

Request for Proposals

**STATEWIDE PUBLIC SAFETY WIRELESS
COMMUNICATIONS SYSTEM**

PROJECT NO. 060B9800036



**DEPARTMENT OF
INFORMATION TECHNOLOGY**

July 9, 2008

NOTICE

Prospective Offerors who have received this document from the Department of Information Technology's web site or eMarylandMarketplace.com, or who have received this document from a source other than the Procurement Officer, and who wish to assure receipt of any changes or additional materials related to this RFP, should immediately contact the Procurement Officer and provide their name and mailing address so that amendments to the RFP or other communications can be sent to them.

Minority Business Enterprises are Encouraged to Respond to this Solicitation

STATE OF MARYLAND

NOTICE TO OFFERORS/CONTRACTORS

In order to help us improve the quality of State proposals solicitations, and to make our procurement process more responsive and business friendly, we ask that you take a few minutes and provide comments and suggestions regarding the enclosed solicitation. Please return your comments with your proposals. If you have chosen not to submit a proposal on this Contract, please email this completed form to edward.bannat@doit.state.md.us.

Title: Statewide Public Safety Wireless Communications System

Project No: 060B9800036

1. If you have responded with a "no proposal", please indicate the reason(s) below:

- Other commitments preclude our participation at this time.
- The subject of the solicitation is not something we ordinarily provide.
- We are inexperienced in the work/commodities required.
- Specifications are unclear, too restrictive, etc. (Explain in REMARKS section.)
- The scope of work is beyond our present capacity.
- We cannot be competitive. (Explain in REMARKS section.)
- Time allotted for completion of the proposals is insufficient.
- Proposals requirements (other than specifications) are unreasonable or too risky. (Explain in REMARKS section.)
- Prior State of Maryland Contract experience was unprofitable or otherwise unsatisfactory. (Explain in REMARKS section.)
- Other: _____

2. If you have submitted a proposal, but wish to offer suggestions or express concerns, please use the Remarks section below.

REMARKS: _____

Offeror Name: _____ Date: _____

Contact Person: _____ Phone (____) _____ - _____

Address: _____

KEY INFORMATION SUMMARY SHEET

RFP Title:	Statewide Public Safety Wireless Communications System
RFP Number:	060B9800036
RFP Issue Date:	July 9, 2008
Closing Date and Time:	October 8, 2008; 2:00 P.M., Local Time
RFP Issuing Agency:	Department of Information Technology (DoIT) Office of the Secretary Division of Procurement Policy & Administration
Send Questions to:	Mr. Ed Bannat edward.bannat@doit.state.md.us Office Phone Number: 410-260-7662 Office FAX Number: 410-974-5615
Procurement Officer:	Mr. Ed Bannat Office Phone Number: 410-260-7662 Office FAX Number: 410-974-5615
Proposals are to be sent to:	Maryland Department of Information Technology 45 Calvert Street, Room 445 Annapolis, MD 21401 Attention: Ed Bannat
Contract Manager:	Mr. John Contestabile jcontestabile@mdot.state.md.us Office Phone Number: 410-865-1120
Contract Duration:	Eight Years w/seven, one-year renewal options
Pre-Proposal Conference:	July 24, 2008 10:00 AM (Registration begins at 9:30 AM) Room 164 45 Calvert Street Annapolis, Maryland 21401

NOTE:

Prospective Offerors who have received this document from the Department of Information Technology's web site or eMarylandMarketplace.com, or who have received this document from a source other than the Procurement Officer, and who wish to assure receipt of any changes or additional materials related to this RFP, should immediately contact the Procurement Officer and provide their name and mailing address so that amendments to the RFP or other communications can be sent to them.

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SECTION 1 – GENERAL INFORMATION

1.1 SUMMARY STATEMENT

The State intends to purchase an integrated statewide public safety wireless communication system. The State will use this system as the primary radio communication system for State agencies. Local and municipal first responders may also use the system for primary radio communications. The system will provide voice and data interoperability among its primary users and other public safety agencies to support Day-to-Day, Mutual Aid, and Task Force operations. The system shall be highly reliable, fault tolerant, spectrally efficient, easily scalable, and meet the operational expectations for public safety first responders.

1.2 ABBREVIATIONS AND DEFINITIONS

For the purposes of this RFP, the following abbreviations have the meanings indicated below. If the spelled out acronym is an entry in *Newton's Telecom Dictionary* 21st Edition and not in section 1.2 of this RFP, then the definition in *Newton's* shall be used:

1. °C. Celsius/Centigrade
2. °F. Fahrenheit
3. 7TAC. 700 Megahertz (MHz) Tactical Aid Channel
4. 8TAC. 800 Megahertz (MHz) Tactical Aid Channel
5. AC. Alternating Current
6. AES. Advanced Encryption Services
7. AGL. Above Ground Level
8. AI. Air Interface
9. ALI. Automatic Location Information
10. AMBE. Advanced Multi-Band Excitation
11. Amp. Ampere
12. ANI. Automatic Number Identification
13. APCO. Association of Public-Safety Communications Officials International
14. API. Application Programmer Interface
15. ASCII. American Standard Code for Information Interchange
16. ASTM. American Society for Testing and Materials
17. ATS. Automatic Transfer Switch
18. AVL. Automatic Vehicle Location
19. AWG. American Wire Gage
20. BAFO. Best and Final Offer
21. BOCA. Building Officials and Code Administrators International, Inc.
22. BTU. British Thermal Unit
23. CAI. Common Air Interface
24. CASM. Communications Assets Survey and Mapping
25. CATP. Coverage Acceptance Test Plan

26. CD-ROM. Compact Disk - Read Only Memory
27. Cm. Centimeter
28. CMARC. Central Maryland Area Regional Communications System
29. COMAR. Code of Maryland Regulations available on-line at www.dsd.state.md.us
30. Contract. The Contract awarded to the successful Offeror pursuant to this RFP. The Contract will be in the form of Attachment A.
31. Contract Manager. The State representative for this project that is primarily responsible for Contract administration functions, including issuing written direction, compliance with terms and conditions, monitoring this project to ensure compliance with the terms and conditions of the Contract and to assist the State Project Manager in achieving on budget/on time/on target (e.g. within scope) completion of the project.
32. Contractor. The selected Offeror that is awarded a contract by the State.
33. COTS. Commercial Off-The-Shelf
34. CPI. Consumer Price Index
35. CPM. Maryland Standard Section 109 CPM schedule
36. CT. Current Transformer (CT)
37. CTCSS. Continuous Tone Coded Squelch System
38. dBd. Decibel reference to a Dipole antenna
39. dBm. Decibel referenced to 1 Milliwatt
40. DAQ. Delivered Audio Quality
41. DC. Direct Current
42. DCS. Digital Coded Squelch
43. DES. Data Encryption Standard
44. DS0. Digital Signal 0 - 64 Kbps channel
45. DS1. Digital Signal 1 (24 voice channels; 1.544 Mbps)
46. DS3. Digital Signal 3 (28 T1 channels; 44.736 Mbps)
47. DTMF. Dual Tone Multi-Frequency
48. DVD-ROM. Digital Versatile Disk - Read Only Memory
49. DWF. Drawing Web Format
50. E1. European Basic Multiplex Rate (30 voice channels; 2.048 Mbps)
51. EFT. Electronic Funds Transfer
52. EIA. Electronic Industries Alliance
53. EMS. Emergency Medical Service
54. EMT. Electric Metallic Tubing
55. ESN. Electronic Serial Number
56. FAA. Federal Aviation Administration
57. FCC. Federal Communications Commission
58. FIPS. Federal Information Processing Standard

- 59. Ft. Feet
- 60. Fixed Hourly Labor Category Rates. Fully loaded maximum hourly rates established in the Contract that include all direct and indirect costs and profit for the Contractor to perform an additional work through a Task Order (TO). Indirect costs shall include all costs that would normally be considered general and administrative costs and/or routine travel costs, or which in any way are allocated by the Contractor against direct labor hours as a means of calculating profit or recouping costs which cannot be directly attributable to a TO as described in RFP Section 3.7.
- 61. GHz. Gigahertz
- 62. GOS. Grade of Service
- 63. GPS. Global Positioning System
- 64. GUI. Graphical User Interface
- 65. HF. High Frequency
- 66. HV. High Voltage
- 67. HVAC. Heating, Ventilation, & Air Conditioning
- 68. Hz. Hertz
- 69. I/O. Input/Output
- 70. ID. Unique Identification
- 71. IEEE. Institute of Electrical & Electronics Engineers
- 72. IM. Intermodulation
- 73. IMBE. Improved Multiband Excitation
- 74. IP. Internet Protocol
- 75. IRR. Instant Recall Recorder
- 76. ISDN. Integrated Services Digital Network
- 77. ISSI. Inter-Switching System Interface
- 78. IT. Information Technology
- 79. JPEG. Joint Photographic Experts Group
- 80. kHz. Kilohertz
- 81. Ksi. Thousands of pounds per Square Inch
- 82. KVA. Kilovolt-Ampere
- 83. kW. Kilowatt
- 84. LAN. Local Area Network
- 85. LCD. Liquid Crystal Display
- 86. LP. Liquid Propane
- 87. MB. Megabyte
- 88. MBE. A Minority Business Enterprise certified by the Maryland Department of Transportation under COMAR 21.11.03
- 89. MDE. Maryland Department of Environment
- 90. MESIN. Maryland Eastern Shore Interoperability Network

91. MIMICS. Maryland Incident Management Interoperable Communications System
92. Mm. Millimeter
93. MP3. Moving Picture Experts Group Layer-3 Audio
94. MPH. Mile Per Hour
95. Ms. Millisecond
96. MS Excel. Microsoft Excel
97. MS Word. Microsoft Word
98. MSRP. Manufacturer's Suggested Retail Price
99. MTAf. Maryland Technical Architecture Framework
100. NEC. National Electrical Code
101. NENA. National Emergency Number Association
102. Newton's Telecom Dictionary. 21st Updated and Expanded Edition by Harry Newton
103. NIST. National Institute of Standards & Technology
104. NPSPAC. National Public Safety Planning Advisory Committee
105. NTE. Not-to-Exceed Ceiling - Pertains to both Fixed Price and all Time and Material and Labor Hours types of Task Orders (TO) awarded under the Contract. It is a discrete dollar amount, listed in the TO that may not be exceeded. If the Contractor reaches this NTE Ceiling while performing under a TO, it shall stop performing any services for which it would seek payment beyond the NTE Ceiling amount, unless the Procurement Officer via Change Order authorizes an increase to allow the continuation of services.
106. NTP. Notice to Proceed. Written notice given by the State to the Contractor as authorization and direction to begin work in the areas specified.
107. OC3. Optical Carrier 3 (155.52 Mbps)
108. OEM Original Equipment Manufacturer
109. OFB. Output Feedback
110. OTAP. Over-The-Air Programming
111. OTAR. Over-The-Air Re-keying
112. P&L. Profit and Loss
113. P.E. Professional Engineer
114. P25. Project 25
115. PC. Personal Computer
116. PL. Plastic Laminate
117. PM. Project Manager
118. PMBOK. Project Management Body of Knowledge
119. PMP. Project Management Plan
120. Procurement Officer. The State representative, as identified in Section 1.5, responsible for this RFP, for the determination of Contract scope issues, and the only State representative who can authorize changes to the Contract.
121. PS. Public Safety

122. PSAPs. Public Safety Answering Point
123. PSF. Per Square Foot
124. Psi. Pounds per Square Inch
125. PSTN. Public Switched Telephone Network
126. PTT. Push-To-Talk
127. PVC. Polyvinyl Chloride
128. PWP. Project Work Plan
129. RAM. Random-Access Memory
130. RF. Radio Frequency
131. RFP. This Request for Proposals for the State of Maryland, Department of Public Safety and Correctional Services, Commissary Services, Solicitation Number 060B9800036, dated July 9, 2008, including any amendments.
132. RPC. Regional Planning Committees
133. SO. Seoprene
134. SAD/MOV. Silicon Avalanche Diode/Metal Oxide Varistor
135. SDLC. System Development Life Cycle
136. SHA. Maryland State Highway Administration
137. SLA. Service Level Agreement
138. SNMP. Simple Network Management Protocol
139. SOW. Statement of Work
140. SRS. Supplemental Radiating System
141. T1. T-carrier 1 (24 voice channels, 1.544 Mbps, digital transmission line)
142. TDD. Telecommunications Device for the Deaf
143. TDMA. Time Division Multiple Access
144. TIA. Telecommunications Industry Association
145. TSB. Telecommunication Standardization Bureau
146. UHF. Ultra High Frequency
147. UPS. Uninterruptible Power Supply
148. UTAC. UHF Megahertz (MHz) Tactical Aid Channel
149. VAC. Volts Alternating Current
150. VDC. Volts Direct Current
151. VHF. Very High Frequency
152. VOX. Voice Activated Transmit
153. VPN. Virtual Private Network
154. VSWR. Voltage Standing Wave Ratio
155. VTAC. VHF Megahertz (MHz) Tactical Aid Channel
156. VU. Volume Unit

157. WAN. Wide Area Network

1.3 CONTRACT TYPE

The Contract that results from this RFP shall be a firm-fixed price contract in accordance with COMAR 21.06.03.02 for the Public Safety Wireless Communications System and related services and an indefinite quantity contract with fixed unit prices in accordance with COMAR 21.06.03.06 for optional services as described in the RFP Section 3.7.1 Optional Services.

1.4 CONTRACT DURATION

The term of this Contract will be a period of eight years commencing on or about 1/1/2009 and terminating eight years after the effective date of the Contract. The State shall have the sole right to exercise up to seven, one-year renewal options at its discretion. The renewal periods will consist of purchased system support and maintenance after warranty and purchased maintenance in force during the base period if the Contract expires.

1.5 PROCUREMENT OFFICER

The sole point-of-contact in the State for purposes of this RFP prior to the award of any contract is the Procurement Officer as listed below:

Ed Bannat
Procurement Officer
Department of Information Technology
45 Calvert Street, Room 445
Annapolis, Maryland 21401
Telephone # 410-260-7662
Fax #: 410-974-5615
E-Mail: edward.bannat@doit.state.md.us

The Department may change the Procurement Officer at any time by written notice.

1.6 CONTRACT MANAGER

The Contract Manager is the State representative who monitors and assesses the performance of the Contractor and is designated below:

Mr. John Contestabile
Director
Maryland Department of Transportation
Office of the Secretary
Office of Engineering & Procurement and Emergency Services
7201 Corporate Center Drive
P.O. Box 548
Hanover, MD 21076
Telephone # 410-865-1120
E-Mail: jcontestabile@mdot.state.md.us

The Department may designate or change the Contract Manager at any time by written notice to the Contractor.

1.7 PRE-PROPOSAL CONFERENCE

A Pre-Proposal Conference (“Conference”) shall be held on **July 24, 2008**, beginning at **10:00 AM**, at the:

Department of Information Technology
45 Calvert Street, Room 164
Annapolis, MD 21401

Attendance at the Pre-Proposal Conference is not mandatory, but all interested Offerors are encouraged to attend in order to facilitate better preparation of their proposals. In addition, attendance may improve the Offeror's overall understanding of technical requirements and the ability to meet the State's Minority Business Enterprise (MBE) goals, affidavits, Living Wage and other administrative requirements.

The Pre-Proposal Conference will be summarized in writing. As promptly as is feasible after the Pre-Proposal Conference, a written summary of the Pre-Proposal Conference and all questions and answers known at that time will be distributed, free of charge, to all prospective Offerors known to have received a copy of this RFP.

In order to assure adequate seating and other accommodations at the Pre-Proposal Conference, please submit the Pre-Proposal Conference Response Form to the attention of Ed Bannat, preferably via e-mail at edward.bannat@doit.state.md.us, or via facsimile at **(410) 974-5615** with such notice no later than **2:00 PM, July 21, 2008**. The Pre-Proposal Conference Response Form is included as Attachment E to this RFP. In addition, if there is a need for sign language interpretation and/or other special accommodations due to a disability, it is requested that at least five days advance notice be provided. The Department shall make reasonable efforts to provide such special accommodation.

1.8 QUESTIONS

The Procurement Officer, prior to the Conference, shall accept written questions from prospective Offerors. If possible and appropriate, such questions shall be answered at the Conference. (No substantive question shall be answered prior to the Conference.) Questions may be submitted to the Procurement Officer by mail, facsimile, or preferably, by e-mail. Questions, both oral and written, shall also be accepted from prospective Offerors attending the Conference. If possible and appropriate, these questions shall be answered at the Conference.

Questions shall also be accepted subsequent to the Conference. All post-Conference questions should be submitted in a timely manner to the Procurement Officer only. The Procurement Officer shall, based on the availability of time to research and communicate an answer, decide whether an answer can be given before the proposal due date. Answers to all substantive questions that have not previously been answered, and are not clearly specific only to the requestor, will be distributed to all vendors who are known to have received a copy of the RFP.

1.9 PROPOSALS DUE (CLOSING) DATE

An unbound original and ten bound copies of each proposal (technical and financial) must be received by the Procurement Officer, at the address listed in Section 1.5, no later than 2:00 PM (local time) on October 8, 2008, in order to be considered. Additionally, eleven copies of the electronic versions of each proposal (technical and financial) shall also be submitted.

Requests for extension of the closing date or time shall not be granted. Offerors mailing proposals should allow sufficient mail delivery time to ensure timely receipt by the Procurement Officer. Except as provided in COMAR 21.05.02.10, proposals received by the Procurement Officer after the due date, October 8, 2008 at 2:00 PM (local time), shall not be considered. Proposals may not be submitted by e-mail or facsimile. Proposals shall not be opened publicly.

1.10 DURATION OF OFFER

Proposals submitted in response to this RFP are irrevocable for 120 days following the closing date of proposals or of Best and Final Offers (BAFOs), if requested. This period may be extended at the Procurement Officer's request only with the Offeror's written agreement.

1.11 REVISIONS TO THE RFP

If it becomes necessary to revise this RFP before the due date for proposals, amendments shall be provided to all prospective Offerors who were sent this RFP or otherwise are known by the Procurement Officer to have obtained this RFP. Amendments made after the due date for proposals shall be sent only to those Offerors who submitted a timely proposal.

Acknowledgment of the receipt of all amendments to this RFP issued before the proposal due date must accompany the Offeror's proposal in the transmittal letter accompanying the Technical Proposal submittal. Acknowledgement of the receipt of amendments to the RFP issued after the proposal due date shall be in the manner specified in the amendment notice. Failure to acknowledge receipt of amendments does not relieve the Offeror from complying with all terms of any such amendment.

1.12 CANCELLATIONS; DISCUSSIONS

The State reserves the right to cancel this RFP, accept or reject any and all proposals, in whole or in part, received in response to this RFP, to waive or permit cure of minor irregularities, and to conduct discussions with all qualified or potentially qualified Offerors in any manner necessary to serve the best interests of the State of Maryland. The State also reserves the right, in its sole discretion, to award a contract based upon the written proposals received without prior discussions or negotiations.

1.13 ORAL PRESENTATION

Offerors may be required to make oral presentations to State representatives. Significant representations made by an Offeror during the oral presentation must be reduced to writing. All written representations will become part of the Offeror's proposal and are binding if the contract is awarded. The Procurement Officer will notify Offerors of the time and place of oral presentations. Typically, oral presentations occur approximately two to four weeks after the proposal due date.

1.14 INCURRED EXPENSES

The State shall not be responsible for any costs incurred by an Offeror in preparing and submitting a proposal, in making an oral presentation, in providing a demonstration, or in performing any other activities relative to this RFP.

1.15 ECONOMY OF PREPARATION

Proposals should be prepared simply and economically, providing a straightforward, concise description of the Offeror's proposals to meet the requirements of this RFP.

1.16 PROTESTS/DISPUTES

Any protest or dispute related respectively to this RFP or the resulting Contract shall be subject to the provisions of COMAR 21.10 (Administrative and Civil Remedies).

1.17 MULTIPLE OR ALTERNATE PROPOSALS

Multiple proposals will not be accepted. However, an alternate proposal may be submitted and considered. The specifications set within this RFP are geared towards the procurement of a land mobile radio (LMR) system and are identified in terms commonly associated with such systems. Because there may be feasible non-LMR solutions, Offers may submit one alternate proposal that by design and

engineering may or may not be strictly considered land mobile radio systems. The same Offeror may also submit a LMR based solution. In the event an alternate proposal is submitted, the minimum requirements for RF coverage, capacity, reliability, interoperability, integrated voice and data, and the requirement to support agency operations as they currently exist must be met for consideration. The alternate proposal shall have the same depth and completeness as a LMR solution; however, the State recognizes elements of the requirements strictly centered on LMR solutions may be omitted from the alternate proposal.

1.18 MINORITY BUSINESS ENTERPRISES

A Minority Business Enterprise (MBE) subcontractor participation goal of 12% of the dollar value of the Contract minus subscriber equipment has been established for this procurement. Potential subcontractable areas include, but are not limited to: computer equipment sales and installation; staging and logistics; tower equipment installation; tower site construction/inspection; network/component field testing; and vehicle equipment installation. The Contractor shall structure its award(s) of subcontracts under the Contract in a good faith effort to achieve the goal in such subcontract awards by businesses certified by the State of Maryland as minority owned and controlled. MBE requirements are specified in ATTACHMENT D of this RFP. Subcontractors used to meet the MBE goal of this RFP must be identified in the Offeror's proposal.

Questions or concerns regarding the MBE requirements of this solicitation must be raised before the opening of bids or receipt of initial proposals.

ATTACHMENTS D-1 and D-2 must be completed and submitted with each Offeror's proposal. Failure of the Offeror to complete, sign, and submit attachments D-1 and D-2 at the time it submits its response to the RFP will result in the State's rejection of the Offeror's Proposal to the RFP. This failure is not curable.

A current directory of MBEs is available through the Maryland State Department of Transportation, Office of Minority Business Enterprise, 7201 Corporate Center Drive, P.O. Box 548, Hanover, Maryland 21076. The phone number is 410-865-1269. The directory is also available at <http://www.e-mdot.com/>. Select the MBE Program label. The most current and up-to-date information on MBEs is available via the web site.

1.19 ACCESS TO PUBLIC RECORDS ACT NOTICE

An Offeror should give specific attention to the clear identification of those portions of its proposal that it considers confidential, proprietary commercial information or trade secrets, and provide justification why such materials should not be disclosed by the State, upon request, under the Access to Public Records Act, Title 10, Subtitle 6, Part III, of the State Government Article of the Annotated Code of Maryland.

Offerors are advised that, upon request for this information from a third party, the Procurement Officer is required to make an independent determination whether the information can be disclosed. (See COMAR 21.05.08.01.) Information which is claimed to be confidential is to be identified after the Title Page and before the Table of Contents in the Technical Proposal and, if applicable, also in the Financial Proposal.

1.20 OFFEROR RESPONSIBILITIES

The selected Offerors shall be responsible for rendering services within the category for which they have been selected as required by this RFP. All subcontractors shall be identified and a complete description of their role relative to the proposal shall be included in the Offeror's proposal. Additional information regarding MBE subcontractors is provided under RFP Section 1.18, above.

If an Offeror that seeks to perform or provide the services required by this RFP is the subsidiary of another entity, all information submitted by the Offeror, such as but not limited to references and financial reports, shall pertain exclusively to the Offeror, unless the parent organization will guarantee the

performance of the subsidiary. If applicable, the Offeror's proposal shall contain an explicit statement that the parent organization will guarantee the performance of the subsidiary. Subcontractors retained for the sole purpose of meeting the established MBE participation goal(s) for this solicitation shall be identified as provided in Attachment D of this RFP.

1.21 MANDATORY CONTRACTUAL TERMS

By submitting an offer in response to this RFP, an Offeror, if selected for award, shall be deemed to have accepted the terms of this RFP and the Contract, attached as Attachment A. Any exceptions to this RFP or the Contract shall be clearly identified in the Executive Summary of the technical proposal; exceptions to the required format, terms and conditions of Financial Proposal must also be clearly identified in the Executive Summary, without disclosing any pricing information. A proposal that takes exception to these terms may be rejected.

1.22 PROPOSAL AFFIDAVIT

A completed Bid/Proposal Affidavit must accompany the Technical Proposal submitted by an Offeror. A copy of this Affidavit is included as Attachment B of this RFP.

1.23 CONTRACT AFFIDAVIT

All Offerors are advised that if a contract is awarded as a result of this RFP, the successful Offeror shall be required to complete a Contract Affidavit. A copy of this Affidavit is included for informational purposes as Attachment C of this RFP. This Affidavit must be provided within five business days of notification of proposed Contract award.

1.24 ARREARAGES

By submitting a response to this RFP, each Offeror represents that it is not in arrears in the payment of any obligations due and owing the State of Maryland, including the payment of taxes and employee benefits, and that it shall not become so in arrears during the term of the Contract if selected for contract award.

1.25 PROCUREMENT METHOD

This Contract shall be awarded in accordance with the Competitive Sealed Proposals process under COMAR 21.05.03.

1.26 VERIFICATION OF REGISTRATION AND TAX PAYMENT

Before a corporation can do business in the State of Maryland it must be registered with the Department of Assessments and Taxation, State Office Building, Room 803, 301 West Preston Street, Baltimore, Maryland 21201. It is strongly recommended that any potential Offeror complete registration prior to the due date for receipt of proposals. An Offeror's failure to complete registration with the Department of Assessments and Taxation may disqualify an otherwise successful Offeror from final consideration and recommendation for Contract award.

1.27 FALSE STATEMENTS

Offerors are advised that Section 11-205.1 of the State Finance and Procurement Article of the Annotated Code of Maryland provides as follows. In connection with a procurement contract, a person may not willfully:

1. Falsify, conceal, or suppress a material fact by any scheme or device;
2. Make a false or fraudulent statement or representation of a material fact; or

3. Use a false writing or document that contains a false or fraudulent statement or entry of a material fact.

A person may not aid or conspire with another person to commit an act under subsection (a) of this section. A person who violates any provision of this section is guilty of a felony and on conviction is subject to a fine not exceeding \$20,000 or imprisonment not exceeding five years or both.

1.28 NON-VISUAL ACCESS

The Bidder or Offeror warrants that the information technology offered under this bid or proposal (1) provides equivalent access for effective use by both visual and non-visual means; (2) shall present information, including prompts used for interactive communications, in formats intended for both visual and non-visual use; (3) if intended for use in a network, can be integrated into networks for obtaining, retrieving, and disseminating information used by individuals who are not blind or visually impaired; and (4) is available, whenever possible, without modification for compatibility with software and hardware for non-visual access. The Bidder or Offeror further warrants that the cost, if any, of modifying the information technology for compatibility with software and hardware used for non-visual access shall not increase the cost of the information technology by more than five percent. For purposes of this regulation, the phrase “equivalent access” means the ability to receive, use, and manipulate information and operate controls necessary to access and use information technology by non-visual means. Examples of equivalent access include keyboard controls used for input and synthesized speech, Braille, or other audible or tactile means used for output.

1.29 USE OF “E-MARYLAND MARKETPLACE”

eMarylandMarketplace (eMM) is an electronic commerce system administered by the Maryland Department of General Services. In addition to using the DoIT web site (www.doit.maryland.gov) and other means for transmitting the RFP and associated materials, the solicitation and summary of the pre-bid/proposal conference, Offeror questions and the Procurement Officer’s responses, addenda, and other solicitation related information will be provided via eMM. In order to receive a contract award, a vendor must be registered on eMM. eMM registration is made through the eMarylandMarketplace website at www.eMarylandMarketplace.com.

1.30 PAYMENTS BY ELECTRONIC FUNDS TRANSFER

By submitting a response to this solicitation, the Offeror agrees to accept payments by electronic funds transfer unless the State Comptroller’s Office grants an exemption. The selected Offeror shall register using the COT/GAD X-10 Vendor Electronic Funds (EFT) Registration Request Form attached as Attachment K. Any request for exemption shall be submitted to the State Comptroller’s Office for approval at the address specified on the COT/GAD X-10 form and shall include the business identification information as stated on the form and include the reason for the exemption. The COT/GAC X-10 form can be downloaded at: <http://compnet.comp.state.md.us/gad/pdf/GADX-10.pdf>

1.31 LIVING WAGE

A solicitation for services under a State contract valued at \$100,000 or more may be subject to Title 18, State Finance and Procurement (SFP) Article, Annotated Code of Maryland. Additional information regarding the State’s Living Wage requirement is contained in this solicitation (see Attachment M entitled “Living Wage Requirements for Service Contracts”). If the Offeror fails to submit and complete the Living Wage Affidavit of Agreement (See Attachment N), the State may determine an Offeror to be not responsible.

Contractors and Subcontractors subject to the Living Wage Law shall pay each covered employee at least \$11.30 per hour, if State contract services valued at 50% or more of the total value of the Contract are performed in the Tier 1 Area. If State contract services valued at 50% or more of the total contract value

are performed in the Tier 2 Area, an Offeror shall pay each covered employee at least \$8.50 per hour. The specific Living Wage rate is determined by whether a majority of services take place in a Tier 1 Area or Tier 2 Area of the State. The Tier 1 Area includes Montgomery, Prince George's, Howard, Anne Arundel, and Baltimore Counties, and Baltimore City. The Tier 2 Area includes any county in the State not included in the Tier 1 Area. In the event that the employees who perform the services are not located in the State, the head of the unit responsible for a State contract pursuant to §18-102 (d) shall assign the tier based upon where the recipients of the services are located.

The contract resulting from this solicitation has been determined to be a Tier 2 contract.

1.32 NON-DISCLOSURE AGREEMENT

Additional information regarding the network information, locations of critical equipment and statewide wireless systems architecture in Appendices 1, 3, 7, 8, 9, 10, and 12, may be requested from the Procurement Officer. The information will be provided upon receipt of a nondisclosure agreement from the Offeror. A copy of the agreement may be found at Attachment N.

The successful Offeror awarded a Contract will have access to certain documents and materials as may be required to fulfill the requirements of the RFP. The Contractors, employees and agents who require access to such documents as part of their contractual duties will be required to sign a Non-Disclosure Agreement.

All Offerors are advised that if a contract is awarded as a result of this RFP, the successful Offeror (Contractor) shall be required to complete a Non-Disclosure Agreement. A copy of this Agreement is included for informational purposes as Attachment I of this RFP. This Agreement must be provided within five business days of notification of proposed Contract award.

1.33 CONTRACT EXTENDED TO INCLUDE OTHER NON-STATE OF MARYLAND GOVERNMENTS OR AGENCIES

For the purposes of an information technology or telecommunications procurements, pursuant to §3-702(b) of the State Finance and Procurement Article of the Annotated Code of Maryland, county, municipal, and other non-State of Maryland governments or agencies may purchase from the Contractor goods or services covered by this contract at the same prices chargeable to the State. All such purchases by non-State of Maryland governments or agencies:

1. Shall constitute contracts between the Contractor and that government or agency;
2. Shall not constitute purchases by the State or State agencies under this contract;
3. Shall not be binding or enforceable against the State, and
4. May be subject to other terms and conditions agreed to by the Contractor and the purchaser. Contractor bears the risk of determining whether or not a government or agency with which the Contractor is dealing is a State agency.

1.34 CONTRACT PRICE ADJUSTMENTS

1. Price Adjustments. Price adjustments shall apply to both fixed and indefinite quantity elements of the contract. Because of uncertainty over when notices to proceed (NTPs) will be given for discrete fixed price tasks, a price adjustment factor for each year of the contract and renewal options shall be set based on the CPI as outlined below with the purpose of mitigating contractor risk in a long term contract. Prices proposed in the Attachment F price sheets should all be in today's dollars. Accordingly:
 - a) Prices paid for any fixed price element shall be adjusted based on the year in which the NTP is given for that fixed price element.

- b) Prices paid for any equipment item, optional or not, outside a regional implementation (which includes that equipment as part of the region's fixed price) will be based on MSRP minus a discount rate.
 - c) Prices paid for optional services labor will be adjusted based on the year in which the service is given.
 - d) Prices paid for optional services upgrades or additions (not equipment) beyond the fixed price scope of work shall be based on the year in which the optional services or additions are ordered.
2. The fixed price elements and fixed labor rate elements of the contract are subject to adjustments based on the consumer price index as described below. Prior to the anniversary date of the Contract for each year, the Contractor shall be entitled to an adjustment to any billing resulting from ordered services. The sequence of actions to implement a price adjustment is as follows:
- a). At least thirty (30) calendar days prior to each anniversary date of the Contract, the Contract Manager shall advise the Contractor of the allowable percentage adjustment that may be applied for each labor rate for the twelve month period following the anniversary date. The adjustment shall be based on the change in the Consumer Price Index (CPI) as calculated below. In the event the calculation exceeds seven percent (7%), the maximum increase shall be limited to seven percent (7%) of the then current Contract labor rates.
 - b). Within fifteen (15) calendar days of the receipt of the State's notice of adjustment, the Contractor shall submit a schedule of revised labor rates to the Contract Manager if it wishes to obtain a rate increase. In the event the CPI for the measured period is negative, the Contractor shall reduce prices accordingly. In the event the CPI for the measured period is positive, the Contractor shall have the option of keeping existing Contract prices or changing to any price up to the maximum allowable percentage increase.
 - c). The adjustment for any contract year will be calculated as a percentage resulting from the change in the index for the most recent twelve month increments beginning from the most current month available as posted by the U.S. Department of Labor, Bureau of Labor Statistics (BLS). (The second year would be one twelve-month increment, the third year would be two twelve-month increments, and so on). A price for any fixed price element in the Contract would be determined by the contract year in which the order is placed. The price adjustment for a contract year would fix the price for the entire year. Additionally, if an ordered requirement has a duration that crosses into the next contract year, the price would not change but shall be determined by the order/NTP date no matter how long it takes to complete the tasks outlined in the NTP.
 - d). The revised labor rate schedule shall be used for billing effective the first day of each successive year of the Contract.
3. Consumer Price Index Information:
- The adjustment shall be calculated by reference to the annual change in the U.S. Department of Labor, Bureau of Labor Statistics (BLS), CPI-All Urban Consumers for:
 - Area: Washington-Baltimore, DC-MD-VA-WV
 - Item: All items
 - Series ID: CUURA311SAO
 - Base Period: November 1996 = 100
4. The following example illustrates the computation of percent change:

CPI for most currently available period	184.3
Less CPI for previous period	180.9
Equals index point change	3.4
Divided by previous period CPI	180.9

Equals	.019
Result multiplied by 100	.019 x 100
Equals percent change	1.9%

5. In the event that the BLS discontinues the use of the index described above, adjustments shall be based upon the most comparable successor index to the CPI. The determination as to which index is most comparable shall be within the sole discretion of the State.

1.35 MERCURY AND PRODUCTS THAT CONTAIN MERCURY

The State is required by COMAR 21.11.07.07 to give a preference to procuring products and equipment that are mercury-free. The price preference is .1 percent (.001) of the price for equipment offered in response to RFP Section 3.3 minus subscriber equipment (RFP Section 3.3.7). If mercury-free products and equipment that meet the product performance requirements in this RFP are not commercially available, the State shall give the same preference specified above to products containing the least amount of mercury necessary to meet performance requirements. The State requires a completed Mercury Affidavit (See Attachment O) to be submitted with each technical proposal to determine mercury content in products proposed. Because of the variety of products that may be offered in response to this RFP, an Offeror can attach a list of products to the Mercury Affidavit as needed.

SECTION 2 – MINIMUM QUALIFICATIONS OF OFFEROR

2.1 QUALIFICATIONS

Offeror is a product manufacturer or systems integrator of public safety wireless communication systems with demonstrable successful experience in providing wireless networks on a scale equal to or greater than:

1. 50 transmitter sites
2. 10,000 subscribers
3. Two regions
4. Three independently operating entities

2.2 FORM OF PROOF

The form of proof to be submitted with the Offeror's technical proposal as part of or an attachment to the Executive Summary is a self certification showing at least one deployment that meets all the described minimums with equal or greater magnitude. One reference for each deployment will also be submitted to permit independent validation. The form of proof will be added to the Executive Summary of the Offeror's proposal. See RFP Section 4.4.4 Executive Summary.

SECTION 3 – SCOPE OF WORK

3.1 OVERVIEW

3.1.1 Purpose

The State of Maryland recognizes the importance of real time voice and data communications capabilities for public safety agencies, as well as interoperable communications across the various disciplines of public safety, levels of government, and our neighboring States. First-responders must be able to communicate with each other to provide immediate and coordinated assistance in times of emergency, minimizing the loss of life and property.

The State intends to purchase an integrated statewide public safety wireless communication system. The State will use this system as the primary radio communication system for State agencies. Local and municipal first responders may also use the system for primary radio communications. The system will provide voice and low-speed data interoperability among its primary users and other public safety agencies to support Day-to-Day, Mutual Aid, and Task Force operations. The system shall be highly reliable, fault tolerant, spectrally efficient, easily scalable, and meet the operational expectations for public safety first responders.

3.1.2 Background

Traditionally, jurisdictions and agencies have built stand alone systems meeting their individual agency needs. However, the deployment of independent non-integrated systems throughout the State (owned and operated by State, county, and local agencies) has created situations which hamper cross-jurisdictional, and cross-discipline (police, fire, EMS, transportation, etc.) communications. In Maryland, radio communication interoperability among State agencies and localities is hampered by the use of different operating frequency bands, technologies, and system architectures. These systems are generally voice only and do not support mobile data applications. Since many State agency voice systems will need to be replaced within the next five years as they reach their end of life-cycle and to meet the FCC narrow banding deadline, the State of Maryland desires to implement an enterprise solution for a statewide public safety wireless communication system that supports operable and interoperable public safety voice and low speed data communications.

The State and other units of local government own and operate wireless systems employing frequencies ranging from the VHF low band through the 800 MHz band for mobile communications and in the microwave radio frequency bands for point to point and/or point to multipoint communications. The State also owns, maintains, and operates multiple microwave and fiber optic backhaul transport systems. The contracted system shall maximize the use of the existing backhaul network and tower infrastructure to leverage the State's investment in this network and reduce the cost of the Statewide Public Safety Wireless Communications System, but not to the detriment of performance requirements in this RFP.

A variety of conventional and trunked voice radio technologies are used by the agencies, some of which are based on proprietary technology. Operating in mixed bands and utilizing proprietary technology has negative impacts on operability and interoperability at all levels of government. Currently, the radio spectrum usage throughout Maryland is distributed across the various public safety bands with insufficient spectrum in any common band available for a statewide communications network except for the 700 MHz frequency band. Discrete frequencies, users, and operational groups for stakeholder agencies can be found in Appendix 1, *State Agency Licensed Frequencies*.

3.1.3 Program Management, Design, Build Out, Implementation and Operations Scenario

3.1.3.1 General

The specifications in the RFP and subsequent contract deliverables are designed to be flexible in their implementation due to uncertainty over timing of funding and gaining the necessary approvals. Accordingly, the Statewide Public Safety Communications System will be implemented in phases by region over the course of the eight year base period of the contract. Each region will have discrete tasks associated with its program management, design, build-out, implementation and operations. Moreover, each region will have a specific start date (notice-to-proceed (NTP)) determined by the State. The discrete tasks to meet system requirements are specified in subsequent sections of this RFP. Although it is the intent of the State to implement all regions, there is no guarantee that a NTP will be given to the contractor for any region. Regions are identified in Appendix 2 – *State Regions and Coverage Area Definition*.

3.1.3.2 Region Deployment Options

There are three possible deployment options for each region that the State may choose from. Each of these possibilities is listed in the RFP price sheet at Attachment F. A NTP will implement one or two of these three options for each region and the option chosen may differ for each region.

1. “Public Service” is defined as designing a system to meet all RFP requirements, and deploying a subset of that system exclusively on existing infrastructure. Equipment will only be deployed on towers that are part of the complete communications system; i.e., only the infrastructure that is required to meet the requirements of the RFP. Equipment will not be deployed on an existing tower if that tower will not be used as part of the final design. This path will likely not meet the reliability and coverage requirements of the RFP but will likely be the least expensive alternative as it requires no new tower construction and uses only existing infrastructure. This path can stand alone.
2. “Public Safety-Build” is defined as building infrastructure and deploying a system to meet all RFP requirements. This path essentially represents the optimum solution regardless of existing infrastructure although the Contractor should maximize existing assets to complete this solution. This solution shall meet all RFP requirements including reliability and coverage. This path can stand alone.
3. “Public Safety-Upgrade” is defined as upgrading and constructing infrastructure from “Public Service” levels to “Public Safety” levels, meeting all RFP requirements. This path would meet RFP reliability and coverage requirements and be implemented in conjunction with the “Public Service” path. Accordingly, the “Public Safety-Upgrade” path would never be implemented in isolation since it would not be a complete “system” if it stands alone. This path must be integrated with the “Public Service” path to be a fully capable and deployed system.

3.1.3.3 Pricing Model

To reduce the Contractor risk inherent in changing costs and fluctuating economic conditions in a long term contract, the pricing model is dependent upon two concepts so that the State bears the risk of uncertainty. By assuming that risk, the State believes the Contractor will be able to submit better and more competitive pricing.

1. Prices for all requirements including program support, system build out and optional services but excluding specified equipment (both system and subscriber) shall be referenced in today’s dollars in the Contractor’s price proposal (RFP, Attachment F). Those prices will then be adjusted depending upon the year in which a notice to proceed is given using the price adjustment mechanism specified in the RFP Section 1.34.

2. Prices for specified equipment (both system and subscriber) shall be linked to a discount rate for equipment the Contractor specifies as part of its solution. The equipment descriptions (make and model) shall initially be specific but the general type of equipment as it is updated and modernized in the Contractor's supply point (manufacturer's catalog) will be available to users at the predetermined discount rate off MSRP as specified in the RFP Attachment F.

3.1.3.4 Contract Users

The Contractor will have different users during the course of the Contract as the system is developed and matures. Contractor/subscriber relationships and the environment in which "orders" are placed are summarized below:

1. The Contract Manager will be initially responsible for issuing notices to proceed for a regional implementation, monitoring work/performance and approving Contractor submissions to include invoices.
2. The State shall appoint a Project Manager to be the primary liaison and contact point for a statewide and/or regional implementation. If a Project Manager is appointed for a region, the scope of his/her duties will be described by the State to the Contractor.
3. Acquiring user/subscriber equipment (RFP Section 3.3.7 Subscriber Equipment Requirements and RFP Attachment F5) will be left to each agency to order off the contract and will not be ordered in any centralized manner as part of the core system being acquired in each region. An agency purchase order will be sufficient to obtain subscriber equipment if the item is part of this contract, there is a published MSRP and there is an applicable discount rate.
4. In addition to State agency orders, it is possible that other public entities may wish to place orders for equipment under this Contract using the provisions of the RFP Section 1.33. As a reminder, these "other public entity" purchases will not be made with State funds and will be done by separate arrangements between the requiring entity and the Contractor using the rates and terms/conditions in this Contract.
5. System equipment required for the build out and described in this RFP as part of the fixed price system package will be approved centrally through either the Contract Manager or Project Manager and ordered/installed by the Contractor.
6. Optional system equipment, optional site development or optional labor services as described in RFP Sections 3.7.1 and 3.7.2 will be ordered and approved centrally through either the Contract Manager or Project Manager. See RFP Attachment F4 for system equipment and accessories pricing; F2 for site development pricing; and F6 for labor pricing.
7. Within a region, the State can elect to assume maintenance and support requirements on or before the anniversary dates of the contract following regional system acceptance.

3.1.3.5 Post Implementation

The Contractor's program management, design, build-out, implementation work will carry a region to the point of a delivered and accepted system. After a regional final acceptance, the implemented region will fall into an operations mode meaning the State will assume responsibility for operating the system and the Contractor's responsibility will be reduced to only system support and maintenance as elected by the State and outlined in RFP Section 3.6. At some further point, the State may elect to perform system support and maintenance functions as noted above.

3.1.4 General Requirements Summary

The State intends to purchase an integrated statewide public safety wireless communication system that will provide State, local, and regional public safety first responders' real time operable and interoperable voice and low speed data services that support Day-to-Day, Mutual Aid, and Task Force operations. The system shall be highly reliable, fault tolerant, spectrally efficient, easily scalable, and meet the operational requirements for public safety first responders.

The system will use a common infrastructure and operate within the 700/800 MHz band of frequencies allocated to and licensed by the State of Maryland or any of its public safety partners. It shall provide a minimum of 97% reliability across 95% of the defined coverage areas which includes Maryland's land area, all jurisdictions and waterways. The only exception to the 97% reliability and 95% coverage standards would be in those regions where the State chooses the "Public Service" path as described in RFP Section 3.1.3, above. All other requirements apply to the "Public Service" path. The system elements shall be linked by a backbone network of multi-dimensional redundancy. Because of the sizable State investment in existing infrastructure, backbone and equipment, any new site acquisition, antenna construction, backbone equipment and subscriber equipment shall be backward compatible to leverage that investment and reduce the cost of the major new system and network.

The primary land mobile radio frequency infrastructure for new equipment must operate in the 700 MHz band on frequencies available to and licensed by the State of Maryland. System architecture must allow for multiple band operations or overlay systems where desired by user agencies to accommodate unique coverage requirements within certain geographic areas, or during migration periods. Multiple band operations or overlay systems cannot be used as an approach to providing the system coverage required in an area or region.

The system shall be a turn-key system with a firm list of itemized prices for all equipment, software, and services required by these specifications. Implementation of the entire radio system shall be provided in five phases corresponding to the regions as defined in Appendix 2, *State Regions and Coverage Area Definition*. Testing and acceptance will occur after the deployment in each region, followed by the system final acceptance after the last region is completed. Finally, the system, after acceptance by the State, will be operated by the State with contractor system support in the base and renewal periods as outlined in RFP Sections 3.6 and 3.7.

3.1.4.1 Functional Requirements Summary

1. A multi-agency land mobile radio (LMR) network accessible by state, local, or federal government entities to conduct public safety or public service communications.
2. Operate in the 700/800 MHz band on frequencies available to and licensed by the State of Maryland.
3. Interoperate with existing public safety radio systems.
4. Provide statewide coverage across 95% of the defined implementation region, as defined in Appendix 2, *State Regions and Coverage Area Definition*, with a portable radio being operated on the users' hip, inside of a structure.
5. Provide a minimum of 97% reliability with a minimum Delivered Audio Quality (DAQ) of 3.4 when operating in the digital mode.
6. Support at least 100,000 unique addresses.
7. Support at least 5,000 talk groups.
8. Support individual agency autonomy.
9. Provide integrated voice and data capabilities.
10. Secure Over-The-Air Programming (OTAP).

11. Secure encrypted communications with Over-The-Air Re-keying (OTAR) capability.
12. Support direct radio-to-radio operation.
13. Uninterrupted roaming throughout the system when required and authorized.
14. Support the use of U.S. encryption standards.

3.1.4.2 Technical Requirements Summary

The State requires a radio system leveraging emerging open standards and meeting all existing FCC regulations. Detailed technical requirements are defined in Section 3.2. A summary of the requirements are as follows:

1. Compatibility with APCO Project 25 Phase 2 standards (ANSI/TIA/EIA-102 series) as required by FCC Rules in 47 C.F.R. 90.547 and 47 C.F.R. 90.548, with a guaranteed timeframe for completion of a network wide migration to a TDMA solution with an equivalent 6.25 kHz per voice channel spectral efficiency, within four years from the date of the initial NTP.
2. Provide a digital trunked mode of operation.
3. The system design shall be modular to permit enhanced coverage for portable and in-building operation, and increased capacity as a result of increased number of units for currently participating agencies and for additional participating agencies as they come onto the system.
4. End-to-End IP Networking.
5. Provide interoperability by:
 - a) Enabling interoperable voice communications among all participating agencies,
 - b) Incorporating mutual-aid channels on frequencies used by the local system,
 - c) Supporting networking with legacy systems,
 - d) Supporting the interlinking of Systems at the Console to Console level, and
 - e) Interfacing local government radio systems.
6. Provide mobile data networking meeting data standards required by FCC 90.548, and APCO Project 25 Phase 2.
7. Provide a communications backbone that:
 - a) Is highly redundant,
 - b) Provides a minimum individual Path reliability of 99.9999 %,
 - c) Provides a minimum Route reliability of 99.9995 %, and
 - d) Minimizes capital cost to the all users while providing high redundancy and reliability through maximum practicable use of existing State backhaul transport networks.

3.2 SYSTEM REQUIREMENTS

3.2.1 General

The radio system shall be an APCO Project 25 Phase 2 digital trunked public safety radio system. It shall be compliant with all FCC Rules & Regulations and compatible with APCO Project 25 Phase 2 standards.

All interfaces — including protocols (e.g. message definitions) and physical connections — to any system shall be open standard and non-proprietary and comply with the minimum requirements of the APCO Project 25 Phase 2 specifications for subsystem and inter-system communications standards.

The system shall be a statewide public safety wireless communication system that allows any participating state, local, or federal government entities to use a state-of-the-art voice and data radio communications system. The system shall use a defined backbone to interconnect dispatch centers, base station repeater (“repeater”) and other network components to provide high-reliability, interoperable services to its users. Basic benefits of the new system shall include:

1. Wide-area portable in building communications throughout the State,
2. Interoperability among all participants — in accordance with their level of authorization,
3. Interoperability with others using specifically-designated interoperability/mutual aid channels as well as specifically designated talk groups, and
4. Networking systems to other systems by means of appropriate inter/intra-system network interfaces.

The radio network shall provide public-safety and public-service agencies with communications solutions to serve the residents of the State of Maryland well into the foreseeable future.

3.2.2 Wide Area Coverage

The system shall provide the ability to place and receive radio transmissions from any point within the coverage area as defined in Appendix 2, *State Regions and Coverage Area Definition*. It shall provide a minimum of 97% reliability across 95% of the defined implementation regions which includes Maryland’s land area, all sub-jurisdictions and waterways. The State shall be subdivided into five regions as defined in Appendix 2, *State Regions and Coverage Area Definition*.

3.2.3 Digital Modulation and Common Air Interface

The system must provide a Radio Frequency (RF) infrastructure that supports spectrally efficient digital modulation and is capable of operating with open standards-based common air interfaces.

3.2.4 APCO Project 25 Phase 2

The system shall be compatible with all APCO Project 25 Phase 2 requirements and standards, including but not limited to a digital common air interface that is TDMA based using a 6.25 kHz channel or equivalent bandwidth and for the supporting system (i.e., radios and infrastructure).

3.2.4.1 APCO Project 25 Phase 2 Migration

If the technology solution is not compliant with APCO Project 25 Phase 2, the technology solution must include a guaranteed timeframe for completion of a network wide migration to a TDMA solution with an equivalent 6.25 kHz per voice channel spectral efficiency, in no event longer than four years from the date of contract award.

The migration plan must include, but not be limited to, guaranteed timelines for: (a) completion of a network wide migration, (b) user transition plans, (c) recovery plans should a failure occur during the migration, and (d) system impact analysis to include but not limited to system channel capacity and subscriber equipment upgrade logistics. The Contractor shall describe any migration path actions that would require a subscriber unit to be removed from field operations and identify the associated down time.

3.2.4.2 APCO Project 25 Solution

The Contractor shall have an APCO Project 25, technology solution capable of operating with subscriber units manufactured by at least three different manufacturers.

3.2.5 System Availability

The system shall have a fault-tolerant architecture that permits the radio system to continue operation in the event of a hardware or software malfunction.

All system sites shall be capable of maintaining trunking operation in the event of a failure of a site controller, control channel, and/or a single backbone (microwave or fiber) path failure.

3.2.6 Transport System Expansion Capability

System throughput, grade of service, circuit congestion, or packet loss must not be further degraded by the transport system due to expansion of the system to the limits of its capacity.

3.2.7 Expansion Capability

The system must be scalable and have the ability to expand and upgrade all system components including, but not limiting to, software and firmware to maintain compatibility with future product offerings and enhancements.

3.2.8 Performance

3.2.8.1 Support Agencies As They Exist

The system must support the operations of user agencies as they currently exist, without requiring material changes in agency structure, service area boundaries, operational protocols, or function in order to provide the desired communications. Appendix 3, *State Agency Radio Inventory and Geographic Operations*, provides existing operational requirements of each affected State agency.

3.2.8.2 Provide Multipoint Voice Communications

The system must provide multipoint voice communications directly between registered users of mobile and portable radios, RF control stations, console operator positions, or other dispatch point(s) throughout the State's service area. This communication must be simultaneous to all users of a group, and must not require operator intervention other than a user's selection of their own desired talk group.

3.2.8.3 End to End IP with Ethernet Interface

Connectivity for all offered infrastructure equipment (repeaters, dispatch consoles, message switching and routing, and transport equipment) must be accomplished using Internet Protocol (IP) from end to end, with Ethernet interface for local site equipment. It is required that any equipment, including mobiles, portables, RF control stations and vehicular repeaters be individually addressable and accessible from the management and administration sub-system described elsewhere.

3.2.8.4 Addition of Dispatch Points

The infrastructure must allow for the addition of dispatch points by expansion of appropriate interfaces without affecting or requiring the replacement of logic and control hub equipment.

3.2.8.5 PSTN Interconnection

The system infrastructure must be capable of providing interconnection of authorized users with the Public Switched Telephone Network (PSTN).

3.2.8.6 System Level Latency and Delays

Total access delay time plus latency time between two subscriber radios in any two or more cells of the system must be less than 700 milliseconds from Push-To-Talk (PTT) to reception and passage of voice information.

3.2.8.7 Voice Latency

Delay of voice information (speech delay or latency) must be less than 200 milliseconds total when communicating directly from unit to unit. This includes vocoder delay, digital encoding, and digital encryption time. During the delay period, voice information shall be buffered.

3.2.8.8 Intra-Cell Latency and Delays

Total access delay time plus latency time between two subscriber radios in the same cell of the system must be less than 500 milliseconds from PTT to reception and passage of voice information.

3.2.8.9 Grade of Service

The system must be designed to provide a Grade of Service (GOS) such that less than one percent of the offered traffic will be expected to be queued during the busiest period of the day, with a waiting time of no more than three seconds for queued calls.

1. A delayed call shall be considered to be any communication attempt not immediately establishing a talk-path. In this definition, "immediate" refers to time not exceeding the specified system access time limit.
2. The delay time of a call shall be considered to be the length of time, beyond the specified system access time limit, that any communication attempt requires to establish a talk-path.
3. A blocked call shall be considered to be any communication attempt that fails to establish a Talk-path within a delay time of 3.0 seconds.
4. The daily busy hour for each site location shall be considered to be the busiest one-hour traffic period experienced over the course of a day.
5. All site locations shall have the ability to handle communications traffic at a Grade-of-Service level not to exceed 0.01. The Grade of Service for communications at each site location is defined as the daily busy-hour ratio of blocked calls to number of communication attempts.

3.2.8.10 Subscriber Roaming

The system must ensure that subscriber roaming (system switching, handoff, or cell changes) will not result in any delay, interruption, or loss of communications to any traffic in progress for any user. The system must ensure that if such situations of delay or interruption are possible, that the conditions and duration be identified. Examples would be where a subscriber unit is transmitting, receiving or in standby while crossing any site cell, or regional architectural boundary.

3.2.8.11 Vocoder Performance

The system must ensure that voice coder (vocoder) intelligibility, reliability, and efficiency meet or exceed the performance specified by TIA TSB 88 standards in terms of mean opinion scores, required data rates, and immunity from falsing with non-voice signals. The use of IMBE, AMBE, or equivalent vocoders will be considered.

3.2.8.12 Simultaneous Voice and Data Support

Any integrated or mixed voice and data system offering must support simultaneous voice and data operations from end to end. There must be no requirement for users to interrupt or disable

one use to access the other. In a voice and data contention condition, voice transmission shall be given the priority over data transmissions.

3.2.8.13 Low-Speed Wireless Data

The system must provide low-speed wireless data access and service to users. The low-speed wireless data system must provide a minimum “payload” data throughput as required by the APCO Project 25 standard and must support at least 60 concurrent users per RF Site.

3.2.8.14 System Unit Capacity

The system must be capable of, but not limited to, supporting at least 100,000 unique addresses and 5,000 talk groups. Addresses are used to identify any individual unit of subscriber equipment or managed infrastructure equipment. The system architecture shall be scalable, without replacement, such that additional system loading (talk groups and subscriber equipment within an area) can be accommodated. Frequency planning must allow for additional trunked channels to be added to transmitter sites in order to accommodate additional system loading.

3.2.8.15 Subscriber Mobility

The system must ensure that a radio unit’s local area of operation be defined as the user’s home area and all adjoining areas. The system must ensure that the radio units automatically select the best radio site or “cell” for two-way operation in this local area. The Contractor shall provide the infrastructure or subscriber radios to support mobility and manage automatic access outside of this local area, in order to minimize spectrum resource demands.

3.2.8.16 Region Area Operations

In addition to localized operation, the system must ensure that radio subscriber units and system infrastructure have the ability to operate in a region area mode for selected talk groups. Regions are defined in Appendix 2, *State Regions and Coverage Area Definition*.

3.2.8.17 Migration and Growth Path

The system must be configured with adequate channels to meet the existing and future capacity requirements and user demands as defined in Appendix 3, *State Agency Radio Inventory and Geographic Operations*. The system must provide a defined migration and growth path for the anticipated number of users, channels, and sites.

3.2.8.18 Interoperability

There are three general categories of subscriber unit interoperability. Any dispatch point can communicate on the interoperability portion of the network infrastructure.

1. Unit-to-unit/talk group, direct and through the system.
2. Unit-to-unit between one system and another systems units operating in the same frequency band, direct and through the network.
3. Unit-to-unit between one system and another systems units operating in frequency different bands using the network infrastructure.

3.2.8.18.1 APCO Project 25 Phase 1

The system shall be backwards compatible with existing APCO Project 25 Phase 1 700/800 MHz trunked radio systems.

3.2.8.18.2 System Network Interface

The system must include, identify and reserve at least 50 interfaces for interoperability with local or regional groups. This is in addition to providing operation on the designated 700 MHz interoperability frequencies.

3.2.8.18.3 *Analog Interface*

At least twenty-five full-duplex 600 Ohm 4-wire E & M signaling, 0 dBm Transmit level and -10 dBm Receiver level audio interfaces shall be included. These interfaces shall be deployed in groups of five in each of the new system regions.

The system shall be fully capable of providing gateways for full-featured (to the extent practicable) inter-connecting with other standardized systems and with the following manufacturers' proprietary (non-standards based) systems.

1. MA/COM
2. Motorola
3. Transcrypt-EF Johnson
4. Any other public-safety radio system operating in or adjacent to the State

The system shall be fully capable of providing gateways for full-featured (to the extent practicable) inter-connecting with the following types of systems available from the manufacturers listed above.

1. Digital
2. Analog
3. Trunked
4. Conventional

3.2.8.18.4 *Local Interoperability*

The system design must ensure that capacity is included to provide interoperability via dedicated talk groups between the State's voice system and local government Public Safety Answering Points (PSAPs) or other public service communication centers.

3.2.8.18.5 *Mutual Aid*

The system design shall be fully capable of providing interoperability with regional systems such as MIMICS, MESIN and CMARC operating on National Mutual Aid frequencies (i.e., 8TAC, UTAC and VTAC) that may be used by outside users on an infrequent basis. Appendix 4, *Mutual Aid Interoperability Systems - MIMICS, MESIN, CMARC*, contains specific information for the interface to these networks. The system shall provide any terminal device, within its range of authorization, the capability to communicate with other units operating on the FCC-designated mutual aid channels.

The system shall include a set of common talk groups to provide interoperability among participating agencies. Terminal devices, within their range of authorization, shall be capable of operating on these common talk groups.

3.2.9 Operation

3.2.9.1 Priority Access

The system must accommodate a minimum of five levels of priority access for first responders and associated entities, and allow for automatic ruthless preemption of other users, if needed, to accommodate high priority user demand and emergencies.

3.2.9.2 Dynamic and Ad Hoc Groups

Radio units and system infrastructure must support the establishment and activation of dynamic groups, which allow operation of ad hoc talk groups as established by system managers.

3.2.9.3 User Registration/De-Registration

The system must allow the users to select from among an available pool of talk groups, and must recognize that the individual user is now part of that talk group (user registration/de-registration). System management may restrict or allow access by talk group and site for any individual user or group.

3.2.9.4 Command Post Operations

The system must allow user agencies to set up and operate locally intensive communications for special operations, disasters, and other high-risk, high-volume events using spectrum resources not part of the existing local infrastructure. The system solution must provide additional system capacity and throughput, coverage enhancement, or both to accommodate command post operations. Such “command post” operations must be capable to operate independently of or as part of the Statewide Public Safety Wireless Communications System. Potential operations shall include:

1. Portable repeaters (pack-carried or hand-carried),
2. Mobile additional infrastructure sites (“cell on wheels”), and
3. Airborne deployable stand alone cell sites.

3.2.9.5 Single Unit Required for Access

System users must be able to access the system using a single portable or mobile unit regardless of their location in the service area.

3.2.9.6 Emergency Call and Man Down

The system must be supplied with an emergency call feature, and an emergency call button must be present on each subscriber unit. Emergency calls may be configured as audible or silent to the user. An optional “Man Down” feature shall be offered. The “Man Down” feature shall not use a “position from vertical” methodology for activation.

3.2.9.7 Selective Calling to Individuals

The infrastructure and subscriber units must be designed to allow selective calling to and from individual users, without interrupting operations on the selected talk group.

3.2.9.8 Unit ID and Alias Display

Subscriber units must be offered which support the display of unique unit identification (ID) and text alias conversion with a minimum of 16 alphanumeric characters.

3.2.9.9 Talk Group Scanning

The radio system must allow selection of alternate talk groups of interest, and automatically monitor them in a sequential manner, while optionally monitoring the currently selected talk group with priority (priority and non-priority scan of talk groups).

3.2.9.10 MIL-STD-810F

Each agency must have the ability to purchase, as an option, radios compliant with MIL-STD-810F with respect to salt water spray and driven rain.

3.2.9.11 Over-The-Air Programming

The system must provide the capability to program or update subscriber equipment using Over-The-Air Programming (OTAP) methods. The system must provide the inclusion of methods or mechanisms to authenticate user equipment ensure the integrity of reprogramming commands, and to provide “fall-back” capability for incomplete, aborted, or unsuccessful programming attempts.

3.2.9.12 Support for Airborne Users

The infrastructure system design must accommodate, allow for and operate with airborne, and aircraft-mounted communications equipment.

3.2.10 Security

3.2.10.1 End-to-End Encryption

Communications carried by the interoperability system may contain sensitive information regarding critical infrastructure and vulnerabilities, protected patient information, ongoing criminal investigations, protective services, surveillance, or similar activities. As such, the system must ensure that encrypted communications not be decoded at intermediate points within the infrastructure.

3.2.10.2 Access Limitations

Access to the system must be limited to authorized users, and provided only within the geographic regions where communications are necessary and appropriate.

3.2.10.3 Subscriber Unit Authentication

The network management system must authenticate all users by an Electronic Serial Number (ESN) or equivalent unique identifier for validation of services and access. It must be possible to immediately disable any individual radio from the network management system so that it may not access the system, initiate a call, or receive traffic. Any radio so disabled shall continue to broadcast its position data at intervals and shall be capable of being polled without alerting the subscriber operator. A radio so disabled must be physically reset by an authorized system manager.

3.2.10.4 Management of Dynamic Groups

Radio units and system infrastructure must support the establishment and activation of dynamic groups, which allows operation on special talk groups as established on an “as-needed” basis by system managers.

3.2.10.5 Advanced Encryption Services

Voice and data radio systems must support digital encryption using Advanced Encryption Standard (AES) or an equivalent method approved by the State.

3.2.10.6 Multiple Key Encryption Capability

The system must provide encryption systems with multiple-key operation, which is compatible with, and supports operation with users’ existing encryption systems and allows key selection on a “per talk group” basis. At least six different keys shall be available per subscriber unit.

3.2.10.7 Over-The-Air Re-keying

The system must provide the ability to use Over-The-Air Re-keying (OTAR) for the management of encryption keys, and to allow their change without need to recall or physically connect to subscriber radios. The system also must provide the use of a key management facility to store keys and track re-keying progress. The system must provide the ability to partition the

management of keys, and to allow distributed "self-management" by individual agencies, if desired. The system also must provide the capability to include two keys, one for the network infrastructure (Network Operations Center), and one for the agency subscriber equipment (Agency Operations Center).

3.2.10.8 Physical and Network Security

3.2.10.8.1 *Site Security and Control*

The system is a mission-critical communications system for a wide variety of using entities operating in critical situations. As such, the continued, uninterrupted, uncompromised functioning of the system and its sites, facilities, and components is of paramount importance.

1. The physical security of the system and the information security of its traffic shall be provided at a level commensurate with that normally established for critical public-safety communication systems.
2. The State shall be solely responsible for the safety and security of all system backbone sites, facilities, and components within facilities managed by the State.
3. Security of all components located at sites that are not under control of the State (i.e. under the control and management of counties or municipalities within the State) shall be similarly afforded as equipment in State managed facilities (e.g. located within secure equipment enclosures within the space provided by such entities).

3.2.10.8.2 *Control of Network Access*

1. The Contractor shall obtain a Criminal Justice Information Service State and Federal criminal background check, including fingerprinting, for each employee with direct access to system infrastructure and equipment that service, program, or support network operations. This background check may be performed by a public or private entity. A successful Criminal Justice Information Service State and Federal criminal background check shall be completed prior to any Contractor employee providing services on site at any location covered by this Contract. The State reserves the right to refuse to allow any Contractor's employee to work on State premises, based upon the results of the check.
2. All background information for personnel with direct access to system infrastructure and equipment shall be provided to the State Project Manager for approval prior to allowing access.

3.2.10.8.3 *Information Security*

1. The system network shall be capable of operating with encryption that has been validated to conform with Federal Information Processing Standard (FIPS): 140-2, (140-3) Security Requirements for Cryptographic Modules; 46-2, Data Encryption Standard (DES); 81, DES Modes of Operation, Data Encryption Standard (DES) using Output Feedback (OFB) mode; and 197 AES Advanced Encryption Standard; or later NIST approved standards.
2. Security Classification Level 3 encryption standards shall be available to appropriately authorized users for secure end-to-end applications.
3. The system shall provide the following minimum security protection of the control signaling over the Air Interface (AI).
 - a) Anti-alias
 - b) Anti-spoofing

- c) Protection against unauthorized eavesdropping
 - d) Subscriber authentication
 - e) Encrypted user and talk-group identities
4. There shall be a key management utility available to authorized users for use at designated administrative levels within the network, to maintain, distribute, and delete (disable communications in the case of lost or stolen) encryption keys, ensuring their integrity and confidentiality. This capability shall be exercisable by direct connection to terminal equipment or through Over-the-Air Re-keying (OTAR) with minimal impact on system operational capacity.

3.2.10.8.4 Physical Security

1. Physical security of remote sites shall include, but is not limited to, entry gates, perimeter fences with barbed wire, locks allowing service contractor, and designated State agency personnel site access, concrete structures with steel door entryways, grilled or otherwise access limited windows.
2. All components of site security shall be of suitable strength and design, and will reasonably withstand attempts to gain unauthorized access.
3. All sites shall contain intrusion detection and communications ability so as to inform the controlling agency of an intrusion in real time.

3.2.11 Data Requirements

This section includes requirements specific to the communication of data throughout the network.

3.2.11.1 Data Types

The system shall be capable of supporting applications that transmit and receive various forms of data content, including but not limited to:

1. Short Messaging (e.g. up to 254 bytes),
2. Text and American Standard Code for Information Interchange (ASCII) data,
3. Image and Graphics (e.g. JPEG files),
4. Binary files (e.g. MP-3 files), and
5. Video (e.g. from streaming to full motion).

3.2.11.2 Data Transfer

The data types shall be supported for the following transfer modes in both conventional and trunked operation.

1. Radio-to-radio
2. Radio-to-many-radios
3. Radio-to-dispatcher
4. Dispatcher-to-radio
5. Dispatcher-to-many-radios

3.2.11.3 Interfacing to Peripheral Devices

1. To provide the highest degree of functionality, portable and mobile terminal equipment shall have the capability to interface with independent peripheral devices through use of the standard interfaces available on their radios.

2. Examples of peripheral devices are: Mobile Computer Terminals, Printers, Facsimile, Image Scanner, Finger Print Scanner, Bar Code Reader, Card Reading Device, and Digital Camera.

3.2.11.4 Automatic Vehicle/Vessel Location (AVL)

The system must provide two way communication supporting subscriber location position reporting. This is to include providing an open standard data interface to AVL equipment and applications provided by third party manufacturers. The interface shall provide an automated exchange of digital information between the system and the external Computer Aided Dispatch/Record Management System in accordance with standards published by the Association of Public-Safety Communications Officials (APCO) International and the National Emergency Number Association (NENA).

3.2.11.4.1 Automatic Vehicle Location (AVL) Requirements

1. AVL shall be offered as an option for Tier II and Tier III portables and mobiles.
2. The AVL option will be powered from its associated subscriber unit.
3. The AVL system shall have the capability to track and locate individual units to within a five-meter radius.
4. The AVL system shall be integrated within the terminal equipment.
5. Subscriber units shall transmit AVL data upon direct command or at programmable intervals, consistent with not causing excessive loading of the system.
6. The AVL must be capable of simultaneously transmitting location data and an alert message when the emergency “man down” feature is activated.

3.2.11.5 Computer Aided Dispatch/Record Management System

The system must provide two way communication supporting subscriber reporting and messaging. This includes providing an open standard data interface to equipment and applications provided by third party manufacturers. The interface shall provide an automated exchange of digital information between the system and the external Computer Aided Dispatch/Record Management System in accordance with standards published by APCO and the NENA.

3.2.11.6 Data Throughput

The system must provide the data rate as specified in the APCO Project 25 standard. As a combined voice and data trunked radio communications network that is able to accommodate variable traffic conditions, dynamic bandwidth allocation is the preferred method for achieving the data throughput goal.

3.2.11.7 High Speed Wireless Data

The system subscriber units shall provide an interface to allow the interconnection to other private or public high speed wireless data networks. This shall be accomplished via a mobile router or similar method. The unit shall select the appropriate available network automatically without operator intervention.

3.2.12 Dispatch Points

Dispatch point locations and their required console capacity to be included in the design are listed in Appendix 6, *Dispatch Point Location and Console Capacity*.

3.2.12.1 Consoles Utilizing IP

A console systems interface to control the radio and data systems must be created. Consoles must use Internet Protocol (IP) connectivity for all voice, data, activity, and parallel console status information.

3.2.12.2 Regional Dispatch Organization and Functions

The supporting network and console subsystem architecture must accommodate regional dispatch organizations and functions.

3.2.12.3 Dispatch Console System

The console system must be scalable supporting between one and 20 operator positions.

3.2.12.4 Regional Dispatch Groups

The supporting network and console subsystem architecture must accommodate both collocated and non collocated consoles to be configured into a regional dispatch facility with all functions of each console.

The system shall accommodate the establishment of 20 regional dispatch groups. Each dispatch group must support a minimum of 200 operator positions.

3.2.12.5 Console Unit ID, Alias, and Stacking Display

Console operator positions must provide an individual unit ID and text alias readout for calling units, and a stacking display to reflect the last ten unit calls for the visible talk groups.

3.2.12.6 Console Indication of Emergency

Console operator positions must provide an indication of the activation of an emergency switch by any user, and have the ability to acknowledge the emergency alarm. The Unit ID for an unacknowledged emergency alarm must not scroll from the Unit ID display.

3.2.12.7 Computer Aided Dispatch and Record Management Systems Interface

Each console shall provide a standard interface allowing the automated exchange of digital information related to the radio system unit operations and alarms with Computer Aided Dispatch and Records Management Systems. The digital information shall be accomplished in the accordance with the standards published by the National Emergency Number Association (NENA) and the Association of Public-Safety Communications Officials (APCO) International.

3.2.12.8 Logging Recorder

Each dispatch system must provide a logging recording capability with an interface to provide connection to, and operation with the new system, having a capacity to simultaneously record 510 talk groups.

3.2.12.9 Instant Recall Recorder

Each dispatch system must provide an instant recall recording capability for each operator position. It shall provide an interface to provide connection to the console operators' microphone/telephone audio and the selected radio channel receiver and telephone audio.

3.2.12.10 Wireless Data Interfaces

The system must supply a wireless data subsystem(s) interface to at least six host computer systems or local area networks operated by the State. The system shall provide fire walls and an intrusion detection system to meet the State's security standards. The State's Information Technology Security Policy and Standards are located at: www.doit.maryland.gov - keyword Security Policy.

3.2.12.11 Legacy Console Interface

The system architecture must provide an interface to allow connection of existing or planned legacy, connection based or circuit switched (non-IP) consoles to the new system. A list of existing consoles is provided in Appendix 6, *Dispatch Point Location and Console Capacity*.

3.2.13 System Reliability and Redundancy

3.2.13.1 System Status and Alarm Monitoring

The system must provide the ability to continuously monitor system status and alarms in order to be aware of isolated or widespread system failures.

1. The status and alarm monitoring system shall provide a custom GUI that has been formatted per the State's direction. This interface shall provide a pictorial representation of the State of Maryland showing the location of all active system elements and allow easy access to a specific system element's operating status.
2. The operator interface shall have multiple levels of access and be web based allowing both local and remote operation.
3. The status and alarm monitoring system shall have a means to provide alarm condition notification to designated personnel using assigned radio pagers, telephone text messages, and email notifications in addition to local audio and visual alarm indicators.
4. The status and alarm monitoring system shall maintain a database of all alarm events, such as, but not limited to the following: event type, device identification, time, date, major or minor, personnel notified and event resolution.
5. In addition to the event database, the status and alarm monitoring system shall have the ability to create custom reports as configured by the State in both electronic and hardcopy formats.

3.2.13.2 Continuous Availability

The system must provide that the architecture and maintenance procedures for the system be such that continuous availability is achieved. Scheduled maintenance of the system shall not require interruption in service.

3.2.13.3 Graceful Degradation of System

In addition to the basic reliability and redundancy features, the design of infrastructure must ensure that fault tolerance is an integral part of the Statewide Public Safety Wireless Communications System. In the event of one or more total failures in transport or key system components, the system must ensure that operations slowly degrade from a full featured system with centralized control and management, to limited management and features, and allow for some level of basic communications and coverage from implemented sites, even in the event of a total loss of system management and local control.

3.2.13.4 Specialized Resources

In the event of the total loss of a site, or specialized coverage needs for intense operations, the system must allow for the deployment of specialized equipment and resources within four hours of arrival on site to provide service to users.

3.2.13.5 Emergency Backup Power

The Statewide Public Safety Wireless Communications System will serve public safety and public safety support organizations of local and state government agencies, and provide communications support for their operations. As such, reliability is a key feature for all system elements. Sites developed by the contractor shall provide emergency backup power from

generators and uninterruptible power supplies to allow full operation without commercial power for an indefinite period, with refueling or maintenance required no more frequently than every 96 hours during emergency run times.

3.2.13.6 Redundancy

System reliability will be accomplished by utilizing redundant configurations, alternate locations and interconnections.

3.2.13.7 Single Points of Failure

System architecture and implementation must be designed to preclude all single point(s) of failure in the system infrastructure that will result in the loss of communications with any user.

3.2.13.8 Loss of Capacity

No failure in the system shall result in the loss of more than 15% of the system's peak capacity. The system design must ensure that the loss of a single site does not cause widespread outages or transport congestion at adjacent sites. No single site loss shall result in the loss of more than 5% of the system's peak traffic capacity.

3.2.13.9 Use of Existing Transport Systems

The system must maximize use of existing transport systems used by the State, either digital microwave or fiber, where they exist for voice and data system interconnection. Appendix 7, *Microwave Network Path List*, contains a table with the network endpoints/nodes of the existing transport systems used by the State. The design shall assume that adequate capacity and performance is available on the State backhaul transport system. Where existing transport systems used by the State are not available, the Contractor must provide new transport networks.

3.2.13.10 Site Connectivity and Interface Levels

The system must include all equipment necessary for connection of the voice and data systems to the fixed transport infrastructure, and must interface with the digital microwave or other transport system at a DS1 level, allowing DS0 level grooming on channel bank equipment where necessary or appropriate. If direct interface to digital transport is not possible, then the system must provide the necessary interface to affect that connection.

3.2.14 RF Design

3.2.14.1 Prediction Modeling

Radio system coverage shall be predicted through use of a radio wave propagation model that has been developed on the basis of theoretical and empirical data, and will consider terrain irregularity, foliage, urban clutter, noise and long and short term signal variations.

3.2.14.2 Coverage

The system design shall be based on APCO Project 25 Phase 2 performance as required to provide the specified reliability throughout the coverage area as defined above. Portable radios shall be configured using a hip-worn radio in a belt loop case and speaker-microphone without antenna. The maximum output transmit power of a portable radio is limited to 3 Watts for determining the system coverage.

The basic network coverage design shall be applicable to vehicles, aircrafts, railroad trains, and vessels traveling at speeds up to 150 MPH. At least 95% of all test locations within the State shall meet or exceed the coverage threshold for both voice and data.

The requirement for supplemental in-building portable coverage is defined for specific locations required by agencies. Supplemental coverage requirements must be equal to or better than the statewide requirements. Appendix 8, *Critical Facilities*, provides a list of building that may use

supplemental radiating system (SRS) only if the wall loss of the building exceeds that of the defined coverage area loss.

Wireless Voice Requirement:

- All coverage requirements described in this section require a round trip (transmit and receive) delivered audio quality (DAQ) rating of 3.4 as defined in current edition of TIA/EIA/TSB88-B (*Wireless Communications Systems -Performance in Noise and Interference - Limited Situations – Recommended Methods for Technology – Independent Modeling, Simulation, and Verifications*).

Low Speed Wireless Data Requirement:

- The system shall provide portable data coverage across 95% of each region as defined in Appendix 2, *State Regions and Coverage Area Definition*, while being operated on the hip inside of a structure providing a minimum “payload” data throughput as required by the APCO Project 25 standard. Mobile data coverage applicable to vehicles, aircrafts, railroad trains, and vessels can be measured using a mobile antenna.

All coverage predictions shall provide a minimum of 97% reliability across 95% of each Region as defined in Appendix 2, *State Regions and Coverage Area Definition*. The coverage area includes Maryland’s land area, all jurisdictions, and all waterways up to 10 miles offshore in the Atlantic Ocean along the entire coastline of the State. Coverage prediction shall use a minimum of 30-meter terrain data overlay and a minimum of 100-meter land use classification overlay for performance modeling of the coverage area. Coverage performance prediction shall be calculated and illustrated via maps and tables to reflect level of performance using portable radios. The system development must include a measurement and verification methodology to ensure and demonstrate compliance.

3.2.14.3 Operational Conditions

The system shall be designed to provide the specified coverage under the following conditions:

1. On a statewide basis, outside of the areas defined below as urban areas, critical building and special locations, with coverage inside of buildings allowing for 12 dB building wall loss. The margin shall be in addition to diffraction and shadowing losses of operating portable radios in land use classification environments and terrain database overlays.
2. Provide for coverage inside of urban areas illustrated in Appendix 2, *State Regions and Coverage Area Definition*, allowing for 24 dB building wall loss. The margin shall be in addition to diffraction and shadowing losses of operating portable radios in land use classification environments and terrain database overlays.
3. Critical Buildings require coverage to be provided from the radio infrastructure. Appendix 8, *Critical Facilities*, provides a list of building that may use supplemental radiating system (SRS) only if the wall loss of the building exceeds that of the defined coverage area loss.
4. Provide for on-street coverage throughout the areas defined in Appendix 9, *Special Coverage Locations*.

3.2.14.4 700 MHz Channel Plan

The Contractor shall develop a 700MHz Channel Plan using the 700 MHz State License channels. The plan shall only use General Use pool channels after demonstrating the requirements cannot be met with the State License channels. Due to the uncertainty of the obtaining General Use pool channels, it is not permissible for any site to consist entirely of General Pool channels.

The Contractor shall work closely with the Regional Planning Committees (RPC) of Region 20, Region 28, Region 36, Region 42, Region 44 and the State of Maryland License holder to prepare

all frequency coordination and license applications for signature by the State. The Contractor shall bear all costs associated with any and all license modifications, and/or waivers. Due to the uncertainty to secure spectrum agreements with the RPCs and neighboring State License holders, the State of Maryland reserves the right to add/delete/modify restrictions placed upon the usage of the 700 MHz frequencies.

3.2.14.5 Conformance to Spectrum Agreements

All 700 MHz frequencies employed in the system design must conform to FCC Rules & Regulations, interstate spectrum agreements and NPSPAC Regional plans as defined by inter-regional and intra-regional agreements of Region 20, Region 28, Region 36, Region 42, and Region 44.

3.2.14.6 Channel Loading

Appendix 3, *State Agency Radio Inventory and Geographic Operations*, contains the existing and projected channel loading of State agencies on a per county basis. The design shall use the existing loading requirements and expansion options to accommodate future loading predictions.

3.3 EQUIPMENT AND EQUIPMENT SUPPORT REQUIREMENTS

3.3.1 General

All equipment, materials and related services supplied including but not limited to electronics, hardware, software, and etc. shall be brand new from the manufacturer, commercially available, and suitably designed and installed in accordance with FCC, FAA, building code and appropriate specifications and standards.

For the duration of the contract, the State requires direct access to the manufacturers' web sites containing each manufacturer's entire current equipment offering for the product lines in the delivered system. The manufacturers' web sites will be used by the State to validate the commercial availability and current MSRP for products.

3.3.2 Radio Transmission Sites

Equipment provided at each site shall consist of repeaters and all other associated hardware and software for an APCO Project 25 digital trunked radio system.

3.3.2.1 APCO PROJECT 25 Trunked Repeaters

All repeaters shall be capable of providing APCO Project 25 digital trunked voice and data services to user radios. All repeaters shall be capable of being configured as either an APCO Project 25 control channel and/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. Repeaters shall provide automatic call sign identification that meets the FCC requirements for identifying APCO Project 25 trunked repeater sites. The system shall provide the ability to reconfigure individual repeaters through the network backhaul interface.

3.3.2.2 Site Controllers

APCO Project 25 trunked repeaters shall include the site station channel controller or site controller, which coordinates the aggregation and distribution of voice and data calls between the site's repeaters and the wide area radio system controller.

3.3.2.3 Station Control

All APCO Project 25 trunked repeaters shall be controlled and managed through a GUI based system management software running on a central system management server. The system

management software shall provide for remote control of various functions, including but not limited to, the following:

1. Placing a hot-standby repeater on-line (if available at the site),
2. Taking a repeater off-line,
3. Commanding local repeater controls on/off,
4. Retrieving and setting repeater operating parameters, and
5. Retrieving and setting repeater transmit/receive frequencies.

3.3.2.4 Physical and Environmental

The APCO Project 25 trunked repeaters, including repeater and station channel controller, shall be housed in standard 19-inch EIA rack mount free standing cabinets, with at least two stations per cabinet.

All hardware and software necessary for the stations to meet the system requirements shall be provided. All repeaters shall:

1. Meet or exceed all applicable FCC requirements,
2. Fully comply with EIA standards as they apply to measurement of specifications, and
3. Meet or exceed APCO Project 25 “Class A” receiver specifications.

All repeater site equipment provided by shall meet or exceed the environmental specifications listed in Table 4.1 below:

Table 4.1: Repeater Site Environmental Specifications

Specification	Operating	Non-operating
Temperature	-30°C to +60°C (TIA/EIA 603 paragraph 4.3.2.2)	-40°C to +70°C
Vibration	10 Hz to 30 Hz: <ul style="list-style-type: none"> • Amplitude: 0.07 mm • Total Excursion: 0.14 mm 30 Hz to 60 Hz: <ul style="list-style-type: none"> • Amplitude: 0.04 mm • Total Excursion: 0.07 mm (TIA/EIA 603 paragraph 4.3.4.2)	Same
Humidity	90% to 95% at +50°C (TIA/EIA 603 paragraph 4.3.3.2)	Same

3.3.2.5 Antenna System

A complete antenna system for each required site designed to meet the coverage and operational requirements as specified in this RFP. All antenna systems shall be 50 ohms impedance.

3.3.2.5.1 Antennas

All antenna configurations shall be designed to meet the coverage, operational and specific installation requirements to comply with the system performance criteria specified in this RFP. Antenna models selected shall meet the minimum requirements of EIA Standard RS-329.

3.3.2.5.2 *Transmission Lines*

Transmission lines shall consist of the following:

1. Transmission lines shall use a foam dielectric and not require pressurization to maintain waterproofing, and
2. Coaxial cable at all sites shall be sized to provide optimal system performance for each specific location and application.

3.3.2.5.3 *Transmitter Combiner*

Transmitter combiners shall be expandable to accommodate additional ports and shall be installed in cabinets allowing access for future growth.

3.3.2.5.4 *Receiver Multicoupler*

Receiver multicouplers shall be installed in cabinets with space available allowing access for future expandability. Receiver multicouplers shall be the expandable type supplied with the number of ports specified with all unused ports terminated with 50 ohms. A band-pass cavity filter shall be supplied with the multicoupler to reject out-of-band RF signals.

3.3.2.5.5 *Duplexers*

Duplexers shall be used at any sites in which separate transmit and receive antennas cannot be used due to tower space and/or loading limitations.

3.3.2.5.6 *Tower Mounted Amplifiers*

The System Design shall indicate at which sites tower mounted amplifiers are included, as well as any sites that include a tower mounted amplifier in RF propagation prediction analyses.

Tower top amplifiers shall be fully redundant units and include a bypass switch and be fully monitored indicating operating and failure conditions.

3.3.2.6 *Backhaul Communications*

Equipment to facilitate the routing of the radio system trunk circuits for backhaul to the wide area radio system controller shall be provided as required. This equipment may include routers, Ethernet switches, fiber-optic transport equipment or other methods as required to conform to the performance requirements of the RFP.

3.3.2.7 *Power*

All supplied electronic components shall be powered from 115-VAC, 60-Hz service and/or -48-VDC service, and shall be connected to a generator backup where available. All repeaters, site controllers, and other hardware critical to the system's operation shall use redundant power circuits.

An uninterruptible power supply (UPS) with bypass switch sized for the load to provide at least four hours of operating time shall be provided and installed at all sites where the following system equipment is powered by AC service.

1. 700 MHz radio equipment
2. Site monitoring system
3. Router/LAN switch equipment
4. Network Management equipment
5. System and Regional Controller and switch equipment

Design shall include electrical power and BTU requirements for individual equipment elements and the total requirement for the site.

3.3.3 Radio System Controllers

3.3.3.1 General Specifications

The area radio system controllers shall provide automatic rerouting of the interconnection of the APCO Project 25 trunked radio sites, dispatch consoles, and data network to form a fully integrated radio system that supports wide area voice and data communications.

The system shall be designed with multiple controllers configured as primary and secondary controllers for redundancy. Each controller shall be linked via the backbone system to other controllers utilizing alternate routing so that the failure of one path does not effect normal operations.

The first region implemented shall have at least two controllers configured as a primary and secondary. Each region shall have at least one controller for system redundancy. As other regions are activated their controllers shall be interconnected with the preceding controllers. Any single controller shall have the capacity to operate the entire statewide network.

The radio system controllers shall:

1. Track each APCO Project 25 trunked radio unit and its affiliated talk groups as it roams throughout the statewide coverage area,
2. Route calls to individuals or groups via the appropriate sites, and
3. Be capable of interfacing to other wide area radio system controllers.

A mobile or portable radio unit shall be de-registered from a site when it is logged onto or "handed off" a new site, or after a programmable period of inactivity.

The controllers shall also interface with:

1. Multiple APCO Project 25 radio sites,
2. Multiple radio channels,
3. Multiple dispatch consoles,
4. Centralized telephone interconnect system,
5. Voice logging recorder,
6. Data gateways, and
7. System management server.

Each radio system controller must be capable of being controlled through the system management software, and allow for access to system controls granted on a user level basis. The wide area radio system controller shall be powered from 115-VAC, 60-Hz service, with dual redundant power circuits. Twist-lock receptacles shall be used for connections to AC power outlets.

3.3.3.2 RF Control Stations

RF control stations shall be offered in the following forms:

1. Desktop unit
 - Local and remote control
2. Rack mount unit
 - Local and remote control

Local control stations shall include a desk style microphone.

Remote control units shall include a wire line control with at least the following:

1. Standard 4-wire 600 Ohm audio control circuits utilizing standard tone function tones,
2. IP based via a connection into the radio system Ethernet backbone, and
3. Each control station shall be capable of supporting a minimum of five desk-mounted remote control units.

Desktop remote control units shall be provided with control stations physically separated from the operator's location. When a selection is made on one remote control units, an indication shall be provided to alert all control station users of the current profile and group selection. The control units must be capable of indicating when any remote control unit is transmitting.

The control stations and desktop control units shall be powered from 115-VAC 60-Hz power.

The power supply shall include provision for a standby battery with the following features:

1. The power supply shall incorporate a voltage-limited charger designed for the battery type installed with the unit,
2. The standby battery capacity shall be selectable according to the number of hours of operation of the Control Station at a 35% transmit, 35% receive and 30% standby duty cycle operation, and
3. The standby battery, protective enclosure, and power cables shall be provided as an available option.

All radios shall meet or exceed all applicable FCC requirements and fully comply with EIA standards.

3.3.4 System Management Equipment and Supporting Software

3.3.4.1 General Specifications

System management software (or system manager) shall be GUI-based and available remotely either using client/server or web based architecture. A central server, which contains a database for all system management functions, shall be provided. The software shall allow for various levels of access for client users to be granted by an administrator. The system shall use SNMP protocol and management information base V.2 as a minimum and shall have the capacity to integrate with the State's existing network management systems and interface directly to remote equipment (i.e., tower lights, building access, and generators). Appendix 5, *Existing State Network Monitoring System*, contains a listing of existing State network management systems.

The primary system management server shall consist of a rack-mountable computer with dual redundant AC power supplies and contain a keyboard, mouse and rack-mountable display.

Ten system management consoles shall be included with the system and expandable to at least 30 management consoles consisting of a CPU, monitor, keyboard, mouse, and speakers.

The system shall be capable of supporting system management on multiple operator workstations. Multiple system management workstations shall be capable of operating concurrently at different locations within the wide area network, or remotely via a secure WAN or VPN connection.

3.3.4.2 System Management Operation Summary

System Management Terminals shall be provided, one located with the central system control equipment and one located at additional locations defined by the State. Capabilities of the System Management Terminal shall include:

1. Dynamic regrouping of system users, including the ability to pre-define, store, and implement regrouping plans;
2. Selective inhibit/un-inhibit of field units and trunked repeaters. Field equipment shall be equipped to respond to the system manager commands;
3. Activity reporting by unit, talk group, agency (if available), and system wide;
4. Historical activity reporting by unit, talk group, agency (if available) and system wide;
5. User data base maintenance;
6. Activity monitor to display the current status and activity of all RF channels;
7. System printer to print activity reports or other output produced by the System Manager/Information Management system;
8. Adjustments Of System Time-Out Parameters;
9. System Diagnostics; and
10. Alarms generated by the System Management Terminal located at the central control center shall be remotely annunciated at each console.

3.3.4.3 Polling and Alarms

The system manager shall support polling and alarms, including but not limited to:

1. System alerts and alarm conditions,
2. System status, and
3. History of system component statuses.

System devices that detect a status change or are not operating within specification shall automatically transmit an alarm to the system management server. In some cases device failure may prevent the transmission of an alarm; however, these events shall be detected through polling. In the event that the specific alarm condition cannot be reported, a “general failure alarm” shall be sent to the system manager, which shall report and log the alarm.

3.3.4.4 Polling

The system manager shall automatically poll system devices to determine status on a periodic basis. The polling interval shall be automatically adjusted by the system manager to avoid unnecessary polling; for example, if the device has just reported a change in status through the system management function. The system manager shall also have the capability to manually poll system devices.

3.3.4.5 Alarms

The system shall be capable of generating alarms for conditions including, but not limited to:

1. Device change of status, such as change from in-service to out-of-service, switch from main to standby, etc., and
2. When thresholds of various properties of certain components are exceeded, thus is indicating a possible malfunction.

3.3.4.6 Alarm Priority Levels

The system manager shall be capable of classifying alarms by levels of severity, which shall include, but not be limited to:

1. Minor
2. Major

3. Critical

3.3.4.7 Monitored Devices

The system shall generate alarms for devices including, but not limited to, the following:

1. Equipment shelter – environmental,
2. Repeaters and components, such as transmitter, receiver, and various other modules,
3. Site controllers,
4. Switches and routers,
5. Power systems (AC power, UPS, etc.),
6. Servers,
7. User terminals,
8. Gateways (PSTN, interoperability, etc.),
9. Backhaul communications equipment (Fiber-Optic Transmission System, microwave, multiplexes, etc.), and
10. Tower mounted amplifiers.

The system manager must be capable of detecting events or deducing the status of devices that are not managed directly (such as a microwave or landline link failure).

3.3.4.8 Event Reporting

The system manager shall log all events, and shall be capable of reporting the alarm with diagnostic information promptly to designated personnel. The system manager shall be capable of reporting all major and critical alarms to a cell phone, pager, blackberry or other handheld device via text message. The text message shall include the nature of the alarm, as well as the time, date, and location of the alarm.

All alarm levels shall be reported to the system manager and any other system management workstations, including remotely connected laptops or PC's. Devices shall produce an audible alert, such as a beep, when an alarm is generated. Dispatchers shall be alerted whenever an alarm condition exists that may prohibit the use of one or more repeater sites, or an individual channel at a specific site.

3.3.4.9 Network Topology Map

The system management software shall provide a graphical hierarchical network topology map, showing all managed devices using color coding to represent device status.

Through the network topology map it shall be possible for the operator to determine the current detailed status of a managed object, by double clicking on the object.

3.3.4.10 Fault Browser

The system management software shall provide a scrollable, time-stamped list of alarm messages sent by managed objects.

3.3.4.11 Audible Alert

It shall be expected that due to the high reliability of the system, the system management console(s) can be left unattended most of the time with the operator working in the area on other tasks.

System management console(s) shall include a programmable audible alert to notify the operator of any events, or system/equipment status changes.

3.3.4.12 Data Base Partitioning and System Security

The system management software shall allow the administrator to grant different levels of access for various users, such that different operators (e.g. administrator, supervisor, non-supervisor, etc.) have control limited to only the functions and features for which they have been authorized. The management system must support partitions to allow individual agencies secure control of their equipment. A master partition must also be provided to restrict the modification of control infrastructure configuration and parameters to authorized system administrators.

The system management software shall allow for multiple levels of security access, ranging from full access of all available functions to read-only access.

The system management function shall keep a log of all user events by date, time, and authorized individual. These events shall include, but not be limited to, logins, logouts, and any modifications made to the radio system configuration.

3.3.4.13 System Administration

The system management software shall support establishing and updating repeater site parameters, and remotely enabling and disabling radios.

The system management software shall support the registration of new voice and data users in the system and assigning talk group membership.

3.3.4.14 Statistics

The system management software shall collect and save various statistics for later analysis. These statistics shall include, but not be limited to:

1. Data and voice traffic volume by subscriber unit per hour,
2. Data and voice traffic volume by repeater per hour,
3. Wide area controller data and voice traffic volume per hour, and
4. Extended network controller data and voice traffic volume per hour.

3.3.4.15 Call Activity Logging

The purpose of this feature is to determine the relative traffic loading and geographic distribution for each of the talk groups using the system. This can be used to identify capacity problems and support solutions for increasing the busy-hour capacity.

The system management software shall maintain a record on hard disk of all voice call activity for a period of up to at least 90 days, with the capability to archive voice call activity records to tape or other storage media when desired.

The system management software shall be able to continue to log call activity when a report is being run, and when downloading to the supported storage media. The following data shall be stored, but not to be limited to:

1. Date, time, and duration of call,
2. Type of call (group, unit-to-unit, emergency),
3. Unit initiating call and voice group number (group calls only),
4. Unit initiating call and target unit number (unit-to-unit calls only),
5. Repeaters and/or consoles participating in the call,
6. Usage time for each repeater at a site, and
7. The number of minutes by site that all of the channels at the site are busy.

3.3.4.16 Remote Diagnostics

The system management software shall permit the operator to run remote diagnostics on managed devices to isolate and troubleshoot faults.

The system management software shall permit the operator to run a radio link communications integrity test to a mobile or portable unit.

3.3.4.17 Management Software Patches and Upgrades

System management servers and certain designated operations center workstations shall be capable of receiving any necessary upgrades and patches for software applications, operating systems, and anti-virus software that will allow system management servers and workstations to be as up to date and run as efficiently as possible, while being protected from various software vulnerabilities.

Automatic upgrades or patches are not acceptable. System management servers and workstations shall not be configured to conduct upgrades or patches that are automated, and thus may cause the server or workstations to lockup or malfunction and potentially impair or cease the server's or workstation's system management functions. Any software upgrades and patches to system management servers or workstations shall be conducted in such a way that there is no risk of outage or interference to the system manager.

3.3.5 Dispatch Consoles

3.3.5.1 General Console Specifications

The system shall support agency dispatching operations over a region, and/or system wide basis.

A dispatch console shall consist of a desk, workstation (or PC), touch-screen monitor, keyboard, mouse, and any accessory dispatch equipment. Desk furniture is not required per this RFP, but the Contractor shall supply all other console equipment. Dispatch workstations may consist of three types: normal, supervisory, and remote. Appendix 6, *Dispatch Point Location and Console Capacity* contains a listing of console type, capacity and locations required in any design.

Dispatch workstations connectivity to the network controller shall occur via an IP interface, allowing dispatch workstations to be located wherever IP network connectivity is present. Software features for the dispatch console shall be field programmable through changes in firmware or software. Adding or deleting modules and changing module names shall be software programmable.

Some of the functional descriptions may require the use of a console panel with selector switches. However, the State requires all functions to be supported via a computer workstation. The design shall define a configuration that best meets the functionality requirements.

3.3.5.2 Physical and Environmental

Dispatch console equipment shall be powered from 115 VAC 60-Hz service. The design shall specify required current and BTU requirements.

The State shall provide emergency conditioned power at each console location.

3.3.5.3 Equipment

Workstations for each dispatch operator console shall consist of a desktop computer with the following minimum hardware specifications;

1. All dispatch workstations shall be configured with the latest version of the Windows XP operating system;
2. An LCD monitor of at least 21 inches diagonal measurement. The monitor shall be offered with integrated or external speakers for the computer's audio system;

3. The speakers, whether internal or external shall be capable of servicing the “select/unselect” audio function of the radio dispatch system. Workstations shall be configured to support at least three LCD monitors, and shall contain one, or more (to support multiple monitors), video graphics cards with at least 128 MB, each, of dedicated video RAM;
4. A dual headset jack shall be included;
5. A dual footswitch with high durability shall be included to provide PTT (Push-to-Talk) for the headset. The footswitch shall be heavy-duty and non-skidding;
6. Workstations shall support one “select” audio speaker and at least three “unselect” audio speakers;
7. Each workstation shall have either a desktop or gooseneck microphone; all microphones shall be noise canceling;
8. A special keyboard designed for dispatch operation shall be available as an option. This keyboard shall allow the dispatcher the ability to perform all the dispatch functions of the console;
9. Workstations shall use a Graphical User Interface (GUI) for operation of the radio system. The GUI shall be capable of supporting either a mouse/keyboard, touch-screen, operator interface, or both;
10. All dispatching equipment, including workstations, PC’s, speakers, monitors, etc., shall produce minimal audible noise, so as not to interfere with normal dispatching operations; and
11. Any supplied dispatch equipment shall not be audible over the radio system during dispatcher voice transmissions.

3.3.5.4 Supervisory Consoles

The supervisory console shall be physically similar to the other dispatch consoles, except that it is equipped with supervisory-level capabilities.

Supervisory dispatch workstations shall have the same features as normal dispatch workstations plus the added capabilities such as:

1. Listening to any radio transmissions of a programmed individual entity,
2. Displaying an emergency declared on an un-programmed talk group, and
3. Disabling non-supervisory consoles.

3.3.5.5 Dispatch Software Functionality

The application to be installed on console workstation PC’s for dispatching functionality shall be a software-based dispatch application capable of running on a Microsoft Windows operating system.

1. NT version 4.0
2. Windows XP Pro Service Pack 2
3. Windows XP Pro 64
4. Windows Vista

The application shall allow for future upgrades, as well as the ability to implement additional features and technologies.

The software application shall be user-friendly, such that a properly trained dispatcher can operate. It shall enable the dispatcher to perform dispatch tasks efficiently and with minimal

confusion due to screen clutter. The displays on the monitor shall have clearly distinguishable words, pictures, figures, etc. so that there is no confusion over the operation function of any one particular button. The process of selecting and operating functions on the screen shall be possible through the use of a mouse, trackball, touch screen, and keyboard.

3.3.5.5.1 Screens

The software application shall be able to support up to ten user-defined screen setups (appearances) to enable each dispatch shift to set its own screen appearance. These screen appearances shall be pre-configurable and selectable by the dispatcher.

The clock shall display in 12-hour format or 24-hour format.

The software application shall have a dedicated display for system related messages. These messages shall include information regarding emergencies, set-up, patch and simul-select.

The software application shall display in a dedicated panel the individual unit alias with whom the dispatcher is conversing.

The software application shall display the workstation identification number.

The display and operation of the command buttons shall be independent of the display and operation of the page/modules. The software application shall allow the flexibility of having operations commands display in combination with any screen. The screen and command button labels shall be displayed with distinguishable text.

3.3.5.5.2 Modules

The software application shall support and display audio communications modules, where a module is a dispatcher defined space in a view screen that permits voice or data communications.

A module shall be programmable to support communication with one or more entities, which may include:

1. A trunking talk group,
2. An individual call,
3. A conventional channel,
4. A CTCSS talk group on a conventional channel,
5. Another workstation,
6. A PSTN telephone number,
7. Status (inbound data messaging),
8. Paging (outbound data messaging), and
9. Auxiliary I/O (bi-directional data messaging).

The software application shall support:

1. Module names of at least eight characters in length, and
2. A minimum of at least 100 different modules.

If a module is in use at one workstation, a busy indicator shall be displayed at other workstations in the system. For received calls, an alias (alpha-numeric representation of the radio terminal) shall be displayed in the appropriate module.

The software application shall permit the operator to monitor call activity using up to four separate speakers, one with select audio and the others with unselect audio. The software application shall permit the dispatcher to route any module to the speakers.

Each module shall have its own volume adjustment. The software application shall be capable of muting individual modules or all unselected modules.

The software application shall be able to display the call history of a particular module. The call history display shall place the most recent call at the top of a scrollable list of up to five entries. The software application shall also be able to display a comprehensive call history for each module including up to the 64 most recent calls.

3.3.5.5.3 Channel/Talk Group Patches

The software application shall support channel/talk group patches, which involves temporarily combining two or more modules. A patch merges the entities into a “super group”, such that each member hears every other member.

Each workstation shall be able to support up to five patches with up to 15 entities (groups and/or channels) each. All entities patched together shall be able to communicate with one another. The workstation shall support pre-configured patches.

3.3.5.5.4 Simul-select

The software application shall support simul-select, which involves temporarily summing two or more modules. Simul-select merges the entities for the benefit of the dispatcher, however does not create a “super group”, since only the dispatcher can hear all simul-select members.

Each workstation shall be able to support up to four simul-selects with up to 15 entities each. The dispatcher shall be able to communicate with all entities contained in a single simul-select. The software application shall support pre-configured simul-selects in conjunction with the simul-select feature support within the APCO Project 25 conventional/conventional system.

3.3.5.5.5 Other Workstations

Workstations shall be capable of muting the audio from other dispatchers.

Two dispatchers shall be able to communicate with one another through a software-based intercom feature. No RF communications shall be necessary for dispatcher-to-dispatcher communications.

3.3.5.5.6 Emergencies

During emergencies, the software application shall give both visual and audible alert. The module and page with the emergency shall be displayed in red. The module and the call history shall display the alias of the unit declaring the emergency. Furthermore, the emergency shall be displayed in the system information panel, which shall be red.

If an emergency is declared when another emergency already exists:

1. Same group: If the original emergency has not been acknowledged, the software application shall display a counter with the emergency message to indicate the number of emergencies for the same group. The declaring alias shall be displayed in the appropriate call history display.
2. Different group: The new emergency shall also be declared and shall exist with the original emergency. Both modules shall be red. The declaring alias shall be displayed in the appropriate call history display. The emergency message shall correspond to the most recently declared emergency.

The dispatcher shall be able to declare an emergency and clear an emergency at the workstation.

3.3.5.5.7 Telephone Patch

The software application shall be able to interface to equipment to support a telephone patch. Audio shall be routed to a headset, if present. If no headset is used, the telephone audio shall be routed to the selected speaker with all other audio routed to the unselected speaker(s). The software application shall be able to display whether or not it is involved in a phone conversation.

3.3.5.5.8 Conventional Channel Interface

The software application shall be able to access conventional radio channels and (in conjunction with a conventional base station that supports these functions) provide the following functions:

1. Select the stations transmit/receive frequency pair from a pre-defined list;
2. Enable the base station to repeat radio-originated audio;
3. Enable the base station to be controlled by a remote controller;
4. Enable scan of selected channels of a multi-channel base station;
5. Enable all receiver audio to be passed to the dispatcher regardless of the originating conventional radio unit's transmitted CTCSS or DCS code; and
6. Enable toggling between main conventional base stations and standby conventional base stations.

3.3.5.5.9 Link Failure

The software application shall visually notify the dispatcher of any link failure to the dispatch console.

3.3.5.5.10 Software Patches and Upgrades

All dispatch workstations shall be capable of receiving any necessary upgrades and patches for software applications, operating systems, and anti-virus software that will allow the workstation PC's to be as up to date and run as efficiently as possible, while being protected from various software vulnerabilities.

Automatic upgrades or patches are not acceptable; workstations shall not be configured to conduct upgrades or patches that are automated, and thus may cause the workstations to lockup or malfunction and potentially impair or cease the workstation's dispatching functions. Any software upgrades and patches to dispatch workstations shall be conducted in such a way that there is no risk of outage or interference to normal dispatch operations.

3.3.5.6 Additional Dispatching Features

3.3.5.6.1 Multiple Screen Configurations

The workstation shall support a flexible graphical user interface environment via multiple screen configurations. The number and types of modules, module location, number of pages (up to eight), and color schemes for the screen shall be user definable off-line. When two LCD monitors are used, the system shall support multiple page displays on multiple monitors.

The screen configurations are customizable via an off-line program. The operational editing of the screen configuration files shall be the "drag and drop" method.

Each workstation shall be able to have its own unique screen configuration. The screen configuration shall be password protected. At a particular workstation, all of the screen set-ups shall use the same screen configuration.

3.3.5.6.2 *Status Messaging*

The workstation shall provide the capability for radio users to send at least 127 predefined text messages to the workstation for the functionality described below.

The text messages can be used to indicate status reports of units. The identification of the user who is sending these pre-defined text messages shall be in a dedicated display module on the GUI of the workstation. This dedicated display module shall clearly identify the text that is being sent.

The status message module shall display the alias and a time stamp. The modules shall be able to display multiple aliases at one time.

The text messages shall include requests of a user to talk with the dispatcher at a workstation. The identification of the user sending these pre-defined text messages shall be in a dedicated display module on the GUI of the workstation (separate from the status message display).

The request-to-talk module shall display the alias. The modules shall be able to display multiple aliases at one time. The dispatcher shall be able to respond with a group call for a group alias display and an individual call for an individual alias display. When the workstation receives a repeat request from an individual to whom no reply from a dispatcher has been made, the module shall be configurable to display either a "count" (up to number 8) or display the repeated aliases.

The workstation shall be configurable to audibly indicate when a request to talk is received at the workstation.

3.3.5.6.3 *Auxiliary Input/Output*

Each workstation shall be capable of supporting at least 64 unique auxiliary input/output (I/O) modules, configured as determined by the using agency. The overall radio system shall be capable of supporting at least 255 unique auxiliary I/O modules, which will be determined by the State. Each module shall contain a button and a text line to identify the function and the status, respectively. The text and colors shall be configurable off line. Auxiliary I/O shall support each of the following four types of modules.

1. Input
2. Output Momentary
3. Alarm Input
4. Output Toggle

The input/outputs shall be either optically isolated inputs or control relay switches that activate relays, open doors, and perform special tasks by depressing the module associated with it.

3.3.5.6.4 *Last Caller Display*

The workstation shall be able to display the last pre-defined number of unique callers on a programmed APCO Project 25 conventional talk group directly under the respective special communication module. Each module shall display the list of individual aliases that is applicable to its own module.

The list shall display up to eight entries (with 64 stored and viewable by scrolling). The most recent call is placed at the top of the list.

The system administrator shall be able to define an “exclude” list or an “include” list for particular individuals in talk groups. If an “exclude” is defined, the workstation shall track all individuals except for the ones in the exclude list. If an “include” list is defined, the workstation shall track only the individuals in the list.

3.3.5.6.5 Tone Generation

The workstation shall support a tone that will transmit for a user-definable length of time (up to 9999 ms) upon a press of a button on the GUI. The tone shall be configurable as a Dual Tone Multi Frequency (DTMF) digit (digits 0 to 9) or a frequency value (0 to 5000Hz in 0.1 Hz steps). The parameters shall be configurable off-line.

3.3.5.6.6 Background Color

The workstation shall be able to support a visual background color change in a communication module depending upon two special statuses, such as Yes/No or On/Off. The background color shall change when a status other than the existing status has been sent from the radio to the workstation.

This change in status information shall not use a working channel.

3.3.5.6.7 General Features List

Dispatch equipment shall contain the following general features including, but not limited to:

1. Network interface, both to the local data base and to the state wide network conforming to the specifications as defined in the ISSI P25 standards,
2. Console time that is synchronous with the Network time standard,
3. Trunked Talk group Calls,
4. Trunked Announcement Group Calls,
5. Trunked Private Calls,
6. Trunked Emergency Calls,
7. Trunked Emergency Alarms,
8. Trunked Call Alerts,
9. End-to-End Encryption,
10. Conventional Calls,
11. Single Select / Multi-Select,
12. Transmit (General, Instant, Patch),
13. Patch,
14. Permanent Patch,
15. Paging Encoder,
16. Alert Tones,
17. VU Meter,
18. All Mute,
19. Acoustic Cross Mute,
20. Individual Volume Controls,
21. Activity Log Window,

22. Speakers (At least 2),
23. Headsets (At least 2),
24. Two operator headset jack boxes/panels (main and supervisory) with individual receive audio volume control for each console position,
25. Desktop or Gooseneck Microphone,
26. Footswitch,
27. Agency Partitioning,
28. Application Programmer Interface (API),
29. Main/Alternate Conventional Interfaces,
30. Auxiliary I/Os (Relays & Input Buffers), and
31. Logging (Centralized, Distributed, Local, IRR).

3.3.6 Logging Recorder

3.3.6.1 General

A digital multi-channel recorder shall be incorporated into the Dispatch Point for the purposes of logging all:

1. Radio transmissions on the system, by physical radio channel, with unit-ID and trunking talk-group identification derived from the radio channel signaling,
2. Telephone calls, both lines and instruments, and
3. Console transmits and selected audio, console unselected audio, and console intercom audio.

3.3.6.2 Telephone Interface

The voice-recording system shall be capable of recording telephone calls from:

1. Telecommunications Device for the Deaf (TDD) communications, including the automatic recognition of ASCII and Baudot signaling,
2. Integrated Services Digital Network (ISDN),
3. PSTN lines,
4. Private line, and
5. 911 Trunk lines.

3.3.6.3 Operational Requirement

The voice-recording system shall have the following capabilities:

1. Use COTS optical or electronic storage methods in a fault-tolerant design,
2. Multiple indices for each recorded communication, including:
 - a) Time,
 - b) Date,
 - c) Storage location,
 - d) Radio identification; or telephone number of distant party (ANI),
 - e) Talk group, if trunked; channel, if conventional (for radio communications); or telephone subscriber name,

- f) Location of radio unit (if AVL equipped); or address of distant party telephone number (ALI),
 - g) Telephone line identification (for telephone communications),
 - h) Console identification for console operator and loudspeaker record channels, and
 - i) Miscellaneous field for operator remarks,
3. Time and date synchronous with the Network time standard,
 4. At least 500 channel-hours of recorded audio per individual storage unit, with multiple storage units to facilitate automatic transfer when the recording medium reaches its full capacity.
 5. Search capability:
 - a) Provide direct access to any indexed location on the storage unit, and
 - b) Provide search queries spanning the range of information contained in any of the recorded multiple indices specified above,
 6. Volume header information to uniquely define the storage unit, including:
 - a) Unique volume identifier,
 - a) Volume label,
 - b) Protection period of recorded information,
 - c) Initial record date,
 - d) End record date,
 - e) Recorder identification, and
 - f) Index table of information recorded.
 7. Dubbing output connector,
 8. Head phone connector,
 9. Interface with Computer Aided Dispatch system,
 10. Standard computer interface to access the information, and
 11. Indexed trunking tracking with the radio system for playback.

3.3.6.4 Instant Recall Recorder

The Instant Recall Recorder (IRR) function shall be an adjunct of either the console system or the logging recorder system, to separately record the current conversation in which the operator is engaged.

1. Control of the IRR shall be incorporated into each dispatch console system.
2. The IRR shall record radio transmissions (transmit audio and selected receive audio) and telephone calls (telephone instrument).
3. The IRR shall be a digital recorder using electronic storage methods in a fault-tolerant design capable of storing 30 channel-minutes of audio.
4. Each recording made shall be time stamped — time synchronous with the network time standard.
5. The IRR shall also have an RS-232, or similar open-standard interface, built into the console.
6. The IRR shall also provide a headphone connector and front-panel search/scan controls.

3.3.7 Subscriber Equipment Requirements

The Contractor must provide three “tiers” of mobile and portable radio units from at least three different manufacturers as required for occasional, administrative, public safety, or command level users. Tiers differentiate radio unit models by capabilities, durability, feature sets, significant price points, etc. as identified in the subsections below.

3.3.7.1 FCC Type Accepted

All radio equipment shall be FCC type accepted under Part 90 of the FCC Rules and Regulations and shall be commercially available.

3.3.7.2 APCO Project 25 Phase 2

The radio shall support APCO Project 25 Phase 1 and 2 digital trunked operations on 700/800 MHz 12.5-kHz and 6.25 kHz private land mobile radio channels. All radios shall be capable of placing and receiving group calls in APCO Project 25 digital trunked or conventional mode. The radio shall be capable of placing and receiving analog conventional mode calls at both 12.5 kHz and 25 kHz channel spacing. Conventional mode of operation shall use Continuous Tone Coded Squelch System (CTCSS).

3.3.7.3 Emergency Button

The radio shall have an emergency button and be capable of placing and receiving emergency calls. Upon activation of the Emergency Button, all units residing on the talk group and any corresponding consoles associated with the talk group shall display the Unit ID of the radio that invoked the Emergency Button and shall emit a unique audio tone. The radio microphone will be active for up to 5 seconds upon activation of the Emergency Button. In such an emergency situation, the console operator will have the capability to remotely activate the radio’s Push-to-Talk function.

3.3.7.4 Multimode Operation

The radio shall also be capable of operating in conventional digital and analog modes half-duplex and simplex.

3.3.7.4.1 APCO Project 25 CAI

- Digital modulation shall be compatible with the APCO Project 25 CAI (Common Air Interface)

3.3.7.4.2 Analog modulation

- Analog modulation shall support standard sub-audible signaling formats.

3.3.7.5 Talk Group Capability

The radio shall be capable of selecting one talk group from a system up to the number of talk groups of each subscriber Tier as identified in Sections 3.3.7.10.1 Mobile Unit Features Listed per Tier and 3.3.7.13.1 Portable Unit Features Listed per Tier. The radio shall have the capability to program multiple systems into the unit. The radio shall be capable of scanning across both trunked talk groups and conventional channels. The radio shall be capable of scanning all talk groups and conventional channels programmed into the radio, with the selected talk group having priority.

3.3.7.6 System Status Tones

The radio shall provide the user with separate and discrete audible tones to indicate call and system status. These tones shall not be heard when an earphone or other external device is connected.

3.3.7.7 Transceiver Programming

The radio shall be programmable through a standard Windows-based computer and Over-The-Air Programming (OTAP). OTAP shall include but not limited the following features:

1. Addition/deletion of existing talk groups to/from subscriber units in the field,
2. Creation of new talk groups, and their addition to subscriber units in the field,
3. Update of scan lists, telephone lists, etc. for subscriber units in the field, and
4. Modification of priorities and other user parameters.

3.3.7.8 Flash Programming

The radio software shall be flash programmable for adding future software enhancements.

3.3.7.9 RF Data Modem

RF Data only modems shall be offered as an option. These units shall operate on the system for applications only requiring data transmission such as but not limited to, monitoring remote devices, AVL information, and hand scanner devices.

1. Fixed units shall operate on a nominal 110 VAC power source.
2. Mobile units shall operate on a nominal 13.8 VDC power source.
3. Hand Held units operating with an internal rechargeable battery meeting the same requirements as a Tier II portable radio.

3.3.7.10 Mobile Radios

All mobile radios shall be supplied with all necessary mounting hardware for a complete installation. All radio controls and necessary cabling shall be supplied, including antenna.

Front-mounted radios must be self-contained within a single housing.

A trunk-mounted radio with a remote control head shall be available as an option.

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 as standard. An optional amplified speaker producing a minimum of 15 watts shall also be available. Both speaker options must be contained in housing with sufficient durability to prevent damage to the speaker.

Mobile radios shall be capable of the following additional features, including but not limited to:

1. Volume control,
2. Talk Group/Channel Selector,
3. Ability to monitor channel,
4. Push-to-Talk (PTT) switch,
5. Industry standard data interface,
6. Individual call,
7. Telephone interconnect call,
8. Alphanumeric talk group ID display,
9. Alphanumeric caller ID display,
10. Caller alias display,
11. Capability to receive and display short data messages,
12. APCO Project 25 Phase 2 compliant DES or AES voice encryption, and

13. 3 dBd gain antenna with base and low loss transmission line.

Mobile radios shall be powered from nominal 12-VDC negative ground power source. The design shall specify required current levels for each product offered.

All radios shall meet or exceed all applicable FCC requirements and fully comply with EIA standards.

The mobile radios shall meet or exceed the environmental specifications listed in Table 4.1:

Table 4.1: Mobile Radio Environmental Specifications

Specification	Operating	Non-operating
Temperature	-30°C to +60°C (TIA/EIA 603 paragraph 3.3.2.2)	-40°C to +70°C
Humidity	10% to 95% at +50°C (TIA/EIA 603 paragraph 3.3.3.2)	Same
Vibration	10 Hz to 30 Hz: <ul style="list-style-type: none"> • Amplitude: 0.38 mm • Total excursion: 0.76 mm 30 Hz to 60 Hz: <ul style="list-style-type: none"> • Amplitude: 0.19 mm • Total excursion: 0.38 mm (TIA/EIA 603 paragraph 3.3.4.2)	Same
Shock	Half Sine Wave: <ul style="list-style-type: none"> • 10 impacts • 20g peak amplitude • 11 ms duration (TIA/EIA 603 paragraph 3.3.5.2)	same
Altitude	15,000 ft	30,000 ft

3.3.7.10.1 Mobile Unit Features Listed per Tier

3.3.7.10.1.1 Tier I Mobile Radio features shall include:

1. At least 48 talk-groups,
2. Auxiliary microphone/speaker connector,
3. Industry-standard data interface, and
4. There shall be an option for a mobile subscriber unit to operate on a battery system separate from the vehicle’s ignition system. This requirement is intended to support operations in remote areas for extended periods of time. The intention is to ensure that the radio does not degrade the ability of the automobile battery to start the engine.

3.3.7.10.1.2 Tier II Mobile Radio features shall include:

1. Tier I Mobile Radio features,

2. At least 256 talk-groups,
3. Automatic Vehicle Location (AVL),
4. Global Positioning System (GPS),
5. Unit location shall be transmitted with an emergency button activation,
6. Encryption capability,
7. Over-the-Air Rekeying (OTAR),
8. Military Specification 810-C/D,
9. Controls shall be capable of operation by personnel wearing fire gloves or other heavy work gloves under adverse conditions of minimal or no visibility,
10. External connections for interface to an internal communications system, and
11. Telephone Interconnect capability with limited pre-programmed dialing.

3.3.7.10.1.3 Tier III Mobile Radio features shall include:

1. Tier II Mobile Radio features,
2. At least 512 talk-groups,
3. Alphanumeric keypad that supports Telephone Interconnect and DTMF. The keypad shall be a typical 16-button configuration to achieve the full DTMF capability,
4. Receipt of paging calls, and
5. Private unit-to-unit calling.

3.3.7.10.2 *Mobile Radio Accessories as listed, but not limited to, those shown below:*

1. Antenna,
2. Disguised Antenna,
3. $\frac{1}{4}$ wavelength antenna with base and low loss transmission line,
4. Combination 3 dBd mobile radio antenna with integrated GPS antenna with mounting base and transmission cables and connectors,
5. Combination low profile mobile radio antenna with integrated GPS antenna with mounting base and transmission cables and connectors,
6. Trunk Mount – A remote mount version shall be available with a separate control head and multiple length control cables being available.
7. Dual Control Head - A variation on the mobile radio shall be available that provides for front and rear full function control heads, typically for ambulance use with multiple length cables being available.
8. Fire Vehicle Operations:
 - a) Mobile Radio headset. Headsets shall be 2-ear units with voice activated transmit (VOX) intercom for driver and officer, switch-operation for radio and intercom-only for the riding positions;
 - b) Pump Panel Control Package - A weatherproof amplified speaker and mike extension package shall be installed on fire trucks; and
 - c) Pump Panel Remote Headset Interface: A jack shall be available to plug in a headset, providing microphone and speaker audio at various locations on fire vehicles (such as Pump panel, turntable of aerial units).

9. Motorcycle – An option allowing installation of a mobile radio on a motorcycle. This option shall include all cabling and mounting hardware to install the radio control head within reach of the operator and a suitable mounting enclosure of the transceiver protecting it from rain and vibration. These radios shall also be capable of hands-free operation using a handle bar PTT switch or other method. A quick disconnect connector shall be included for a remote helmet speaker/microphone that is suitable for use with both half and full helmets.
10. Vessel – An option allowing installation of a mobile radio in marine environments providing protection of the control head and transceiver from moisture, salt spray and vibration.
11. Aircraft – An option with a FAA Supplemental Type Certification or installed under a FAA Form 337 for use in both fixed and rotary wing aircraft.
12. Weatherproof microphone – shall be available for with the same connector as the standard microphone.
13. Amplified speaker – with at least 15 Watts of audio output.
14. Desk microphone.
15. Military Specification 810-F.

3.3.7.11 Optional High Speed Mobile Data

The system must be capable of an optional mobile data system that provides high-speed access to support data intensive functions and large volumes of data with performance equal to or better than current commercial wireless data services. The high-speed mobile data system shall be capable of roaming to commercial systems when users are outside of the service area (e.g. traveling out of state).

3.3.7.11.1 Mobile Access Router

The system shall include a mobile access router for use with the system while also allowing interface to other wireless devices. This device shall select the appropriate communications path automatically based upon the traffic characteristics and the availability of a wireless network.

3.3.7.12 Vehicular Repeaters

As an option, vehicular repeaters may be installed in a vehicle or vessel for the purposes of enhancing portable radio coverage in areas with unique requirements. Vehicular repeaters shall comply with the same technical performance specifications as mobile radios. The vehicular repeater may not be used in the design of the system to meet coverage requirements.

Vehicular repeaters shall be capable of network extension operations to provide connectivity for portable radios, provide off-network stand alone tactical repeater operations for radios and provide a gateway for interoperations of Maryland radios to other systems and other subscriber radios to the Maryland network. Vehicular repeater operation shall provide a minimum range of 1.00 miles over unobstructed terrain.

Two styles of repeaters shall be provided with each capable of being enabled or disabled by the user.

1. Analog-based band repeaters that pass analog base band audio to and from the mobile units, and
2. Digital-based repeaters that pass digitally encoded audio along with other digital transmissions such as the radio control information to and from the mobile radio units, and fully integrate into a trunked system including voice encryption.

Both styles of vehicular repeaters shall be offered for use as in-band and cross-band operations. When a portable radio is use with an in-band vehicular repeater, the operator shall have the same functionally as when directly communicating through the system.

The system and subscriber radios must allow for direct portable and/or mobile unit-to-unit communications without the need for a support infrastructure (“talk-around”) with a minimum range of 1.0 miles over unobstructed terrain.

Operation of multiple vehicular repeaters within close proximity shall be possible. Such operations may use the same talk-group or different talk-groups.

3.3.7.13 Portable Radios

Portable radios shall be physically small enough so that the user may easily carry the radio by hand or attach to a belt, and shall be self-contained in a single robust housing. Portable radio housings shall be constructed of material that is capable of withstanding a significant level of impact and protects the radio’s internal circuitry from dust, moisture, and other harmful elements. The housing must meet or exceed EIA drop test requirements.

All radios shall meet or exceed all applicable FCC requirements and fully comply with EIA standards as they apply to measurement of specifications. The portable radios shall meet or exceed the environmental specifications listed in Table 4.2:

Table 4.2: Portable Radio Environmental Specifications

Specification	Operating	Non-operating
Temperature	-30°C to +60°C (TIA/EIA 603 paragraph 5.3.2.2)	-40°C to +70°C
Humidity	10% to 95% at +50°C (TIA/EIA 603 paragraph 5.3.3.2)	Same
Vibration	10 Hz to 30 Hz: <ul style="list-style-type: none"> • Amplitude: 0.38 mm • Total excursion: 0.76 mm 30 Hz to 60 Hz: <ul style="list-style-type: none"> • Amplitude: 0.19 mm • Total excursion: 0.38 mm (TIA/EIA 603 paragraph 5.3.4.2)	Same
Shock	Drop Test: <ul style="list-style-type: none"> • Smooth concrete floor • 6 sides • 100 cm (TIA/E IA 603 paragraph 5.3.5.2)	same
Altitude	15,000 ft	30,000 ft

All portable radios shall be resistant to water and rain such that portables are capable of normal operation in moderate to heavy rain without damage or malfunction, and shall not be affected or damaged by minor exposure to water splashes, puddles, etc.

All portable radios shall be furnished or equipped with the following:

1. Volume Control,

2. Talk-Group/Channel Selector,
3. Push-to-talk,
4. Remote microphone/speaker connector,
5. Ability to monitor channel,
6. Over-the-Air Programming (OTAP),
7. An alert shall be provided to indicate a low battery condition,
8. A leather swivel type carrying case that attaches to a belt,
9. An emergency button,
10. Operation with a remote speaker/microphone, such as a hand-held speaker/microphone that may also attach to a lapel,
11. Industry-standard data interface port,
12. Individual call,
13. Telephone interconnect call,
14. Alphanumeric talk group ID display,
15. Alphanumeric caller ID display,
16. Caller alias display,
17. Capability to receive and display short data messages,
18. Single-unit battery charger,
19. Numeric keypad for individual calls, and
20. Rechargeable Batteries:
 - a) Batteries shall be NiMH (nickel-metal hydride) or Li-ion (lithium ion).
 - b) Within the manufacturer's product lines, batteries shall be interchangeable between all tiers.
 - c) Within the manufacturer's product lines, battery chargers shall be interchangeable between all tiers.
 - d) Minimum usage time of ten hours with a 10% transmit, 50% receive and 40% standby duty cycle when fully charged.
 - e) Total useful life of at least 2 years before needing to be replaced.
 - f) Maximum of 3 hours to fully charge a depleted battery.

3.3.7.13.1 Portable Unit Features Listed per Tier

3.3.7.13.1.1 Tier I Portable Radio features shall include:

1. At least 48 talk-groups, and
2. Option for a "pull-pin" type emergency ("man-down") feature.

3.3.7.13.1.2 Tier II Portable Radio features shall include:

1. Tier I Portable Radio features,
2. At least 256 talk-groups,
3. Encryption capability,

4. Automatic Vehicle Location (AVL),
5. Global Positioning System (GPS),
6. Remote antenna , microphone and speaker connector,
7. Unit location shall be transmitted with an emergency button activation,
8. Controls shall be capable of operation by personnel wearing fire gloves or other heavy work gloves under adverse conditions of minimal or no visibility,
9. At least four Programmable Auxiliary Functions,
10. Receive paging calls,
11. Military Specification 810-C/D,
12. Private unit-to-unit calling,
13. Option for Military Specification 810-F for resistance to total immersion and salt spray, and
14. Intrinsically safe option.

3.3.7.13.1.3 Tier III Portable Radio features shall include:

1. Tier II Portable Radio features,
2. At least 512 talk-groups,
3. Alphanumeric keypad that supports Telephone Interconnect and DTMF. The keypad shall be a typical 16-button configuration to achieve the full DTMF capability, and
4. Capable of being integrated with a full face breathing apparatus, either positive or negative pressure, for confined space or other hazardous environments, as defined in 29CFR1910.134.

3.3.7.13.2 *Portable Radio Accessories*

1. Chest-mounted PTT switch capable of being operated by a firefighter wearing fire gloves
2. Voicemitter required for integrating with all models of the State's breathing apparatus face pieces
3. Boom microphone for wearing inside of face piece to prevent distortion of the digital signal
4. Multiple-unit battery charger
5. One hour quick charger
6. High capacity battery
7. Vehicular charger
8. Public Safety microphone with antenna, available with both coiled and straight cord
 - a) With emergency button, and
 - b) Without emergency button
9. Public Safety microphone without antenna, available with both coiled and straight cord
 - a) With emergency button, and
 - b) Without emergency button

10. D-Back swivel mount and matching belt loop
11. Belt loop case
12. Belt clip back
13. Lightweight headset with boom microphone
14. Bone conduction microphone
15. Throat microphone
16. Earphone
17. 2-wire palm microphone with earphone
18. 3-wire palm microphone with earphone and PTT button

3.3.8 Microwave Equipment

3.3.8.1 General

The State is currently in the seventh year of a ten year phased-system implementation program to install the infrastructure required for the Statewide Public Safety Wireless Communications System. New digital microwave equipment provided as part of this contract must be compatible with the existing deployed hardware. This digital microwave equipment is used to connect the various tower sites and control centers.

Where existing transport systems used by the State are not available, the Contractor must provide new transport networks designed with a minimum reliability of 99.9999% on a per-Path basis and designed with a minimum reliability of 99.9995% on a per-Route basis. New equipment configurations and additions shall use monitored hot standby configurations. Reliability objectives for new links are to achieve a mean time between failures of at least 25,000 hours for each link equipment pair (path), with an expected mean time to repair of no more than 8 hours.

3.3.8.2 Microwave Technical Specifications

The specifications listed below shall be considered as minimum acceptable standards.

3.3.8.2.1 Licensed Microwave Communications Equipment

1. The radio equipment shall operate within the FCC designated microwave pool of frequencies as defined in CFR47 Part 101.
2. Licensed Microwave Communications Equipment that operates in one or more of the following frequency bands: 2.4GHz, 4.9 GHz, 5.7GHz, 6GHz, 10GHz, 11GHz, 18GHz, and 23GHz.
3. Licensed microwave communications equipment with capacities of T1 to 4x DS3.

3.3.8.2.2 Unlicensed Communications Equipment

1. Unlicensed microwave communications equipment that operates in one or more of the following frequency bands: 900 MHz, 2.4 GHz, 3.5GHz, 4.9 GHz, 5.8GHz and 24GHz.
2. Unlicensed microwave communications equipment with capacities from DS0 to DS3.
3. Unlicensed microwave communications equipment utilizing Radio Frequency (RF) or other technology.

3.3.8.2.3 Microwave Ancillary Equipment

1. Multiplexing equipment, microwave power supplies, battery backup systems, fuel cells, breaker panels, termination panels and any other equipment necessary for the State to complete the microwave equipment installation.

3.4 SITE DEVELOPMENT

3.4.1 General

The Contractor shall construct and install the towers, buildings and site conditions as listed in Towers, Buildings, and Site Work RFP sections assuming normal soil conditions. To establish a comparison, each tower height and building size as listed in the subsequent sections shall be priced individually.

3.4.2 Towers

The system design shall include the space and mounting configuration required for antenna, transmission line and other devices at each tower location. However, the design shall assume that the required antenna space is present on each available tower identified in Appendix 10, *Available Tower and Shelter Locations*.

For locations requiring the development of a tower, the following sections provide the requirements of new tower construction for typical towers as indicated below and for the specific site conditions required.

3.4.2.1 Existing Tower Modification

The Contractor shall perform a structural analysis for development of each existing tower, and identify any modifications required for the tower to support the required antenna load. Existing tower analysis shall be using EIA-222-F standards for the location use base wind speeds along with ½” of radial ice.

The analysis report and any tower modifications shall be certified by a professional engineer licensed to practice in the State of Maryland.

3.4.2.2.1 New Tower Construction

The tower shall be erected in such a manner as to assure straightness and plumb.

1. Under 200 ft. AGL. The top 1/3 of the tower shall contain no slope.
2. Over 200 ft. AGL. The top 60 ft. (minimum) of the tower shall contain no slope.

Installation of the tower shall include placing a foundation which is certified signed and stamped by a Maryland registered Professional Engineer (certification must be provided with the tower submittal) that it is designed in accordance with the tower manufacturer’s recommendations based upon the soil borings, erecting the tower, supplying and mounting two 24 inch cable ladders (each must accommodate at least 15-3/4 inch snap-ins).

All work shall meet or exceed EIA/TIA specifications as well as all Local, County, State and National (BOCA) building codes. Building materials and construction methods used will comply with the latest version of Maryland Department of Transportation’s “Standard Specifications for Construction and Materials”. The completed installations must comply in all respects with applicable rules of the Federal Communications Commission, the Federal Aviation Administration, EIA/TIA, BOCA and NEC standards.

3.4.2.2.2 Tower Technical Specifications

1. The tower shall be a solid high-strength steel leg constructed and self-supporting. All components and hardware are to be hot-dip galvanized with a zinc coating (per EIA

standards) after fabrication. A zinc coating shall be permanently fused to the steel, so all surfaces are protected and no painting is required for rust protection. Upon delivery, the tower shall be subject to approval by the State Project Manager.

2. The tower shall be required to meet or exceed the latest EIA 222-F standards for this type of tower concurrent with ½- inch of radial ice and designed to carry the number and type of antennas as defined in Appendix 11, *State Tower Loading Plan*. The tower and associated installation shall conform to all local, County, State and Federal building codes. The State Maryland shall be responsible for obtaining Federal Aviation Administration (FAA) approval and permits.
3. The bottom 20 feet (minimum) of the tower shall have K-bracing construction to allow for ingress and egress under the tower.
4. Spacing between tower legs shall not exceed 31 ft.
5. Proper and thorough grounding methods in accordance with currently published single point grounding standards shall be employed to provide lightning protection for the tower and ice bridge.
6. The Contractor shall use soil borings for analysis to assure that the engineered tower foundation and the calculated ground loadings are acceptable. The Contractor shall furnish two copies of the foundation designs and the ground loading calculations certified by a Maryland registered Professional Engineer (P.E.) to the State Project Manager. The Contractor shall furnish the State a written letter stating that the engineered tower foundations and the calculated ground loadings meet the manufacturer's recommended requirements.
7. Step bolts, safety climbs and grounding bar are to be furnished and installed by the Contractor as part of the tower.
8. All leg and leg flange PL material is ASTM A-572 grade 50 ($F_y \geq 50$ ksi). All other material is ASTM A36 ($F_y \geq 36$ ksi)
9. 1 1/8" Φ ASTM A449 anchor bolts required per leg.
10. Concrete strengths to equal 4000 psi at 28 days.
11. Non-chloride, non-corrosive concrete set accelerate may be used in compliance with ASTM-C-494 type C and ACI-318.
12. Water reducing admixture may be used in compliance with ASTM-C-494.
13. All admixtures shall be dispensed into fresh concrete and sufficiently mixed. All admixtures must be added separately.
14. Minimum concrete cover of 3" on all steel.
15. Crown top of piers for drainage and chamfer all exposed concrete edges 1".
16. Compact backfill in 9" lifts. Remove all forms prior to backfill.

3.4.2.3 Tower Lighting

If required, the Contractor shall supply and install tower lighting equipment as per FAA Advisory Circular AC70/7460-1-G or latest revision according to the following specifications:

1. The Contractor shall use tower lighting manufacturer trained and certified personnel to install tower lighting equipment.
2. The side markers shall be installed using stainless steel hose clamps, not plastic cable ties.

3. The tower lighting system shall be manufactured to specifications for FAA type L-864 and FAA-AC 150/5345-43E, equivalent to Flashtech FT324.
4. The Contractor shall install a medium intensity, dual strobe Type E-1 or E-2 system that provides a white strobe for day operation and a red strobe for night operation as per FAA requirements. A 15 foot beacon extension assembly shall be installed with flash head and lightning rod mounts and step bolts spaced alternately at approximately 15 inch intervals from the tower flange to the beacon.
5. The lighting system shall have lightning protection installed as recommended by the tower lighting system manufacturer.
6. The tower lighting system shall be supplied with remote and onsite diagnostics capabilities including software and direct connect cable.
7. The supplied tower lighting system shall include 2-year parts warranty (to include flashtubes).

3.4.2.4 Tower Placement

Exact placement of the tower and shelter shall be coordinated by the Contractor with the State Project Manager.

3.4.3 Equipment Shelters

The system design shall include the equipment space, electrical and HVAC required for each location used. However, the design shall assume that the required equipment space is present at each available tower location identified in Appendix 10, *Available Tower and Shelter Locations*.

For locations requiring the development of an equipment shelter the following sections provide the requirements of shelters with shelter foundation to be supplied and installed. Shelters shall be available in the following sizes and configurations as illustrated in Appendix 12, *Equipment Shelter Layout*:

1. 12' X 38' X 10' (height is inside dimension) with 75 kW Liquid Propane generator (two rooms), drawing number DBM-10-22-2002 REV. A.1.
2. 12' X 38' X 10' (height is inside dimension) no generator (one room), drawing number DBM-08-01-2002 REV. A.1.
3. 12' X 28' X 10' (height is inside dimension) no generator (one room), drawing number DBM-08-07-2001 REV. A.1.
4. 10' X 12' X 10' (height is inside dimension) no generator (one room), drawing number DBM-08-07-2001 REV. A.1.

3.4.3.1 Equipment Shelter Technical Specifications

Shelter installations must be in conformance with manufacturer's requirements for application of warranties provided by the manufacturer.

1. Concrete Construction – The wall outer finish will be natural stone aggregate finish with an earth tone.
2. Insulation shall be non-combustible, with a vapor barrier. Wall and floor thickness shall provide an R-11 (minimum) rating, and the roof shall have an R-19 (minimum) rating.
3. The minimum floor loading design will be 300lbs. per square foot (PSF).
4. The minimum roof loading design will be 100lbs. per square foot (PSF).
5. The minimum wall loading design will be 34 lbs. per square foot (PSF).
6. The minimum wind loading design will be 50 lbs. per square foot (PSF).

7. Reinforced steel finished exterior door opening out from each room shall be located on the shelter, for each shelter configuration per the attached drawings illustrated in Appendix 12, *Equipment Shelter Layout*. The doors will be finished to match the appearance of the shelter. The doors shall be pre-hung, gasket sealed, insulated, approximately 3 foot by 7 foot, and in a metal frame. Doors will be supplied with door-closer, magnetic weather stripping, drip strip over door, doorstop, door sweep and a 42-inch door canopy. Door checks and door stops shall be provided along with a three point locking system for security. The doors will have non-removable ball bearing hinges and deadbolt locks with tamper plates installed. These deadbolts locks shall be security type with removable cylinders, such as “Best” locks. Twenty keys supplied with each building at time of delivery.
8. The equipment shelter floor shall be covered with 1/8”, 12” x 12” vinyl tile, with a color of beige, tan or white. The walls shall be trimmed with a 4-inches high and 1/8 inch thick rubber base trim against the floor.
9. The walls shall be covered with AC-grade or better, void-free plywood, 8 ft. high with a minimum thickness of 3/4 inches. The plywood shall be installed with the grade “C” surface facing the wall.
10. The walls and ceiling shall be covered with two coats of fire retardant white paint (or other light-colored finish).
11. Electrical installation and wiring shall conform to the latest version of the National Electrical Code. Surface mounted, grounded, duplex outlets shall be provided in the equipment room at five foot maximum intervals around the exterior walls. All wiring shall be installed in surface mount Electric Metallic Tubing (EMT) conduit. Outlets shall be installed 18 inches above the finished floor. Horizontal runs of conduit will be installed a minimum of 7 1/2 feet above the floor whenever possible with vertical connections to the surface mounted devices to minimize interference with wall installed equipment. Two weatherproof outlets will be installed on the exterior of the shelter located at both ends of the shelter. Circuits supplying power to equipment racks in the shelter shall extend downward six feet from boxes mounted at 22” intervals on the ceiling as illustrated in Appendix 12, *Equipment Shelter Layout*. Wiring for these drops shall be housed in “Sealtite” flexible conduit and each drop shall be terminated in a quad receptacle box. Each quad box shall contain two circuits and each circuit shall have its own dedicated 20-ampere circuit breaker. These drops shall be planned to fall immediately adjacent to the edge of the cable tray. The exact location for each drop must be approved by the State Project Manager before the shelter is fabricated. The circuit breakers for the quad boxes supplying power to the equipment racks adjacent to the side mounted cable entry shall be located in the main load center.
12. The first two equipment racks adjacent to the side mounted cable entry also shall each be supplied with a 20 ampere 240 volt receptacle.
13. Power to the shelter shall be fed through a properly sized 240-Volt, fused single-phase disconnect switch mounted on the exterior wall of the shelter.
14. Shelter is to be provided with 400-amp, 20-position (minimum) main load center. The load center shall have all unused positions equipped with 20-ampere breakers that are labeled as “spare”. Breakers shall be “high magnetic” or high inrush current type (Square D, HM or equivalent). This load center shall be installed at one end of the equipment area within five feet of the primary cable entry port. In addition to the 400-ampere main load center, a minimum 20-position quad box load center shall be installed, fed from the main load center; the quad box load center shall be located on the generator room wall and shall supply power to quad boxes above all rack positions unless otherwise identified. Load centers, circuit breakers and quad boxes shall be properly marked.

15. An interior system ground (halo) with a single #2 AWG stranded wire will be provided with proper connections to the shelter and, in turn, to the tower ground system. The halo will have a 6-inch break roughly opposite the Master Ground Bar. The internal ground system will be mounted on the wall using 2-inch (2") standoff insulators, connected to two ¼" x 4"x 20", 27 hole copper master ground bus bars that are installed directly under each cable entry port. These copper ground bars will be connected with three 2-inch copper straps to the exterior shelter ground system which shall be connected to the tower grounding system. Electrical ground will be bonded to the RF ground.
16. An IEEE Type 1 SAD/MOV protection device shall be part of the integrated load center. An IEEE Type 2 MOV protection device will be installed at the main power input inside the shelter, by means of a 60-Ampere breaker across the utility lugs of the transfer switch. The device will be installed inside of the equipment shelter.
17. The air conditioning units shall be connected to the internal (halo) grounding system only, not to the external equipment shelter grounding system.
18. Forty-eight inch length two or four-tube, energy efficient fluorescent fixtures shall provide for sufficient lighting (minimum 50 foot candles) for the shelter. The lights shall be installed to minimize shadows and will be controlled by a wall switch internal to the shelter located next to the entry door. An exterior entry light shall be installed outside the main doorway of the structure. This light shall be controlled by a photocell wired through a wall switch inside the shelter.
19. Each shelter shall be supplied with a NetGuardian 832A G5 alarm collector to maintain compatibility with the State's existing site monitoring system. The NetGuardian 832A G5 shall be supplied with dual -48 VDC inputs, real time clock and without the hub option. Device location and installation shall be coordinated the State Project Manager.

NetGuardian 832A G5 information is available from DPS Telecom, 4955 East Yale Avenue, Fresno, California 93727, www.dpstele.com. Appendix 5, *Existing State Network Monitoring System*, contains a listing of some of the existing State network monitoring systems.

The shelter alarm points and NetGuardian 832A G5 alarm collector shall be pre-wired, with the following functions as appropriate to the building supplied, to a common point in the radio compartment and terminated with a split 66 Block with a pre-wired 25-pair connector. The 66 Block shall be mounted in the upper left-hand side of the punch block board. All alarm inputs shall be punched down on the left-hand side of the punch block using solid wire. The configuration of the 66 Block shall follow that layout as illustrated in Appendix 15, *Punchdown Block Layout*.
20. The shelter foundation shall be 8 inches higher than finished grading. The foundation shall level each shelter such that all foundation to shelter contact points have equal loads. The equipment shelter is to rest flush on the poured concrete foundation without showing any gaps between shelter and pad and to be level to within ½ degree. The shelter shall have a poured concrete entrance stoop for each entrance present, and steps if necessary, to provide safe entry into the shelter. Installations requiring stoops more than 24 inches above grade shall have 42 inch safety rails installed.
21. Supply and install per local utility standard, of an electrical backboard of steel post and unistrut construction to include current transformer (CT) cabinet, wire trough, main disconnect, at least one, electric company approved, meter socket with room to accommodate a minimum of three additional meters.
22. Supply and install per local utility standard, of electrical service, conduit and wire, from the power company demarcation to a single phase step-down transformer, supplied by the utility company, ~ 50KVA from HV primary to 120/240V and from the transformer to a

contractor supplied backboard and from the backboard to the fused disconnect on the rear of the communications shelter and from fused disconnect located on the back of the shelter into the equipment shelter's 400-amp load center. It is the contractor's responsibility to coordinate with local utility service provider and ensure that contractor provided electrical equipment, material, and construction installation shall conform and adhere to local power company standards. The contractor may be required to purchase materials from the utility company. Exact cable/conduit distance to be verified during site inspection.

23. Supply and install per local utility standard, of electrical wiring, per local electrical code, from the contractor installed backboard to the fused disconnect on the back of the shelter and from fused disconnect located on the back of the shelter into the equipment shelter's 400-amp load center.
24. Supply and install one electric company approved meter.
25. Supplied materials, including, but not limited to, equipment shelter, fuel tank and tower, shall be new, unused and shall meet the latest design and fabrication standards of the Electronics Industry Association (EIA). The tower shall have a stainless steel safety climbing cable installed. All supplied materials shall be purchased, not leased
26. Two multi-port cable entry points complete with weatherproof caps shall be provided as illustrated on the equipment layout drawings in Appendix 12 for antenna cable entry. One entry point will be located on the long side of the Equipment Shelter and the second entry point will be located on the end wall of the Equipment Shelter between the air conditioner units. These locations shall be coordinated for the site as approved by the State Project Manager. Each port within both assemblies shall be four inches in diameter, and shall be located with the top of the assembly located directly under the cable rack, in four rows of four ports each. In addition to the cable entry points, one single four inch PVC conduit sleeve for communications conduits and one single two inch PVC conduit sleeve for installation of SO cables to the tower lighting system, both with temporary end caps shall be installed. The actual location of these penetrations and sleeves must be confirmed with the State Project Manager prior to the fabrication of the shelter.
27. Cable ladder racks (24 inches wide) shall be mounted eight feet above the finished floor, measured from the floor to the bottom of the cable ladder, as illustrated in Appendix 12, *Equipment Shelter Layout*.
28. Two 5-ton 230/208V-Single-phase, dual (redundant) wall-mounted, vertical, self contained HVAC units with 5-kw heat strips shall be installed at the locations specified on the equipment shelter drawing. Separate circuit breakers for each unit shall be installed in the main load circuit panel. The provided HVAC units shall have sufficient capacity for the Equipment Shelter size supplied, fully loaded with equipment. Each unit shall contain a time delay startup relay, low ambient control, and a forced air resistive heat strip. The outside portions of the units will be weather/rodent and tamper proof.
29. Shelters shall be equipped with 16" ventilation fans with gravity operated back draft louvers and 16" gravity intake dampers with filters and hoods (bug and rodent intrusion resistant). Each fan shall be connected to a thermostatic device to allow automatic fan on-off control. The openings will be provided with shutters and weather hoods. All required exhaust piping and intake and exhaust plenums required for the manufacturer's recommended air flow shall be included as part of the installed equipment. All openings in the shelter structure for the provision of entry or exit of cables, equipment, ventilation, etc. must be sealed to prevent the invasion of the shelter interior by insects, rodents and external moisture.
30. An external ¼" x 4" x 20", 36 hole copper ground bar is to be installed on the outside of the shelter directly under both cable entry ports and attached with two, solid tinned

copper, 2-inch ground straps, to the single ground point directly below the main cable entry port.

31. An external ground ring is to be provided around both shelter foundations. The buried external ground ring shall be in direct contact with the earth at a depth of 30 inches below the earth's surface with ground rods driven into the earth at intervals not to exceed twice the ground rod length. In the event 10-foot ground rods cannot be driven shorter rods are acceptable if driven at the proper intervals. The external ground ring is to be placed 2 feet outside each shelter foundation in order to be outside the drip line of the shelter.
32. All grounds must be bonded together. This includes the generator, the shelters, generator fuel tank, equipment shelter grounding system, ice bridge and the tower ground system. The ground shall be not greater than 5 Ohms. The State shall test all grounds using a fall-of-potential method test to determine compliance.
33. Two Room Shelter with Emergency Power Generator
 - a) Installation shall include all materials, parts, labor, etc. to provide a fully functional generator back-up system. Included in the installed price is the transfer switch, associated wiring as well as generator alarm programming in accordance with State requirements. Block heaters with necessary wiring are to be included. Fuel tank hookup, fuel tank, fuel tank pad and fuel supply piping to the shelter is to be provided by the site work contractor. Fuel supply piping shall be non-metallic to comply with single point grounding requirements. The fuel tank shall be connected to the tower ground ring.
 - b) The equipment shelter supplied shall be a one-piece concrete communications equipment shelter and include a 75 kW Liquid Propane (LP) generator, 400-amp integrated load center, such as a Transtector ISP Series, incorporating the main service disconnect, manual transfer switch, surge protection and load center, and 150-amp sub feed with installation. The supplied equipment shelter shall be nominally sized 12x38x10 ft (height is inside dimension) and configured with two rooms as illustrated in the Appendix 12, *Equipment Shelter Layout*.
 - c) The double room equipment shelter shall be provided with a NEMA 4, 250 Volt D.C., 600 Volt A.C. 200 amp, weatherproof emergency generator receptacle such as Appleton AJA20044-200, mounted on the front of the shelter to allow connection of a 50kW portable Emergency Generator in case of failure of the internal generator during a power outage. The generator receptacle shall be located in such a place that it will not interfere with the operation of the equipment room door. The receptacle's operation will be controlled by operating the manual transfer switch inside the equipment shelter.
 - d) The double room shelter shall include a partition wall separating the emergency generator from the room containing the RF equipment. This partition wall shall have a one hour fire rating (from the inside out and outside in). The floor under this section shall be reinforced to the generator loading. Two gravity intake louvers and one exhaust fan with gravity louvers shall be installed. All louvers and openings will be wire covered for security and prevention of rodent entry. A separate outside door shall be installed on this room and shall be identical to the equipment room door.
 - e) Electric baseboard heater strips shall supply heating for the generator room. A thermostat mounted on the wall opposite the heater shall control the heater strips. The heater strips shall be sufficient for the size of the generator room to maintain a room temperature of 72 degrees F.

- f) Generator room lighting shall be controlled by a separate wall switch internal to the room and located next to the entry door.
- g) The Contractor shall supply a 75 Kilowatt, liquid propane vapor fueled, 1800-RPM generator, 60 Hz, 120/240 volt, single phase with a 400-amp Automatic Transfer Switch (ATS).
- h) Fuel strainers on the propane fuel systems must be installed for proper drainage to prevent moisture buildup in the line. Proper sized flex fuel lines need to be installed on all generators and the fuel line so as to not impede the proper flow of fuel and must not be sharply bent, or crimped. The fuel line from the secondary regulator to the manifold shall not be less than 1" to minimize fuel pressure drop from no load to full load. Proper venting of the fuel system must be installed to ensure no buildup of pressure and safe venting will occur. Fuel lines run in conduit or sleeves must be sealed from moisture.
- i) All exhaust piping that can come in contact with personnel will have a heat shield installed.
- j) Proper battery chargers must be installed for the appropriate system, 12 VDC or 24 VDC, 110 VAC. Note: two 12 VDC battery chargers is not acceptable for 24-volt systems.
- k) The Contractor must perform on-site startup of the generator, under full load, using a load bank, as per Appendix 13, *Generator Startup Checklist*. The original of this form must be completed and submitted prior to submission of an invoice for work performed.
- l) All alarm outputs from the generator are to be extended to the radio compartment of the shelter and terminated in a "66 block".
- m) All wiring for the generator must be routed overhead and not cross the floor with conduits.

3.4.4 Site Work

3.4.4.1 General Site Work Specifications

1. Locating of any buried electrical and/or telephone cables on all of the property affected by the tower site construction and installation of electrical and communications conduits.
2. Contractor shall coordinate and meet with Maryland Department of Environment (MDE) inspectors as may be required to obtain and ensure compliance with MDE permits and regulations for maintaining sediment and erosion control.
3. Clearing and grading of an approximant 100x100 ft. grassy area and installing temporary storm-water management.
4. Furnish and install adequate sediment and erosion control systems during construction. Sediment and erosion control systems may include but not limited to: silt fencing, silt stakes, hay bales etc.
5. Disposition of any spoils shall be approved by the State Project Manager prior to its removal.
6. Furnish and install stabilized construction entrance and crusher/run access road to the tower site in accordance with the Maryland State Highway Administration Bluebook standards.
7. All concrete supplied shall originate from State approved/certified plants.

8. The contractor shall provide a new and unused, purchased and not leased, above ground 1,000-gallon fuel tank filled to rated capacity (liquid propane only).
9. Supply and install a 12ft. x 38ft. or 12ft x 28ft equipment shelter foundation as required to support the required building. The foundation shall have an integrated continuous stoop for the shelter doors.
10. For the two room equipment shelter with emergency generator, supply and install one 4 ft. x 20 ft. concrete foundation for one 1,000 gallon propane fuel tank.
11. Design, supply and install tower and shelter ground rings as required forming a single point grounding/bonding system with a maximum resistance of 5 Ohms.
12. As an option, provide and install up to ten, six inch, concrete filled bollards around the area to prevent damage to the propane fuel tank by vehicles. The exact placement of these bollards shall be determined by the State Project Manager.
13. Upon completion of building and or tower installation, the Contractor shall re-grade and, if necessary, install storm-water management, grub the entire site, install filter cloth and defoliant and cover the entire site with 6 inches of compacted crusher/run. Disposition of any spoils shall be approved by the State Project Manager prior to its removal.

3.5 IMPLEMENTATION

3.5.1 General

The system shall be delivered as a turn-key system. Implementation of the entire radio system shall be delivered in five Phases corresponding to the particular region, as defined in Appendix 2, *State Regions and Coverage Area Definition*.

Testing will occur at the completion of each phase, followed by the system final acceptance after the last region is completed. All testing shall be conducted in accordance with the approved test plan submitted by the Contractor.

The first region deployed will be Region 1A. Deployment in subsequent regions will not be initiated prior to a NTP given by the State Contract or Project Manager. The State reserves the right to define the order in which the regions are deployed.

The Contractor's key personnel shall be responsive and responsible to the State's Contract and Project Manager.

Unless otherwise stated, the Contractor shall provide five hard copies and one electronic copy of all project submittals to the State Project Manager. Documents shall be at least 8 ½" by 11" but no larger than 34" by 44". Electronic submittals shall be in Word and PDF formats, Excel, Project, Visio, AutoCad, Microstation, or otherwise stated. The Contractor shall submit the results of all tests to the State Project Manager within 14 days after test completion.

3.5.2 Key Personnel

3.5.2.1 Availability of Key Personnel

The State has identified Contractor personnel that are critical to the success of the project. The Contractor shall ensure the identified key personnel submitted are available to perform Contract requirements. Contractor key personnel shall not be reassigned to another task without the written concurrence of the State's Contract Manager for 365 calendar days from the Contract award date. If any key personnel leave the employment of the Contractor, become unable to perform the work, or are approved for reassignment by the State's Contract Manager, the replacement must

have equal or better qualifications than those listed in Sections 3.5.2.3 Contractor Project Manager and 3.5.2.4 Chief Engineer and be approved by the State's Contract Manager.

3.5.2.2 Substitution of Key Personnel

During the first 365 calendar days of the Contract performance period, no substitutions of key personnel will be permitted unless such substitutions are necessitated by extraordinary circumstances such as sudden illness, death, or as otherwise approved by the Contract Manager. In any of these events, the Contractor shall promptly notify the Contract Manager and provide a detailed explanation of the circumstances necessitating a substitution, a resume of the substitute, and any other information requested by the Contract Manager to make a determination as to the appropriateness of the proposed substitution. After the initial 365 calendar day period, all proposed substitutions of key personnel must be submitted in writing, at least 30 business days in advance of the proposed substitution, to the Contract Manager with the information required in RFP Section.4.4.6 Project Organization. The CM must agree to the substitution in writing before such substitution shall become effective.

3.5.2.3 Contractor Project Manager

The selected Contractor shall appoint one individual to act as project manager and serve as the primary point of contact between the State and the Contractor regarding contractual matters. Project management shall be provided by the Contractor throughout the implementation of the system to completion. The Contractor Project Manager is responsible for project management services including, but not be limited to:

1. Weekly task item status reports,
2. Monthly project status meeting,
3. System design and final design review,
4. Implementation planning, scheduling, coordination,
5. Management of all system integration activities,
6. Installation and optimization,
7. Acceptance testing,
8. Migration and cutover planning,
9. Maintenance support,
10. Subcontractor management, and
11. Coordinate access to all sites with the State Project Manager.

Project Manager Qualifications and Duties: The Project Manager shall be a certified Project Management Professional and is responsible for ensuring that work performed under this contract is within the scope, consistent with requirements, and delivered on time and on budget. The Project Manager performs day-to-day management of the project; identifies issues and risks and recommends possible issue and risk mitigation strategies; identifies critical paths, tasks, dates, testing, and acceptance criteria; and monitors issues and provides resolutions for up-to-date status reports. Three years of successful experience in managing large scale wireless communications systems projects of similar scale and scope as in this RFP supporting public safety and first responders are preferred. The Project Manger must possess a bachelor's degree from an accredited institution in Engineering, Computer Science, Information Systems, Business, Wireless Communications or other applicable discipline.

3.5.2.4 Chief Engineer

The selected Contractor shall appoint one individual to act as the Chief Engineer. The Chief Engineer shall be the project's Radio Communications Engineer of Record and serve as the

technical authority and primary point of contact between the State and the selected Contractor regarding technical issues. Project engineering services shall be provided from the final system design through the completion of system's final acceptance. The Chief Engineer is responsible for engineering services including, but not be limited to:

1. Final system design and review,
2. Frequency analysis and planning,
3. Coverage prediction and acceptance testing,
4. Fleet map planning,
5. Template development/approval,
6. System configuration,
7. Implementation support,
8. Final system documentation, and
9. Resolution of technical problems.

Chief Engineer Qualifications and Duties: The Chief Engineer is responsible for senior level engineering and/or tasks associated with this project. The Chief Engineer serves as the project's technical expert performing tasks such as: identify and translate functional requirements and operational issues into solutions employing current state-of-the-art wireless communication systems equipment and software; identify relationships between different requirements; and develop the design to support the deliverables of this project. Three years of successful experience in leading the development of functional requirements and detailed design, establishing pragmatic implementation strategies, and the construction and operation of large scale, interoperable wireless communications systems projects of similar scale and scope as in this RFP supporting public safety and first responders are preferred. The Chief Engineer must possess a bachelor's degree from an accredited institution in Engineering, Wireless Communications or other applicable discipline.

3.5.3 Project Management

The Contractor is responsible for insuring the guidelines and business practices established by the Project Management Institute and identified in the Project Management Body of Knowledge (PMBOK) Guide are applied to all areas of the Project. In addition, the Contractor is to remain abreast of and comply with all changes that may affect project execution which may include, but are not limited to:

1. The State's System Development Life Cycle (SDLC) methodology at: www.doit.maryland.gov - keyword SDLC;
2. The State's Information Technology Security Policy and Standards at: www.doit.maryland.gov - keyword Security Policy;
3. The State's Information Technology Project Oversight at: www.doit.maryland.gov - keyword IT Project Oversight;
4. The State's Enterprise Architecture at www.doit.maryland.gov - keyword MTAf Guiding Principles;

3.5.3.1 Project Management Plan

The Contractor shall develop a Project Management Plan (PMP) that includes all tasks and milestones necessary to complete the requirements defined in the Statement of Work. The PMP shall include:

1. An Implementation Plan,

2. A schedule for the entire project that identifies all project milestones deliverables,
3. A schedule for each regional deployment phase,
4. A Risk Management Plan,
5. A Work Breakdown Structure (WBS) including WBS Dictionary in sufficient detail to impart the Contractor's knowledge and ability to successfully complete this project,
6. A Schedule Management Plan,
7. A Scope/Change Management Plan,
8. A Quality Management Plan,
9. A Communications Management Plan, and
10. A MBE plan.

A revised PMP will be submitted to the State within 30 days of Contract award and NTP. Once the State Project Manager accepts the revised PMP, it will become the baseline to gauge schedule variance and Contractor performance for all project activities. It is important to note the Contractor's PMP submitted with its proposal shall be the baseline for the PMP submission. The State expects the initial PMP submission under this section would be substantially the same as the PMP submitted in the Contractor's proposal. Because conditions influencing the project can change, the Contractor can submit changes to the PMP for approval by the Project Manager.

The Contractor shall include a list of all assumptions that were used to develop the PMP. Examples of assumptions the Contractor might include would be the latest start date for each region in order to complete the project within the contract base period or any State personnel requirements to support Contractor efforts.

3.5.3.1.1 Implementation Plan and Phase Milestones

The Contractor shall develop an implementation plan that identifies the steps required to install, configure, and initiate operations of the Statewide Public Safety Wireless Communications System meeting the specifications as defined in this RFP. The implementation plan will include a phasing plan that provides an effective and efficient approach for the Statewide Public Safety Wireless Communications System implementation, with minimal impact on the operation of the existing State systems.

The Contractor's implementation plan shall clearly address the completion of each region, milestones within each region, and the completion of the overall statewide system.

Implementation phases within each region shall consist of the project milestones as indicated on the project schedule. These milestones form the basis of payments to the Contractor as outlined in Section 3.8.

Within a Region, the State reserves the right to identify the system installation order of precedence by County and individual tower sites to accommodate agencies with unique requirements. Should the State exercise this right, the Contractor shall install the system in the order required by the State with price and schedule adjustments modified per the State's change order process.

3.5.3.1.2 Implementation Phases for Each Region

Within each regional deployment, the tasks include installation, turn-up, and testing of the systems and sites in accordance with the acceptance test plan. Each regional deployment plan will include the installation of:

- 1) Control Centers to include the primary and secondary/back-up control centers; including installation and turn-up of the primary wide area radio network controller, primary system management console and accessories;
- 2) Wireless infrastructure to include base stations and repeaters;
- 3) Network components to include routers, gateways, and microwave backhaul;
- 4) Data circuits using any State digital transport network or provided by telecommunication carriers;
- 5) Site requirements to include new tower and shelter construction, facility renovations, outside plant construction, or otherwise, as specified in this RFP; and
- 6) Installation test and turn-up of all remaining systems, such as the specified local dispatching locations, interoperability gateways, etc.

3.5.3.1.3 *Project Schedule*

The Contractor shall provide a schedule of activities with six sections, one section of the overall project and the one section providing a detailed construction schedule for each of the five regions. The detailed schedule for Region 1A shall be provided to the State within 30 days of contract award, and for the overall system including the remaining 4 regions within 60 days of contract award. The overall and regional project schedules shall identify the major activities to achieve each of the deliverables including due dates from the NTP and include key tasks and milestones. For each implementation region, the schedule shall include, but is not limited to the following milestones:

1. Submittals,
2. Final design review,
3. Submission of equipment orders,
4. System manufacture time frames,
5. Pre-shipment system integration and staging,
6. Factory/staging acceptance tests,
7. Equipment shipping,
8. Equipment delivery,
9. System installation and optimization,
10. SATP,
11. Operational testing and,
12. Coverage testing.

3.5.3.2 **System Design Document**

The Contractor shall create and provide a revised System Design Document delivered 90 days after NTP. It is important to note the Contractor's System Design Document submitted with its proposal shall be the baseline for the System Design Document submission in this section. The State expects the System Design Document submission under this section would be substantially the same as the System Design Document submitted in the Contractor's proposal. Because conditions influencing the project can change, the Contractor can submit changes to the document for approval by the Project Manager.

The System Design Document outlines the major components of the Statewide Public Safety Wireless Communications System including:

1. RF coverage maps statewide and by region including all tower locations.
2. RF coverage achieved by county and by region.
3. Microwave DS0/DS1 backhaul routes.
4. Regional switching centers locations and designs.
5. Tower load and antennae placement.
6. Network elements and topology including microwave and fiber backbones.

3.5.3.3 Materials, Equipment, and Spare Parts List

The Contractor shall submit for approval a complete list of all equipment required for the work in accordance with the PMP within 30 days of approval by the State Project Manager or the Contractor's PMP. This list shall include manufacturers' complete catalog identification numbers and model designators, quantities, options, and catalog "cut sheets". The submission shall be in sufficient detail to enable the State to readily identify the equipment.

The Contractor shall determine the number of spares for each component and complete assemblies required to sustain day-to-day operation and maintenance for the warranty and the subsequent optional extended maintenance period(s). This list shall be submitted to the State prior to the start of regional acceptance testing.

The spare parts list shall clearly identify all components including:

1. Vendor name and contact information,
2. Part/version number,
3. Reliability, refurbishment and replacement requirements, and
4. Quantity of spares for each component necessary to ensure sustained operation of the two-way radio system.

The list shall include, without limitation, high level assemblies and their associated component parts. Examples of equipment assemblies include, but are not limited to, field replaceable elements of the mobile and portable radios, site controllers, central control system, and dispatcher work stations. Spares that are proprietary products shall be clearly delineated and available (or approved equivalent) for State purchase for ten years from the date of Final Acceptance.

The Contractor's spare parts list is subject to approval and modification based on the State's determination of the required inventory levels. The State reserves the right to purchase additional spare parts and equipment assemblies as a separate action using the TO Process (Section 3.7.1 Optional Services) at any time during the Contract periods.

3.5.3.4 Test Plans

The Contractor shall provide a System Acceptance Test Plan in conformance with Appendix 16, *System Acceptance Test Program*, and adapted to the Contractor's installed system within 30 days of contract award. Any revisions to the State's SATP must be approved by the State's Project Manager.

The Contractor shall provide a detailed Operational Performance Test Plan to the State for approval at least 90 days prior to the planned start of the operational performance tests.

3.5.3.5 Revised 700MHz Channel Plan

The Contractor shall create and provide a revised 700 MHz channel plan. The plan shall be delivered 90 days after NTP. For illustrative purposes, see Appendix 14, *700 MHz Channel Plan*.

Because conditions influencing the project can change, the Contractor can submit changes to the channel plan for approval by the Project Manager.

3.5.3.6 Region Detailed Design Documents and Shop Drawings

After receiving tentative acceptance of the system Materials and Equipment List submission by the State Project Manager and before ordering, purchasing, fabricating, or installing any materials or equipment, the Contractor shall submit a Design Document. This Design Document shall include:

1. Detailed system description,
2. RF link budget for each transmitter/receiver location,
3. A diagram of all major system components and locations with RF signal levels at the input and output of all active components,
4. Rack layouts of equipment, and
5. Detailed steps taken to mitigate any interference identified.

After approval of the Design Document, the Contractor shall submit Shop Drawings of the systems, subsystems and installation. All Shop Drawings for a specific region shall be submitted at one time. If departures from the Shop Drawings are subsequently deemed necessary by the Contractor, details of such departures, as well as relevant details not represented in Contractor's technical response, shall be submitted in writing or on drawings provided to the State Project Manager for approval prior to fabrication or the start of any work. Shop Drawings shall:

1. Be accurately scaled in both electronic DWF and PDF formats;
2. Shall be presented in a clear and thorough manner. Details shall be identified by reference to sheet and detail;
3. Show methods of fabrication, interconnection and wiring diagrams, schematics, wire and conduit sizes, antenna models and mounting locations, installation and equipment locations, and details of installation, as well as all field-verified (by the Contractor) conditions and dimensions necessary for satisfactory installation. Freehand sketches shall not be accepted;
4. Contain manufacturer recommendations for installation of cable and associated hangers;
5. Include signal levels at the input and output of all active components, splitters/combiners and antennas;
6. Include fabrication and installation drawings, system diagrams, signal levels, schedules, patterns, templates and similar drawings;
7. Include dimensions, the identification of products and materials including their compliance with specified standards, notations of coordination requirements, and notations of dimensions established by field measurements; and
8. Contain a review/approval stamp signed by the Radio Communications Engineer of Record.

Where custom components are to be used, drawings and functional specifications shall be provided to the State Project Manager for inspection and approval prior to fabrication and installation. All equipment mounting methods shall be submitted as Shop Drawings and shall be subject to the approval of the State Project Manager. Contract documents or other standard information shall not be copied or reproduced to function as the basis for Shop Drawings.

3.5.3.7 Interference Analysis Report

The Contractor shall perform an interference analysis for all licensees at each shared site and submit the results to the State Project Manager prior to the deployment of radio equipment at any site. The analysis shall identify any impact to system performance from intermodulation (IM) products, or other conditions negatively impacting the Statewide Public Safety Wireless Communications System or other existing systems. The Contractor shall identify the procedures to be used to mitigate any interference identified.

3.5.3.8 Training Plan

The Contractor shall submit to the State Project Manager a training plan 30 days prior to the scheduled start of Regional Acceptance Testing of region 1A as identified in the project schedule. For each course identified, the Contractor shall supply a professionally prepared lesson plan that includes a course description, documentation of all training modules, the number of hours or days for the course, and any prerequisites. The training material shall be reviewed, updated, and changes submitted to the State Project Manager for each subsequent region 30 days prior to the scheduled start of Regional Acceptance Testing of each region as identified in the project schedule.

3.5.3.9 Training Schedule

Contractor will submit to the State Project Manager a proposed training schedule for each region 30 days prior to the scheduled start of Regional Acceptance Testing as identified in the project schedule for a given region. The Contractor shall provide two training sessions for each course identified in the training curriculum for each of the five regions. The State Project Manager will approve the final training schedule and any modifications to the schedule after the schedule has been approved.

3.5.4 Acceptance Documents

The Contractor shall submit the following documentation to the State Project Manager for approval prior to the State's acceptance of any deployed region.

3.5.4.1 Record Documents and Drawings

The Contractor shall provide as-built documentation at the conclusion of each phase. Shop documents and drawings shall be annotated to reflect the true installed "as-built" conditions and include all systems, subsystems, components and wiring details. These record documents shall contain:

1. Detailed cable schedules for each location describing all jacks, terminations, cable routes, and cable installation records, installed or modified in the course of the work performed;
2. Cable labeling as approved by the State;
3. Updated information indicating actual signal levels at the input and output of all active devices and antennas as required for the Shop Drawings; and
4. Contain a review/approval stamp signed by the Radio Communications Engineer of Record.

In addition, the Contractor shall provide:

1. The system architecture design document as implemented;
2. Frequency Plan as implemented; and
3. Inventory of communication assets and equipment using templates compatible with CASM spreadsheets including, but not limited to;
 - a. Towers;

- b. Base stations/repeaters;
- c. Channels;
- d. Talk groups; and
- e. Dispatch consoles.

3.5.4.2 Operation, Maintenance, and Service Manuals

Prior to final acceptance, ten complete sets of an Operation, Maintenance and Service Manuals shall be submitted outlining all systems and equipment provided under this contract, including all software user documentation and licenses. The manuals shall include the following:

1. Complete maintenance instructions, wiring diagrams, troubleshooting instructions;
2. Complete collection of manufacturers' product and catalog literature for equipment and systems installed;
3. Operating characteristics, performance data, ratings, and manufacturers' specifications for each item of equipment or system;
4. System service instructions for work which the manufacturers recommend be performed by the users;
5. Complete parts lists for each major item of equipment and/or system supplied;
6. Procedures for the administration of user identifications, passwords, remote access controls and confidentiality of information consistent with State security standards and procedures;
7. Procedures to report security violations;
8. Procedures to immediately inform the State the nature and significance of any breach in security, including, without limitation:
 - a. how the breach occurred
 - b. information compromised
 - c. the remedy taken, and
 - d. preventive steps to avoid any future security breaches;
9. Manufacturers' warranties;
10. Name, address, and telephone number for service for each item of equipment or system;
11. A copy of the formal signed equipment and software warranty(s);
12. Copies of software licenses, operating instructions, programming instructions, technical documentation and maintenance procedures to permit making changes to system configuration;
13. Original software distribution media; and
14. An itemized list of test equipment required to support maintenance of the installed radio system.

3.5.4.3 Maintenance Plan and Procedures Manual

The Contractor shall prepare and submit a comprehensive Maintenance Plan and Procedures Manual for State approval. This manual shall include, without limitation, descriptions of the Contractor's Maintenance management system, internal controls, safety practices and detailed procedures for all preventive and corrective work. Estimated task durations shall be included for each maintenance activity contained in the manual. Once approved, the Maintenance Plan and

Procedures Manual shall be used by both the State and the Contractor to guide the management of all maintenance work. The Maintenance Plan and Procedures Manual shall be a living controlled document, updated as necessary by the Contractor.

Within the Maintenance Plan and Procedures Manual, the Contractor shall describe procedures and activities to be performed as part of the preventive maintenance program, including, without limitation, the frequency of each activity. The Maintenance Plan and Procedures Manual will include, without limitation, all procedures recommended by the equipment manufacturers and the following additional tasks:

1. Inspection and Maintenance of all field equipment, cabinets and all electronic equipment including, but not limited to:
 - a) Inspection and periodic replacement of all filters,
 - b) Cleaning and dust treatment of fixed radio equipment and accessory systems,
 - c) Cleaning and dust treatment of all mobile and portable radios and accessories,
2. Check that all hardware and software is working properly,
3. Inspection of control center equipment including, but not limited to:
 - a) Servers,
 - b) Software, and
 - c) Computer equipment, such as keyboards, monitors, mice, storage drives, etc.
4. Inspection of WAN and LAN equipment, such as routers, bridges, and switches, and perform manufacturers diagnostic tests,
5. Inspection and performing manufacturer's diagnostic tests of the two-way radio system, and
6. Inspection and cleaning of all fixed equipment at all the State and shared tower sites.

The Contractor shall also supply a complete list of possible component failures and their associated priority in the Maintenance Plan and Procedures Manual, subject to approval of and modification by the State. All hardware, software, and system/subsystem failures will be placed into the following three categories. The classification of the hardware, software, and/or system/subsystem failure as documented in the Maintenance Plan and Procedures Manual shall govern repair time requirements, as summarized in the Repair Time Requirements Schedule below:

1. Hardware/Software Critical Failure: Any equipment, hardware or software failure that renders the two-way radio system or any subsystem ineffective. If the failure affects multiple devices, this also will constitute a Hardware/Software Critical Failure. Examples include, without limitation: malfunctioning LAN, Control System, Control Center or damage to the radios and/or any supporting equipment provided by the Contractor.
2. WAN Critical Failure: A failure of the WAN that renders the entire system or any subsystem ineffective.
3. Non-Critical Failure: Any individual equipment, hardware or software failure that does not affect the overall operation of the system. Examples include, without limitation: malfunctioning radio control heads, microphones and speakers, or any radio accessory, dispatcher keyboards, mice, etc., or any item that could reasonably be replaced by the State personnel under telephone direction of qualified maintenance personnel.

3.5.4.4 Certification of Equipment Support

The Contractor shall obtain from the manufacturer a warrant that replacement or compatible parts for all system components, not including subscriber equipment, will be available for at least 10 years after the region acceptance date.

3.5.5 Inspections/Testing

The State Project Manager or designee may inspect all work at any time and without prior notice to the Contractor.

1. The State shall be provided with the opportunity to witness all testing. The Contractor shall demonstrate that each test procedure competently identifies the parameter being demonstrated or the fault condition being tested. By reasonable request and with the following lead times:
 - a) Factory Testing sixty working days notice,
 - b) Field Staging Testing thirty working days notice,
 - c) Site equipment/infrastructure installation ten working days notice.
2. The Contractor shall notify the State Project Manager at appropriate times to permit visual inspections of all system elements. No installation work shall be covered by warranty until a visual inspection has been completed by the State Project Manager or designee.
3. The Contractor shall be responsible for organizing a structured demonstration of acceptance tests to ensure organized and efficient testing.
4. The Contractor shall provide written notice to the State Project Manager at least thirty calendar days in advance of the initiation of final system acceptance testing of any region. Included in the advance notice shall be twenty copies of the State approved test plans and procedures to ensure acceptance test monitoring personnel are familiar with the tests, procedures and the expected results.
5. The Contractor shall provide a certificate of compliance, signed by the State Project Manager, upon completion of each site installation. This document shall certify that each element of the installed system and wiring complies with the requirements of the Contract. The certification shall be included with the final acceptance report

3.5.6 System Tests

3.5.6.1 System Acceptance Testing Program (SATP)

The Contractor shall perform system acceptance testing, as defined in Appendix 16, *System Acceptance Test Program*, of the Statewide Public Safety Wireless Communications System to meet all technical and system requirements, performance, system features, and reliability.

The System Acceptance Testing Program will be divided into multiple and successive “Levels” with respect to manufacturing, configuring, staging, installing, and field testing and acceptance of Land Mobile Radio Communication, Backhaul Network and Site Development equipment and systems. Diagram 1 illustrates the process and flow of the System Acceptance Test Program:

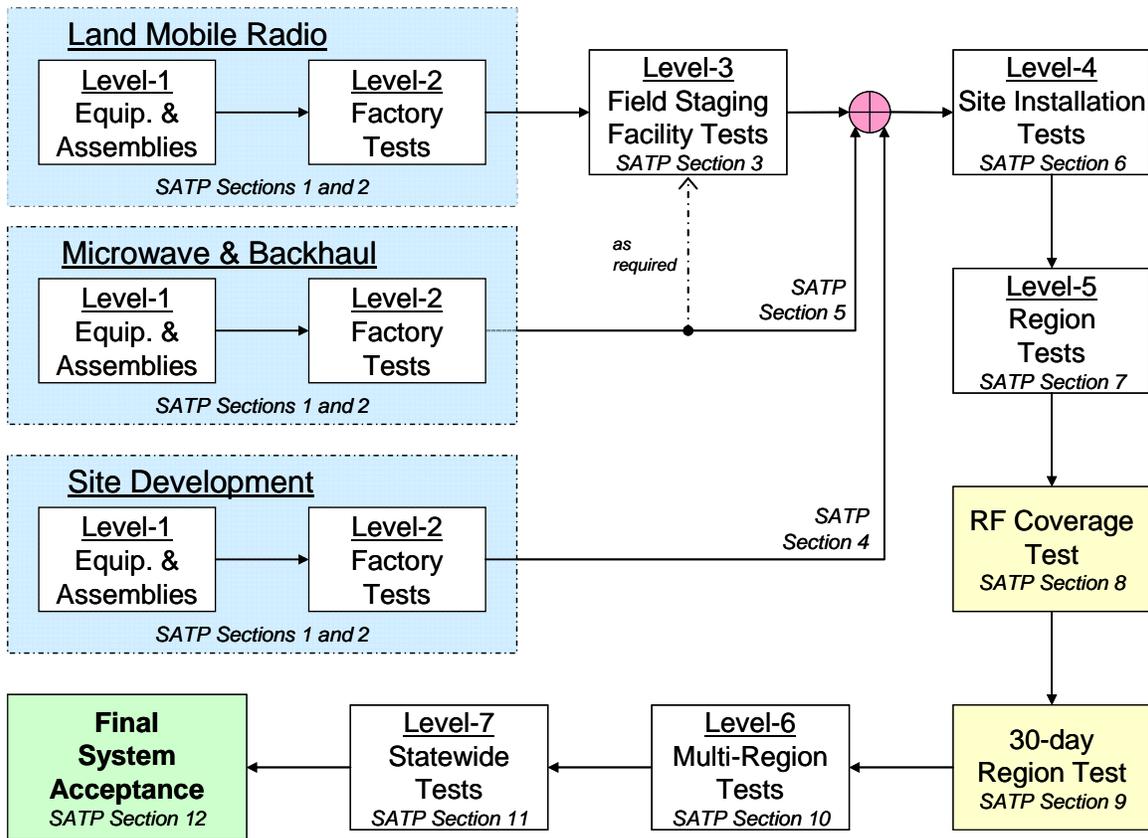


Diagram 1: Process and Flow of the System Acceptance Test Program

3.5.6.2 APCO Project 25 Operational Performance Test

The Contractor shall perform operational performance testing of APCO Project 25 supported feature sets that the system is capable of operating with subscriber units manufactured by at least three different manufacturers.

3.5.7 Network Management Systems (NMS) Integration

The Contractor shall work with the State Operations Manager to ensure all installed components are properly configured and monitored by the system management software and State's NMS. The system management software shall be configured to send all traps, alarms, and notifications to the State's NMS.

3.6 SUPPORT SERVICES

The Contractor shall supply manufacturer warranty and extended maintenance support during the life of the contract including all option periods exercised by the State. Warranty support includes all required personnel, tools, test equipment, spare parts, facilities and transportation necessary to address all maintenance requirements and services specified within the contract. Warranty and maintenance support for all hardware and software shall be provided by the Contractor on twenty four hours per day, seven days per week basis. During the warranty period the Contractor shall provide for replacement equipment at no cost to the State. During subsequent maintenance periods the Contractor may use the State's inventory of spare equipment or a Contractor maintained depot.

Repair time requirements are in effect twenty-four hours per day, seven days per week, including holidays, for the entire warranty and maintenance periods including any extensions exercised by the State in which system support services are purchased. Repair time shall be measured from the time the Contractor's representative receives notification that a failure exists until the time

corrective work is complete in a manner satisfactory to the State and the equipment is returned to normal service.

3.6.1 Warranty Services

The Contractor shall warrant that all goods and services supplied, systems, equipment, designs and work shall be satisfactory for its intended purpose, shall conform to and perform as called for in the Contract and shall be free from all defects and faulty materials and workmanship. Any services supplied, systems, equipment, designs, or work found to be defective within the time specified in Table 7-1, *Minimum Warranty Period per Equipment Class*, shall be repaired, remedied, or replaced, by the Contractor, free of all charges including, without limitation, transportation. All hardware, software, and equipment supplied under the Contract that is rendered defective while under warranty will be the Contractor's sole responsibility to replace.

The Contractor shall provide to the State the manufacturer's standard warranty period or a warranty for a period of at least 2 years, whichever is longer. With the exception of spare parts, the warranty period for all services, systems and equipment, shall commence on the date of final acceptance of the relevant region. The warranty period for spare parts shall extend either until two years from the placement of each spare part into regular service or until three years after system final acceptance, whichever occurs first. In the event that it is necessary to place any spare part into operation or service during the warranty period, the Contractor shall replace the spare part at no cost to the State.

The Contractor shall provide a copy of the formal signed equipment and software warranty(s) as part of the Operation, Maintenance and Service Manual upon successful completion of each region's final acceptance.

3.6.2 Hardware Maintenance Services

The Contractor shall be responsible for maintenance and support of all hardware from the time of installation through expiration of the warranty period and any subsequent optional extended maintenance periods exercised by the State. Maintenance services shall be performed in accordance with the Maintenance Plan and Procedures Manual and include all preventive maintenance services as specified. The below requirements apply during both warranty and purchased support periods.

This work shall include, without limitation, support for all hardware and systems provided by or through the Contractor. The State shall have the option of purchasing directly from the appropriate Original Equipment Manufacturer(s) (OEMs) of computers and associated peripheral equipment on-call Maintenance services in accordance with the various levels of service offered by such OEMs. No later than 30 days prior to the expiration of the warranty, the Contractor shall have the equipment certified as being acceptable by the OEMs for the OEMs contract Maintenance services, and shall request the OEMs to provide written quotation(s) to the State for the provision of such services.

The Contractor shall not be responsible for maintenance and operation of the State's existing communication backbone network used to connect the repeater radio sites, dispatcher centers and the central control system. The Contractor will be required to work with the State and its authorized contractors to resolve problems on the communications backbone network which may affect the overall operation of the Statewide Public Safety Wireless Communications System.

3.6.2.1 Break/Fix Operations

The Contractor shall also be responsible for replacement of failed equipment at no additional charge to the State. The Contractor may use the State's inventory of spare equipment to replace failed equipment (Section 3.6.2.2 Spare Parts Inventory). Failed equipment may be brought to the selected Contractor's service facilities for repair and return to the State's spare parts

inventory. In cases where the manufacturer, supplier, or the State discovers a defective product or component, the Contractor shall have sole responsibility for new replacements at no cost to the State.

The Contractor shall be responsible for the repair of all WAN components provided by the Contractor used to connect to the State WAN (including equipment used to connect to leased telecommunication lines), and including, without limitation, communication and coordination of repairs that must be accomplished by the State or telecommunications provider.

The Contractor shall respond and repair all equipment covered by maintenance services, meeting or exceeding the repair time requirements defined below.

<u>Definition</u>	<u>Severity 1 (Critical)</u>	<u>Severity 2 (Non-Critical)</u>
Begin Diagnosis (from notification)	15 minutes	15 minutes
Onsite Support with parts (as required) measured from start of diagnosis	4 hours	1 business day
1 st Escalation to State's Operations Manager (from notification)	2 hours	1 business day
Resolution / Repair	8 hours	2 business days
Resolution Notification	15 minutes after resolution	15 minutes after resolution

3.6.2.2 Spare Parts Inventory

The Contractor shall provide all necessary spare parts, equipment assemblies and tools required to fully maintain and operate the two-way radio system. The Contractor may use the spare parts inventory during the maintenance period for the replacement of failed equipment. Use of the spare parts inventory shall be documented and equipment removed from service, whenever possible, shall be repaired and replaced into the spare parts inventory by the Contractor at no expense to the State. Alternatively, the contractor may provide replacement equipment from a spare parts depot maintained by the contractor. When equipment is provided from the Contractor's depot, the State shall be notified and appropriate asset transfer shall occur. The State will supply the contractor with an asset management process to be used.

3.6.2.3 Scheduling of Maintenance

The Contractor shall prepare and submit to the State Operations Manager a written summary of all planned preventive maintenance activity to be undertaken each week by close of business by Wednesday of the preceding week. This notification shall include, without limitation, a description of the type, locations, dates, and approximate times of each planned maintenance activity for the upcoming week. All preventive maintenance activity shall be scheduled to not interfere with either the control center activity or traffic operations at the facilities. Should the Contractor have to modify the schedule of any such preventive maintenance activity, they shall notify the State Operations Manager of their revised schedule for approval.

3.6.2.4 Reporting

The Contractor shall prepare and submit to the State Operations Manager monthly activity reports by the 5th day of the following month on the status of maintenance and repair problems to detect significant patterns and trends. The Contractor shall alert the State Operations Manager regarding

problems and changes as they arise, including, without limitation, procedural changes, key personnel moves, and significant system downtime. The timing of these alerts shall be such as to permit timely resolution of problems. Failures of equipment or software anywhere in the Statewide Public Safety Wireless Communications System shall be reported and addressed according to the requirements of the Contract.

Using Microsoft Excel, Access, or other software packages approved by the State, the Contractor shall create a database of all system equipment and software. The database will include, without limitation, equipment model numbers, serial numbers, and part numbers for all equipment inventory including deployed equipment and spare parts. This database will be used to track preventive maintenance, equipment failures and corrective work with dates, descriptions of procedures and equipment used from inventory. The Contractor shall be responsible for updating the database upon completion of any and all maintenance activities performed by the Contractor. This database will be made available to the State.

3.6.3 Software Maintenance Services

The Contractor shall be responsible for all aspects of system software maintenance and system/database administration during the warranty and purchased maintenance periods within the fixed prices elements of the contract. This work shall include, without limitation, monitoring and tuning of all operating systems, network software, databases, and support of all other Contractor provided system software components. The Contractor shall also be responsible for installation of third party software patches and revisions at no additional charge to the State. In cases where the manufacturer, supplier, or the State discovers a defective product or component design, the Contractor shall have sole responsibility for new replacements at no cost to the State. The below requirements apply during both warranty and purchased support periods.

3.6.3.1 Software Updates

The Contractor shall provide software/firmware updates prior to final acceptance, during the warranty period and any exercised maintenance period(s). The Contractor shall notify the State when any software updates are released following system acceptance for any licensed software associated with the system. Software updates shall include the following, at a minimum:

1. Enhancements and/or corrections to existing features for all supplied system components,
2. New features implemented in existing system components, and
3. Software for product migrations, where a new generation of software is developed for a designated system component, rather than an update of the older generation of software.

3.6.3.2 Software Change Notification Service

The State shall be informed of updates for all software provided within this Project upon release. The State shall be placed on the Contractor's mailing/subscription list to receive announcements of the discovery, documentation and solution of software problems, as well as other improvements, updates, new software releases and other improvements that could be made to the system provided to the State. This service shall commence at the time of Final Acceptance, and shall continue through the maintenance period or five years, whichever is longer.

3.6.3.3 Software Licenses

The Contractor shall grant to or obtain in the name of the State a perpetual, non-revocable, non-transferable, and non-exclusive license to use the Software and documentation related thereto for the Statewide Public Safety Wireless Communications System provided.

Any copies of the Software and documentation which the State acquires pursuant to the Contract shall bear all copyright, trademark, and other proprietary notices included therein by the Contractor, and except as provided by law or authorized in the Contract, the State shall not

distribute the same to third parties, without the Contractor's prior written consent, unless such distribution is related to the successful installation, performance or operation of the Statewide Public Safety Wireless Communications System described in this RFP.

3.6.4 Training

The Contractor shall develop and conduct a training program. Training shall be conducted in accordance to the training curriculum submitted as part of the Contractor's technical proposal. All training classes shall be conducted by qualified personnel fully conversant on the materials, software, and overall operation of the installed equipment. Training shall be provided locally or on-site as requested by the Project Manager.

As a minimum, the training curriculum shall address the following topics:

1. Overview training of APCO Project 25 trunked system technology and setting user expectations for non-technical personnel;
2. Train-the-trainer program, including a master copy of the course materials for each course;
3. Management training for administrative and management personnel who will be responsible for defining and maintaining the system's configurable parameters;
4. User equipment operator training for designated State trainers on the operation of portable radios, mobile radios, and control stations. The training may be conducted using a "train-the-trainer" format;
5. Console equipment operator training for dispatchers and their supervisors; and
6. Maintenance training for technicians on maintaining and troubleshooting all equipment to the unit, board, or component level as appropriate.

Because conditions influencing the project can change, the Contractor can submit changes to the Curriculum for approval by the Project Manager.

3.7 OPTIONAL OPERATION AND MANAGEMENT SERVICES

3.7.1 Optional Services

Because the delivered "system" is within the confines of a fixed price contract, it is reasonable to expect there will be requirements that will evolve outside the requirements described in this RFP or which simply were not anticipated. Accordingly, the ability to order optional services on a task order, discount or adjusted price basis is the means to obtain necessary services beyond the fixed price elements under this contract. Optional services are tied to price sheets for:

- a) Site development (Attachment F2)
- b) Equipment and Accessories (Attachment F4)
- c) Subscriber Equipment (Attachment F5)
- d) Labor (Attachment F6)

Any hardware/equipment item included in this contract with a MSRP can simply be ordered using the predetermined discount rate. Items not having a discount rate and MSRP or service items without an established firm fixed price will be subject to a task order request and priced response by the Contractor. Any element of the priced response where a rate has been predetermined in any of the price sheets shall be priced with that unit price adjusted to the contract year in which the item is ordered.

Task Order Request (TOR) Content: The Agency point of contact (POC) will submit a TOR to the Contractor asking for a service or an equipment item to include the specification for the requirement. As an example, a TOR may contain the following information:

1. Requesting Agency;
2. Agency POC;
3. Description of the required Equipment or Service;
4. Delivery requirements;
5. Invoicing instructions;
6. Required date for submission of proposal;
7. Installation requirements, if applicable;
8. Training requirements, if applicable;
9. Type of Task Order (Fixed Price, Indefinite Quantity or Time and Materials);
10. Manufacturer's Warranty Service requirements, if applicable;
11. Performance period;
12. Warranty;
13. Security requirements, if applicable

Task Order Proposal (TOP) Response: Upon receipt of a TOR, the Contractor shall, no later than the TOP due date and time, prepare and submit a detailed proposal. As an example, the Proposal may provide the following:

1. Explanation of how the Contractor intends to meet the requirements of the Task Order;
2. Description of the proposed Equipment or how the Service is to be performed;
3. Transportation and delivery schedule;
4. Installation services provided and schedule, if applicable;
5. Manufacturer's Warranty Services provided, if applicable;
6. Training Services provided and schedule, if applicable;
7. Guarantee that any operating software/firmware/middleware included will be virus free;
8. If the Contractor is not the manufacturer or distributor, a statement that the Contractor is authorized by the manufacturer or distributor to provide the equipment and/or services as of the date of the response;
9. Subcontractors, if any, including required letters of authorization;
10. Proposed price.
11. Captured Equipment Manufacturer or Distributor screen shot of current MSRP as of the date of the TOP submission. Subject to the approval of the State, a comparable substitute directly from the eligible Equipment Manufacturer.

A simple equipment order does not need to follow the above process. An agency equipment order may be satisfied by ordering off a spec sheet but any requirement beyond an equipment order will use the above process.

3.7.2 Migration of Agency Operations

The State may elect to have the Contractor provide migration services for State agencies from their legacy radio system to the Statewide Public Safety Wireless Communications System.

Migration will occur on a time and material basis at the labor rates specified in the contract. Prior to the initiation of any migration of agency operations or subscriber equipment to the Statewide Radio Network, the State will issue a TOR per Section 3.7.1 Optional Services, above and the Contractor will be asked to respond via a TOP. In addition to the items listed in the TOP/TOR, the Contractor shall also deliver a project management plan meeting all of the requirements of Section 3.5.3.1 Project Management Plan, outlining the work required for the transition and a not to exceed cost. The Contractor's PMP will minimize downtime of radio communications and impact to agency operations, and ensure that equipment is installed in a logical sequence as well as a timely manner without sacrificing quality.

The State Contract Manager must approve the TOP and PMP and issue an NTP prior to the commencement of work transitioning any agency. Notification of interruption of services to existing systems required as part of the transition shall require at least seven days notice to the State Contract Manager and must be approved by the State Contract Manager before any interruption occurs.

The scope of any agency migration will include:

1. Identification of all dispatch systems and vehicles included in the transition,
2. Installation and cutover to the primary and secondary/back-up dispatch centers, including installation of all of the primary dispatch consoles and accessory equipment,
3. Physical installation of all hardware,
4. Installation of software,
5. Installation of mobile and portable radios.
6. System radio templates and fleet maps, and
7. Training.

The State Contract/Project Manager shall coordinate the requirements and personnel of the various State agencies that will be utilizing the system. A list of talk groups will be provided by the State during field installation and programming.

3.7.3 Labor Categories and Qualifications

For optional services where labor is involved, the following Contractor labor categories, job descriptions and experience/education requirements apply:

3.7.3.1 Project Manager

Duties: The Project Manager (PM) is assigned the management of a specific project and the work performed under assigned Purchase Orders. Performs day-to-day management of the project, identifies issues and risks and recommends possible issue and risk mitigation strategies associated with the project. The PM acts as a facilitator between a State agency and IT contractor, and is responsible for ensuring that work performed under POs is within scope, consistent with requirements, and delivered on time and on budget. The PM identifies critical paths, tasks, dates, testing, and acceptance criteria, and provides solutions to improve efficiency (e.g., reduce costs while maintaining or improving performance levels). The PM also monitors issues and provides resolutions for up-to-date status reports, and must demonstrate excellent writing and oral communications skills.

Education: Bachelor's Degree from an accredited college or university in Engineering, Computer Science, Information Systems, Business or other related discipline or project management certification is preferred.

General Experience: At least five (5) years of experience in project management.

Specialized Experience: At least two (2) years of experience in managing IT related projects and must demonstrate a leadership role in at least three successful projects that were delivered on time and on budget.

3.7.3.2 Senior Wireless Communications Engineer

Duties: The Wireless Communications Engineer performs technical work in the field of wireless communications systems engineering, design and construction. The individual is to provide technical engineering assistance to support wireless projects. The communications engineer is responsible for program review, compliance with licensing regulations, requirements gathering, design review, change management, and final acceptance by the using agencies. Additional duties include review and analysis of engineering proposals with regard to technical feasibility, cost, interoperability, strategic plans and availability of proposed equipment.

Education: Bachelor's Degree from an accredited four-year college or university.

General Experience: Seven years of experience in administrative or professional work. Two years of this experience must have involved the supervision of other employees or exercising responsibility for program development.

Specialized Experience: Three years of the above experience must include the design, oversight, implementation, or operation of a Public Safety Radio system. This system experience can be in Land Mobile Radio or Microwave communications systems.

3.7.3.3 Wireless Communications Engineer

Duties: Perform similar duties as directed or instructed by the senior wireless communications engineer. Conduct studies pertaining to wireless configuration and equipment substitution. Stays current with technological changes.

Education: A Bachelor's degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering or other related scientific or technical discipline. An additional year of specialized experience may be substituted for the required education.

General Experience: Five years experience in a wireless-related field.

Specialized Experience: Three years of progressive experience in planning, designing, implementation, and analyzing data or wireless networks.

3.7.3.4 Senior Network Engineer

Duties: The Senior Network Engineer is responsible for the design and implementation of large data communications or telecommunications networks. Plans and monitors the installation of communications circuits. Manages and monitors local area networks and associated equipment (e.g., bridges, routers, modem pools, gateways, RoIP equipment, etc.). Conducts short and long term planning to meet communications requirements. Responsible for the design and implementation of LAN/WANs using hub switching and router technology. Performs hardware/software analyses to provide comparative data of performance characteristics and suitability within the existing systems environment. Prepares trade off studies and evaluations for vendor equipment. Generates network monitoring/performance reports for LAN/WAN utilization studies. Recommends network design changes/enhancements for improved system availability and performance.

Education: A Bachelor's degree in Computer Science, Information Systems, Engineering or other related scientific or technical discipline; Master's Degree is preferred.

General Experience: Seven (7) years of progressive experience in planning, designing, implementation, and analyzing data or telecommunications networks.

Specialized Experience: Demonstrated proficiency with Ethernet, TCP/IP, ATM, Frame Relay, DWDM, Radio over IP (RoIP), SONET, network analysis/management tools and techniques. Minimum three years experience with fiber optics, including DWDM optical switches, SONET-based architectures, and broadband networks using ATM technologies and MPLS. Experience with long distance and local carrier management.

3.7.3.5 Network Engineer

Duties: Perform similar duties as directed or instructed by the senior network engineer. Conduct studies pertaining to network configuration and monitor traffic patterns such as protocols and peak usage. Stays current with technological changes.

Education: A Bachelor's degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering or other related scientific or technical discipline. An additional year of specialized experience may be substituted for the required education.

General Experience: Five years experience in a computer-related field.

Specialized Experience: Three years of progressive experience in planning, designing, implementation, and analyzing data or telecommunications networks.

3.7.3.6 Wireless Systems Technician Supervisor

Duties: Wireless Systems Technician Supervisor is the supervisory level of technical support work installing, repairing, maintaining, programming and modifying wireless communications components, devices and equipment such as, but not limited to, digital microwaves, base stations, portable radios, wireless transmitters and receivers, and two-way mobile communication systems. Employees supervise other Wireless Systems Technicians or contractual technician/consultants.

Education: Graduation from a standard high school or possession of a high school equivalency certificate.

General Experience: Four years of experience installing, repairing, maintaining, programming and modifying devices and equipment associated with wireless communication technologies and networks. One year of the above experience must have involved performing the above functions at the supervisory level.

Specialized Experience: FCC General Radiotelephone Operator's License (GROL) or equivalent certification depending on their job assignment. Equivalent certification to the GROL includes Association of Public Safety Communications Officer Radio Technician Certification, Personal Communications Industry Association certification or National Association of Business and Education Radio License certification. Employees possessing such should list the license number and date of issuance on the application.

3.7.3.7 Senior Wireless Systems Technician

Duties: This is the advanced or lead worker level of technical support work installing, repairing, maintaining, programming and modifying wireless communications components, devices and equipment such as, but not limited to, digital microwaves, base stations, portable radios, wireless transmitters and receivers, and two-way mobile communication systems. Employees at this level do not supervise other employees. Employees function as lead workers providing advice, guidance and training, and assign and review the work of less experienced employees.

Education: Graduation from a standard high school or possession of a high school equivalency certificate.

General Experience: Three years of experience installing, repairing, maintaining, programming and modifying devices and equipment associated wireless communication technologies and networks.

Specialized Experience: Possession of a FCC General Radiotelephone Operator's License or equivalent certification depending on their job assignment. Equivalent certification to the GROL includes Association of Public Safety Communications Officer Radio Technician Certification, Personal Communications Industry Association certification or National Association of Business and Education Radio License certification. Employees possessing such should list the license number and date of issuance on the application.

3.7.3.8 Wireless Systems Technician & Junior Wireless Systems Technician

Duties: These are the journey (Technician), and experienced (Junior Technician) levels of technical support work installing, repairing, maintaining, programming and modifying wireless communications components, devices and equipment such as, but not limited to, digital microwaves, base stations, portable radios, wireless transmitters and receivers, and two-way mobile communication systems. Employees at these levels do not supervise other employees.

Education and other Requirements: Graduation from a standard high school or possession of a high school equivalency certificate.

General Experience: Technician - Two years of experience installing, repairing, maintaining, programming and modifying devices and equipment associated wireless communication technologies and networks. Junior Technician - One year experience repairing micro-processor digital electronic systems.

3.8 INVOICING AND PAYMENT

All invoices shall be submitted within 30 calendar days after the completion and acceptance by the Department for each deliverable and include the following information: name and address of the Department, vendor name, remittance address, federal taxpayer identification or (if owned by an individual) his/her social security number, Region ID, invoice date, invoice number, and amount due. A notice-to-proceed number for which the invoice is submitted should also be included.

For optional services invoices for equipment/hardware, the invoice shall include the manufacturer's name, item nomenclature, model number and serial number. Additional information may be required in the future. Invoices submitted without the required information will not be processed for payment until the Contractor provides the required information.

For each regional implementation the Contractor shall submit an invoice for each completed deliverable accepted by the State. There will be no partial payments made under this Contract.

For each invoice the Contractor shall (within a region) include a recap section detailing cumulative billings, to date, by deliverable and dollar total invoiced including the month for which the invoice was submitted.

Payment milestones within each region shall be the basis for payments to the Contractor.

1. Detail Design Plan
 - 5% {For entire region}
2. Factory Staging and Acceptance
 - 20% {For entire region}
3. Field Staging Acceptance and Facility
 - 10% {For entire region}
4. Site Installation and Commission Testing
 - 10% {For entire region}
5. Regional Functional Testing

- 20% {For entire region}
- 6. RF Coverage Acceptance Testing
 - 20% {For entire region}
- 7. Multi-Regional Testing (after 2nd and subsequent regions)
 - 5% {For entire region}
- 8. Statewide Acceptance Test
 - 5%
- 9. Final System Acceptance
 - 5%

For labor requirements obtained through the RFP Section 3.7, the following travel guidance applies. Routine travel is travel within a 50-mile radius as identified in a Task Order Request (TOR), or the Contractor's facility, whichever is closer to the training, installation or work site. There will be no payment for labor hours for travel time or reimbursement for any travel expenses for work performed within these radiuses or at the Contractor's facility.

Non-routine travel is travel beyond the 50-mile radius of requesting unit/agency base location, as identified in the TOR, or the Contractor's facility, whichever is closer to the training or installation site. Non-routine travel will be identified within TOR, if appropriate, and will be reimbursed according to the State's travel regulations and reimbursement rates, which can be found at: www.dbm.maryland.gov - keyword: Fleet Management. If non-routine travel is conducted by automobile, the first 50 miles of such travel will be treated as routine travel and will not be reimbursed. The Contractor may bill for labor hours expended in traveling by automobile beyond the identified 50-mile radius.

For travel performed as part of the fixed price elements of the contract, there is no travel reimbursement.

3.9 INSURANCE

The Contractor shall maintain property and casualty insurance with minimum limits sufficient to cover losses resulting from or arising out of Contractor action or inaction in the performance of the contract by the Contractor, its agents, servants, employees or subcontractors.

The Contractor shall maintain a policy of general liability insurance that is of the proper type and of sufficient limits that the State, their officials, employees, their agents, servants, guests and subcontractors are reasonably covered in the event of injury or death.

A. Worker's Compensation - The vendor shall maintain such insurance as necessary and/or as required under Worker's Compensation Acts, U.S. Longshoremen's and Harbor Workers' Compensation Act, and the Federal Employers Liability Act.

B. General Liability - The Contractor shall purchase and maintain the following insurance protection for liability claims arising as a result of the Contractor's operations under this agreement.

- \$2,000,000 - General Aggregate Limit (other than products/completed operations)
- \$2,000,000 - Products/completed operations aggregate limit
- \$1,000,000 - Each Occurrence Limit
- \$1,000,000 - Personal and Accidental Injury Limits
- \$ 50,000 - Fire Damage Limit

- \$ 5,000 - Medical Expense

The State will be named as an Additional Insured on all liability policies (Workman's Compensation excepted) and Certificates of Insurance evidencing this coverage will be provided prior to the commencement of any activities. Upon execution of a contract with the State, then current certificates of insurance will be provided to the State from time to time, as directed by the State.

The State shall receive written notification of non-renewal from the issuer of the Insurance policies at least sixty (30) days before the expiration of the then-effective Insurance policies. In the event the State receives a notice of non-renewal, the Contractor must provide the State with an Insurance policy from another carrier at least thirty (30) days prior to the expiration of the Insurance policy then in effect.

The Contractor shall require that any subcontractors obtain and maintain similar levels of insurance and shall provide the Department with the same documentation as is required of the Contractor.

SECTION 4 – RFP SUBMISSION REQUIREMENTS

4.1 TWO PART SUBMISSION

The Offeror shall submit proposals in separate volumes:

1. Volume I - TECHNICAL PROPOSAL
2. Volume II - FINANCIAL PROPOSAL

4.2 PROPOSALS

Volume I-Technical Proposal shall be sealed separately from Volume II-Financial Proposal but submitted simultaneously to the Procurement Officer (address listed on Key Information Summary). An unbound original, so identified, and ten copies of each volume are to be submitted. Additionally, eleven copies of the electronic versions of both the Volume I- Technical Proposal in MS Word format and the Volume II-Financial Proposal in MS Excel format shall also be submitted with the unbound originals. Electronic media may be CD-ROM or DVD-ROM and shall bear a label on the outside containing the RFP number and name, the name of the Offeror, and the volume number.

4.3 SUBMISSION

Each Offeror is required to submit a separate sealed package for each “Volume”, which is to be labeled Volume I-Technical Proposal and Volume II-Financial Proposal. Each sealed package shall bear the RFP title and number, name and address of the Offeror, the Volume Number (I or II), and closing date and time for receipt of the proposals on the outside of the package.

All pages of both proposal volumes shall be consecutively numbered from beginning (Page 1) to end (Page “x”).

4.4 VOLUME I – TECHNICAL PROPOSAL

4.4.1 Transmittal Letter

A transmittal letter shall accompany the Technical Proposal. The purpose of this letter is to transmit the proposal and acknowledge the receipt of any addenda. The transmittal letter shall be brief and signed by an individual who is authorized to commit the Offeror to the services and requirements as stated in this RFP under Offeror’s responsibilities. Only one transmittal letter is needed and it does not need to be bound with the technical proposal.

4.4.2 Format of Technical Proposal

Inside a sealed package described in Proposals above, an unbound original, to be so labeled, ten copies and eleven copies of the electronic version shall be provided. Section 3 of this RFP provides requirements and Section 4 provides reply instructions. The paragraphs in these RFP sections are numbered for ease of reference. In addition to the instructions below, the Offeror’s Technical Proposals shall be organized and numbered in the same order as this RFP. This proposal organization will allow State officials and the Evaluation Committee to “map” Offeror’s responses directly to RFP requirements by paragraph number.

The following sections describe the order of Technical Proposal contents.

4.4.3 Title and Table of Contents

The Technical Proposal shall begin with a title page bearing the name and address of the Offeror and the name and number of this RFP. A table of contents shall follow the title page for the Technical Proposal. Note: Information which is claimed to be confidential is to be placed after

the Title page and before the Table of Contents in the Offeror's Technical Proposal, and if applicable, also in the Offeror's Financial Proposal. An explanation for each claim of confidentiality shall be included.

4.4.4 Executive Summary

The Offeror shall condense and highlight the contents of the technical proposal in a separate section titled "Executive Summary". At a minimum, the summary shall include a strategic overview of the project to help an evaluator see the Offeror's vision for the physical elements and components to include project approach, project management plan, high level systems architecture, equipment components and any other description of what the Offeror proposes to install. Maps, schematics and diagrams that would help in the visualization of system architecture and networks, tower requirements, equipment and timing shall be included.

The summary shall also identify any exceptions the Offeror has taken to the requirements of this RFP, the Contract (Attachment A), or any other attachments. Exceptions to terms and conditions may result in having the proposal deemed unacceptable or classified as not reasonably susceptible of being selected for award.

Finally, the Executive Summary shall include the form of proof that minimum qualifications are met as defined in RFP Section 2.2.

4.4.5 Offeror Technical Response to RFP Requirements

The Offeror shall address each major task in the Technical Proposal and describe how its services will meet the requirements as described in the RFP. If the State is seeking Offeror's agreement to a requirement, the Offeror shall state agreement or disagreement. As stated above, any exception to a term or condition may result in having the proposal deemed unacceptable or classified as not reasonably susceptible of being selected for award. Any paragraph that responds to a work requirement shall include an explanation of how the work will be done. There are requirements in the RFP that require specific elaboration. The following subsections explain where additional information shall be in the Technical Proposal beyond what is might be an Offeror's normal response to a RFP Section 3 requirement..

4.4.5.1 Project Overview

The Executive Summary has a high level strategic overview requirement. The Project Overview submission in this section shall elaborate on the strategic summary with additional detail. The Project Overview shall include more specific information, segregated by the five regions, a System Design Document (3.5.3.2 System Design Document), shelter requirements, other site development considerations, equipment listings (end item name/model number/quantities), network characteristics, technical challenges, system support, project documentation, testing and on-going operations after system delivery. The System Design Document submitted will be the basis of the formally submitted System Design Document required by RFP Section 3.5.3.2

System Design Document. The Offeror shall include a comparison chart which identifies the functions and features included with the system comparing the system elements in the five regions. Any information included here that an Offeror thinks fully addresses the requirement of another part of the RFP can be cross referenced back to this section.

{Section 3, All}

4.4.5.2 Subscriber Units

The Offeror shall include a comparison chart which identifies the compliance of each proposed subscriber unit to the APCO Project 25 Phase 1 and 2 standards, the required functions and features of each subscriber Tiers and all options offered as identified in 3.3.7 Subscriber Equipment Requirements. This chart shall clearly identify all options available and delineate the difference between the required Tier features.

{3.3.7 Subscriber Equipment Requirements}

4.4.5.3 Digital Modulation and Common Air Interface

The Offeror shall include a full disclosure and description of the interfaces used, the underlying standards related to the system architecture, and any deviations from that standard in the system or equipment offered.

{3.2.3 Digital Modulation and Common Air Interface}

4.4.5.4 APCO Project 25 Phase 2 Migration

If the technology solution is not compliant with APCO Project 25 Phase 2, the Offeror shall include a migration plan for a network wide migration to an APCO Project 25 Phase 2 system. The migration plan must include, but not be limited to, guaranteed timelines for: (a) completion of a network wide migration, (b) user transition plans, (c) recovery plans should a failure occur during the migration, and (d) system impact analysis to include but not limited to system channel capacity and subscriber equipment upgrade logistics. The Offeror shall describe any migration path actions that would require a subscriber unit to be removed from field operations and identify the associated down time. A subscriber down time cost shall be associated for each subscriber removed from field service for any period of time. The migration costs shall be included in the proposal and not extend the project completion date.

{3.2.4.1APCO Project 25 Phase 2 Migration}

4.4.5.5 Non-APCO Project 25 Compliance

If the technology solution is not compliant with APCO Project 25, the Offeror shall identify all features and functions that are:

1. Proprietary,
2. Not APCO Project 25 Phase 1 compliant, and
3. Not APCO Project 25 Phase 2 compliant.

{3.2.4 APCO Project 25 Phase 2}

4.4.5.6 APCO Project 25 Operation

The Offeror shall certify and include a list of supported feature sets that the system is capable of operating with subscriber units manufactured by at least three different manufacturers. The proposal shall include a field test plan to demonstrate to the State's RFP evaluation committee a live test of features supported. The test shall be conducted at a State facility yet to be determined.

{3.5.6.2APCO Project 25 Operational Performance Test}

4.4.5.7 Low-Speed Wireless Data

The Offeror shall include a description of the features and functions of the low-speed wireless data system. If any compression algorithm is used to achieve this data throughput, it shall be disclosed, underlying standards identified, and any deviations from the APCO Project 25 standard in the system or equipment explained.

{3.2.8.13 Low-Speed Wireless Data}

4.4.5.8 Over-The-Air Programming

The Offeror shall include information regarding the capability to program or update subscriber equipment using Over-The-Air Programming (OTAP) methods. A description of the methods or mechanisms used to authenticate user equipment and the time required to fully program a subscriber unit using OTAP methods shall be provided by the Offeror.

{3.2.9.11 Over-The-Air Programming}

4.4.5.9 Support for Airborne Users

The Offeror shall include a description of the methods or mechanisms of how airborne units communicate with other system aircraft, fixed stations, vehicles, vessels and portable units.

{3.2.9.12 Support for Airborne Users}

4.4.5.10 Legacy Console Interface

The Offeror shall include a description of methods or mechanisms to interface with all IP-based consoles and Non-IP-based consoles supported with their technology solution as listed in Appendix 6, *Dispatch Point Location and Console Capacity*.

{3.2.12.11 Legacy Console Interface}

4.4.5.12 Prediction Modeling

The Offeror shall include information regarding the software program and model used for the purposes of coverage predictions and the rationale for system losses (e.g., power, gain, link budget, and loss information used in the model for each site).

The Offeror shall include a predicted mobile and portable radio talk-out and talk-in coverage on RF coverage plots. Single-site and multi-site composite coverage plots shall be presented on an appropriate scale. Plots shall show different signal levels each denoted by a different color over a range of signal levels of which provide a useful display.

{3.2.14.1 Prediction Modeling}

4.4.5.13 Coverage Maps

The Offeror shall include coverage maps and tables that illustrate statewide coverage, regional coverage and countywide coverage with a portable configured above for the following conditions:

1. Portable in-building with 12 dB wall loss,
2. Portable in-building with 24 dB wall loss, and
3. Portable on-street throughout areas defined as special locations.

All maps shall be of the same size and use a scale of one inch equals six miles to allow performance comparison between areas.

{3.2.14.2 Coverage}

4.4.5.14 700 MHz Channel Plan

The Offeror shall include a proposed 700 MHz channel plan providing the defined RF coverage, physical and functional channel allocations, and channel loading for existing and future State requirements. The plan submitted will be the basis of the formally submitted plan required by Section 3.5.3.5 Revised 700MHz Channel Plan and meet the requirements of the Section 3.2.14.4700 MHz Channel Plan. For illustrative purposes, see Appendix 14, *700 MHz Channel Plan*.

{3.2.14.4 700 MHz Channel Plan}

4.4.5.15 APCO PROJECT 25 Trunked Repeaters

The Offeror shall include a description of the features and functions of the APCO Project 25 Trunked Repeaters and any deviations from the APCO Project 25 Phase 2 standard. The Offeror shall include a description of the methods or mechanisms of how repeaters provide automatic call sign identification that meets the FCC requirements for identifying APCO Project 25 trunked repeater sites, ability to reconfigure individual repeater sites through the network backhaul interface, and the extent to which repeater parameters can be configured remotely and whether this programming is restricted to repeater parameters or also includes the use of repeater software.

{3.3.2 Radio Transmission Sites}

4.4.5.16 Training

The Offeror shall submit a training curriculum and description of each course on the operation and maintenance of all equipment provided with the radio system. As a minimum, the training submission shall address the following topics:

1. Overview training of APCO Project 25 trunked system technology and setting user expectations for non-technical personnel;
2. Management training for administrative and management personnel who will be responsible for defining and maintaining the system's configurable parameters;
3. User equipment operator training for designated State trainers on the operation of portable radios, mobile radios, and control stations. The training may be conducted using a "train-the-trainer" format;
4. Console equipment operator training for dispatchers and their supervisors; and
5. Maintenance training for technicians on maintaining and troubleshooting all equipment to the unit, board, or component level as appropriate.

{3.6.4 Training}

4.4.6 Project Organization

The Offeror shall include an organizational chart that identifies by name and contact information of the Project Manager, Chief Engineer, key personnel, plus the name and contact information of the executive officer (of the company) responsible for assuring compliance with project specifications, project schedules, and problem resolution.

The Offeror shall include a form of proof regarding the minimum qualifications for experience and proficiency are met for the Project Manager and Chief Engineer as defined in Sections 3.5.2.3 Contractor Project Manager and 3.5.2.4 Chief Engineer.

The Offeror shall describe its key and non-key personnel capabilities as well as explaining how it will meet substitution provisions in compliance with the Offeror shall include any relevant professional or formal certifications achieved by the personnel proposed. The Offeror shall illustrate in this section of the proposal, how the project team will be organized and how the project team will report up to the Offeror's organization. Resumes shall be provided for all personnel proposed for this project.

4.4.7 Proposed Project Management Plan and Assumptions

The Offeror shall submit a proposed a Project Management Plan (PMP) as identified in Section 3.5.3.1 Project Management Plan, and its subsections. The PMP shall identify the major activities to achieve each of the deliverables including due dates from the Notice-To-Proceed (NTP) expressed in of the number of days (i.e. NTP + 60). The plan submitted will be the basis of the formally submitted plan required by Section 3.5.3.1 Project Management Plan and its subsections.

The Offeror shall also include a list of all assumptions that were used to develop the PMP. Examples of assumptions the Offeror might include would be the latest start date each region in order to complete the project within the contract base period or any State personnel requirements to support Offeror efforts.

4.4.8 Corporate Experience and Capabilities

The Offeror shall include information on past experience with similar projects and particularly with wireless interoperability. The Offeror shall describe how their organization can meet the qualifications of this RFP and shall include the following.

4.4.8.1 Experience

An overview of the Offeror's experience and capabilities rendering services similar to those included in this RFP. This description shall include:

1. A summary of the services offered,
2. The number of years the Offeror has provided these services,
3. The types of clients and geographic locations that the Offeror currently serves, and
4. A synopsis of the Offeror's experience including the general scope of the voice and data needs assessment and channel implementation plans that have been or are currently being developed.

4.4.8.2 Organization Chart

An organization chart of the Offeror showing all major component units, which component(s) will perform the requirements of this Contract, where the management of this Contract will fall within the organization, and what corporate resources will be available to support this Contract in primary, secondary, and back-up roles.

4.4.8.3 References

Up to three references from its customers who are capable of substantiating:

1. The Offeror's ability to manage projects of comparable size, similar technical requirements and complexity.
2. Each client reference shall be from a client for whom the Offeror provided service and shall include the following information:
 - a) Name of client organization,
 - b) Name, title, and telephone number of point of contact for client organization,
 - c) Value, type, and duration of contract(s) supporting client organization, and
 - d) The services provided scope of the contract, objectives satisfied.

4.4.8.4 Previous Work

The Offeror shall provide examples of their previous work as part of their proposals to include the following:

1. Design Document,
2. PMP, and
3. Frequency Plan.

4.4.9 Financial Capability and Statements

The Offeror shall include Financial Statements, specifically, an abbreviated Profit and Loss (P&L) and an abbreviated Balance sheet for the last two years (independently audited, preferred).

4.4.10 Legal Actions Summary

The Offeror shall include the following:

1. A statement as to whether there are any pending legal actions against the Offeror, and a brief description of any such action;
2. A brief description of any settled claims against the Offeror within the past three years; and
3. A description of any judgments against the Offeror within the past five years, including the case name and number, court, and the case description.

The information specified above shall be limited to information technology and telecommunications services or projects within the United States.

4.4.11 Certificate of Insurance

The Offeror shall provide a copy of the Offeror's current certificate of insurance with the prescribed limits set forth in Section 3.9.

4.4.12 Subcontractors

The Offeror shall identify subcontractors, both MBE and non-MBE, and explain the role these subcontractors will have in the performance of the Contract.

4.4.13 Additional Required Technical Submissions:

1. Completed Bid/Proposal Affidavit (Attachment B)
2. Completed Minority Business Enterprise (MBE) Participation Forms (Attachments D-1 and D-2)
3. Living Wage Affidavit of Agreement (Attachment K)
4. Mercury Affidavit (Attachment O)

4.5 VOLUME II – FINANCIAL PROPOSAL

4.5.1 General

Volume II-Financial Proposal shall be sealed separately from Volume I-Technical Proposal but submitted simultaneously to the Procurement Officer (address listed on Key Information Summary). An unbound original, so identified, and ten paper copies of Volume II are to be submitted. Additionally, eleven copies of the electronic version of the Volume II- Financial Proposal in MS Excel format shall be submitted. The electronic version shall be submitted on either CD-ROM or DVD-ROM and shall bear a label on the outside containing the RFP number and name, the name of the Offeror, and the volume number.

The Offeror's financial proposal shall include all prices to completely engineer, furnish, install, test, optimize, train the users, and perform warranty and post warranty maintenance for the proposed turn-key system as described in this RFP. See Attachment F instructions for more detail on submission requirements.

SECTION 5 – EVALUATION CRITERIA AND SELECTION PROCEDURE

5.1 EVALUATION CRITERIA

Evaluation of the proposals shall be performed by a committee organized for that purpose of analyzing the technical commissary proposals. Evaluations shall be based on the criteria set forth below.

5.2 TECHNICAL CRITERIA

The Committee will use the following criteria to evaluate each qualifying Technical Proposal. The evaluation criteria, of which the technical aspects of each Offeror's proposal will be evaluated, are described below in descending order of importance:

1. Offeror Technical Response to RFP Requirements. (Section 4.4.5 Offeror Technical Response to RFP Requirements). Offeror response to work requirements in the RFP (Section 3) must illustrate a comprehensive understanding of work requirements to include an explanation of how the work shall be done. Responses to work requirements such as “concur” or “shall comply” shall receive a lower evaluation ranking than those Offerors who demonstrate they understand a work requirement and have a plan to meet or exceed it. The following topics represent the focus areas for evaluation because of their crucial impact on project success and therefore shall be integral to an Offeror's response:
 - a) Availability
 - b) Capacity
 - c) Coverage
 - d) Subscriber units
 - e) Functionality
 - f) Interoperability – (APCO 25 and Legacy Systems)
 - g) Reliability
 - h) Required interfaces
 - i) Scalability
2. Project Organization. (Section 4.4.6 Project Organization)
3. Project Management Plan and Assumptions. (Section 4.4.7 Proposed Project Management Plan and Assumptions). The following elements of the plans and assumptions represent focus areas for evaluation because of their crucial impact on project success:
 - a) Project Management Framework
 - b) Project Management Processes
 - c) Integration Management
 - d) Scope Management
 - e) Time/Schedule Management
 - f) Quality Management
 - g) Human Resource Management
 - h) Communication Management
 - i) Risk Management
 - j) Integrated Change Control

4. Corporate Experience and Capabilities. (Section 4.4.8 Corporate Experience and Capabilities)

5.3 FINANCIAL CRITERIA

All qualified Offerors will be ranked from the lowest to the highest price based on the total price proposed as shown in ATTACHMENT F. An Offeror must comply with the instructions provided in Attachment F.

5.4 RECIPROCAL PREFERENCE

Although Maryland law does not authorize procuring agencies to favor resident Offerors in awarding procurement contracts, many other states do grant their resident businesses preferences over Maryland contractors. Therefore, as described in COMAR 21.05.01.04, a resident business preference will be given if: a responsible Offeror whose headquarters, principal base of operations, or principal site that will primarily provide the services required under this RFP is in another state submits the most advantageous offer; the other state gives a preference to its residents through law, policy, or practice; and, the preference does not conflict with a Federal law or grant affecting the procurement contract. The preference given shall be identical to the preference that the other state, through law, policy or practice gives to its residents.

5.5 Selection Procedures

5.5.1 General Selection Process

The contract will be awarded in accordance with the competitive sealed proposals process under Code of Maryland Regulations 21.05.03. The competitive sealed proposals method is based on discussions and revision of proposals during these discussions.

Accordingly, the State may hold discussions with all Offerors judged reasonably susceptible of being selected for award, or potentially so. However, the State also reserves the right to make an award without holding discussions. In either case of holding discussions or not doing so, the State may determine an Offeror to be not responsible and/or an Offeror's proposal to be not reasonably susceptible of being selected for award, at any time after the initial closing date for receipt of proposals and the review of those proposals.

5.5.2 Selection Process Sequence

1. The Procurement Officer will initially review each proposal for compliance with the instructions contained in this Request For Proposals (RFP).
2. The next level of review will be an evaluation for technical merit. During this review oral presentations and discussions may be held. The purpose of such discussions will be to assure a full understanding of the State's requirements and the Offeror's ability to perform, and to facilitate arrival at a contract that will be most advantageous to the State. For scheduling purposes, Offerors shall be prepared to make an oral presentation and participate in discussions within two to four weeks of the delivery of proposals to the State. The Procurement Officer will contact Offerors when the schedule is set by the State.
3. Offerors must confirm in writing any substantive oral clarification of, or change in, their proposals made in the course of discussions. Any such written clarification or change then becomes part of the Offeror's proposal.
4. Offerors will be given the opportunity to correct deficient proposals, respond to written questions or provide written clarification based upon a letter sent by the Procurement Officer. Technical proposals will be ranked at the end of this process. This evaluation will be made on the basis of the criteria set forth in the Evaluation Section of this RFP

and the requirements of the RFP compared with the written proposal as revised via discussions and letters.

5. The financial proposal of each Offeror will then be opened and evaluated separately from the technical evaluation. After a review of the financial proposals of Offerors, the Procurement Officer may again conduct discussions.
6. When in the best interest of the State, the Procurement Officer may permit Offerors who have submitted acceptable proposals to revise their initial proposals and submit, in writing, best and final offers (BAFOs).

5.5.3 Award Determination

Upon completion of all discussions and negotiations, reference checks, and site visits, if any, the Procurement Officer will recommend award of the contract to the responsible Offeror whose proposal is determined to be the most advantageous to the State considering technical evaluation factors and price factors as set forth in this RFP. In making the most advantageous Offeror determination, technical factors will be given greater weight than price factors.

Award of a Contract, if any, is subject to the approval of the Maryland Department of Information Technology upon the recommendation of the Procurement Officer, and to such other approvals as may be required by State law, including the Maryland Board of Public Works.

ATTACHMENTS

ATTACHMENT A – The State's Contract. It is provided with the RFP for informational purposes and is not required at proposal submission time. However, it must be completed, signed and returned by the selected Offeror to the Procurement Office upon notification of proposed contract award (Attached to this solicitation).

ATTACHMENT B – Bid/Proposal Affidavit. This form must be completed and submitted with the Offeror's technical proposal (Attached to this solicitation).

ATTACHMENT C – Contract Affidavit. It is not required at proposals submission time. It must be submitted by the selected Offeror to the Procurement Officer within 5 working days of notification of proposed award (Attached to this solicitation).

ATTACHMENT D – Minority Business Enterprise Participation Forms (Attached to this solicitation)

ATTACHMENT E – Pre-Proposal Conference Response Form. We ask that this form be completed and submitted as described in the RFP Section 1.7. The primary purpose of the form is to get an idea of attendance to ensure the room reserved is big enough for expected attendees.

ATTACHMENT F – Proposal Price Sheet. This form is to be completed by the Offeror and comprises the Offeror's Volume II – Financial Proposal (Attached to this solicitation).

ATTACHMENT G – Procurement Officer Checklist

ATTACHMENT H – Electronic Funds Transfer (EFT) Registration Request Form. Submission of this form allows the State to electronically pay invoices.

ATTACHMENT I – Non-Disclosure Agreement. The purpose of the agreement is to advise the Contractor will be required to protect sensitive information to which access will be granted during the life of the Contract.

ATTACHMENT J – Living Wage Requirements for Service Contracts is a new requirement recently enacted by law. This attachment explains the main features of the legislation and the requirements Contractors must meet.

ATTACHMENT K – Living Wage Affidavit of Agreement. The affidavit asks for acknowledgement of understanding and consent to comply with the Living Wage provisions of the Contract.

ATTACHMENT L – Deliverables Submission Form

ATTACHMENT M – Deliverables Acceptance Form

ATTACHMENT O – Mercury Affidavit

ATTACHMENT A – THE STATE’S CONTRACT

THIS CONTRACT (the “Contract”) is made this _____ day of _____, 2008 by and between _____ and the **STATE OF MARYLAND**, acting through the **DEPARTMENT OF INFORMATION TECHNOLOGY** (“DoIT” or sometimes the “Agency”).

IN CONSIDERATION of the premises and the covenants herein contained, the parties agree as follows:

1. Definitions

In this Contract, the following words have the meanings indicated:

1.1 “Contract Monitor” means the DoIT representative and first point of contact for contract procedures and any discrepancies. The Agency may change the Contract Monitor at any time by written notice.

1.2 “Contractor” means _____ whose principal business address is _____ and whose principal office in Maryland is _____.

1.3 “Department” means the Department of Information Technology (DoIT).

1.4 “Financial Proposal” means the Contractor’s Financial Proposal dated _____.

1.5 “Procurement Officer” means the person with the responsibilities and authorities of “procurement officer” under the Annotated Code of Maryland, and Title 21 of the Code of Maryland Regulations (“COMAR”) or their designee. The Agency may change the Procurement Officer at any time by written notice.

1.6 “RFP” means the Request for Proposals for DoIT Statewide Public Safety Wireless Communications System, Solicitation No. 060B9800036, dated _____, and any amendments thereto issued in writing by the State.

1.7 “State” means the State of Maryland.

1.8 “Technical Proposal” means the Contractor’s Technical Proposal, dated _____.

2. Statement of Work

2.1 The Contractor shall provide an integrated statewide public safety wireless communication system. The State will use this system as the primary radio communication system for State agencies. Local and municipal first responders may also use the system for primary radio communications. The system will provide voice and data interoperability among its primary users and other public safety agencies to support Day-to-Day, Mutual Aid, and Task Force operations. The system shall be highly reliable, fault tolerant, spectrally efficient, easily scalable, and meet the operational expectations for public safety first responders. If there is any conflict between this Contract and the Exhibits, the terms of the Contract shall govern. If there is any conflict among the Exhibits, the following order of precedence shall determine the prevailing provision, with earlier listed Exhibits prevailing over later listed Exhibits:

- Exhibit A – RFP
- Exhibit B – Technical Proposal
- Exhibit C – Financial Proposal

- a. The Contract Affidavit attached hereto as Exhibit D is incorporated by reference herein.
- b. The Procurement Officer may, at any time, by written order, make changes in the work within the general scope of the Contract. No other order, statement or conduct of the Procurement Officer or any other person shall be treated as a change or entitle the Contractor to an equitable adjustment under this section. Except as otherwise provided in this Contract, if any change under this section causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work, whether or not changed by the order, an equitable adjustment in the Contract price shall be made and the Contract modified in writing accordingly. The Contractor must assert in writing its right to an adjustment under this section within thirty days of receipt of written change order and shall include a written statement setting forth the nature and cost of such claim. No claim by the Contractor shall be allowed if asserted after final payment under this Contract. Failure to agree to an adjustment under this section shall be a dispute under the Disputes clause. Nothing in this section shall excuse the Contractor from proceeding with the Contract as changed.
- c. The Contract may be modified only after such approvals as are required under Maryland law, and only by a writing executed by the authorized representatives of the parties.

3. Time for Performance

Unless the Contract is terminated earlier as provided herein, the term of the Contract is the period beginning on January 1, 2009, and ending December 31, 2017. The State, at its sole option, shall have the unilateral right to extend the Contract for up to seven additional successive one-year terms. The Contractor shall provide Services under the Contract upon receipt of a notice to proceed from the Contract Monitor.

4. Consideration and Payment

4.1 In consideration of the satisfactory performance of the Services, the Department shall pay the Contractor in accordance with the terms of this Contract and at the rates specified in _____. Except with the express written consent of the Procurement Officer, total payments to the Contractor pursuant to this Contract may not exceed \$_____ (the "NTE Amount"). Contractor shall notify the Contract Monitor, in writing, at least 60 days before payments reach the NTE Amount. After notification by the Contractor, if the Procurement Officer fails to give written notice that the NTE Amount has been increased, the Contractor shall have no obligation to perform under this Contract after payments reach the NTE Amount. The cessation of the Contractor's obligation to perform under this paragraph 4.1 is expressly conditioned on the following: that prior to the NTE Amount being reached, the Contractor shall: (i) give the notice required under this paragraph 4.1; (ii) promptly consult with the Department and cooperate in good faith with the Department to establish a plan of action to assure that every reasonable effort has been undertaken by the Contractor to complete State-defined critical work in progress prior to the date the NTE Amount will be reached; and (iii) secure data bases, systems, platforms and/or applications on which the Contractor is working so that no damage or vulnerabilities to any of the same will exist due to the existence of any such unfinished work.

4.2 The Contractor shall submit invoices monthly for Services completed during the previous calendar month. Each invoice must include the Contractor's Federal Tax Identification Number which is _____. Payments to the Contractor pursuant to this Contract shall be made no later than 30 days after the State's receipt of a proper invoice from the Contractor. Charges for late payment of

invoices other than as prescribed by Title 15, Subtitle 1, of the State Finance and Procurement Article, Annotated Code of Maryland, as from time-to-time amended, are prohibited. Invoices shall be submitted to the Contract Monitor.

4.5 In addition to any other available remedies, if, in the opinion of the Procurement Officer, the Contractor fails to perform in a satisfactory and timely manner, the Procurement Officer may refuse or limit approval of any invoice for payment, and may cause payments to the Contractor to be reduced or withheld until such time as the Contractor meets performance standards as established by the Procurement Officer.

5. Rights to Records

5.1 The Contractor agrees that all documents and materials including but not limited to, software, reports, drawings, studies, specifications, estimates, tests, maps, photographs, designs, graphics, mechanical, artwork, computations and data prepared by the Contractor, solely for purposes of this Contract with the State of Maryland shall be the sole property of the Department and shall be available to the Department at any time. The Department shall have the right to use the same without restriction and without compensation to the Contractor other than that specifically provided by this Contract.

5.2 The Contractor agrees that at all times during the term of this Contract and thereafter, works created as a deliverable under this Contract, and Services performed under this Contract shall be “works made for hire” as that term is interpreted under U.S. copyright law. To the extent that any products created as a deliverable under this Contract are not works for hire for the Department, the Contractor hereby relinquishes, transfers, and assigns to the State all of its rights, title, and interest (including all intellectual property rights) to all such products created under this Contract, and shall cooperate reasonably with the State in effectuating and registering any necessary assignments.

5.3 The Contractor shall report to the Procurement Officer, promptly and in written detail, each notice or claim of copyright infringement received by the Contractor with respect to all data delivered under this Contract.

5.4 The Contractor may not affix any restrictive markings upon any data and if such markings are affixed, the Department shall have the right at any time to modify, remove, obliterate, or ignore such warnings.

5.5 The State shall have the sole and exclusive right to use, duplicate, distribute, and disclose any data, databases, derived data products, information, documents, records, or results, in whole or in part, in any manner for any purpose whatsoever, that may be created, collected, manipulated, generated, or purchased by the State from the Contractor in connection with this Contract (collectively, the “Data”). The Data shall be the sole property of the State.

6. Patents, Copyrights, Intellectual Property

6.1 If the Contractor furnishes any design, device, material, process, or other item, which is covered by a patent or copyright or which is proprietary to or a trade secret of another, the Contractor shall obtain the necessary permission or license to permit the State to use such item or items.

6.2 The Contractor shall defend or settle, at its own expense, any claim or suit against the State alleging that any such item furnished by the Contractor infringes any patent, trademark, copyright, or trade secret. If a third party claims that a Product infringes that party’s patent or copyright, the Contractor shall defend the Agency against that claim at Contractor’s expense and shall pay all damages, costs and attorney fees that a Court finally awards, provided the Agency (i) promptly notifies the Contractor in writing of the claim; and (ii) allows Contractor to control and cooperates with Contractor in, the defense

and any related settlement negotiations. The obligations of this paragraph are in addition to those stated in section 6.3 below.

6.3 If any products furnished by the Contractor become, or in the Contractor's opinion are likely to become, the subject of a claim of infringement, the Contractor shall, at its option and expense: a) procure for the State the right to continue using the applicable item, b) replace the product with a non-infringing product substantially complying with the item's specifications, or c) modify the item so that it becomes non-infringing and performs in a substantially similar manner to the original item.

7. Confidentiality

Subject to the Maryland Public Information Act and any other applicable laws, all confidential or proprietary information and documentation relating to either party (including without limitation, any information or data stored within the Contractor's computer systems) shall be held in absolute confidence by the other party. Each party shall, however, be permitted to disclose relevant confidential information to its officers, agents and employees to the extent that such disclosure is necessary for the performance of their duties under or in connection with this Contract, provided that the data may be collected, used, disclosed, stored and disseminated only as provided by and consistent with the law. The provisions of this section shall not apply to information that (a) is lawfully in the public domain; (b) has been independently developed by the other party without violation of this Contract; (c) was already in the possession of such party, (d) was supplied to such party by a third party lawfully in possession thereof and legally permitted to further disclose the information or (e) which such party is required to disclose by law.

8. Loss of Data

In the event of loss of any State data or records where such loss is due to the intentional act or omission or negligence of the Contractor or any of its subcontractors or agents, the Contractor shall be responsible for recreating such lost data, in the manner and on the schedule set by the Procurement Officer. The Contractor shall ensure that all data is backed up, and is recoverable by the Contractor.

9. Indemnification

9.1 The Contractor shall indemnify the State against liability for any suits, actions, or claims of any character arising from or relating to the performance of the Contractor or its subcontractors under this Contract.

9.2 The State of Maryland has no obligation to provide legal counsel or defense to the Contractor or its subcontractors in the event that a suit, claim or action of any character is brought by any person not party to this Contract against the Contractor or its subcontractors as a result of or relating to the Contractor's obligations under this Contract.

9.3 The Contractor shall immediately notify the Contract Officer of any claim or suit made or filed against the Contractor or its subcontractors regarding any matter resulting from, or relating to, the Contractor's obligations under the Contract, and shall cooperate, assist and consult with the State in the defense or investigation of any claim, suit, or action made or filed against the State as a result of, or relating to, the Contractor's performance under this Contract.

9.4 This Section 9 survives the termination of this Contract for any liability arising within the period of the statute of limitations associated with such liability.

10. Non-Hiring of Employees

No official or employee of the Department, as defined under State Government Article, § 15-102, Annotated Code of Maryland, whose duties as such official or employee include matters relating to or

affecting the subject matter of this Contract, shall, during the pendency and term of this contract and while serving as an official or employee of the State, become or be an employee of the Contractor or any entity that is a subcontractor on this Contract.

11. Disputes

This Contract shall be subject to the provisions of Title 15, Subtitle 2, of the State Finance and Procurement Article of the Annotated Code of Maryland, as from time to time amended, and COMAR 21.10 (Administrative and Civil Remedies). Pending resolution of a claim, the Contractor shall proceed diligently with the performance of the Contract in accordance with the Procurement Officer's decision. Unless a lesser period is provided by applicable statute, regulation, or the Contract, the Contractor must file a written notice of claim with the Procurement Officer within 30 days after the basis for the claim is known or should have been known, whichever is earlier. Contemporaneously with or within 30 days of the filing of a notice of claim, but no later than the date of final payment under the Contract, the Contractor must submit to the Procurement Officer its written claim containing the information specified in COMAR 21.10.04.02.

12. Maryland Law

This Contract shall be construed, interpreted, and enforced according to the laws of the State of Maryland. The Maryland Uniform Computer Information Transactions Act (Commercial Law Article, Title 22 of the Annotated Code of Maryland) does not apply to this Contract or any software license acquired hereunder. Any and all references to the Annotated Code of Maryland contained in this Contract shall be construed to refer to such Code sections as from time to time amended.

13. Nondiscrimination in Employment

The Contractor agrees: (a) not to discriminate in any manner against an employee or applicant for employment because of race, color, religion, creed, age, sex, marital status, national origin, ancestry, or disability of a qualified individual with a disability; (b) to include a provision similar to that contained in subsection (a), above, in any subcontract except a subcontract for standard commercial supplies or raw materials; and (c) to post and to cause subcontractors to post in conspicuous places available to employees and applicants for employment, notices setting forth the substance of this clause.

14. Commercial Nondiscrimination

14.1 As a condition of entering into this Contract, Contractor represents and warrants that it will comply with the State's Commercial Nondiscrimination Policy, as described under Title 19 of the State Finance and Procurement Article of the Annotated Code of Maryland. As part of such compliance, Contractor may not discriminate on the basis of race, color, religion, ancestry or national origin, sex, age, marital status, sexual orientation, or on the basis of disability or other unlawful forms of discrimination in the solicitation, selection, hiring, or commercial treatment of subcontractors, Contractors, suppliers, or commercial customers, nor shall Contractor retaliate against any person for reporting instances of such discrimination. Contractor shall provide equal opportunity for subcontractors, Contractors, and suppliers to participate in all of its public sector and private sector subcontracting and supply opportunities, provided that this clause does not prohibit or limit lawful efforts to remedy the effects of marketplace discrimination that have occurred or are occurring in the marketplace. Contractor understands that a material violation of this clause shall be considered a material breach of this Contract and may result in termination of this Contract, disqualification of Contractor from participating in State contracts, or other sanctions. This clause is not enforceable by or for the benefit of, and creates no obligation to, any third party.

14.2 The Contractor shall include the above Commercial Nondiscrimination clause, or similar clause approved by the Department, in all subcontracts.

14.3 As a condition of entering into this Contract, upon the Maryland Human Relations Commission's request, and only after the filing of a complaint against Contractor under Title 19 of the State Finance and Procurement Article, as amended from time to time, Contractor agrees to provide within 60 days after the request a complete list of the names of all subcontractors, Contractors, and suppliers that Contractor has used in the past 4 years on any of its contracts that were undertaken within the Department, including the total dollar amount paid by Contractor on each subcontract or supply contract. Contractor further agrees to cooperate in any investigation conducted by the State pursuant to the State's Commercial Nondiscrimination Policy as set forth under Title 19 of the State Finance and Procurement Article of the Annotated Code of Maryland, and to provide any documents relevant to any investigation that is requested by the State. Contractor understands that violation of this clause is a material breach of this Contract and may result in contract termination, disqualification by the State from participating in State contracts, and other sanctions.

15. Contingent Fee Prohibition

The Contractor warrants that it has not employed or retained any person, partnership, corporation, or other entity, other than a bona fide employee, bona fide agent, bona fide salesperson, or commercial selling agency working for the Contractor to solicit or secure this Contract, and that it has not paid or agreed to pay any person, partnership, corporation or other entity, other than a bona fide employee, bona fide salesperson or commercial selling agency, any fee or other consideration contingent on the making of this Contract.

16. Non-availability of Funding

If the General Assembly fails to appropriate funds or if funds are not otherwise made available for continued performance for any fiscal period of this Contract succeeding the first fiscal period, this Contract shall be canceled automatically as of the beginning of the fiscal year for which funds were not appropriated or otherwise made available; provided, however, that this shall not affect either the State's rights or the Contractor's rights under any termination clause in this Contract. The effect of termination of the Contract hereunder shall be to discharge both the Contractor and the Department from future performance of the Contract, but not from their rights and obligations existing at the time of termination. The Contractor shall be reimbursed for the reasonable value of any nonrecurring costs incurred but not amortized in the price of the Contract. The State shall notify the Contractor as soon as it has knowledge that funds may not be available for the continuation of this Contract for each succeeding fiscal period beyond the first.

17. Termination for Cause

If the Contractor fails to fulfill its obligations under this Contract properly and on time, or otherwise violates any provision of the Contract, the State may terminate the Contract by written notice to the Contractor. The notice shall specify the acts or omissions relied upon as cause for termination. All finished or unfinished work provided by the Contractor shall, at the State's option, become the State's property. The Department shall pay the Contractor fair and equitable compensation for satisfactory performance prior to receipt of notice of termination, less the amount of damages caused by the Contractor's breach. If the damages are more than the compensation payable to the Contractor, the Contractor shall remain liable after termination and the State can affirmatively collect damages. Termination hereunder, including the termination of the rights and obligations of the parties, shall be governed by the provisions of COMAR 21.07.01.11B.

18. Termination for Convenience

The performance of work under this Contract may be terminated by the State in accordance with this clause in whole, or from time to time in part, whenever the State shall determine that such termination is

in the best interest of the State. The State shall pay all reasonable costs associated with this Contract that the Contractor has incurred up to the date of termination, and all reasonable costs associated with termination of the Contract; provided, however, the Contractor shall not be reimbursed for any anticipatory profits that have not been earned up to the date of termination. Termination hereunder, including the determination of the rights and obligations of the parties, shall be governed by the provisions of COMAR 21.07.01.12(A)(2).

19. Delays and Extensions of Time

The Contractor agrees to perform this Contract continuously and diligently. No charges or claims for damages shall be made by the Contractor for any delays or hindrances, regardless of cause, in the performance of Services under this Contract. Time extensions shall be granted only for excusable delays that arise from unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including but not restricted to acts of God, acts of the public enemy, acts of the State in either its sovereign or contractual capacity, acts of another Contractor in the performance of a contract with the State, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or delays of subcontractors or suppliers arising from unforeseeable causes beyond the control and without the fault or negligence of either the Contractor or the subcontractors or suppliers.

20. Suspension of Work

The State unilaterally may order the Contractor in writing to suspend, delay, or interrupt all or any part of its performance for such period of time as the Procurement Officer may determine to be appropriate for the convenience of the State.

21. Pre-Existing Regulations

In accordance with the provisions of Section 11-206 of the State Finance and Procurement Article, Annotated Code of Maryland, as from time to time amended, the regulations set forth in Title 21 of the Code of Maryland Regulations (COMAR 21) in effect on the date of execution of this Contract are applicable to this Contract.

22. Financial Disclosure

The Contractor shall comply with the provisions of Section 13-221 of the State Finance and Procurement Article of the Annotated Code of Maryland, which requires that every person that enters into contracts, leases, or other agreements with the Department or its agencies during a calendar year under which the business is to receive in the aggregate, \$100,000 or more, shall within 30 days of the time when the aggregate value of these contracts, leases or other agreements reaches \$100,000, file with the Secretary of the Department certain specified information to include disclosure of beneficial ownership of the business.

23. Political Contribution Disclosure

The Contractor shall comply with Election Law Article, §§14-101 – 14-108, Annotated Code of Maryland, which requires that every person that enters into contracts, leases, or other agreements with the State, a county, or an incorporated municipality, or their agencies, during a calendar year in which the person receives in the aggregate \$100,000 or more, shall, file with the State Board of Elections a statement disclosing contributions in excess of \$500 made during the reporting period to a candidate for elective office in any primary or general election. The statement shall be filed with the State Board of Elections: (1) before a purchase or execution of a lease or contract by the State, a county, an incorporated municipality, or their agencies, and shall cover the preceding two calendar years; and (2) if the contribution is made after the execution of a lease or contract, then twice a year, throughout the contract

term, on: (a) February 5, to cover the 6-month period ending January 31; and (b) August 5, to cover the 6-month period ending July 31.

24. Retention of Records

The Contractor shall retain and maintain all records and documents in any way relating to this Contract for three years after final payment by the Department under this Contract or any applicable statute of limitations, whichever is longer, and shall make them available for inspection and audit by authorized representatives of the State, including the Contract Officer or the Contract Officer's designee, at all reasonable times. All records related in any way to the Contract are to be retained for the entire time provided under this section. In the event of any audit, Contractor shall provide assistance to the State, without additional compensation, to identify, investigate and reconcile any audit discrepancies and/or variances.

25. Representations and Warranties

The Contractor hereby represents and warrants that:

- A. It is qualified to do business in the State of Maryland and that it shall take such action as, from time to time hereafter, may be necessary to remain so qualified;
- B. It is not in arrears with respect to the payment of any monies due and owing the State of Maryland, or any department or unit thereof, including but not limited to the payment of taxes and employee benefits, and that it shall not become so in arrears during the term of this Contract;
- C. It shall comply with all federal, State and local laws, regulations, and ordinances applicable to its activities and obligations under this Contract; and,
- D. It shall obtain, at its expense, all licenses, permits, insurance, and governmental approvals, if any, necessary to the performance of its obligations under this Contract.

26. Costs and Price Certification

By submitting cost or price information, the Contractor certifies to the best of its knowledge that the information submitted is accurate, complete, and current as of the date of its bid or offer.

The price under this Contract and any change order or modification hereunder, including profit or fee, shall be adjusted to exclude any significant price increases occurring because the Contractor furnished cost or price information which, as of the date of its bid or offer, was inaccurate, incomplete, or not current.

27. Subcontracting; Assignment

The Contractor may not subcontract any portion of the Services provided under this Contract without obtaining the prior written approval of the Department, nor may the Contractor assign this Contract or any of its rights or obligations hereunder, without the prior written approval of the State. Any such subcontract or assignment shall include the terms of Sections 10 and 12 through 26 of this Contract and any other terms and conditions that the State deems necessary to protect its interests. The State shall not be responsible for the fulfillment of the Contractor's obligations to the subcontractors.

28. Administrative

28.1 Procurement Officer. The work to be accomplished under this Contract shall be performed under the direction of the Procurement Officer. All matters relating to the interpretation of this Contract shall be referred to the Procurement Officer for determination.

28.2 Notices. All notices hereunder shall be in writing and either delivered personally or sent by certified or registered mail, postage prepaid as follows:

If to the State:

Mr. John Contestabile
Maryland Department of Transportation
Office of the Secretary
Director, Office of Engineering & Procurement and Emergency Services
7201 Corporate Center Drive
P.O. Box 548
Hanover, MD 21076
Telephone # 410-865-1120
E-Mail: jcontestabile@mdot.state.md.us

If to the Contractor:

IN WITNESS THEREOF, the parties have executed this Contract as of the date hereinabove set forth.

CONTRACTOR

By Date

Witness: _____

DEPARTMENT OF INFORMATION TECHNOLOGY

By Date

Witness: _____

Approved for form and legal sufficiency this _____ day
of _____, _____.

Assistant Attorney General

APPROVED BY BPW: _____
(Date) (BPW Item #)

ATTACHMENT B – BID/PROPOSAL AFFIDAVIT

(Authorized Representative and Affiant)

A. AUTHORIZED REPRESENTATIVE

I HEREBY AFFIRM THAT:

I am the (title) _____ and the duly authorized representative of (business) _____ and that I possess the legal authority to make this Affidavit on behalf of myself and the business for which I am acting.

B. CERTIFICATION REGARDING COMMERCIAL NONDISCRIMINATION

The undersigned bidder hereby certifies and agrees that the following information is correct:

In preparing its bid on this project, the bidder has considered all proposals submitted from qualified, potential subcontractors and suppliers, and has not engaged in “discrimination” as defined in §19-103 of the State Finance and Procurement Article of the Annotated Code of Maryland. “Discrimination” means any disadvantage, difference, distinction, or preference in the solicitation, selection, hiring, or commercial treatment of a vendor, subcontractor, or commercial customer on the basis of race, color, religion, ancestry, or national origin, sex, age, marital status, sexual orientation, or on the basis of disability or any otherwise unlawful use of characteristics regarding the vendors, supplier’s or commercial customer’s employees or owners. “Discrimination” also includes retaliating against any person or other entity for reporting any incident of “discrimination”. Without limiting any other provision of the solicitation on this project, it is understood that, if the certification is false, such false certification constitutes grounds for the State to reject the bid submitted by the bidder on this project, and terminate any contract awarded based on the bid. As part of its bid or proposal, the bidder herewith submits a list of all instances within the past 4 years where there has been a final adjudicated determination in a legal or administrative proceeding in the state of Maryland that the bidder discriminated against subcontractors, vendors, suppliers, or commercial customers, and a description of the status or resolution of that determination, including any remedial action taken. Bidder agrees to comply in all respects with the State’s Commercial Nondiscrimination Policy as described under Title 19 of the State Finance and Procurement Article of the Annotated Code of Maryland.

C. AFFIRMATION REGARDING BRIBERY CONVICTIONS

I FURTHER AFFIRM THAT:

Neither I, nor to the best of my knowledge, information, and belief, the above business (as is defined in Section 16-101(b) of the State Finance and Procurement Article of the Annotated Code of Maryland), or any of its officers, directors, partners, controlling stockholders, or any of its employees directly involved in the business’s contracting activities, including obtaining or performing Contracts with public bodies, has been convicted of, or has had probation before judgment imposed pursuant to Criminal Procedure Article, §6-220, Annotated Code of Maryland, or has pleaded nolo contendere to a charge of, bribery, attempted bribery, or conspiracy to bribe in violation of Maryland law, or of the law of any other state or federal law, except as follows (indicate the reasons why the affirmation cannot be given and list any conviction, plea, or imposition of probation before judgment with the date, court, official or administrative body, the sentence or disposition, the name(s) of person(s) involved, and their current positions and responsibilities with the business):

D. AFFIRMATION REGARDING OTHER CONVICTIONS

I FURTHER AFFIRM THAT:

Neither I, nor to the best of my knowledge, information, and belief, the above business, or any of its officers, directors, partners, controlling stockholders, or any of its employees directly involved in the business's contracting activities including obtaining or performing contracts with public bodies, has:

(1) Been convicted under state or federal statute of:

(a) a criminal offense incident to obtaining, attempting to obtain, or performing a public or private contract; or

(b) fraud, embezzlement, theft, forgery, falsification or destruction of records, or receiving stolen property;

(2) Been convicted of any criminal violation of a state or federal antitrust statute;

(3) Been convicted under the provisions of Title 18 of the United States Code for violation of the Racketeer Influenced and Corrupt Organization Act, 18 U.S.C. §1961, et seq., or the Mail Fraud Act, 18 U.S.C. §1341, et seq., for acts in connection with the submission of bids or proposals for a public or private contract;

(4) Been convicted of a violation of the State Minority Business Enterprise Law, Section 14-308 of the State Finance and Procurement Article of the Annotated Code of Maryland;

(5) Been convicted of a violation of the Section 11-205.1 of the State Finance and Procurement Article of the Annotated Code of Maryland;

(6) Been convicted of conspiracy to commit any act or omission that would constitute grounds for conviction or liability under any law or statute described in subsection (1) through (5) above;

(7) Been found civilly liable under a state or federal antitrust statute for acts or omissions in connection with the submission of bids or proposals for a public or private contract;

(8) Been found in a final adjudicated decision to have violated the Commercial Nondiscrimination Policy under Title 19 of the State Finance and Procurement Article of the Annotated Code of Maryland with regard to a public or private contract; or

(9) Admitted in writing or under oath, during the course of an official investigation or other proceedings, acts or omissions that would constitute grounds for conviction or liability under any law or statute described in Section B and subsections (1) through (7) above, except as follows (indicate reasons why the affirmations cannot be given, and list any conviction, plea, or imposition of probation before judgment with the date, court, official or administrative body, the sentence or disposition, the name(s) of the person(s) involved and their current positions and responsibilities with the business, and the status of any debarment):

E. AFFIRMATION REGARDING DEBARMENT

I FURTHER AFFIRM THAT:

Neither I, nor to the best of my knowledge, information, and belief, the above business, or any of its officers, directors, partners, controlling stockholders, or any of its employees directly involved in the business's contracting activities, including obtaining or performing contracts with public bodies, has ever

been suspended or debarred (including being issued a limited denial of participation) by any public entity, except as follows (list each debarment or suspension providing the dates of the suspension or debarment, the name of the public entity and the status of the proceedings, the name(s) of the person(s) involved and their current positions and responsibilities with the business, the grounds of the debarment or suspension, and the details of each person's involvement in any activity that formed the grounds of the debarment or suspension):

F. AFFIRMATION REGARDING DEBARMENT OF RELATED ENTITIES

I FURTHER AFFIRM THAT:

(1) The business was not established and it does not operate in a manner designed to evade the application of or defeat the purpose of debarment pursuant to Sections 16-101, et seq., of the State Finance and Procurement Article of the Annotated Code of Maryland; and

(2) The business is not a successor, assignee, subsidiary, or affiliate of a suspended or debarred business, except as follows (you must indicate the reasons why the affirmations cannot be given without qualification):

G. SUB-CONTRACT AFFIRMATION

I FURTHER AFFIRM THAT:

Neither I, nor to the best of my knowledge, information, and belief, the above business, has knowingly entered into a contract with a public body under which a person debarred or suspended under Title 16 of the State Finance and Procurement Article of the Annotated Code of Maryland will provide, directly or indirectly, supplies, services, architectural services, construction related services, leases of real property, or construction.

H. AFFIRMATION REGARDING COLLUSION

I FURTHER AFFIRM THAT:

Neither I, nor to the best of my knowledge, information, and belief, the above business has:

(1) Agreed, conspired, connived, or colluded to produce a deceptive show of competition in the compilation of the accompanying bid or offer that is being submitted;

(2) In any manner, directly or indirectly, entered into any agreement of any kind to fix the bid price or price proposal of the bidder or Offeror or of any competitor, or otherwise taken any action in restraint of free competitive bidding in connection with the contract for which the accompanying bid or offer is submitted.

I. FINANCIAL DISCLOSURE AFFIRMATION

I FURTHER AFFIRM THAT:

I am aware of, and the above business will comply with, the provisions of Section 13-221 of the State Finance and Procurement Article of the Annotated Code of Maryland, which require that every business that enters into contracts, leases, or other agreements with the State of Maryland or its agencies during a calendar year under which the business is to receive in the aggregate \$100,000 or more shall, within 30

days of the time when the aggregate value of the contracts, leases, or other agreements reaches \$100,000, file with the Secretary of State of Maryland certain specified information to include disclosure of beneficial ownership of the business.

J. POLITICAL CONTRIBUTION DISCLOSURE AFFIRMATION

I FURTHER AFFIRM THAT:

I am aware of, and the above business will comply with, Election Law Article, §§14-101—14-108, Annotated Code of Maryland, which requires that every person that enters into contracts, leases, or other agreements with the State of Maryland, including its agencies or a political subdivision of the State, during a calendar year in which the person receives in the aggregate \$100,000 or more shall file with the State Board of Elections a statement disclosing contributions in excess of \$500 made during the reporting period to a candidate for elective office in any primary or general election.

K. DRUG AND ALCOHOL FREE WORKPLACE

(Applicable to all contracts unless the contract is for a law enforcement agency and the agency head or the agency head's designee has determined that application of COMAR 21.11.08 and this certification would be inappropriate in connection with the law enforcement agency's undercover operations.)

I CERTIFY THAT:

- (1) Terms defined in COMAR 21.11.08 shall have the same meanings when used in this certification.
- (2) By submission of its bid or offer, the business, if other than an individual, certifies and agrees that, with respect to its employees to be employed under a contract resulting from this solicitation, the business shall:
 - (a) Maintain a workplace free of drug and alcohol abuse during the term of the contract;
 - (b) Publish a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of drugs, and the abuse of drugs or alcohol is prohibited in the business' workplace and specifying the actions that will be taken against employees for violation of these prohibitions;
 - (c) Prohibit its employees from working under the influence of drugs or alcohol;
 - (d) Not hire or assign to work on the contract anyone whom the business knows, or in the exercise of due diligence should know, currently abuses drugs or alcohol and is not actively engaged in a bona fide drug or alcohol abuse assistance or rehabilitation program;
 - (e) Promptly inform the appropriate law enforcement agency of every drug-related crime that occurs in its workplace if the business has observed the violation or otherwise has reliable information that a violation has occurred;
 - (f) Establish drug and alcohol abuse awareness programs to inform its employees about:
 - (i) The dangers of drug and alcohol abuse in the workplace;
 - (ii) The business' policy of maintaining a drug and alcohol free workplace;
 - (iii) Any available drug and alcohol counseling, rehabilitation, and employee assistance programs; and
 - (iv) The penalties that may be imposed upon employees who abuse drugs and alcohol in the workplace;
 - (g) Provide all employees engaged in the performance of the contract with a copy of the statement required by §J (2) (b), above;
 - (h) Notify its employees in the statement required by §J (2) (b), above, that as a condition of continued employment on the contract, the employee shall:
 - (i) Abide by the terms of the statement; and

(ii) Notify the employer of any criminal drug or alcohol abuse conviction for an offense occurring in the workplace not later than 5 days after a conviction;

(i) Notify the procurement officer within 10 days after receiving notice under §J(2)(h)(ii), above, or otherwise receiving actual notice of a conviction;

(j) Within 30 days after receiving notice under §J (2) (h) (ii), above, or otherwise receiving actual notice of a conviction, impose either of the following sanctions or remedial measures on any employee who is convicted of a drug or alcohol abuse offense occurring in the workplace:

(i) Take appropriate personnel action against an employee, up to and including termination; or

(ii) Require an employee to satisfactorily participate in a bona fide drug or alcohol abuse assistance or rehabilitation program; and

(k) Make a good faith effort to maintain a drug and alcohol free workplace through implementation of §J (2) (a)—(j), above.

(3) If the business is an individual, the individual shall certify and agree as set forth in §J (4), below, that the individual shall not engage in the unlawful manufacture, distribution, dispensing, possession, or use of drugs or the abuse of drugs or alcohol in the performance of the contract.

(4) I acknowledge and agree that:

(a) The award of the contract is conditional upon compliance with COMAR 21.11.08 and this certification;

(b) The violation of the provisions of COMAR 21.11.08 or this certification shall be cause to suspend payments under, or terminate the contract for default under COMAR 21.07.01.11 or 21.07.03.15, as applicable; and

(c) The violation of the provisions of COMAR 21.11.08 or this certification in connection with the contract may, in the exercise of the discretion of the Board of Public Works, result in suspension and debarment of the business under COMAR 21.08.03.

L. CERTIFICATION OF CORPORATION REGISTRATION AND TAX PAYMENT

I FURTHER AFFIRM THAT:

(1) The business named above is a (domestic ___) (foreign ___) corporation registered in accordance with the Corporations and Associations Article, Annotated Code of Maryland, and that it is in good standing and has filed all of its annual reports, together with filing fees, with the Maryland State Department of Assessments and Taxation, and that the name and address of its resident agent filed with the State Department of Assessments and Taxation is (IF NOT APPLICABLE, SO STATE):

Name: _____

Address: _____

(2) Except as validly contested, the business has paid, or has arranged for payment of, all taxes due the State of Maryland and has filed all required returns and reports with the Comptroller of the Treasury, the State Department of Assessments and Taxation, and the Department of Labor, Licensing, and Regulation, as applicable, and will have paid all withholding taxes due the State of Maryland prior to final settlement.

M. CONTINGENT FEES

I FURTHER AFFIRM THAT:

The business has not employed or retained any person, partnership, corporation, or other entity, other than a bona fide employee, bona fide agent, bona fide salesperson, or commercial selling agency working for the business, to solicit or secure the Contract, and that the business has not paid or agreed to pay any

person, partnership, corporation, or other entity, other than a bona fide employee, bona fide agent, bona fide salesperson, or commercial selling agency, any fee or any other consideration contingent on the making of the Contract.

N. Repealed.

O. ACKNOWLEDGEMENT

I ACKNOWLEDGE THAT this Affidavit is to be furnished to the Procurement Officer and may be distributed to units of: (1) the State of Maryland; (2) counties or other subdivisions of the State of Maryland; (3) other states; and (4) the federal government. I further acknowledge that this Affidavit is subject to applicable laws of the United States and the State of Maryland, both criminal and civil, and that nothing in this Affidavit or any contract resulting from the submission of this bid or proposal shall be construed to supersede, amend, modify or waive, on behalf of the State of Maryland, or any unit of the State of Maryland having jurisdiction, the exercise of any statutory right or remedy conferred by the Constitution and the laws of Maryland with respect to any misrepresentation made or any violation of the obligations, terms and covenants undertaken by the above business with respect to (1) this Affidavit, (2) the contract, and (3) other Affidavits comprising part of the contract.

I DO SOLEMNLY DECLARE AND AFFIRM UNDER THE PENALTIES OF PERJURY THAT THE CONTENTS OF THIS AFFIDAVIT ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF.

Date: _____

By: _____

(Authorized Representative and Affiant)

ATTACHMENT C – CONTRACT AFFIDAVIT

A. AUTHORIZED REPRESENTATIVE

I HEREBY AFFIRM THAT:

I am the _____(title) and the duly authorized representative of _____(business) and that I possess the legal authority to make this Affidavit on behalf of myself and the business for which I am acting.

B. CERTIFICATION OF CORPORATION REGISTRATION AND TAX PAYMENT

I FURTHER AFFIRM THAT:

(1) The business named above is a (domestic____) (foreign____) corporation registered in accordance with the Corporations and Associations Article, Annotated Code of Maryland, and that it is in good standing and has filed all of its annual reports, together with filing fees, with the Maryland State Department of Assessments and Taxation, and that the name and address of its resident agent filed with the State Department of Assessments and Taxation is:

Name:_____ Address:_____.

(2) Except as validly contested, the business has paid, or has arranged for payment of, all taxes due the State of Maryland and has filed all required returns and reports with the Comptroller of the Treasury, the State Department of Assessments and Taxation, and the Department of Labor, Licensing, and Regulation, as applicable, and will have paid all withholding taxes due the State of Maryland prior to final settlement.

C. CERTAIN AFFIRMATIONS VALID

I FURTHER AFFIRM THAT:

To the best of my knowledge, information, and belief, each of the affirmations, certifications, or acknowledgements contained in that certain Bid/Proposal Affidavit dated _____, 20____, and executed by me for the purpose of obtaining the Contract to which this Exhibit is attached remains true and correct in all respects as if made as of the date of this Contract Affidavit and as if fully set forth herein.

I DO SOLEMNLY DECLARE AND AFFIRM UNDER THE PENALTIES OF PERJURY THAT THE CONTENTS OF THIS AFFIDAVIT ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF.

Date:_____ By:_____ (Authorized Representative and Affiant)

ATTACHMENT D – MINORITY BUSINESS ENTERPRISE PARTICIPATION

GENERAL

The Contractor shall structure its procedures for the performance of the work required in this Contract to attempt to achieve the Minority Business Enterprise (MBE) goal stated in the Request for Proposals (RFP). MBE performance shall be in accordance with this Exhibit, as authorized by Minority Business Enterprise Policies as set forth by 21.11.03 of the Code of Maryland Regulations (COMAR). Accordingly, the Contractor agrees to exercise all good faith efforts to carry out the requirements set forth in this Exhibit.

To meet the goal using MBE subcontractors, all Prime Contractors shall:

- Identify work areas for subcontracting
- Solicit minority business enterprises through written notice or personal contact
- Help minority businesses meet bonding requirements or grant them a waiver of bonding requirements
- Identify their MBE subcontractors at the time they submit their bids or proposals

MBE GOAL AND SUB GOALS

- An MBE subcontract participation goal of **12%** percent of the total Contract dollar amount for the project minus subscriber equipment has been established for this procurement. By submitting a response to this solicitation, the bidder or Offeror agrees that this dollar amount of the Contract will be performed by certified minority business enterprises

OR

- An overall MBE subcontract participation goal of ___ percent of the total Contract dollar amount minus subscriber equipment has been established for this procurement. This dollar amount includes:
 - A sub-goal of ___ percent of the total Contract dollar amount to be allocated to certified minority business enterprises classified as women-owned businesses.
 - A sub-goal of ___ percent of the total Contract dollar amount to be allocated to certified minority business enterprises classified as African American-owned businesses.

By submitting a response to this solicitation, the bidder or Offeror agrees that these dollar amounts of the Contract will be performed by certified minority business enterprises as specified.

- ◆ A prime Contractor — including an MBE prime Contractor — shall accomplish an amount of work not less than the MBE subcontract goal with certified MBE subcontractors, unless it has requested and been granted a waiver.
- ◆ A prime Contractor comprising a joint venture that includes MBE partner(s) shall accomplish the MBE subcontract goal with certified MBE subcontractors, unless it has requested and been granted a waiver.

SOLICITATION AND CONTRACT FORMATION

- ◆ A Bidder or Offeror shall include with its bid or offer:
 - (1) A completed Certified MBE Utilization and Fair Solicitation Affidavit (Attachment D-1) whereby the bidder or Offeror acknowledges the certified MBE participation goal or requests a waiver, commits to make a good faith effort to achieve the goal, and affirms that MBE subcontractors were treated fairly in the solicitation process.
 - (2) A completed MBE Participation Schedule (Attachment D-2) whereby the bidder or Offeror responds to the expected degree of Minority Business Enterprise participation as stated in the solicitation, by identifying the specific commitment of certified Minority Business Enterprises at the time of submission. The bidder or Offeror shall specify the percentage of Contract value minus subscriber equipment associated with each MBE subcontractor identified on the MBE Participation Schedule.
 - a. **COMAR 21.11.03.09C(5) The failure of an bidder to complete and submit the MBE utilization affidavit and the MBE participation schedule shall result in a determination that the bid is not responsive.**
 - b. **COMAR 21.11.03.09C(6) The failure of an Offeror to complete and submit the MBE utilization affidavit and the MBE participation schedule shall result in a determination that the proposal is not susceptible of being selected for award.**

- ◆ Within 10 working days from notification that it is the apparent awardee or from the date of the actual award, whichever is earlier, the apparent awardee shall provide the following documentation to the Procurement Officer.
 - (1) Outreach Efforts Compliance Statement (Attachment D-3)
 - (2) Subcontractor Project Participation Statement (Attachment D-4)
 - (3) If the apparent awardee has requested a waiver (in whole or in part) of the overall MBE goal or of any sub-goal as part of the previously submitted Attachment D-1, it shall submit documentation supporting the waiver request that complies with COMAR 21.11.03.11.
 - (4) Any other documentation required by the Procurement Officer to ascertain bidder or Offeror responsibility in connection with the certified MBE participation goal.

NOTE: If the apparent awardee fails to return each completed document within the required time, the Procurement Officer may determine that the apparent awardee is not responsible and therefore not eligible for Contract award. If the Contract has already been awarded, the award is voidable.

MBE REPORTING INSTRUCTIONS

Prime Contractor shall:

1. Submit by the 15th of each month to the Department a separate report (Attachment D-5) for each Subcontractor. The report shall list: a) all payments made to the MBE subcontractor during the previous 30 days and b) any unpaid invoices over 30 days old received from any certified MBE subcontractor, the amount of each invoice and the reason payment has not been made.
2. Include in its written agreements with the MBE subcontractors as listed on the MBE Participation Schedule a requirement that those subcontractors submit monthly to the Department a report (Attachment D-6) that identifies the prime Contract. The D-6 report shall lists: a) all payments received from the Prime Contractor during the previous 30 days; *and* b) any outstanding invoices to include number and date, and the invoice amount.
3. Maintain such records as are necessary to confirm compliance with its MBE participation obligations. These records shall indicate the identity of certified minority and non-minority subcontractors employed on the Contract, the type of work performed by each, and the actual dollar value of work performed. **Subcontract agreements documenting the work performed by all MBE participants shall be retained by the Contractor and furnished to the Procurement Officer on request.**
4. Consent to provide such documentation as reasonably requested and to provide right-of-entry at reasonable times for purposes of the State's representatives verifying compliance with the MBE participation obligations. **Contractor shall retain all records concerning MBE participation and make them available for State inspection for three years after final completion of the Contract.**
5. At the option of the Procurement Agency, upon completion of the Contract and before final payment and/or release of retainage, submit a final report in affidavit form and under penalty of perjury, of all payments made to, or withheld from MBE subcontractors.

Attachments

- D-1 Certified MBE Utilization and Fair Solicitation Affidavit (shall be submitted with bid or offer)
- D-2 MBE Participation Schedule (shall be submitted with bid or offer)
- D-3 Outreach Efforts Compliance Statement (shall be submitted within 10 working days of notification of apparent award or actual award, whichever is earlier)
- D-4 Subcontractor Project Participation Statement (shall be submitted within 10 working days of notification of apparent award or actual award, whichever is earlier)
- D-5 Prime Contractor Paid/Unpaid MBE Invoice Report (shall be submitted monthly by the Prime Contractor)
- D-6 Subcontractor Paid/Unpaid MBE Invoice Report (shall be submitted monthly by the MBE subcontractor)

ATTACHMENT D-1

Certified MBE Utilization and Fair Solicitation

Affidavit

This document shall be included with the submittal of the bid or offer. If the bidder or Offeror fails to submit this form with the bid or offer, the Procurement Officer shall deem the bid non-responsive or shall determine that the offer is not susceptible of being selected for award. (COMAR 21.11.03.09C(5) and 21.11.03.09C(6))

In conjunction with the bid or offer submitted in response to Solicitation No. 060B9800036, I affirm the following:

1. I acknowledge the overall certified Minority Business Enterprise (MBE) participation goal of 12% percent. I have made a good faith effort to achieve this goal.

OR

After having made a good faith effort to achieve the MBE participation goal, I conclude I am unable to achieve it. Instead, I intend to achieve an MBE goal of _____% and request a waiver of the remainder of the goal. If I submit the apparent low bid or am selected as the apparent awardee (competitive sealed proposals), I will submit written waiver documentation that complies with COMAR 21.11.03.11 within 10 business days of receiving notification that our firm is the apparent low bidder or the apparent awardee.

2. I have identified the specific commitment of certified Minority Business Enterprises by completing and submitting an MBE Participation Schedule (Attachment D-2) with the bid or proposal.

3. I acknowledge that the MBE subcontractors/suppliers listed in the MBE Participation Schedule will be used to accomplish the percentage of MBE participation that I intend to achieve.

4. I understand that if I am notified that I am the apparent awardee, I shall submit the following documentation within 10 working days of receiving notice of the potential award or from the date of conditional award (per COMAR 21.11.03.10), whichever is earlier.

(a) Outreach Efforts Compliance Statement (Attachment D-3)

(b) Subcontractor Project Participation Statement (Attachment D-4)

(c) MBE Waiver Documentation per COMAR 21.11.03.11 (if applicable)

(d) Any other documentation required by the Procurement Officer to ascertain bidder or Offeror responsibility in connection with the certified MBE participation goal.

If I am the apparent awardee, I acknowledge that if I fail to return each completed document within the required time, the Procurement Officer may determine that I am not responsible and therefore not eligible for Contract award. If the Contract has already been awarded, the award is voidable.

5. In the solicitation of subcontract quotations or offers, MBE subcontractors were provided not less than the same information and amount of time to respond as were non-MBE subcontractors.

I solemnly affirm under the penalties of perjury that the contents of this paper are true to the best of my knowledge, information, and belief.

Bidder/Offeror Name

Signature of Affiant

Address

Printed Name, Title

Date

SUBMIT THIS AFFIDAVIT WITH BID/PROPOSAL

ATTACHMENT D-2

MBE Participation Schedule
(for submission with bid or proposal)

This document shall be included with the submittal of the bid or offer. If the bidder or Offeror fails to submit this form with the bid or offer, the procurement officer shall deem the bid non-responsive or shall determine that the offer is not susceptible of being selected for award.

Prime Contractor (Firm Name, Address, Phone)	Project Description
Project Number	
List Information For Each Certified MBE Subcontractor On This Project	
Minority Firm Name	MBE Certification Number
Work To Be Performed/NAICS	
Percentage of Total Contract	
Minority Firm Name	MBE Certification Number
Work To Be Performed/NAICS	
Percentage of Total Contract	
Minority Firm Name	MBE Certification Number
Work To Be Performed/NAICS	
Percentage of Total Contract	

USE ATTACHMENT D-2 CONTINUATION PAGE AS NEEDED

SUMMARY

TOTAL MBE PARTICIPATION: _____%

TOTAL WOMAN-OWNED MBE PARTICIPATION: _____%

TOTAL AFRICAN AMERICAN-OWNED MBE PARTICIPATION: _____%

Document Prepared By: (please print or type)

Name: _____ Title: _____

ATTACHMENT D-2

MBE Participation Schedule (continued)

List Information For Each Certified MBE Subcontractor On This Project	
Minority Firm Name	MBE Certification Number
Work To Be Performed/NAICS	
Percentage of Total Contract	
Minority Firm Name	MBE Certification Number
Work To Be Performed/NAICS	
Percentage of Total Contract	
Minority Firm Name	MBE Certification Number
Work To Be Performed/NAICS	
Percentage of Total Contract	
Minority Firm Name	MBE Certification Number
Work To Be Performed/NAICS	
Percentage of Total Contract	
Minority Firm Name	MBE Certification Number
Work To Be Performed/NAICS	
Percentage of Total Contract	
Minority Firm Name	MBE Certification Number
Work To Be Performed/NAICS	
Percentage of Total Contract	
Minority Firm Name	MBE Certification Number
Work To Be Performed/NAICS	
Percentage of Total Contract	

ATTACHMENT D-3
Outreach Efforts Compliance
Statement

In conjunction with the bid or offer submitted in response to Solicitation No. 060B9800036, I state the following:

1. Bidder/Offeror took the following efforts to identify subcontracting opportunities in these specific work categories:

2. Attached to this form are copies of written solicitations (with bidding instructions) used to solicit certified MBEs for these Subcontract opportunities.

3. Bidder/Offeror made the following attempts to contact personally the solicited MBEs:

4. Bidder/Offeror assisted MBEs to fulfill or to seek waiver of bonding requirements.
(DESCRIBE EFFORTS)

- This project does not involve bonding requirements.

5. Bidder/Offeror did/did not attend the pre-bid/proposal conference
 No pre-bid/proposal conference was held.

_____	By: _____
Bidder/Offeror Name	Name
_____	_____
Address	Title

	Date

ATTACHMENT D-4

**Subcontractor Project Participation
Statement**

Submit one form for each Certified MBE listed on the MBE Participation Schedule

Provided that _____ is awarded the State Contract in conjunction with
(Prime Contractor Name)

Solicitation No. 060B9800036 it and _____,
(Subcontractor Name)

MDOT Certification No. _____, intend to enter into a Contract by which Subcontractor shall:

(describe work) _____

No bonds are required of Subcontractor

The following amount and type of bonds are required of Subcontractor:

By:

By:

Prime Contractor Signature

Subcontractor Signature

Name

Name

Title

Title

Date

Date

ATTACHMENT D-5

This form is to be completed monthly by the prime contractor.

**Maryland Department of Information Technology
Minority Business Enterprise Participation
Prime Contractor Paid/Unpaid MBE Invoice Report**

Report #: _____	Contract #:
Reporting Period (Month/Year): _____	Contracting Unit:
Report is due by the 15th of the month following the month the services were provided.	Contract Amount:
	MBE Subcontract Amt:
	Project Begin Date:
	Project End Date:
	Services Provided:

Prime Contractor:		Contact Person:	
Address:			
City:		State:	ZIP:
Phone:	FAX:		
Subcontractor Name:		Contact Person:	
Phone:	FAX:		

Subcontractor Services Provided:			
List all payments made to MBE Subcontractor named above during this reporting period:		List dates and amounts of any outstanding invoices:	
	<u>Invoice#</u>	<u>Amount</u>	
1.			1. <u>Invoice #</u>
2.			2. <u>Amount</u>
3.			3. <u>Invoice #</u>
			3. <u>Amount</u>
Total Dollars Paid: \$ _____		Total Dollars Unpaid: \$ _____	

****If more than one MBE Subcontractor is used for this Contract, you shall use separate D-5 forms.**

Return one copy (hard or electronic) of this form to the following address (electronic copy with signature and date is preferred):

MBE Officer Department of Information Technology Procurement Unit 45 Calvert Street, 1 st Floor Annapolis, MD 21401 MBEOfficer@doit.state.md.us
--

Signature: _____ Date: _____

ATTACHMENT D-6

**Maryland Department of Information Technology
Minority Business Enterprise Participation
Subcontractor Paid/Unpaid MBE Invoice Report**

Report#: _____ Reporting Period (Month/Year): _____ Report is due by the 15th of the month following the month the services were performed.	Contract # _____ Contracting Unit: _____ MBE Subcontract Amount: _____ Project Begin Date: _____ Project End Date: _____ Services Provided: _____
---	--

MBE Subcontractor Name:																															
MDOT Certification #:																															
Contact Person:																															
Address:																															
City:	State: Maryland	ZIP:																													
Phone:	FAX:																														
Subcontractor Services Provided:																															
List all payments received from Prime Contractor during reporting period indicated above. <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:5%;"></th> <th style="width:40%; text-align: center;"><u>Invoice Amt</u></th> <th style="width:15%; text-align: center;"><u>Date</u></th> </tr> </thead> <tbody> <tr><td>1.</td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td></tr> <tr><td>3.</td><td></td><td></td></tr> <tr> <td>Total Dollars Paid: \$</td> <td colspan="2">_____</td> </tr> </tbody> </table>		<u>Invoice Amt</u>	<u>Date</u>	1.			2.			3.			Total Dollars Paid: \$	_____		List dates and amounts of any unpaid invoices over 30 days old. <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:5%;"></th> <th style="width:40%; text-align: center;"><u>Invoice Amt</u></th> <th style="width:15%; text-align: center;"><u>Date</u></th> </tr> </thead> <tbody> <tr><td>1.</td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td></tr> <tr><td>3.</td><td></td><td></td></tr> <tr> <td>Total Dollars Unpaid: \$</td> <td colspan="2">_____</td> </tr> </tbody> </table>		<u>Invoice Amt</u>	<u>Date</u>	1.			2.			3.			Total Dollars Unpaid: \$	_____	
	<u>Invoice Amt</u>	<u>Date</u>																													
1.																															
2.																															
3.																															
Total Dollars Paid: \$	_____																														
	<u>Invoice Amt</u>	<u>Date</u>																													
1.																															
2.																															
3.																															
Total Dollars Unpaid: \$	_____																														
Prime Contractor:		Contact Person																													

Return one copy (hard or electronic) of this form to the following address (electronic copy with signature and date is preferred):

MBE Officer Department of Information Technology Procurement Unit 45 Calvert Street, 1 st Floor Annapolis, MD 21401 MBEOfficer@doit.state.md.us
--

Signature: _____ Date: _____

ATTACHMENT E – PRE-PROPOSAL CONFERENCE RESPONSE FORM

Project No. 060B9800036

Project Title: Statewide Public Safety Wireless Communications System

A Pre-proposal Conference will be held on July 24, 2008 at 10:00 local time at:

45 Calvert Street, Room 164
Annapolis, MD. 21401

Directions to the Pre-proposal Meeting Site: From Route 50 Take Rowe Blvd. exit toward downtown Annapolis; follow Rowe Blvd. to the third traffic light; stay to the right when the road splits before the Treasury Building; turn right onto Calvert St.; 45 Calvert Street is the first building immediately on the right; Room 164 is on the first floor; stop and register with the Security Guard; you will be directed to Room 164.

Parking: The closest garage is next to 45 Calvert St. but must be entered from Clay St. This is the second right turn after turning onto Calvert St. Turn right onto Clay St. immediately after passing 45 Calvert St. Another garage is available about a half of a block down from 45 Calvert St. on the left, called Gotts' Garage. There is also limited metered parking available on Calvert and surrounding streets.

Please e-mail, Fax or return this form by 1:00 PM on July 21, 2008 advising whether or not you plan to attend this Conference.

E-mail or fax this form to the Procurement Officer:

Mr. Ed Bannat
Office Phone: (410) 260-7662
Fax: (410) 974-5615
E-mail: edward.bannat@doit.state.md.us

Please indicate:

_____ Yes, the following representatives will be in attendance:

- 1.
- 2.
- 3.

_____ No, we will not be in attendance.

Company/Firm/Vendor Name

Telephone

Contact Name

ATTACHMENT F – PRICE PROPOSAL FORMS AND INSTRUCTIONS

In order to assist Offerors in the preparation of their Financial Proposal and to comply with the requirements of this solicitation, Price Instructions and a Financial Proposal Form have been prepared. Offerors shall submit their Financial Proposal on the form in accordance with the instructions on the form and as specified herein. Do not alter the form. The Financial Proposal Form is to be signed and dated, where requested, by an individual who is authorized to bind the Offeror to all proposed prices.

General Instructions:

The Financial Proposal Form is used to calculate the Offeror's TOTAL PRICE PROPOSED.

- A) All Unit/Extended Prices shall be clearly entered in dollars and cents, e.g., \$24.15
- B) All Fixed and Unit Prices shall be the actual unit price the State shall pay for the proposed item per this RFP and may not be contingent on any other factor or condition. Because a CPI price adjustment mechanism is used, all prices shall be into today's dollars.
- C) All calculations shall be rounded to the nearest cent, i.e. .344 shall be 34 and .345 shall be 35.
- D) Every blank in the Financial Proposal Form shall be filled in.
- E) Except as instructed on the Form, nothing shall be entered on the Financial Proposal Form that alters or proposes conditions or contingencies on the prices.
- F) It is imperative that the prices included on the Financial Proposal Form have been entered correctly and calculated accurately by the Offeror and that the respective total prices agree with the entries on the Financial Proposal Form. Any incorrect entries or inaccurate calculations by the Offeror will be treated as provided in COMAR 21.05.03E and 21.05.02.12.
- G) The figures on the price sheets represent a model from which to derive an evaluated price and do not represent minimum or maximum State guarantees of quantities that may be ordered. An Offeror should draw no other inferences from the price sheet other than it is a model.

Specific Instructions:

A) Attachment F1; System Price. The Offeror's financial proposal for the delivered system shall be divided into the sub-areas defined below. The prices for each major area shall be totaled by region and carried forward to a summary sheet that ends with the entire project's grand total cost. The RFP reference means that all requirements in the specified section shall be the basis for pricing.

- Engineering (RFP Section 3.2)
- Equipment (RFP Section 3.3)
- Site Development (RFP Section 3.4)
- Implementation (RFP Section 3.5)
- Training (RFP Section 3.6.4)
- System Warranty (RFP Section 3.6.1)
- Other. Because the price categories in the price sheet do not include all elements of the RFP, this price category is intended to represent all other work requirements in the RFP not specifically addressed in the price sheet.

The following information explains how the blanks on Attachment F1 should be filled in:

- Column B is to be filled in with the percentage coverage that can be met with the State's existing infrastructure.

- Column C is to be summed for each region to reach a subtotal for each of the three columns (paths) explained in the RFP Section 3.1.3 (Public Service; Public Safety-Build Infrastructure; Public Safety-Upgrade Infrastructure). The prices in each column are then to be summed to the “Total Unweighted Prices” row.
- Column C has a 25% weight; Column E has a 50% weight; and Column G has a 25% weight. Accordingly, the calculation to produce weighted prices are $(\text{Col C Total Unweighted Price} \times .25) = \text{Col C Total Weighted Price}$; $(\text{Col E Total Unweighted Price} \times .50) = \text{Col E Total Weighted Price}$ + $(\text{Col G Total Unweighted Price} \times .25) = \text{Col G Total Weighted Price}$.
- The Grand Total is the sum of the three total weighted prices from Cols C, E and G..
- System prices are subject to the price adjustment mechanism described in the RFP Section 1.34.
- Columns C, D and E have a “Total Price Mercury” block. Enter the total dollar value of system components having a mercury content in these blocks. The preference calculation will be made by the State and the preference will be given to the dollar value of the project minus mercury content products.

B) Attachment F2; Site Development. This price sheet relates to optional services described in the RFP Section 3.7.1. If a site not included within the fixed price is determined to be required at a date after the State accepts the Contractor’s system, this price sheet provides the basis for pricing the changes to the approved and delivered system. Any unusual site conditions or requirements beyond the basics in this price sheet would be priced in response to a Task Order Request. The individual calculations for each row are: $\text{Col C} \times \text{Col E} = \text{Col D}$. Then, the individual Column D totals are summed to arrive at a grand total. Unit prices are subject to the price adjustment mechanism described in the RFP Section 1.34.

C) Attachment F3; System Support. This price sheet relates to purchased system support for both the base period and renewal options. After the warranty period expires, support may be purchased for hardware/software as specified in the RFP Sections 3.6.2 and 3.6.3. Unit package prices are subject to the price adjustment mechanism described in the RFP Section 1.34.

The following information explains how the blanks on Attachment F3 should be filled in:

- Enter the price for the described service in Columns B, C and D. Each row is to be summed for each region to reach a subtotal for each of the three columns (paths) explained in the RFP Section 3.1.3 (Public Service; Public Safety-Build Infrastructure; Public Safety-Upgrade Infrastructure). The prices in each column are then to be summed to the “Total Unweighted Price” row.
- Column B has a 25% weight; Column C has a 50% weight; and Column D has a 25% weight. Accordingly, the calculations to produce wighted prices are: $(\text{Col B Total Unweighted Price} \times .25) = \text{Col B Total Weighted Price}$; $(\text{Col C Total Unweighted Price} \times .50) = \text{Col C Total Weighted Price}$; and $(\text{Col D Total Unweighted Price} \times .25) = \text{Col D Total Weighted Price}$.
- The Grand Total is the Sum of the Total Weighted Price for Columns B, C and D.

D) Attachment F4; Equipment and Accessories. This price sheet relates to optional services described in the RFP Section 3.7.1. Once the core system is delivered and accepted, other equipment and accessories may be required by system users. This price sheet provides a discount off MSRP that will be used to make equipment and accessory purchases over and above what is included in the delivered system. The individual calculations for each row (except where only a discount rate appears) is $\text{Col B} \times \text{Col E} = \text{Col F}$. The sum of Col F equals the grand total for this price sheet. Any rows for accessories that have a discount rate and no quantity or extended amount is not part of the evaluated price.

E) Attachment F5; Subscriber Equipment. This price sheet is the primary mechanism for users to buy subscriber equipment (RFP Section 3.3.7) that will be used on the contracted communications system. This price sheet includes an entry requirement for a discount off MSRP that will be used to make subscriber equipment purchases and seeks price information from three manufacturers. The individual calculations for each row are quantity x calculated unit price = extended amount. The sum of the three extended amount columns is entered into the “Totals by Manufacturer” block. The three “Totals by Manufacturer” blocks are to be summed and divided by three to obtain an average and that number entered into the Grand Total block.

F) Attachment F6; Labor Rates. This price sheet relates to optional services described in the RFP Section 3.7.1. A number of reasons described in the RFP could cause a requirement for labor services and the purpose of this price sheet is to determine a fully loaded labor rate for nine labor categories specified. Unit prices are subject to the price adjustment mechanism described in the RFP Section 1.34. The calculation for each row is Col B x Col C = Col D. The individual row totals are to be summed to the Grand Total block.

G) Attachment F7; Summary Price Sheet. This price sheet includes the grand totals from price sheets F1 through F6. The row calculation is Col B x Col C = Col D. The Col D totals are summed and the result is entered in the Evaluated Grand Total block in Column D. This number represents the evaluated price that will be ranked in comparison with all other Offeror prices after the State makes the adjustments for mercury price preferences.

The price sheets (Attachments F1 through F7) are distributed separately.

ATTACHMENT G – PROCUREMENT OFFICER CHECKLIST

RFP	Requirement	Y/N	Remarks
4.2	Was Vol I sealed separately from Vol II but submitted simultaneously?		
4.2	Were there an unbound original and ten copies of the Vol I- Technical Proposal?		
4.2	Was an electronic version submitted in MS Word format for Vol I enclosed in the original copy of the Tech Proposal?		
4.2	Was the electronic media labeled with the RFP title/number, Offeror name and Vol I?		
4.3	Were separate volumes labeled Vol I—Technical Proposal and Vol II—Financial Proposal, in sealed packages bearing RFP title & number, name/address of Offeror, and closing date/time on outside of the packages? Were tech proposal pages numbered consecutively?		
4.4.1	Was there a letter, which transmitted the technical proposal, acknowledged the receipt of addenda, and did an individual authorized to commit the Offeror to the services and requirements of the RFP sign the letter?		
4.4.2	Were proposals numbered to match numbering in RFP?		
4.4.3	Did the technical proposal begin with a title page bearing the name and address of the Offeror and the name and number of the RFP followed by a table of contents for the tech proposal? Was confidential info identified after title page?		
4.4.4	Is there a separate executive summary, which condenses and highlights the contents of the technical proposal to include a strategic summary?		
4.4.2.2	Does the executive summary identify any exceptions the Offeror has taken to the requirements of the RFP, the contract (Atch A) or any other attachments? And if not, does the Executive Summary so state? Is the proof Minimum Qualifications met included?		
4.4.5	Does the technical proposal address each requirement in the RFP?		
4.4.6	Does the tech proposal address Project Organization?		
4.4.7	Does the tech proposal include a Project Mgt Plan (PMP) and Assumptions?		
4.4.8	Does Corp Exp & Capabilities info include a description of past experience in providing similar services, an org chart, 3 references and examples of previous work?		
4.4.9-.12.	Did the Offeror submit financial statements, a legal action summary, certificates of insurance and ID subcontractors?		
4.4.13	Did the Offeror provide a completed Bid/Proposal Affidavit (Atch B—with original of technical proposal only); MBE Forms D-1 and D-2; a Living Wage Affidavit; and a Mercury Affidavit? Were all the blocks filled in and were the Affidavits signed?		

Transaction requested:

- 1. ___ Initiate all disbursements via EFT to the above account.
- 2. ___ Discontinue disbursements via EFT, effective _____
- 3. ___ Change the bank account to above information – a copy of the approved Registration Form for the previous bank account shall be attached.

I am authorized by * _____
 (hereinafter Company) to make the representations contained in this paragraph. Company authorizes the Comptroller and the Treasurer of Maryland to register it for electronic funds transfer (EFT) using the information contained in this registration form. Company agrees to receive all funds from the State of Maryland by electronic funds transfer according to the terms of the EFT program. Company agrees to return to the State of Maryland any EFT payment incorrectly disbursed by the State of Maryland to the Company’s account. Company agrees to hold harmless the State of Maryland and its agencies and departments for any delays or errors caused by inaccurate or outdated registration information or by the financial institution listed above.

*Name of registering business entity

 Signature of company treasurer, controller, or chief financial officer and date

Completed by GAD/STO

Date Received _____

GAD registration information verified _____ Date to STO _____

STO registration information verified _____ Date to GAD _____

R*STARS Vendor No. and Mail Code Assigned:

 State Treasurer’s Office approval date General Accounting Division approval date

To Requestor:

Please retain a copy of this form for your records. Please allow approximately 30 days from the date of your request for the Comptroller’s and Treasurer’s Offices to process your request. Failure to maintain current information with this office could result in errors in payment processing. If you have any questions, please call the EFT registration desk at 410-260-7375.

Please submit form to: EFT Registration, General Accounting Division
 Room 205, P.O. Box 746
 Annapolis, Maryland 21404-0746

Instructions: Electronic Funds Transfer instructions are located: <http://compnet.comp.state.md.us/gad>. Questions may be requested by email, gad@comp.state.md.us. Or call 1-888-784-0144.

COT/GAD X-10

ATTACHMENT I – NON-DISCLOSURE AGREEMENT (CONTRACTOR)

This Non- Disclosure Agreement (the “Agreement”) is made this ___ day of _____ 2008, by and between _____ (hereinafter referred to as “the CONTRACTOR”) and the State of Maryland (hereinafter referred to as “the State”).

WHEREAS, the CONTRACTOR has been awarded a contract for DoIT STATEWIDE PUBLIC SAFETY WIRELESS COMMUNICATIONS SYSTEM dated _____, 2008 (the “Contract”); and

WHEREAS, in order for the CONTRACTOR to perform its obligations under the Contract, it will be necessary for the State to provide the CONTRACTOR and the CONTRACTOR’s employees and agents (collectively the “CONTRACTOR’s PERSONNEL”) with access to certain confidential information including, but not limited, to network information, locations of critical equipment and statewide wireless systems architecture.

NOW, THEREFORE, in consideration of being given access to the Confidential Information in connection with the Contract, and for other good and valuable consideration, CONTRACTOR agrees as follows:

1. Confidential Information means any and all information provided by or made available by the State to the CONTRACTOR in connection with the Contract, regardless of the form, format, or media on or in which the Confidential Information is provided and regardless of whether any such Confidential Information is marked as such. Confidential Information includes, by way of example only, information that the CONTRACTOR views, takes notes from, copies (if the State agrees in writing to permit copying), possesses or is otherwise provided access to and use of by the State in relation to the Contract.
2. CONTRACTOR shall not, without the State’s prior written consent, copy, disclose, publish, release, transfer, disseminate, use, or allow access for any purpose or in any form, any Confidential Information provided by the State except for the sole and exclusive purpose of performing under the Contract.
3. CONTRACTOR shall limit access to the Confidential Information to the CONTRACTOR’s PERSONNEL who have a demonstrable need to know such Confidential Information in order to perform under the Contract and who have agreed in writing to be bound by the disclosure and use limitations pertaining to the Confidential Information. Each employee or agent of the CONTRACTOR who receives or has access to the Confidential Information shall execute a copy of this Agreement and the CONTRACTOR shall provide originals of such executed Agreements to the State. Each employee or agent of the CONTRACTOR who signs this Agreement shall be subject to the same terms, conditions, requirements and liabilities set forth herein that are applicable to the CONTRACTOR. CONTRACTOR shall update Exhibit A by adding additional names as needed, from time to time.
4. CONTRACTOR shall, at its own expense, return the Confidential Information to the State upon request of the State or within five business days of the Contract termination. If the Confidential Information was provided by e-mailed file, the CONTRACTOR shall send an e-mail to the Contract Manager certifying deletion of the e-mail and all copies of the file as well as the destruction of any paper copies or electronic media copies within the five business days referenced above.
5. CONTRACTOR hereby agrees to hold the Confidential Information in trust and in strictest confidence, to adopt or establish operating procedures and physical security measures, and to take all other measures necessary to protect the Confidential Information from inadvertent release or disclosure to unauthorized third parties and to prevent all or any portion of the Confidential Information from falling into the public domain or into the possession of persons not bound to maintain the confidentiality of the Confidential Information.

6. CONTRACTOR shall promptly advise the State in writing if it learns of any unauthorized use, misappropriation, or disclosure of the Confidential Information by any of the CONTRACTOR's PERSONNEL or the CONTRACTOR's former PERSONNEL. CONTRACTOR shall, at its own expense, cooperate with the State in seeking injunctive or other equitable relief against any such person(s).
7. CONTRACTOR acknowledges that the disclosure of the Confidential Information may cause irreparable harm to the State, that monetary damages may be inadequate to compensate the State for such breach, and agrees that the State may obtain an injunction to prevent the disclosure, copying, or other impermissible use of the Confidential Information. The State's rights and remedies hereunder are cumulative and the State expressly reserves any and all rights, remedies, claims and actions that it may have now or in the future to protect the Confidential Information and/or to seek damages for the failure by the CONTRACTOR or the CONTRACTOR's PERSONNEL to comply with the requirements of this Agreement. The CONTRACTOR consents to personal jurisdiction in the Maryland State Courts.
8. In the event the State suffers any losses, damages, liabilities, expenses, or costs (including, by way of example only, attorneys' fees and disbursements) that are attributable, in whole or in part to any failure by the CONTRACTOR or any of CONTRACTOR's PERSONNEL to comply with the requirements of this Agreement, CONTRACTOR and such CONTRACTOR'S PERSONNEL shall hold harmless and indemnify the State from and against any such losses, damages, liabilities, expenses, and/or costs.
9. A breach of this Agreement by the CONTRACTOR or by any of the CONTRACTOR's PERSONNEL shall constitute a breach of the Contract between the CONTRACTOR and the State.
10. CONTRACTOR acknowledges that pursuant to Section 11-205.1 of the State Finance and Procurement Article of the Annotated Code of Maryland, a person may not willfully make a false or fraudulent statement or representation of a material fact in connection with a procurement contract. Persons making such statements are guilty of a felony and on conviction subject to a fine of not more than \$20,000 and/or imprisonment not exceeding 5 years or both. CONTRACTOR further acknowledges that this Agreement is a statement made in connection with a procurement contract.
11. The individual signing below warrants and represents that they are fully authorized to bind the CONTRACTOR to the terms and conditions specified in this Agreement. If signed below by an individual employee or agent of the CONTRACTOR under Section 2 of this Agreement, such individual acknowledges that a failure to comply with the requirements specified in this Agreement may result in personal liability.
12. The parties further agree that:
 - a. This Agreement shall be governed by the laws of the State of Maryland;
 - b. The State makes no representations or warranties as to the accuracy or completeness of any Confidential Information;
 - c. The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision of this Agreement;
 - d. Signatures exchanged by facsimile are effective for all purposes hereunder to the same extent as original signatures; and
 - e. The Recitals are not merely prefatory but are an integral part hereof.

CONTRACTOR: _____ BY: _____

NAME: _____ TITLE: _____

ADDRESS: _____

**CONTRACTOR'S EMPLOYEES AND AGENTS WHO WILL BE GIVEN ACCESS TO THE
CONFIDENTIAL INFORMATION**

Printed Name and Address of Individual/Agent	Employee (E) or Agent (A)	Signature	Date
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

ATTACHMENT J – LIVING WAGE REQUIREMENTS FOR SERVICE CONTRACTS

A. This contract is subject to the Living Wage requirements under Title 18, State Finance and Procurement Article, Annotated Code of Maryland and the regulations proposed by the Commissioner of Labor and Industry. The Living Wage generally applies to a Contractor or Subcontractor who performs work on a State contract for services that is valued at \$100,000 or more. An employee is subject to the Living Wage if he/she is at least 18 years old or will turn 18 during the duration of the contract; works at least 13 consecutive weeks on the State Contract and spends at least one-half of the employee's time during any work week on the State Contract.

B. The Living Wage Law does not apply to:

(1) A Contractor who:

- (A) has a State contract for services valued at less than \$100,000, or
- (B) employs 10 or fewer employees and has a State contract for services valued at less than \$500,000.

(2) A Subcontractor who:

- (A) performs work on a State contract for services valued at less than \$100,000,
- (B) employs 10 or fewer employees and performs work on a State contract for services valued at less than \$500,000, or
- (C) performs work for a contractor not covered by the Living Wage Law as defined in B(1)(B) above, or B(3) or C below.

(3) Service contracts for the following:

- (A) services with a Public Service Company;
- (B) services with a nonprofit organization;
- (C) services with an officer or other entity that is in the Executive Branch of the State government and is authorized by law to enter into a procurement ("Unit"); or
- (D) services between a Unit and a County or Baltimore City.

C. If the Unit responsible for the State contract for services determines that application of the Living Wage would conflict with any applicable Federal program, the Living Wage does not apply to the contract or program.

D. A Contractor must not split or subdivide a State contract for services, pay an employee through a third party, or treat an employee as an independent contractor or assign work to employees to avoid the imposition of any of the requirements of Title 18, State Finance and Procurement, Annotated Code of Maryland.

E. Each Contractor/Subcontractor, subject to the Living Wage Law, shall post in a prominent and easily accessible place at the work site(s) of covered employees a notice of the Living Wage Rates, employee rights under the law, and the name, address, and telephone number of the Commissioner.

F. The Commissioner of Labor and Industry shall adjust the wage rates by the annual average increase or decrease, if any, in the Consumer Price Index for all urban consumers for the Washington/Baltimore metropolitan area, or any successor index, for the previous calendar year, not later than 90 days after the start of each fiscal year. The Commissioner shall publish any adjustments to the wage rates on the Division of Labor and Industry's Website. An employer subject to the Living Wage Law must comply with the rate requirements during the initial term of the contract and all subsequent renewal periods,

including any increases in the wage rate, required by the Commissioner, automatically upon the effective date of the revised wage rate.

G. A Contractor/Subcontractor who reduces the wages paid to an employee based on the employer's share of the health insurance premium, as provided in §18-103(c), State Finance and Procurement Article, Annotated Code of Maryland, shall not lower an employee's wage rate below the minimum wage as set in §3-413, Labor and Employment Article, Annotated Code of Maryland. A Contractor/Subcontractor who reduces the wages paid to an employee based on the employer's share of health insurance premium shall comply with any record reporting requirements established by the Commissioner of Labor and Industry.

H. A Contractor/Subcontractor may reduce the wage rates paid under §18-103(a), State Finance and Procurement, Annotated Code of Maryland, by no more than 50 cents of the hourly cost of the employer's contribution to an employee's deferred compensation plan. A Contractor/Subcontractor who reduces the wages paid to an employee based on the employer's contribution to an employee's deferred compensation plan shall not lower the employee's wage rate below the minimum wage as set in §3-413, Labor and Employment Article, Annotated Code of Maryland.

I. Under Title 18, State and Finance Procurement Article, Annotated Code of Maryland, if the Commissioner determines that the Contractor/Subcontractor violated a provision of this title or regulations of the Commissioner, the Contractor/Subcontractor shall pay restitution to each affected employee, and the State may assess liquidated damages of \$20 per day for each employee paid less than the Living Wage.

J. Information pertaining to reporting obligations may be found by going to the DLLR Website <http://www.dllr.state.md.us/> and clicking on Living Wage.

ATTACHMENT K – LIVING WAGE AFFIDAVIT OF AGREEMENT

Contract No. _____

Name of Contractor _____

Address _____

City _____ State _____ Zip Code _____

If the Contract is Exempt from the Living Wage Law

The Undersigned, being an authorized representative of the above named Contractor, hereby affirms that the Contract is exempt from Maryland's Living Wage Law for the following reasons: (check all that apply)

- Bidder/Offeror is a nonprofit organization
- Bidder/Offeror is a public service company
- Bidder/Offeror employs 10 or fewer employees and the proposed contract value is less than \$500,000
- Bidder/Offeror employs more than 10 employees and the proposed contract value is less than \$100,000

If the Contract is a Living Wage Contract

A. The Undersigned, being an authorized representative of the above named Contractor, hereby affirms our commitment to comply with Title 18, State Finance and Procurement Article, Annotated Code of Maryland and, if required, to submit all payroll reports to the Commissioner of Labor and Industry with regard to the above stated contract. The Bidder/Offeror agrees to pay covered employees who are subject to living wage at least the living wage rate in effect at the time service is provided for hours spent on State contract activities, and to ensure that its Subcontractors who are not exempt also pay the required living wage rate to their covered employees who are subject to the living wage for hours spent on a State contract for services. The Contractor agrees to comply with, and ensure its Subcontractors comply with, the rate requirements during the initial term of the contract and all subsequent renewal periods, including any increases in the wage rate established by the Commissioner of Labor and Industry, automatically upon the effective date of the revised wage rate.

B. _____ (initial here if applicable) The Bidder/Offeror affirms it has no covered employees for the following reasons: (check all that apply)

- All employee(s) proposed to work on the State contract will spend less than one-half of the employee's time during every work week on the State contract;
- All employee(s) proposed to work on the State contract will be 17 years of age or younger during the duration of the State contract; or
- All employee(s) proposed to work on the State contract will work less than 13 consecutive weeks on the State contract.

The Commissioner of Labor and Industry reserves the right to request payroll records and other data that the Commissioner deems sufficient to confirm these affirmations at any time.

Name of Authorized Representative: _____

Signature of Authorized Representative: _____

Date: _____ Title: _____

Witness Name (Typed or Printed): _____

Witness Signature & Date: _____

ATTACHMENT L – DELIVERABLE SUBMISSION FORM

**STATE OF MARYLAND
Department of Information Technology**

AGENCY RECEIPT OF DELIVERABLE FORM

Contract: 060B9800036

Statewide Public Safety Wireless Communications System

I acknowledge receipt of the following:

Project Name: Statewide Public Safety Wireless Communications System

Region # and Title of Deliverable: _____

RFP Reference Section Number: _____

Deliverable Reference ID Number: _____

Name of Contract Manager: _____

Contract Manager Signature Date Signed

Name of Contractor's Project Manager: _____

Contractor's Project Manager Signature Date Signed

ATTACHMENT M – DELIVERABLES ACCEPTANCE FORM

STATE OF MARYLAND

Department of Information Technology

AGENCY ACCEPTANCE OF DELIVERABLE FORM

Contract: 060B9800036

Statewide Public Safety Wireless Communications System

Agency Name: Department of Information Technology

Contract Manager: _____ Telephone: _____ Fax: _____

To: Contractor's Contract Manager

The following deliverable, as required by Contract 060B9800036, has been received and reviewed in accordance with the Contract.

Title of deliverable: _____

RFP Contract Reference Number: _____ Section # _____

Deliverable Reference ID # _____

This deliverable:

Is accepted as written.

Requires changes as indicated below.

REQUIRED CHANGES:

OTHER COMMENTS:

Contract Manager Signature

Date Signed

ATTACHMENT N – NON-DISCLOSURE AGREEMENT (OFFEROR)

THIS AGREEMENT (“Agreement”) is made this ___ day of _____, 200__, by and between the State of Maryland (hereinafter referred to as "the State"), acting by and through its Department of Information Technology (hereinafter referred to as the “Department”), and _____, a corporation with its principal business offices located at _____ (hereinafter referred to as “Offeror”).

RECITALS

WHEREAS, Offeror intends to submit a proposal in response to RFP #060B9800036 for Statewide Public Safety Wireless Communications System for the State of Maryland-owned; and

WHEREAS, in order for the Offeror to submit such a proposal, it will be necessary for the State to provide the Offeror with access to certain confidential information regarding the State’s wireless communications system and network, including, by way of example only, network information, locations of critical equipment and statewide wireless systems architecture (collectively, the “Confidential Information”).

NOW, THEREFORE, in consideration of being given access to the Confidential Information in connection with the Offeror’s proposal to the RFP (hereinafter referred to as the “Proposal”), and for other good and valuable consideration, the receipt and sufficiency of which the parties acknowledge, the parties do hereby agree as follows:

1. Recitals. The Recitals are not merely prefatory but are an integral part hereof.
2. Offeror’s qualifications. Offeror represents and warrants that:
 - A. It is qualified to do business in the State and that it will take such actions, from time to time hereafter, as may be necessary to remain so qualified during the period covered by this Agreement;
 - B. It is not in arrears with respect to the payment of any monies due and owing the State, or any department or unit thereof, including but not limited to the payment of taxes and employee benefits, and that it shall not become so in arrears during the period covered by this Agreement;
 - C. It is in compliance with all federal, State and local laws, regulations, and ordinances applicable to its business and it is not aware of any actual or threatened actions, claims, suits, orders, or other matters that would prevent or limit its ability to satisfactorily and fully perform its obligations under this Agreement or under any subsequent agreement that it may enter into with the State in connection with its Proposal; and
 - D. It is the correctly named and identified entity that intends to submit the Proposal and it is not controlling, controlled by, or under common control with the entity that intends to submit the Proposal. If the Proposal will be submitted by a joint venture or any other group of separate business entities, each entity comprising such group has been clearly identified in and has executed this Agreement.
3. Term of Agreement. The term of this Agreement shall commence on the date it is fully signed by both parties and shall continue thereafter until the earlier to occur of: (i) three (3) years following the return of the Confidential Information in accordance with Section 6 of this Agreement; (ii) receipt of written notice given by the State to Offeror terminating this Agreement; or (iii) the date upon which the

terms of this Agreement are expressly superseded by the confidentiality provisions of any subsequent agreement which the parties may enter into in connection with the Proposal. If all Confidential Information is not returned to the State in accordance with Section 6 of this Agreement, then this Agreement shall continue in full force and effect until such time as all Confidential Information is returned to the State and the State acknowledges its receipt in writing.

4. What constitutes “Confidential Information”. Confidential Information means any and all information provided by or made available by the State to Offeror in connection with the Proposal, regardless of the form, format, or media on or in which the Confidential Information is provided and regardless of whether any such Confidential Information is marked as such. Confidential Information includes, by way of example only, information that Offeror views, takes notes from, copies (if the State agrees in writing to permit copying), possesses or is otherwise provided access to and use of by the State for Offeror to prepare and submit its Proposal.

5. Use of Confidential Information. In consideration of the State’s allowing Offeror access to the Confidential Information:

- A. Offeror hereby agrees to hold the Confidential Information in trust and in strictest confidence, and to take all measures necessary to prevent all or any portion of the Confidential Information from falling into the public domain or into the possession of persons not bound to maintain the confidentiality of the Confidential Information.
- B. Offeror shall not, without the State’s prior written consent, copy, disclose, publish, release, transfer, disseminate, use, or allow access for any purpose or in any form, any Confidential Information provided by the State except for the sole and exclusive purpose of preparing its Proposal. Offeror shall limit access to Confidential Information to its employees and agents (“Offeror’s Personnel”) who have a demonstrable need to know such Confidential Information in order to prepare the Proposal and who have agreed in writing to be bound by the disclosure and use limitations pertaining to the Confidential Information. The names of Offeror’s Personnel are attached hereto and made a part hereof as Exhibit A. Each individual whose name appears on Exhibit A shall execute and date Exhibit A next to their name and by doing so agrees to be subject to the terms and conditions of this Agreement to the same extent as Offeror. If Offeror intends to disseminate any portion of the Confidential Information to non-employee agents who are assisting in the preparation of the Proposal or who will otherwise have a role in performing any aspect of the Proposal, Offeror shall first obtain the written consent of the State to any such dissemination. The State may grant, deny, or condition any such consent as it may deem appropriate in its sole and absolute subjective discretion.

6. Return of Confidential Information. Offeror shall return all Confidential Information to the Department within five (5) business days of the State’s acceptance of Offeror’s Proposal. If Offeror does not submit a Proposal, Offeror shall return the Confidential Information to the Department within 30 days of receiving the material. All Confidential Information returned to the State shall be accompanied by the Certification that is attached hereto and made a part hereof as Exhibit B and shall be signed by an officer of Offeror authorized to bind the Offeror.

7. Liability for Confidential Information. Offeror acknowledges that any failure by Offeror or Offeror’s Personnel to abide by the terms and conditions of use of the Confidential Information may cause irreparable harm to the State and that monetary damages may be inadequate to compensate the State for such breach. Accordingly, Offeror and each of Offeror’s Personnel agree that the State may obtain an injunction to prevent the disclosure, copying or improper use of the Confidential Information. The Offeror and each of Offeror’s Personnel consent to personal jurisdiction in the Maryland State Courts. The State’s rights and remedies hereunder are cumulative and the State expressly reserves any and all rights, remedies, claims and actions that it may have now or in the future to protect the Confidential

Information and/or to seek damages from Offeror and/or each of Offeror's Personnel, as applicable, for a failure to comply with the requirements of this Agreement. In the event the State suffers any losses, damages, liabilities, expenses, or costs (including, by way of example only, attorneys' fees and disbursements) that are attributable, in whole or in part to any failure by Offeror or any of Offeror's Personnel to comply with the requirements of this Agreement, Offeror and such Offeror's Personnel shall hold harmless and indemnify the State from and against any such losses, damages, liabilities, expenses, and/or costs.

8. Unauthorized Use. Offeror shall promptly advise the State in writing if it learns of any unauthorized use, misappropriation, or disclosure of Confidential Information by any of Offeror's Personnel or Offeror's former Personnel. Offeror shall, at Offeror's expense, cooperate with the State in seeking injunctive or other equitable relief against any such person.

9. Governing law. This Agreement shall be governed by the laws of the State of Maryland.

10. False and fraudulent statements. Offeror acknowledges that pursuant to Section 11-205.1 of the State Finance and Procurement Article of the Annotated Code of Maryland a person may not willfully make a false or fraudulent statement or representation of a material fact in connection with a procurement contract. Persons making such statements are guilty of a felony and on conviction subject to a fine of not more than \$20,000 and/or imprisonment not exceeding 5 years or both. Offeror further acknowledges that this Agreement is a statement made in connection with a procurement contract.

11. Signing authority for Offeror. The individual signing below on behalf of Offeror warrants and represents that s/he is fully authorized to bind Offeror to the terms and conditions specified in this Agreement. The individual signing below acknowledges that a breach of this warranty and representation may result in personal liability.

12. Other obligations. The parties further agree that, unless otherwise agreed in writing: (a) this Agreement sets forth the entire agreement and understanding between the parties with respect to the subject matter hereof, and none of the terms of this Agreement may be amended or modified except by a written instrument signed by both parties; (b) the State may waive any rights under this Agreement only by written waiver duly signed by the State, and no failure by the State to exercise or delay in exercising a right under this Agreement shall constitute a waiver of such right; (c) the rights and obligations of Offeror may not be assigned or delegated, by operation of law or otherwise, without the prior written consent of the State; (d) the State makes no representations or warranties as to the accuracy or completeness of any Confidential Information; (e) the invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision of this Agreement; (f) all notices under this Agreement must be in writing and shall be deemed to have been delivered to and received by a party, and will otherwise become effective, on the date of actual delivery thereof (by personal delivery, express delivery service or certified mail) to the Notice Address of such party set forth below; and (g) signatures exchanged by facsimile are effective for all purposes hereunder to the same extent as original signatures.

14. Notices. All notices hereunder shall be in writing and either delivered personally, by express delivery, or sent by certified or registered mail, postage prepaid as follows:

If to the State:
Department of Information Technology
Office of Information Technology
45 Calvert Street
Annapolis, Maryland 21401
Attention: _____

If to the Offeror: _____

ATTACHMENT O – MERCURY AFFIDAVIT

AUTHORIZED REPRESENTATIVE THEREBY AFFIRM THAT:

I am the _____ (Title) and the duly authorized representative of _____ (Business). I possess the legal authority to make this affidavit on behalf of myself and the business for which I am acting.

MERCURY CONTENT INFORMATION:

The product(s) offered do not contain mercury.

OR

The product(s) offered do contain mercury.

- (1) Describe the product or product component that contains mercury.
- (2) Provide the amount of mercury that is contained in the product or product component. Indicate the unit of measure being used.

I ACKNOWLEDGE THAT this affidavit is to be furnished to the procurement officer and may be distributed to units of (1) the State of Maryland; (2) counties or other subdivisions of the State of Maryland; (3) other states; and (4) the federal government. I further acknowledge that this Affidavit is subject to applicable laws of the United States and the State of Maryland, both criminal and civil, and that nothing in this affidavit or any contract resulting from the submission of this bid or proposal shall be construed to supersede, amend, modify, or waive, on behalf of the State of Maryland, or any unit of the State of Maryland having jurisdiction, the exercise of any statutory right or remedy conferred by the Constitution and the laws of Maryland with respect to any misrepresentation made or any violation of the obligations, terms and covenants undertaken by the above business with respect to (1) this affidavit, (2) the contract, and (3) other affidavits comprising part of the contract.

I DO SOLEMNLY DECLARE AND AFFIRM UNDER THE PENALTIES OF PERJURY THAT THE CONTENTS OF THIS AFFIDAVIT ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF.

_____ By _____
Date Signature

Print Name: _____
Authorized Representative and Affiant

APPENDICES DISTRIBUTED WITH RFP

APPENDIX 2 – *State Regions and Coverage Area Definition*

APPENDIX 4 – *Mutual Aid Interoperability Systems*

APPENDIX 5 – *Existing State Network Monitoring Systems*

APPENDIX 6 – *Dispatch Point Location and Console Capacity*

APPENDIX 11 – *State Tower Loading Plan*

APPENDIX 13 – *Generator Startup Checklist*

APPENDIX 14 – *700 MHz Channel Plan*

APPENDIX 15 – *Punchdown Block Layout*

APPENDIX 16 – *System Acceptance Test Program*

NOTE: APPENDICES DISTRIBUTED IN A SEPARATE FILE

APPENDICES DISTRIBUTED ONLY WITH A NDA

APPENDIX 1 – *State Agency Licensed Frequencies*

APPENDIX 3 – *State Agency Radio Inventory and Geographic Operations*

APPENDIX 7 – *Microwave Network Path List*

APPENDIX 8 – *Critical Facilities*

APPENDIX 9 – *Special Coverage Locations*

APPENDIX 10 – *Available Tower and Shelter Locations*

APPENDIX 12 – *Equipment Shelter Layout*

NOTE: APPENDICES DISTRIBUTED IN A SEPARATE FILE