

Contract Number (VA-130620-CAI)

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STATEMENT OF REQUIREMENTS (SOR)

SOR # *Authorized User-yymmdd-01-CAI*

Internet Protocol (IP)-Based 9-1-1 Network Feasibility Study

1. **Date:** June 16, 2014

2. **Authorized User:**

Public Safety Communications Division of the Virginia Information Technologies Agency
(VITA)

3. **Authorized User Contact Information:**

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4. **Solicitation Schedule:**

Event	Date
Release SOR	06/16/2014
Supplier Response Due	07/07/2014
Award Decision	07/21/2014
Estimated Project Start Date	08/04/2014

5. **Evaluation and Scoring**

Supplier's Response must be submitted in the specified Statement of Work (SOW) format and will be evaluated for format compliance.

Supplier's Response will be evaluated for technical merit based on its appropriateness to the performance of agency requirements, its applicability to the Commonwealth Agency's environment, and its effective utilization of Supplier and Commonwealth resources.

6. **Project/Service:**

NG9-1-1 IP Network Feasibility Study

7. **Specialty Area (Check one):**

- | | |
|---|--|
| <input type="checkbox"/> Application Development | <input type="checkbox"/> Information Security |
| <input type="checkbox"/> Business Continuity Planning | <input type="checkbox"/> IT Infrastructure |
| <input type="checkbox"/> Business Intelligence | <input checked="" type="checkbox"/> IT Strategic Planning |
| <input type="checkbox"/> Business Process Reengineering | <input type="checkbox"/> Project Management |
| <input type="checkbox"/> Enterprise Architecture | <input checked="" type="checkbox"/> Public Safety Communications |
| <input type="checkbox"/> Enterprise Content Management | <input type="checkbox"/> Radio Engineering Services |
| <input type="checkbox"/> Back Office Solutions | <input type="checkbox"/> IV&V Services |
| <input type="checkbox"/> Geographical Information Systems | |

8. **Contract Type (Check):**

- Fixed Price, Deliverable-based

9. **Introduction:**

Project History

In Virginia, the current 9-1-1 system is based on legacy analog technologies that were established decades ago. The result is two widespread, significant limitations, which impact the level of 9-1-1 service that Virginia citizens receive today. These limitations are as follows:

- Length of 9-1-1 call set up time
- Limited ability to transfer 9-1-1 calls statewide

Focusing on overcoming these two limitations would bring about a vast improvement in the service currently delivered to Virginia citizens and establish a new technological foundation from which to begin the migration to the Next Generation of 9-1-1 (NG9-1-1).

To accomplish this goal, the Commonwealth of Virginia is seeking a feasibility study for the design of a single statewide IP-based 9-1-1 network to address the above limitations. This study will provide a concise list of statewide IP-based 9-1-1 network design options to the E-911 Services Board and is a critical first step in the statewide deployment of NG9-1-1. The results will contribute to the blueprint for the Commonwealth's related long-term planning efforts, as well provide insight to localities on statewide NG9-1-1 efforts.

Business Need

The Supplier will complete a feasibility study that will provide multiple solutions for the design of a single statewide IP-based 9-1-1 network to the E-911 Services Board. It is expected that this study will address system design, procurement, implementation, operation, and the necessary

modifications to the existing governance structure inherent to the E-911 Services Board. Furthermore, this study should achieve the following objectives:

- Present a technical statewide design that will support the creation of a single statewide IP-based 9-1-1 network, which can be achieved from the solutions provided
- Address local management of PSAP data, allowing call routing to be done by policy that reflects the current call delivery process within the 9-1-1 network
- Provide a migration plan to the statewide IP network for existing NG9-1-1 pilots and PSAPs that are currently transitioning to an IP-based solution
- Evaluate the practicability of regional IP-based 9-1-1 networks as identified in previous E-911 Services Board planning documents
- Recommend how secondary PSAPs should interconnect with the statewide IP network to maintain current network relationships with primary PSAPs

Project Complexity

This project is of moderate complexity. In Virginia, 9-1-1 is a local response and the current governance structure does not support statewide 9-1-1 technology mandates. As a result, the proposed technical solutions for the design of a single statewide IP-based 9-1-1 network should provide governance recommendations for the E-911 Services Board that are consistent with the following:

- A designated 9-1-1 entity with the authority and responsibility for comprehensive statewide NG9-1-1 governance and coordination
- Widespread stakeholder participation in NG9-1-1 planning and implementation
- Incentives to facilitate working relationships between the 9-1-1 community and groups and citizens within the Commonwealth that interact with 9-1-1
- Resource sharing through multi-jurisdictional agreements for efficiency and affordability

Project Management and Organizational Structure

Project Management oversight for VITA will be provided by Lewis Cassada and Dorothy Spears-Dean. Technical review and assistance will also include other members of the VITA team.

10. Scope of Work:

Conduct a comprehensive study and develop multiple solutions for the design of a single statewide IP-based 9-1-1 network in the Commonwealth of Virginia. This network must be consistent with the standards necessary to support the enhanced capability of an IP-based 9-1-1 network, commonly referred to as an Emergency Services IP network (ESInet). Furthermore, within the explanation of each solution, a comprehensive and objective evaluation of the following considerations must be included:

- Technical Feasibility
- Operational Feasibility
- Economic Feasibility
- Policy and Political Considerations

A complete description of these considerations is provided below. Furthermore, some of the listed criteria overlap. This is not intended to be duplicative, but rather, indicative of the interrelation between the components of an IP-based 9-1-1 network.

Technical Feasibility

- 1) Develop an inventory of the various functions provided by the standards most germane to NG9-1-1 that have either been developed or are being developed by Standard Development Organizations (SDOs). Include the timing of availability for each of these functions, as well as provide an analysis of which functions are currently technologically possible for the Commonwealth and which are not.
- 2) Provide a listing of the key elements for the design of a single statewide IP-based 9-1-1 network that should be included in any future Request for Proposals (RFPs) that the Commonwealth may issue for 9-1-1 network upgrades. This includes, but is not limited to:
 - a) Network structure hardware and software systems necessary for “end to end” network upgrade. “End to end” means call initiation (regardless of caller communication technology) to Public Safety Answering Point (PSAP) customer premise equipment (CPE). Network structure must be vendor and technology neutral, and any necessary exceptions must be noted.
 - b) Master Street Address Guide (MSAG) database maintenance
 - c) PSAP automatic location information (ALI) and 9-1-1 voice/data processing for communications providers with access to 9-1-1 (Including VoIP, legacy landline, cable phone services, wireless, communications devices transmitting data (i.e. text messaging) and “multi-mode” products that utilize various communication technologies on a single device (such as handset device that may access either a wireless internet connection or a traditional cell site, depending on the user’s location and signal).
- 3) Provide an inventory and associated explanation with each recommended solution that includes:
 - a) Existing PSAP capability & CPE capacity (including current NG9-1-1 PSAP pilots and secondary PSAPs)
 - b) All levels of communications service accessing 9-1-1 (VoIP, legacy systems, Wireless Phase I/Phase II, etc.)
 - c) 9-1-1 service provider capability
 - d) 9-1-1 database provider capability
 - e) Existing networks
- 4) Assistance in writing the invitation to bid (ITB) for network recommendations

Operational Feasibility

- 1) Include an assessment of and recommendations for system operations, including ownership and management of the system. (Management includes trouble reporting, training, and other operational functions).
- 2) Provide an inventory component that considers and includes:
 - a) Existing PSAP capability & CPE capacity for both primary and secondary PSAPs

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- b) NG9-1-1 projects that PSAPs and/or service providers in the Commonwealth currently have in progress or planned
 - c) Level of service (VoIP, Phase I/Phase II)
 - d) All levels of communications service accessing 9-1-1 (VoIP, legacy landline systems, Wireless Phase I/Phase II, etc.)
 - e) Continued utilization of back-up PSAPs
- 3) Identify the system user's needs, including:
- a) Interoperability for PSAP's
 - b) Communications providers' connectivity into the system
 - c) Options for system security and redundancy

Economical Feasibility

- 1) Include an evaluation of the economic aspects of an IP-based 9-1-1 system. This aspect of the study includes, at a minimum:
 - a) Cost projections for the design of the proposed single statewide IP-911 network's implementation and ongoing maintenance, security, and operations, separating the costs associated with primary PSAPs and secondary PSAPs
 - b) Comparison of cost projections for above items to current identified costs
 - c) Recommendations on additional and/or continued funding for the implementation, operation, and maintenance of an IP-911 network
 - d) A listing of quantified benefits, including, but not limited to; long-term cost savings, enhanced interoperability between PSAP's, redundancy, and system flexibility
 - e) A price on how much an IP-911 solution will cost versus the benefits that will be obtained
 - f) An estimate of legacy 9-1-1 cost considerations

Policy and Political Considerations:

Evaluation and final recommendations shall include, but are not limited to:

- 1) **Plan for system implementation and migration:** The plan will include a recommendation for the E-911 Services Board to complete a phased implementation and migration that includes:
 - a) Overall calendar plan/milestone schedule that presents a thorough analysis of anticipated cost/line items and analysis of current policy and the regulatory environment for the Commonwealth and the United States
 - b) Project Management Plan for conversion and maintenance to include detailed analysis of
 - Issues
 - Risks
 - Schedule/timeline
 - Cost/line items
 - Key staff (for managing an implementation and migration)
 - c) The Commonwealth recognizes that a "wholesale" system migration may not be feasible or desirable. Options should encompass a phased project for replacement of

existing system components such as PSAP CPE and service providers' existing selective routers. Any existing NG9-1-1 projects currently underway by PSAPs and/or service providers, along with related analysis, should be included.

- 2) Policy and legislation on the 9-1-1 funding mechanism(s) that is currently identified in *Virginia Code*

11. Period of Performance:

It is believed that the study will take 16 weeks to complete after the execution of this SOW; however, the Supplier may propose an alternative timeline if they believe differently. The anticipated final deliverable is a comprehensive study presented to VITA in the format outlined in the Scope of Work section above and does not include the implementation of any of the recommendations made within the study.

12. Place of Performance (Check one):

- Authorized User's Location _____
- Supplier's Location _____
- Authorized User's and/or Supplier's Location Development may be performed at either location.

13. Project Staffing

a. Supplier Personnel

The roles listed in the table below represent the minimum Supplier personnel requirements VITA believes are appropriate for the engagement, but the Supplier is permitted to propose an alternative team if they feel this would be best for the engagement.

Role	Key Personnel (Y/N)	Years of Experience	Certifications	References Required (Y/N)
Project Lead 2	Yes	8+	None	Yes
Network Architect 2	Yes	4-7	None	Yes
Public Safety Consultant	Yes	4-7	None	Yes

b. Authorized User Staff

The roles listed in the table below represent Authorized User's staff and the estimated time each will be available to work on the engagement.

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Role	Description	% Project Availability
Lewis Cassada – Project Management	Primary POC. Provides guidance to the Supplier for routine development issues.	>50%
Dorothy Spears-Dean – Project Management	Provides guidance to the Supplier for strategic development issues.	25-30%
Tim Addington – PSAP Outreach	Provides guidance to the Supplier for PSAP-related development issues.	5-10%
Buster Brown – PSAP Outreach	Provides guidance to the Supplier for PSAP-related development issues.	5-10%

14. Milestones and Deliverables:

The minimum required milestones and deliverables, and the estimated completion date for each deliverable, are listed in the following table. In addition, interdependencies between deliverables are noted for deliverables that have no stand-alone value or functionality. Such interdependencies will allow the Authorized User to seek recovery of amounts paid for previously accepted deliverables if the Supplier fails to deliver subsequent deliverables that meet the requirements.

Enter the engagement’s major milestone events, associated deliverables, and estimated completion dates. Additionally, for each deliverable, indicate the line item number of interdependent deliverables. This option should be reserved for deliverables that have no stand-alone value or functionality; selecting this option may increase the overall cost due to additional risk to the Supplier. See the instructions for additional information.

#	Milestone Event(s)	Deliverable(s)	Estimated Completion Date	Interdependent Deliverable(s)
1	Project kick-off meeting	Project kick-off meeting with VITA staff. The purpose of this meeting is to finalize the research design for completing the feasibility study.	8/15/2014	N/A
2	Executive Information Meeting	Informational presentation to E-911 Services Board to provide an overview of the study, as well as to present the research design for completing the feasibility study. The external meeting is for the E-911 Services Board must occur on September 11, 2014 as part of the scheduled Board meeting.	9/11/2014	N/A

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3	Completion of data collection	Collection of all data sets and informational categories identified in the finalized research design presented in a <i>Microsoft Excel</i> spreadsheet.	9/19/2014	N/A
4	Progress meeting	Meeting with VITA staff to discuss initial findings related to data collection	9/26/2014	N/A
5	Regional 9-1-1 stakeholder meetings/webinars	One (1) meeting in each of the seven (7) ISP regions and two (2) statewide webinars. The meetings and webinars are estimated to take about two hours each. The content for the meetings and webinars will be jointly developed by VITA staff and the Supplier and should focus on themes identified in the data collection	10/17/2014	N/A
6	Completion of rough draft	Written feasibility report, that will provide multiple solutions for the design of a single statewide IP-based 9-1-1 network, addressing all of the elements as set forth in the above Statement of Work, and provide in an electronic copy that is soft/changeable in <i>Microsoft Word</i>	10/24/2014	N/A
7	Progress meeting	Meeting with VITA staff to discuss rough draft and recommendations for finalized study	10/31/2014	N/A
8	Complete study	Full and concise written feasibility report that will provide multiple solutions for the design of a single statewide IP-based 9-1-1 network, addressing all of the elements as set forth in the above Statement of Work, and provide this as (100) printed copies with (2) electronic copies (i.e., (1) copy that is soft/changeable in <i>Microsoft Word</i> , and (1) that is unchangeable in the portable document format (pdf).	11/07/2014	N/A
9	Project close-out	Return of all Authorized User's assets (e.g., security card, VPN token, equipment) and the turnover of all documentation (e.g., knowledge transfer, application) by Supplier.	11/14/2014	N/A

The Supplier should provide all deliverables in electronic form, using the following software standards (or lower convertible versions):

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Deliverable Type	Format
Text Document	Microsoft Word 2003
Spreadsheets	Microsoft Excel 2003
Presentation	Microsoft PowerPoint 2003/Visio 2003
Project Management	Microsoft Project 2002

15. Travel Expenses (Check one):

- No travel will be required for this engagement
- Travel must be included in the total fixed price of the solution
- Travel should be invoiced separately (with prior Authorized User approval). Supplier should provide estimate of total travel expenses in their SOW response.

16. Payment (Check all that apply):

- Payment made based on successful completion and acceptance of deliverables
- All payments, except final payment, are subject to a (XX)% holdback

17. Acceptance Criteria:

The Project Manager will have 10 business days from receipt of the deliverable to provide Supplier with the signed acceptance receipt.

Final acceptance of services provided under the SOW will be based upon (Check one):

- User Acceptance Test

Acceptance Criteria for this solution will be based on a User Acceptance Test (UAT) designed by Supplier and accepted by Authorized User. The UAT will ensure that all of the functionality required for the solution has been delivered. The Supplier will provide the Authorized User with a detailed test plan and acceptance checklist based on the mutually agreed upon UAT plan. This UAT plan checklist will be incorporated into the SOW.

- Final Report

Acceptance criteria for this solution will be based on a final report. In the SOW, Supplier will define the format and content of the report to be provided to Authorized User for final acceptance.

- Other (specify): _____

18. Project Roles and Responsibilities:

Responsibility Matrix	Supplier	Authorized User
<i>Provide existing data collected through true-up process and baseline survey for 123 PSAPs.</i>		✓
<i>Conduct a comprehensive study that will provide multiple solutions for the design of a single statewide IP-based 9-1-1 network, addressing all of the elements as set forth in the above statement of work.</i>	✓	
<i>Prepare a full and concise written feasibility report that will provide multiple solutions for the design of a single statewide IP-based 9-1-1 network, addressing all of the elements as set forth in the Statement of Work.</i>	✓	

19. Criminal Background Checks and Other Security Requirements:

Criminal Background Checks Required?

YES

NO

20. Performance Bond (Check one):

Required for (XXX)% of the SOW value

Not Required

21. Reporting (Check all that are required):

Weekly or Bi-weekly Status Update

The weekly/bi-weekly status report, to be submitted by Supplier to Authorized User, should include: accomplishments to date as compared to the project plan; any changes in tasks, resources or schedule with new target dates, if necessary; all open issues or questions regarding the project; action plan for addressing open issues or questions and potential impacts on the project; risk management reporting.

Other(s) (Specify) _____

22. Federal Funds (Check one):

- Project will be funded with federal grant money
- Project will be funded with federal ARRA funds
- No federal funds or ARRA funds will be used for this project

23. Training and Documentation:

a. Training is:

- Required as specified below
- Not Required

b. Documentation is:

- Required as specified below
- Not Required

24. Additional Terms and Conditions:

N/A

25. Scheduled Work Hours:

N/A

26. Facility and equipment to be provided by Authorized User:

VITA is able to provide conference rooms and/or teaming areas at the facility in Chester, VA during normal work hours for Supplier staff.