

Virginia Information Technologies Agency



**FY17**

# **PSAP GRANT PROGRAM APPLICATION**



VIRGINIA INFORMATION  
TECHNOLOGIES AGENCY  
Integrated Services Division

# Fairfax County and Northern Virginia PSAPs Memorandum of Understanding on a VITA Grant submission for FY 2016

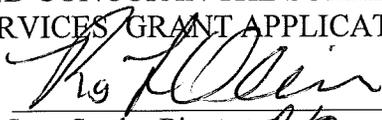
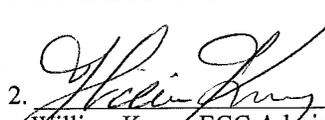
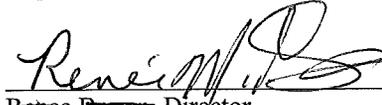
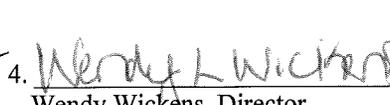
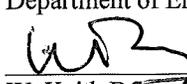
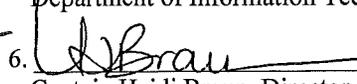
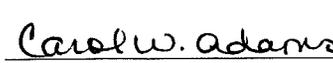
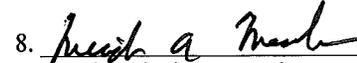
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The Fairfax County Department of Public Safety Communications and certain of the other Northern Virginia Public Safety Answering Points (PSAPs), to include the PSAPs of Arlington County, City Of Alexandria, Loudoun County, Prince William County, Stafford County, and Fauquier County (the NOVA PSAPs) agree that, for the benefit of taking preparatory actions towards Next Generation 9-1-1 (NG9-1-1), the NOVA PSAPs will collaborate in a shared services grant application and, if awarded, subsequent project effort for the implementation of a Northern Virginia ESInet and NG9-1-1 Core Services Capability for the Northern Virginia Region. This Memorandum of Understanding (MOU) establishes the agreement for the NOVA PSAPs to jointly submit an FY 2017 grant application to the Virginia Information Technology Agency (VITA) and within that application are outlined the goals and objectives to guide the effort should the grant be awarded to the NOVA PSAPs by the VITA Board of Directors. Implementation of the effort described in the grant is contingent on final approval of grant awards tentatively approved through the NCR 9-1-1 Director's Committee from the Urban Area Security Initiative (UASI) grant process under the Department of Homeland Security.

## RECITALS

- A. The Fairfax County Department of Public Safety Communications (DPSC) will serve as the Host PSAP for the purposes of the grant should VITA approve the grant application. The VITA grant award provides one element of the necessary funding for the effort as outlined in the application. The grant application outlines the broad collaborative efforts involving each of the NOVA PSAPs during the period of the grant.

THE PARTIES TO THIS UNDERSTANDING ARE MUTUALLY AGREED TO THE ABOVE AND CONCUR IN THE SUBMISSION OF THE FY 2017 NOVA ESInet and NG9-1-1 CORE SERVICES GRANT APPLICATION:

- |   |  |
|---|--|
| <p>1. <u></u> <u>9/29/15</u><br/>                 Steve Souder, Director <i>RSO</i> Date<br/>                 Fairfax County<br/>                 Department of Public Safety Communications</p> | <p>2. <u></u> <u>09-11-2015</u><br/>                 William Kang, ECC Administrator Date<br/>                 Arlington County<br/>                 Emergency Communications Center</p>     |
| <p>3. <u></u> <u>9-22-15</u><br/>                 Renee Gordon, Director<br/>                 City of Alexandria<br/>                 Department of Emergency Communications</p>                 | <p>4. <u></u> <u>9/14/15</u><br/>                 Wendy Wickens, Director Date<br/>                 Loudoun County<br/>                 Department of Information Technology</p>             |
| <p>5. <u></u> <u>9/14/15</u><br/>                 W. Keith Brower, Chief Date<br/>                 Loudoun County<br/>                 Loudoun County Fire and Rescue</p>                        | <p>6. <u></u> <u>9/28/15</u><br/>                 Captain Heidi Braun, Director Date<br/>                 Prince William County<br/>                 Public Safety Communications Center</p> |
| <p>7. <u></u> <u>9-25-15</u><br/>                 Carol Adams, Director Date<br/>                 Stafford County<br/>                 Division of emergency Communications</p>                  | <p>8. <u></u> <u>09-18-15</u><br/>                 Captain Micah A. Meadows Date<br/>                 Fauquier County<br/>                 Emergency Communications Division</p>             |

This Memorandum shall take effect upon its signing by the authorized representative of each party.



## **FY17 PSAP GRANT PROGRAM APPLICATION**

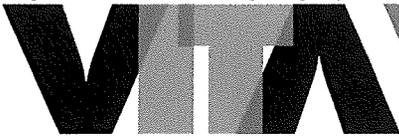
### **HOW TO APPLY/DEADLINE**

The grant application is available and accessible from VITA ISP's website (<http://www.vita.virginia.gov/isp/default.aspx?id=8578>). Upon completion of the application, it is to be submitted to your Regional Coordinator. Any supporting documentation must also be submitted along with the application, including mandatory budgets for projects (if applicable).

After the close of the grant application cycle, a Grant ID and email receipt notification will be sent to the e-mail address listed on the application received.

All funding requests must be submitted using the grant application. Technical assistance is available from VITA's Public Safety Communications (PSC) staff throughout the grant process. The FY17 PSAP Grant Application Cycle starts July 1, 2015 and concludes on September 30, 2015 at 5:00 pm.

**ALL APPLICABLE SECTIONS MUST BE COMPLETED IN ITS ENTIRETY OR THE APPLICATION WILL BE CONSIDERED INCOMPLETE AND NOT ACCEPTED FOR CONSIDERATION.**



# FY17 PSAP GRANT APPLICATION

## PROJECT TITLE

NOVA ESInet and NG9-1-1 Core Services Capabilities

## GRANT APPLICANT PROFILE/PROJECT CONTACT

PSAP/HOST PSAP NAME: Fairfax County Department of Public Safety Communications

CONTACT TITLE: Fairfax County 9-1-1 Systems Administrator

CONTACT FIRST NAME: Steve

CONTACT LAST NAME: McMurrer

ADDRESS 1: 4890 Alliance Drive

ADDRESS 2:

CITY: Fairfax

ZIP CODE: 20124

CONTACT EMAIL: [steve.mcmurrer@fairfaxcounty.gov](mailto:steve.mcmurrer@fairfaxcounty.gov)

CONTACT PHONE NUMBER: 571-350-1779

CONTACT MOBILE NUMBER: 703-625-7227

CONTACT FAX NUMBER: 571-350-1669

REGIONAL COORDINATOR: Brian Crumpler

## HOST PSAP AND PARTICIPATING PSAPS/LOCALITIES

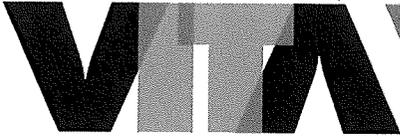
|                      |                       |
|----------------------|-----------------------|
| Host- Fairfax County | Loudoun County        |
| Arlington County     | Prince William County |
| City of Alexandria   | Stafford County       |
| Fauquier County      |                       |

## GRANT TYPE

Individual PSAP

Shared Services





## STATEMENT OF NEED

This statement should reference the relationship to the current funding priorities established by the Grant Committee and include evidence of any financial need, along with additional information on the impact on operational services; consequences of not receiving funding; inclusion of project in a long-term or a strategic plan; and local sustainability:

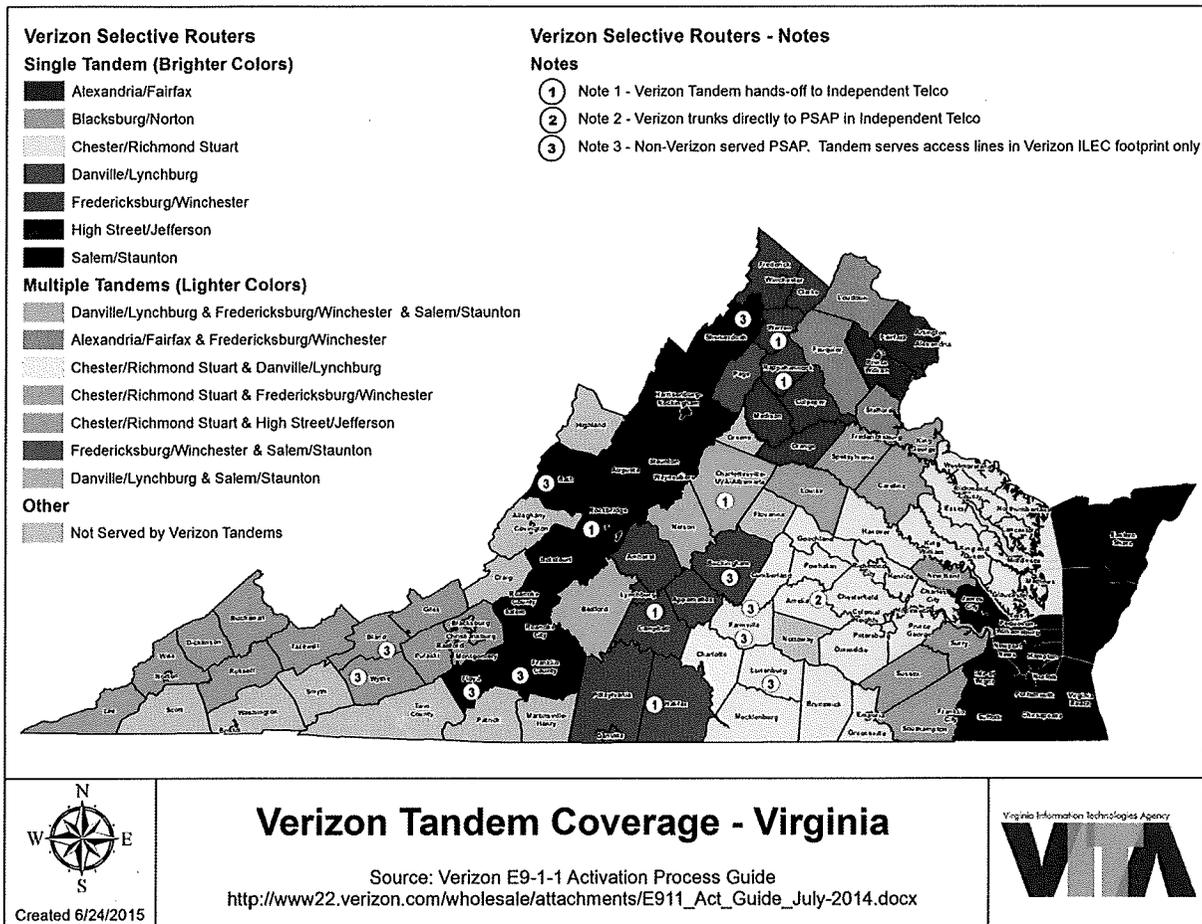
As the VITA NG9-1-1 Feasibility Study indicated with regard to ESInet capabilities, the PSAPs in the State of Virginia must begin to determine “the best solution design for [the PSAP] and then procure and deploy that solution”<sup>1</sup>. This shared services grant request is directed squarely at assembling sufficient resources to provide a Regional ESInet capability for six PSAP jurisdictions in the Northern Virginia area to move off the Verizon Selective Router network. The PSAPs included in this grant application are represented by the dark red and light red markings in the attached diagram labeled – Verizon Tandem Coverage – Virginia. Fauquier County (not included in this grant application presently) is still considering its options toward migrating onto an ESInet.

Implementing a regional ESInet for Northern Virginia is a significant financial commitment (first year cost for setup fees approximately \$4.2 million) and no single jurisdiction or group of jurisdictions has a capital budget in place for such a transition. Nor does each jurisdiction have the funding from existing 911 fees to fund the implementation of a new network capability while processing calls under the existing network and paying the ALI/Selective Router costs associated with the legacy Verizon network. This grant request is consistent with the strategic direction VITA has established for transitioning to an ESInet and is also consistent with a strategic planning process the National Capital Region (NCR) 9-1-1 Director’s Committee has been undertaking to determine a transition plan and strategy to move toward a NG9-1-1 network and NG9-1-1 core services capability to geo-spatially route 9-1-1 calls.

<sup>1</sup> Commonwealth of Virginia Internet Protocol (IP)-Based 9-1-1 Network Feasibility Study, Executive Summary, Page 2 under Technical Feasibility section.



This diagram demonstrates the Northern Virginia PSAPs (red colorings) that would participate in the grant application (Fauquier County excluded for the present time).



Observations on the footprint covered by this grant application:

- 21% of the 9-1-1 calls in Virginia are made to the 7 PSAPs served by the Alexandria/Fairfax tandem (6% of the PSAPs in Virginia funded by the PSAP Grant Program)
- At seven PSAPs, the footprint (number of PSAPs) that would be involved in planning for a migration off of the Alexandria/Fairfax Verizon tandem is smaller than any other tandem footprint in the Commonwealth. The next smallest Verizon footprint for a tandem would involve coordination between 12 PSAPs, thus making coordination of a tandem-wide project more challenging.
- With Fauquier participating in the grant application this is the first application in the state submitted to the E9-1-1 Services Board on behalf of all primary PSAPs on a single tandem (Alexandria/Fairfax) planning to transition off the legacy network.



Describe how the grant will be maintained and supported in the future, if applicable.

In the initial implementation of the NOVA ESInet capability the intent is to use UASI funding grants to support the initial rollout and once the rollout is complete the costs (or billings to jurisdictions) associated with the Verizon Selective Routers for the Fairfax CO and the Alexandria CO are expected to be reduced to zero. This will allow the 9-1-1 fees the jurisdictions use today to pay those costs/bills for the Selective Routers to be redirected toward supporting the new network for continuing operations and maintenance support. The region has tentative approval for a multi-year grant award under the UASI program to support the transition to a regional ESInet and to provide funding for ESInet implementation and support during the transition period. Over time, the jurisdictions should be able to redirect cost savings formerly paid to Verizon for the Selective Router CAMA/ALI circuits and to direct those savings toward maintenance costs associated with the new ESInet for call processing.

### **COMPREHENSIVE PROJECT DESCRIPTION**

Identify the longevity or sustainability of the project.

This is a very sustainable project which has been demonstrated in other regions and states around the country in the 9-1-1 industry. The approach that will be followed in this effort is consistent with the standards and directions the 9-1-1 industry is using to move into an IP interconnected environment that is more interoperable and more flexible to support 9-1-1 callers.



Describe how this project supports the Virginia Statewide Comprehensive 9-1-1 Plan.

This project is entirely consistent with major themes established during the 2015 Comprehensive Statewide 9-1-1 Comprehensive Plan. It leverages best practices, fosters partnerships and collaboration, considers Federal and FCC requirements, enhances support and protection of 9-1-1 assets, improves interoperability, integrates GIS into the infrastructure and should provide an opportunity to expand public education of the new capabilities 9-1-1 centers in NOVA can support.

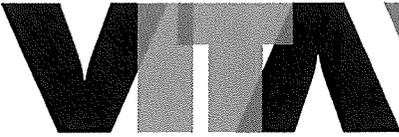
### **SHARED SERVICES (if applicable)**

The relationship of the project to the participating PSAPs:

This effort will be a central component through which NOVA PSAPs will receive 9-1-1 calls in the future so it will be a fundamental capability for the transition of all NOVA PSAPs onto an i3 NENA compliant call routing platform.

Intended collaborative efforts:

This project will be based on collaborative collection of requirements for an ESInet capability and the associated NG9-1-1 Core Service functions (such as call routing using geo-spatial routing engines based on local GIS data). An element of this project will use the coalesced GIS data that will be collected from each jurisdiction and loaded into an Emergency Call routing Function (ECRF) which will operate on the NOVA ESInet. The Originating Service Providers (OSPs) will interconnect to the NOVA ESInet and pass 9-1-1 calls through the ECRF/ESRP for forwarding to the correct PSAP based on PSAP boundaries established through collaborative efforts to establish the NOVA GIS data in the ECRF.



Resource sharing:

The capabilities procured through this project effort which included vendor provided hosted and managed NG9-1-1 network and Core services are shared amongst all participating jurisdictions in the grant.

How does the project impact the operational or strategic plans of the participating agencies:

This project provides a fundamental capability that each jurisdiction has been planning to move toward NG9-1-1. This project effort, when successfully completed is a major accomplishment for each jurisdiction in their strategic plans.



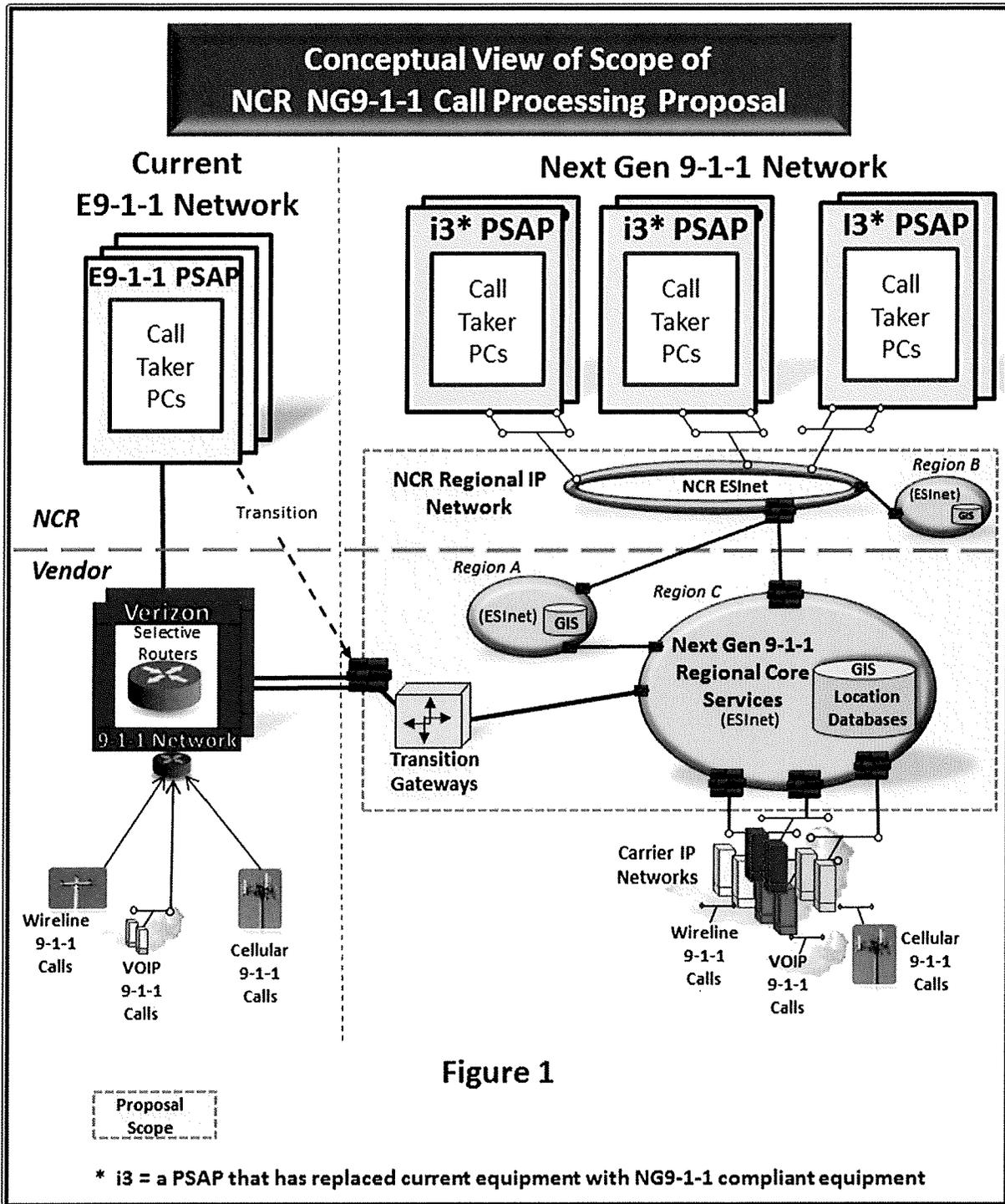
Provide a thorough, concise, and complete description of the project, including an outline of the goals and objectives, implementation strategy, and a work plan.

The project is designed to provide a NOVA Next Generation 9-1-1 (NG9-1-1) Call Processing Network (an ESInet) replacing the use of portions of the legacy Verizon based 9-1-1 network which is reaching obsolescence. This grant request is borne from planning efforts in Northern Virginia and the NCR and summarizes considerations and cost estimates gathered from an NCR NG9-1-1 planning project and a recently completed Request for Information (RFI) during August 2015. The specific focus of this grant request is to obtain funding to offset the total cost associated with having the six Northern Virginia PSAPs transitioned off the Verizon Fairfax and Alexandria Selective Router Network. The NOVA PSAPs are also investigating other avenues of funding a NOVA ESInet, and those might bear some fruit, but efforts to obtain such funding consistently ask what resources the local jurisdictions (e.g., the State of Virginia) are contributing to the effort.

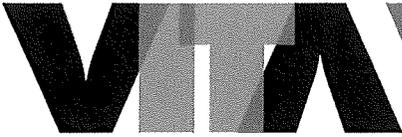
A Conceptual Diagram of the solution to be implemented with support from this shared services grant request is shown in Figure 1. The primary elements of the proposed NOVA ESInet and NGCS solution include:

- NCR and Vendor core components providing call processing and call routing functions within the NCR NG9-1-1 network;
- The network connectivity and security elements providing an interoperable network for NG9-1-1 (called an ESInet) built by supplementing existing NCR networks where feasible;
- The gateway interfaces enabling NOVA PSAPs to migrate from today's legacy environment into a fully enabled and secure NG9-1-1 environment;
- The NG9-1-1 GIS databases, replacing the current Verizon Selective Router databases which are reaching obsolescence;
- Cyber security measures and firewalls ensuring reliability and resiliency.
- The physical representation of the end-state for the National Capital Region (NCR) may be implemented in multiple sub-regional solutions that interoperate and are compliant with NG9-1-1 and established regional standards. The design of the end-state NOVA ESInet will be flexible enough to allow alignment with state and other regional/district strategic plans and telecommunication laws. The physical implementation of the end-state will be via a competitively selected vendor through an RFP process. The selected vendor will create a Detailed Regional Design early in the project effort.

Fairfax County is beginning efforts to get the GIS data ready for the PSAPs who will transition to the ESInet and Core Services provided under the project effort associated with this grant. Activities are underway soon as part of the NCR 9-1-1 Director's Committee to prepare a Request for Proposals (RFP) with the intent of making a vendor selection for a regional ESInet within the NOVA area toward the latter part of 2016. The intent would be to transition the NOVA PSAPs onto the new ESInet sometime during 2017. A high level view of the NCR migration strategy is shown in Figure 2 with the NOVA PSAPs being among the first to undergo the transition.

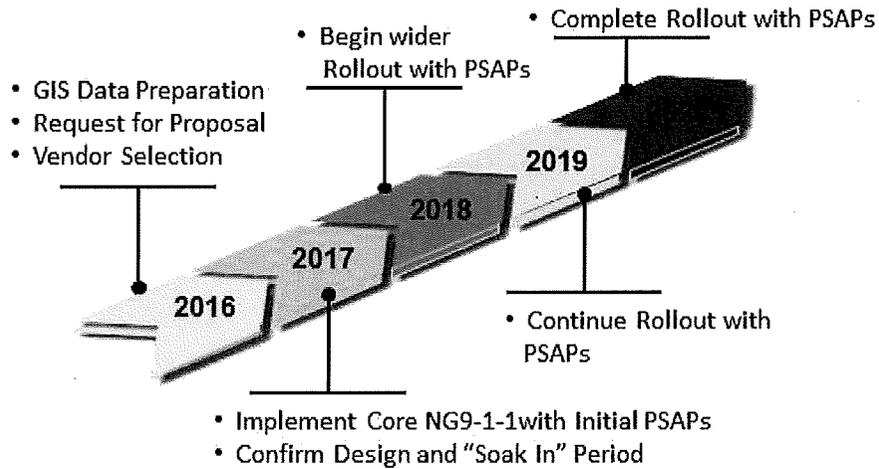


The above diagram is taken from the proposal justification submitted for the NCR grant request under the DHS UASI program. This VITA grant request is targeted at implementing the NOVA region ESInet (conceptually labeled Region C in Figure 1 above).

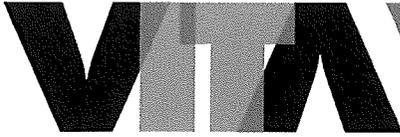


The overall NCR regional migration strategy is shown at a high level in Figure 2 below. This grant effort presumes the NOVA jurisdictions would be early adopters of the NCR ESInet concept and would begin an implementation or transition from the current Verizon Selective Routers during 2017. The VITA grant, coupled with the UASI grant would be combined to support the NOVA ESInet implementation (e.g., a Phase 1 implementation of an NCR ESInet). Subsequent rollout efforts below would apply the balance of UASI funding and other funding sources garnered to support Maryland PSAP rollouts/transitions to the regional ESInet.

### NCR NG9-1-1 Migration Strategy



**Figure 2**



**PROJECT TIMELINE FOR  
SHARED SERVICES & INDIVIDUAL PSAP APPLICATIONS:**

For each applicable phase of the project, indicate the estimated completion date.

| <b>PROJECT PHASE</b>   | <b>ESTIMATED<br/>COMPLETION DATE</b> |
|--|--------------------------------------|
| <input type="checkbox"/> <b>INITIATION</b><br>(Project approved by appropriate stakeholders)<br><br>Sample activities: project concept is documented, local board or governing authority approval or endorsement is received, PSAP grant application is filed, local budgets are obtained, appropriated grant funds are approved, and budgetary estimates are obtained | <b>11 / 01 / 15</b>                  |
| <input type="checkbox"/> <b>DESIGN/PLANNING</b><br>(Project, system, or solution requirements are developed)<br><br>Sample activities: requirements are documented, components to be purchased are identified, and general design is documented  | <b>02 / 01 / 16</b>                  |
| <input type="checkbox"/> <b>ACQUISITION</b><br>(Selected system or solution is procured)<br><br>Sample activities: RFP (or other bid related processes) are drafted, proposals are evaluated, contract is signed, purchase orders are issued, and quotes are obtained  | <b>10 / 01 / 16</b>                  |
| <input type="checkbox"/> <b>IMPLEMENTATION</b><br>(Selected system or solution is configured and installed)<br><br>Sample activities: purchased components are delivered and installed and training is performed   | <b>06 / 01 / 17</b>                  |
| <input type="checkbox"/> <b>TESTING/COMPLETION</b><br>(Selected system or solution is tested and put in production)<br><br>Sample activities: performance of system/solution is validated and system/solution goes "live"  | <b>09 / 01 / 17</b>                  |



## BUDGET AND BUDGET NARRATIVE

List the planned expenditures to be made with grant funds. The estimates below are derived from Rough Order of magnitude estimates provided to Fairfax County during the RFI process associated with an NCR NG9-1-1 planning project. Briefly explain the reason for each requested budget item and provide the basis for its cost.

| <b>NOVA ESINET and NG Core Services – Hosted Network</b> |                                 |
|--|---------------------------------|
| <b>ITEM</b>  | <b>COST</b>                     |
| <b><i>Setup Fee- Non-recurring</i></b>                   |                                 |
| - Deployment   | \$3,200,000<br>One time         |
| - Carrier Grade Media Gateway                            |                                 |
| - NG Core Services Software Licenses                     |                                 |
| - Equipment to host the NG Core Services                 |                                 |
| - Networking Elements                                    |                                 |
| - Network Management Equipment                           |                                 |
| - Backup System  |                                 |
| <b><i>Monthly Service Fee - Recurring</i></b>            |                                 |
| - Daily Operation  | \$75,000<br>Monthly for 6 PSAPs |
| - Data Provisioning                                      |                                 |
| - 7x24 Network Operations Center                         |                                 |
| - 7x24 Technical Support                                 |                                 |
| - Software/Hardware Maintenance                          |                                 |
| - Networking back to Vendor Network Data Centers         |                                 |
| - SS7 connections from Vendor Network to Media Gateway   |                                 |
| <b>Monthly Circuit Fees – 10 Mpbs Fiber</b>              | \$13,640<br>Monthly for 6 PSAPs |

**First Year Cost**  $\$3,200,000 + (\$75,000 \times 12) + (13,640 \times 12) = \$4,263,680$

The VITA grant request will be used to offset the above total with the balance expected to be paid for by the UASI grant (tentative approval already given – final approval of UASI grant request will take place in March 2016 timeframe).

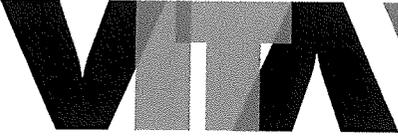


## EVALUATION

How will the project be evaluated and measured for achievement and success:

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- Once NG9-1-1 is implemented, the deaf and hard of hearing communities will have a much enhanced ability to directly call 9-1-1 using the enhanced capabilities provided by NG9-1-1. With the implementation of the NOVA ESInet, new and improved capabilities will be provided throughout the NOVA regions such as the ability to have faster call setup times between the citizen and the PSAP (allowing improved ability to respond to public emergencies).
- Calls should also be delivered with more accurate location information at the beginning of the call using GIS map locations under NG9-1-1.
- Also, additional supplemental information about the caller such as medical information, photographs of individuals for use in Amber Alerts, details about premise information that represent risks to first responders, can eventually be made available to the appropriate agencies for responding to emergency situations.
- Multi-media text messaging will also be enabled that could provide still images, video and audio clips of emergency scenes to first responders.
- The capabilities provided by a fully functional NOVA ESInet will significantly improve interoperability within the region and provide new continuity of operations (COOP) models as IP- based solutions eliminate distance boundaries which currently restrict PSAP backup capabilities. The ESInet in NOVA will also provide lessons learned for other parts of Virginia as other ESInets are planned and deployed.
- The implementation of an NCR NG9-1-1 Network will provide ubiquitous support for the newest communication technologies being adopted by the public and also will provide a more capable platform to interoperate with the eventual deployment of FirstNet.



**CONSOLIDATION (Primary or Secondary) - (complete only if applicable)**

How would a consolidation take place and provide improved service:

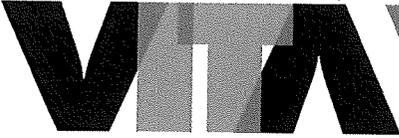
N/A

How should it be organized and staffed:

N/A

What services should it perform:

N/A



How should policies be made and changed:

N/A

How should it be funded:

N/A

What communication changes or improvements should be made in order to better support operations:

N/A