing, optimize, and adjust the speaker volume level to prevent excessive distortion/echo of the voice message which will decrease intelligibility to unacceptably low levels.
195. The Contractor **shall** conduct a live voice test and the government personnel will listen and assess the intelligibility/clarity of the voice announcement at a distance of 2000 ft away from each siren site.
196. The Contractor **shall** document all test results in a "Test Report(s)" and submit to CMO within five (5) business days of completion of each test.
197. During any testing phase, the Government reserves the right to perform any of the Contractor performed inspections and tests to ensure solutions conform to prescribed requirements.
198. The Contractor **shall** bear the burden of any and all undisclosed costs. The Contractor **shall** provide on-site support during the acceptance testing.

10.1.6 GENERAL INFORMATION

Delivery Date

199. The delivery date **shall** be determined by the winning Contractor bid, but **shall** not exceed 90 days after the date of contract award.
200. All work including installation, training, testing, and acceptance **shall** be completed within this timeframe. GO Live is scheduled for March 4, 2024.

Place of Performance

201. The place of the performance is Aruba.

Hours of Operation

202. The Contractor **shall** perform the services required under this contract during normal duty hours of the facility where work is being performed.
203. Normal duty hours **shall** be: 0830 – 1700 local time.
204. Any other work schedule outside of normal duty hours **shall** require CMO approval. Most site locations are atop hotel roofs and the facility will be occupied during this effort.
205. Contractor **shall** accomplish the installation with minimum disruption to the facility. CMO will work with Contractor to ensure access is available as needed

CMO Support

206. The laydown and dry storage areas will be provided upon request.
207. The contractor **shall** request the amount of storage in their proposal and secure this area if needed.
208. It is recommended that all materials be provided at the same time for ease of storage and appropriate access.
209. If materials are not provided all at the same time, the CMO will provide storage for the Contractors first shipment and the Contractors **shall** be responsible for any other shipments (storage and access).

10.1.7 Government Equipment/Standards/Deliverables

Government Applicable Documents and Standards

210. The contractor **shall** comply with these documents during the performance of this contract.

211. All deliverables **shall** be subject to Government acceptance and approval.
212. They **shall** meet professional standards and the requirements set forth in this SOO.
213. All deliverables **shall** be produced using recommended software tools/versions as accepted by the Government.
214. The contractor **shall** obtain and comply with any other applicable manuals not identified above that would be required to meet industry standards:

This list includes, but is not limited to, the following:

- UFC 4-021-01; 9 Apr 2008, change 1, Jan 2010 - Design and O &M: Mass Notification Systems
- UFC 4- 010-01/02 - Minimum Antiterrorism Standard for Buildings
- AFI 10-2501 - AF Emergency Management Program Planning and Operations
- Executive Order 13407, 28 Jun 2006 - National Public Alert and Warning System
- OSHA CFR 29 Part 1910-268 - (1988) Telecommunications
- OSHA Occupational Noise Exposure
- FEMA Outdoor Warning Systems Guide
- REA TE&CM 701/PC-5A - Rural Electrification Administration
- (REA) REA TE&CM 643 Form 515C - Rural Electrification Administration (REA)
- Motorola Standards and Guideline for Communications Sites "R56" 68P81089E50 manual
- Technical Order (TO) 31-10-24 "Installation Practices – Communication Systems Grounding, Bonding, and Shielding"
- NEMA TC 2-1998 - Electrical Polyvinyl Chloride (PVC) Tubing and Conduit
- ANSI/TIA/EIA-568-B - (2001) Commercial Building Telecommunications (568B-1, 568B-2, 568B-3) Cabling Standard
- ANSI/TIA/EIA-569-A - (1998) Commercial Building Standard for Telecommunications Pathways and Spaces
- ANSI/TIA/EIA-606-A - (2002) Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
- ANSI/TIA/EIA-607 - (1994) Commercial Building Grounding and Bonding Requirements for Telecommunications
- ANSI/EIA-310-D - Cabinets, Racks, Panels, and Associated Equipment
- BICSI TDM Manual - (1998) Building Industries Consulting Services International Telecommunications Distribution Methods (TDM) Manual
- RUS Bulletin 1751F-640 - Design of Buried Plant-Physical Consideration RUS Bulletin 1751F-641 - Construction of Buried Plant
- RUS Bulletin 1751F-643 - Underground Plant Design
- RUS Bulletin 1751F-644 - Underground Plant Construction Telecommunications Engineering Shield Continuity and Construction Manual (TE&CM) 451.2
- RUS Bulletin 345-65 (PE-33) - RUS Specification for Shield Bonding Connectors
- RUS Bulletin 345-54 (PE-51) - RUS Specification for Telephone Cable Splicing Connectors
- RUS Bulletin 345-72 (PE-74) - RUS Specification for Filled Splice Closures
- RUS Bulletin 345-150 (515a) - Specifications and Drawings for Construction of Direct Buried Plant
- RUS Bulletin 345-151 (515d) - Specifications and Drawings for Underground Cable Installation
- Electronics Industry Alliance EIA-310-D - Cabinets, Racks, Panels, and Associated Equipment

- ANSI/TIA/EIA-758 - Outside Plant Telecommunication Cabling Standard
- ANSI/TIA/EIA-606 - Admin Standard for Commercial Telecom Standard PVC) Tubing and Conduit
- NFPA 70 - (2011) National Electric Code
- NFPA 72 - (2013) National Fire Alarm Code
- AFI 91-203, Chapter 23 - Air Force Consolidated Occupational Safety Instruction
- Unified Facilities Code (UFC) 3-520-01 (2012), Interior Electrical Systems
- Engineering Technical Letter (ETL) 11-29 (2011), Use of Light- Emitting Diode (LED) Fixtures in Airfield Lighting Systems on Air Force Installations and Enduring/Contingency Location.
- UFC 3-560-01 (2006), Electrical Safety, O&M
- UFC 3-535-01 (2005). Visual Air Navigation Facilities.
- NFPA 70E, Standard for Electrical Safety in the Work Place.
- UFC 3-510-01 Low Voltage Requirements
- NFPA 780 and UL 96A standards
- Code of Federal Regulations - Title 14 - Part 77, SAFE, EFFICIENT USE, AND PRESERVATION OF THE NAVIGABLE AIRSPACE

PROPOSED VA/PA LOCATIONS

	Location	Speaker Array	Power Source
CDRL001	High Rise Hotel Area	Omnidirectional	Primary: AC Backup: Solar
CDRL002	High Rise Hotel Area	Omnidirectional	Primary: AC Backup: Solar
CDRL003	Low Rise Hotel Area	Omnidirectional	Primary: AC Backup: Solar
CDRL004	Low Rise Hotel Area	Omnidirectional	Primary: AC Backup: Solar
CDRL005	Port	Omnidirectional	Primary: AC Backup: Solar
CDRL006	Airport/Fire Station	Omnidirectional	Primary: AC Backup: Solar

Figure 2 - Table 1. VA/PA Proposed Locations