NOTICE

Please note that this bid from SRA International Inc. for EHP17*7 was received at the Purchasing Division office prior to the established bid opening date and time on April 25, 2017, but was not loaded properly within wvOASIS at the public bid opening. This bid has since been loaded and is now posted.

Diane Holley-Brown

Diane Holley-Brown
Assistant Purchasing Director

Solicitation Response(SR) **Dept:** 0506 **ID:** ESR04241700000005143 **Ver.:** 1 **Function:** New **Phase:** Final ▼ Modified by batch , 04/25/2017

Header 📎 3

☐ List View

| General Information | Contact | Default Values | Discount | Document Information |

Procurement Folder: 256243

Procurement Type: Central Contract - Fixed Amt

Vendor ID: 000000197838

Legal Name: SRA INTERNATIONAL, INC

Alias/DBA:

Total Bid: $393,913.33

Response Date: 04/25/2017

Response Time: 12:20

SO Doc Code: CRFQ

SO Dept: 0506

SO Doc ID: EHP1700000007

Published Date: 4/4/17

Close Date: 4/25/17

Close Time: 13:30

Status: Closed

Solicitation Description: Addendum #1 - Hosting of WVEDSS Application

Total of Header Attachments: 3

Total of All Attachments: 3

Proc Folder : 256243

Solicitation Description : Addendum #1 - Hosting of WVEDSS Application

Proc Type : Central Contract - Fixed Amt

Date issued	Solicitation Closes	Solicitation Response	Version
	2017-04-25 13:30:00	SR 0506 ESR04241700000005143	1

VENDOR
000000197838 SRA INTERNATIONAL, INC

Solicitation Number: CRFQ   0506   EHP1700000007

Total Bid : $393,913.33   **Response Date:**   2017-04-25   **Response Time:**   12:20:19

Comments:

FOR INFORMATION CONTACT THE BUYER

April Battle

(304) 558-0067
april.e.battle@wv.gov

Signature on File   **FEIN #**   **DATE**

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Year 1 Hosting of WVEDSS Application				$106,560.87

Comm Code	Manufacturer	Specification	Model #
43212200			

Extended Description : The vendor will host productions, staging and test environment for the NBS, and other supporting applications, PHINMS, Rhapsody
(This includes sections 4.1.5 through 4.1.40 of specifications

Comments: See Business Volume for assumptions.

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
2	Year 2 WVEDSS				$95,549.34

Comm Code	Manufacturer	Specification	Model #
43212200			

Extended Description : Vendor will provide ongoing support for existing electronic interfaces or integrations and future enhancements
(This includes sections 4.1.6 through 4.1.40 of specifications)

Comments: See Business Volume for assumptions.

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
3	Year 3 of WVEDSS				$95,765.32

Comm Code	Manufacturer	Specification	Model #
43212200			

Extended Description : Vendor will provide ongoing support for existing electronic interfaces or integrations and future enhancements
(This includes sections 4.1.6 through 4.1.40 of specifications)

Comments: See Business Volume for assumptions.

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
4	Year 4 of WVEDSS				$96,037.80

Comm Code	Manufacturer	Specification	Model #	
43212200				

Extended Description :	Vendor will provide ongoing support for existing electronic interfaces or integrations and future enhancements (This includes sections 4.1.6 through 4.1.40 of specifications)

Comments: See Business Volume for assumptions.

BUSINESS PROPOSAL

In response to: SOLICITATION NO.: CRFQ 0506 EHP1700000007

HOSTING OF WVEDSS APPLICATION EPS16-118

Submitted to:
April Battle, Buyer 22
Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130
Electronically through: wvOASIS

Submitted by:

SRA International, Inc., A CSRA Company
15036 Conference Center Drive ♦ Chantilly, Virginia 20151
DUNS Number: 097779698
Contractual Point-of-Contact: Dana Lotspeich, Contracts Advisor
Phone: (571) 249-0306 | Fax: (703) 378-3910 | Website: www.csra.com

April 25, 2017

April 25, 2017

April Battle, Buyer 22
Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0 I 30

Subject: Proposal Submission in reponse to Solicitation Number: CRFQ 0506
             EHP1700000007 Hosting of WVEDSS Application EPS16-118

Dear Ms. Battle:

SRA International, Inc., a CSRA company (hereinafter referred to as "CSRA") is delighted to submit the following proposal on a Firm, fixed-price basis in response to the reference solicitation. Our proposal submission includes one (1) electronic copy of the following documents:

Volume I: Technical Proposal
Volume II: Business Proposal

Our proposal has been developed in accordance with the terms, conditions and provisions of the solicitation, and will remain valid for a period of 60 daysI certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein. I further certify that CSRA accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; and, that I am authorized to bind the vendor in a contractual relationship. To the best of my knowledge, C S RA has properly registered with any State agency that may require registration.

Should you have questions of a contractual nature, please contact me by email: Dana.Lotspeich@csra.com, by Phone: 571-249-0306 or by Fax: 703-378-3910

Sincerely,

Dana Lotspeich

Dana Lotspeich
Contracts Advisor

TABLE OF CONTENTS

1 INTRODUCTION

SRA International, Inc., a CSRA Company (hereinafter referred to as "CSRA") is delighted to provide this Business Proposal, prepared in response to the State of West Virginia's Solicitation Number: CRFQ 0506 EHP1700000007, titled "Hosting of WVEDSS Application EPS16-118." Our proposal:

- Is predicated upon all the terms and conditions of the Solicitation;
- Confirms that prior to Contract award, we will register with the West Virginia Purchasing Division and pay the $125 fee, if applicable.
- Is firm for a period of 60 days from the date of receipt by the Government;
- Demonstrates that CSRA has the financial capacity, working capital, and additional resources necessary to perform the scope of work under this Solicitation.

Our Business Proposal provides a complete and traceable description of all costs and prices proposed for the performance of all work outlined in the performance-based work statement (PWS) and discusses the methodologies and assumptions used in CSRA's price determination.

1.1 SRA CORPORATE PROFILE

On August 31, 2015, CSC and SRA announced that they had entered into a definitive agreement to combine the business operations of Computer Sciences Corporation's government services unit, CSC Government Solutions LLC and its subsidiaries (CSGov), and SRA International, Inc., to form a new family of companies under a common, publicly traded parent company, CSRA Inc.

The CSRA companies have more than 90 years of combined experience and are committed to making a difference in how the government serves our country and our citizens. Our employees are inspired by the important missions of our customers and believe that by working together we can deliver exceptional solutions and services to enable the safety, security, health and well-being of our nation.

We will continue to deliver a broad range of innovative, next-generation IT solutions and professional services to help our customers modernize their legacy systems, protect their networks and assets, and improve the effectiveness and efficiency of mission-critical functions for our warfighters and our citizens.

We are committed to leveraging the expertise of a combined workforce of approximately 18,000 professionals and offering a broad portfolio of next generation IT solutions and professional services to solve your most complex mission challenges. Our priority is to provide you with outstanding support and to maintain continuity among our program/project teams. We look forward to our new partnership and supporting the state of West Virginia's public health mission.

2 COST/PRICE OVERVIEW

CSRA is excited about the opportunity to continue building an enduring partnership with West Virginia (WV), a partnership characterized by shared objectives, frequent and candid communications, and a focus on seeking innovative and creative ways to help WV excel in its engagement and interaction with key surveillance stakeholders.

2.1 COMPARATIVE PRICE ANALYSIS

SRA recognizes the pressure our clients feel to deliver more for less. We must collectively achieve greater efficiency to meet your business goals within financial constraints. We have taken this into

consideration in preparation of our price proposal for this solicitation. We have developed our proposal and the supporting detail in a way that emphasizes price realism and reasonableness while pursuing efficiencies that will enable WB to obtain more for every dollar spent. CSRA has the skilled people and the proven processes in place to provide the depth and breadth of experience needed to support the WVEDSS Application. Our strong commitment to customer service will ensure WVEDSS receives visibility at the highest levels of the company and has access to our most qualified technical and management professionals. The combination of continuity of staff and cost savings provides WV with the best value solution in achieving its objectives and deliverables.

SRA possesses the management experience, the skilled professionals, and the dedication to customer satisfaction that will ensure the continued successful execution of this program. CSRA is distinguished by its effective management structure with clear lines of responsibility and authority.

2.1.1 PRICE REALISM, REASONABLENESS, AND BALANCE

We performed an analysis to ensure that the prices proposed are reasonable and balanced. The subsequent sections of this narrative describe the methodology used for our price determination, and demonstrate that our solution and corporate financial commitments support a best-value solution for WV.

We based our Price Quotation on a framework consisting of three pillars:

- Staffing levels consistent with the Solicitation;
- Direct labor costs that are commensurate with the skills, qualifications, and expertise required for successful project performance, and are also cost competitive; and
- A lean indirect cost and profit structure that reflects our corporate commitment to WVEDSS and helps the organization achieve its mission during a time of significant budgetary challenges.

We have taken steps to offer cost reductions and to make our offer as fair and competitive as possible. Below we highlight key elements of our cost proposal that enable CSRA to offer further efficiency in our execution and cost savings to WV.

2.1.2 PRICING ASSUMPTIONS

The following assumptions for the basis for SRA's proposed level of effort for this RFTOP:

- CSRA has included a onetime charge in the base year for the initial configuration of the Hosting environments (4.1.4) and the initial migration of current WVEDSS data from NBS (4.1.3).
- CSRA's price is based upon support of one Message Mapping Guide (MMG)per year to meet the requirements of Section 4.1.18.4 (Implement new message mapping guides as the CDC requests and obtain certification in sending each message guide) and Section 4.1.30 (Vendor must support the implementation of new Page Builder pages, through data porting). Additional MMG Support can be negotiated on a Time and Materials basis.
- CSRA assumes a multi-factor authentication approach using software tokens to address RFP requirements for User Provisioning (4.1.37) and Application Security (4.1.1 and 4.1.7). We have priced RSA to address this assumption.
- CSRA assumes West Virginia will provide software licenses for SAS and Rhapsody for use in the CSRA AWS Cloud environment.
- CSRA has provided a minimum hardware configuration in Section 3.1.2 Figure 3
- Section 4.1.3, SRA assumes the data migration includes only current WVEDSS/NBS data, and does not include Sexually Transmitted Disease (STD) data migration.

- CSRA proposed fixed price assumes we will provide Level 1 and Level 2 Help Desk support. Level 3 support can be negotiated for additional support on a Time and Materials basis.
- These costs are based on WV getting continued support of the key resources it has worked with for the past few years, as well as the NBS Team that supports the CDC NBS Contract with more than 15 years of collective experience in supporting the NBS application.
- CSRA assumes that West Virginia resources will be available to answer questions and provide timely input and support during the configuration and migration phase, and throughout the project.
- All staff working on this project will perform on CSRA site. Computers and office space will not be provided by the Government.

2.2 PRICING TABLE

CSRA's basis of estimate and staffing model incorporate the guidance provided in the Solicitation.

Line Item	Description of Service	Cost
4.1.4 (This includes sections 4.1.5 through 4.1.40 of specifications)	Year 1: The vendor will host productions, staging and test environment for the NBS, and other supporting applications, PHINMS, Rhapsody	$106,560.87
4.1.5 (This includes sections 4.1.6 through 4.1.40 of specifications)	Year 2: Vendor will provide ongoing support for existing electronic interfaces or integrations and future enhancements.	**$95,549.34**
4.1.5 (This includes sections 4.1.6 through 4.1.40 of specifications)	Year 3: Vendor will provide ongoing support for existing electronic interfaces or integrations and future enhancements.	$95,765.32
4.1.5 (This includes sections 4.1.6 through 4.1.40 of specifications)	Year 4: Vendor will provide ongoing support for existing electronic interfaces or integrations and future enhancements.	$96,146.44
	Grand Total:	$394,021.97

2.3   SUBCONTRACTED ITEMS

CSRA is contracting with SS Data Info for additional support required in this Solicitation. SS Data Info provides three resources to CSRA, who also currently support the CDC NBS Contract, and have a combined 40+ years of NBS experience. Jit Gil, Pradeep Sharma, and Azam Chishti are former CSRA (through CSC) resources who now have their own consulting company. Jit, Pradeep, and Azam will bring added depth to the CSRA team that will support West Virginia.

2.4   TRAVEL

Travel costs will be reimbursed at actual cost in accordance with the limitations set forth in Federal Acquisition Regulation (FAR) 31.205-46. CSRA will apply the General and Administrative (G&A) rate to the total travel cost in accordance with our usual accounting practices. CSRA has not proposed any travel costs in our pricing.

2.5   OTHER DIRECT COSTS (ODCS)

In accordance with CSRA's accounting practices, any item used in direct support of a contract may be charged as direct. Typical ODCs include, but are not limited to, consultants, local and long distance travel, reproduction, hardware, software, and miscellaneous supplies (such as Compact Disks). CSRA does not recover costs for such items through its indirect structure. SRA will apply the G&A rate and a fixed fee to the total ODC cost in accordance with our usual accounting practices.

CSRA has proposed Hosting as an ODC cost in our proposed pricing. We will be using Amazon Web Services, providing RSA software tokens for authentication. Additional specifications are provided in the Technical Volume.

2.6   INDIRECT COSTS

In accordance with our disclosed and approved estimating practices, we submit a five-year budget to DCAA annually, establishing indirect forward pricing rates for the company. These rates include G&A, Subcontractor Handling (SH), and MH. The G&A rate is applied to ODCs. The SH rate is applied to subcontractor costs. The MH rate is applied to direct materials — items that are purchased by CSRA and passed directly to the Government. The SH rate and MH rate reflect composite rates that include the G&A on the subcontract or material handling overhead cost, but not the underlying subcontract or direct material cost.

SRA's cost accounting practices comply fully with the Cost Accounting Standards (CAS) and the FAR, and are described in our CAS Disclosure Statement on file with CSRA's Administrative Contracting Officer (ACO) and cognizant DCAA Auditors. As described more fully in our CAS Disclosure Statement, we have five types of indirect rates. These pools, allocation bases, and cost components are described in Table 2-3 below.

Pool/Rate	Allocation Base
Subcontractor Handling	Subcontract costs
Material Handling	Direct Materials
General and Administrative	Direct labor, overhead, material handling overhead, other direct costs
Fringe	Direct labor
Overhead	Direct labor, fringe

Figure 1: CSRA's Indirect Pools comply fully with CAS and the FAR.

2.7   OTHER ADMINISTRATIVE DATA

2.7.1   INVOICE SCHEDULE
Invoicing will be monthly based equal monthly payments for each year of the contract.

2.7.2   DESIGNATED POINT OF CONTACT
Should you have any contractual or technical questions regarding this proposal, please direct them to Ms. Dana Lotspeich, Contracts Advisor, at 571/249-0306 or dana.lotspeich@csra.com. Question can also be directed to OPHPR@csra.com.

2.7.3   ACKNOWLEDGEMENT OF SOLICTATION ADDENDA
CSRA has not recived addenda issued to the solicitation.

2.7.4   PURCHASING AFFIDAVIT
In accordance with West Virginia Code § 5A-3-10a, CSRA will sign, notarize, and submit the Purchasing Affidavit stating that neither the CSRA nor a related party owe a debt to the State in excess of $1,000. CSRA will submit the required affidavit as part of contract award documentation.

2.7.5   INSURANCE
CSRA acknowledge insurance required identified by a checkmark below and shall furnish proof of the insurance prior to Contract award. CSRA will provide WV with immediate notice of any changes in its insurance policies mandated herein, including but not limited to, policy cancelation, policy reduction, or change in insurers. The insurance coverage will be maintained throughout the life of this contract.

X Commercial General Liability Insurance in at least an amount of: $1,000,000.00

2.7.6   VENDOR CERTIFICATIONS
CSRA certifies (1) that its bid or offer was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid or offer for the same material, supplies, equipment or services; (2) that its bid or offer is in all respects fair and without collusion or fraud; (3) that this Contract will be accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; and (4) that it has reviewed this Solicitation in its entirety; understands the requirements, terms and conditions, and other information contained herein.

CSRA also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to WV. The individual signing this bid or offer on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or offer or any documents related thereto on Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with any State agency that may require registration.

2.7.7   TERMS AND CONDITONS
Our proposal response is predicated upon all terms and conditions of the Solication and will remain valid for sixty (60) days from receipt of our proposal by the Government.

2.7.8   FINANCIAL CAPACITY, WORKING CAPITAL AND OTHER RESOURCES
CSRA is a $5B company with 18,000 employees world-wide. We have sufficient financial and experienced staff resources to perform the work contemplated for this effort.

TECHNICAL PROPOSAL

In response to:
Solicitation CRFQ 0506 EHP1700000007

HOSTING OF WVEDSS APPLICATION EPS16-118

Submitted to:
April Battle, Buyer 22
Department of Administration
Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130
april.e.battle@wv.gov

Submitted by:

SRA International, Inc., a CSRA Company

4300 Fair Lakes Court ♦ Fairfax, Virginia 22033
Phone: (703) 803-1500 | Fax: (703) 803-1509 | Website: www.sra.com

April 25, 2017

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CSRA≣≣

April 25, 2017

April Battle, Buyer 22
Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0 I 30

Subject: Proposal Submission in reponse to Solicitation Number: CRFQ 0506
EHP1700000007 Hosting of WVEDSS Application EPS16-118

Dear Ms. Battle:

SRA International, Inc., a CSRA company (hereinafter referred to as "CSRA") is delighted to submit the following proposal on a Firm, fixed-price basis in response to the reference solicitation. Our proposal submission includes one (1) electronic copy of the following documents:

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Volume II: Business Proposal

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Should you have questions of a contractual nature, please contact me by email: Dana.Lotspeich@csra.com, by Phone: 571-249-0306 or by Fax: 703-378-3910

Sincerely,

Dana Lotspeich

Dana Lotspeich
Contracts Advisor

1 EXECUTIVE SUMMARY

CSRA, LLC is pleased to provide this Technical Proposal, prepared in response to CRFQ No. 0506 EHP1700000007, Hosting of WVEDSS Application EPS16-118. On August 31, 2015, CSC and SRA announced that they had entered into a definitive agreement to combine the business operations of Computer Sciences Corporation's government services unit, CSC Government Solutions LLC and its subsidiaries (CSGov), and SRA International, Inc., to form a new family of companies under a common, publicly traded parent company, CSRA Inc. The transaction closed on November 30, and SRA and CSGov are now operating as sister companies under CSRA. In January 2017, we launched our new brand represented by the tagline "Think Next. Now.", reflecting our focus on driving cutting-edge innovation in support of our customers' mission needs. To Think Next. Now. is to imagine a better future and deliver it today.

The merger of CSC and SRA International has resulted in a company that is a leading provider of next-generation IT solutions and professional services with over 90 years of combined experience supporting U.S. government agencies and programs. We retain the spirit of partnership in all we do—with our customers, within our brilliant teams, and through our alliances with industry-leading technology innovators.

> **AWARDED TO CSRA:**
> **THE FRANK B. ROWLETT TROPHY FOR ORGANIZATIONAL ACHIEVEMENT**
>
> The Frank B. Rowlett Trophy for Organizational Achievement is awarded annually to the U.S. Government organization recognized as making the most significant contribution to the improvement of national information systems security, operational information assurance readiness, or the defensive information operations posture of the United States.

We are a company of 18,000+ smart, talented individuals, yet we enjoy a start-up culture that inspires us to make a difference while delivering results in this rapidly evolving world. Together, we are committed to a stronger and better future for America through next-generation thinking made real today. Every day, CSRA impacts the way government serves America and its citizens through smart, future-focused information technology (IT) and professional services. Transforming government requires a technical ecosystem that is dynamic, interconnected, reliable and secure for the people who build it, who manage it and, most of all, who use it. We live that every day and are committed to our pursuit of imaginative and mission-driven outcomes. Moreover, we will bring that vision and commitment to West Virginia through enactment of the following principles.

Commitment. We deliver service excellence with a spirit of relentless determination to our customers, partners, shareholders, one another and the communities where we live and work.

Impact. We invest in and develop our people and provide opportunities to perform meaningful work that leads to valued progress and significant customer results.

Integrity. We are dedicated to principled leadership and decision-making, forthright communication, and we set the highest standards to operate honestly and ethically. We treat one another with respect and compassion and are accountable for our actions.

Imagination. We draw upon the best ideas from across CSRA and our partners to power the most ingenious thinking and deliver tomorrow's opportunities today.

Agility. We anticipate change and initiate it when our customers' missions demand it; we are agile at scale and can mobilize the enterprise to adapt as the landscape evolves.

Above all, CSRA is a bridge-builder. We bring together government IT professionals, emerging technologies and the brightest, cutting-edge advisors in the industry. Our agile teams share a startup mindset that prizes transcending the status quo to navigate today's rapidly changing technology landscape. We listen to and internalize the voice of the customer and leverage our technology expertise and our team to bring together a shared vision between private and public sector cultures. We have progressively applied lessons learned from thousands of successful programs and developed comprehensive and effective program management methodologies. That sort of excellence takes uncommon insight, but also uncommon collaboration. Together, we inspire our clients, our collaborators, and our team members to realize a better tomorrow through next-generation thinking, today.

CSRA is committed to providing the Office of Epidemiology and Prevention Services (OEPS) with the right people, processes, and management oversight needed for excellence in development and moving its NBS to a cloud environment.

2 SUMMARY OF QUALIFICATIONS

CSRA is on the front lines of the quest for improved healthcare services for U.S. citizens. By partnering with our government customers, our solutions provide critical technology that supports researchers, scientists, healthcare providers, and American families. From protecting systems and data, to ensuring that providers and researchers have secure and rapid access to the information they need to make life-saving decisions, to supporting next-generation fraud identification initiatives, our solutions affect healthcare services on many fronts. CSRA's high-performance computing environments help scientists detect disease faster, identify outbreaks sooner, accelerate vaccine and diagnostic test creation, and protect individuals from emerging disease threats. Through our work, we help to:

- Enable researchers to find a cure for cancer and other diseases,
- Ensure citizens have access to only the highest quality healthcare practitioners,
- Assist in the benefits claims processing for our nation's Veterans,
- Develop medical countermeasures to address new health threats,
- Expand disease surveillance capabilities through analytical system development,
- Ensure Medicaid payments are processed effectively and efficiently,
- Modernize and maintain the IT ecosystem that makes measuring quality in the Medicare program possible,
- Leverage artificial intelligence to accelerate and improve accuracy of fraud signal detection, and
- Utilize big data and predictive analytics to identify and fight fraud, waste and abuse.

CSRA has a solid reputation at the Centers for Disease Control and Prevention (CDC) and with its stakeholders due to our focus on value, spirit of partnership, and ability to bring together the scientific and technical expertise needed to solve our clients' most vexing problems. CSRA has been supporting CDC's program objectives for more than two decades on projects ranging from localized, community-based program evaluations to international development efforts to high-visibility, national and global scale research initiatives. We are recognized for ethics, excellent performance, attention to quality, and high client satisfaction.

As a combined company, CSRA has more than 15 years of experience managing CDC's National Electronic Disease Surveillance System (NEDSS) Base System (NBS). NBS, the application referenced in this RFQ, is an open source reference implementation of the NEDSS standards that the CDC has built to facilitate the collection, analysis, and reporting of communicable diseases. CDC deploys the NBS application in 22 states and jurisdictions. The NBS application supports approximately 5000 individual users (states, county health departments, providers), depending on how the state or jurisdiction is structured for data collection. The CSRA NBS Team has the capacity to

> **SRA BRINGS HIGHLY QUALIFIED PERSONNEL TO WEST VIRGINIA**
>
> - SRA's NBS team comprises 15 public health professionals who develop new functionality, support 22 states with their needs and respond to ad hoc CDC tasks due to unpredictable public health events (e.g., Zika).
> - Team members are respected for their public health and disease surveillance system expertise and help CDC to "do more with less" without missing deadlines and within budget.

scale up to meet surge requirements and is in an ideal position to help OEPS migrate their NBS application to the Cloud.

We have a proven track record of collaborating with our customers to solve complex information management challenges, including those experienced by the NBS. We bring innovative, effective, and low-risk solutions like the use of open source tools (Redmine, JIRA) and state of the art technology (like Amazon Web Services) to CDC and multiple NBS State Users, and a focus on achieving **Project-driven** results through engaging the most qualified **People** and using the most efficient **Processes**. Our People and Processes, when focused on the Project, combine to give OEPS, the **Best Value** through SRA as its WVEDSS hosting provider.

Project-driven. "On-time and on-budget" does not happen without disciplined, repeatable, proven project management methodologies. CSRA has consistently delivered NBS software solutions within schedule and within cost over multiple contracts with CDC and with other entities, including other NBS State partners, since 2000. This is a testament to the effectiveness of our management approach, along with our years of experience with NBS, NNDS, CDC and state user groups that differentiates us from our competitors. Our Public Health Similar Experience, described in Section 2.1 demonstrates our successful experience in managing projects of similar and even more complex size and scope.

People. Our proposed staff as presented in Appendix A are experienced and adept in the task areas outlined in the RFQ. Our nimble team, led by Michael Trettel and Jay Nelson and including Jennifer Ward and Kai Tiffany, are an established working team with unmatched institutional knowledge. We understand the needs of West Virginia NBS users and will focus our top-notch staff on achieving the results the state expects. *Because of our long experience working in the CDC NBS space, we can reduce transition risks, such as disruption in service, and create the conditions for success going forward*.

Process. CSRA brings a flexible and adaptive approach to NBS work processes that aligns with WVEDSS needs. From our customized development methodology to our SLA-driven Help Desk Support, to our customized Status and Financial Reporting capabilities, to our 'One Point of Contact' System Integrator service mentality, CSRA's processes, in combination with our informed, experienced people, assure the delivery of high-quality services. Our customized processes consistently exceed federal requirements for development and security such as those outlined in the Health and Human Services (HHS) Enterprise Performance Life Cycle (EPLC) framework, the Federal Information Security Management Act, and the Section 508 Amendment to the Rehabilitation Act of 1973.

Best Value. CSRA is conscious of the pressures on states to deliver more with less. As budgets shrink and demands increase, we understand it is imperative the WVEDSS team receive the value they expect from their contracted partner. We can assure West Virginia that all proposed staff are well qualified, having direct experience working on NBS development and deployment, facilitating the NBS Users Group (NUG), instituting, Cloud hosting and interfacing with the CDC. Our personnel also have experience in stakeholder engagement, requirements gathering, development processes,

implementation execution, and customer support responses. ***Given the extent of our staff experience supporting WVEDSS as the NBS Contractor and our relationships with WVEDSS staff, we are able to offer OEPS a price (as outlined in the Business Proposal) that is both realistic and competitive, making CSRA the 'best value' versus a junior, inexperienced group that offers little more than lower costs.***

2.1 PAST PERFORMANCE/SIMILAR TECHNOLOGY

Over the past decade, application portfolio growth has grown by leaps and bounds across federal agencies, especially in public health, due to a number of factors, including increased efficiency in application development and availability of technology resources. Maintenance of such large portfolios of applications and data, however, has begun to take its toll on IT budgets, with more than two-thirds of federal IT budgets dedicated to O&M of existing applications. At the same time, the advent of the cloud has created a new, more efficient application delivery and maintenance paradigm. CSRA's cloud migration approach is a set of capabilities, including workload discovery, cloud adoption assessment, migration planning, migration treatments, and integration with Enterprise Digital Service Management (EDSM) to aid customers in reducing risk through assessing existing and future workloads, determining suitability for migrating to the cloud, and utilizing the benefits of the cloud efficiently and securely with minimal disruptions.

CSRA also works with states and private entities. SRA developed and deployed the WCI Compliance Instrument Tracking System Service (CITSS)—the world's second largest emissions trading scheme. This program plays a central role in economy-wide greenhouse gas (GHG) reduction targets for California and Quebec, and Ontario starting in 2017. Similar to the request by West Virginia to convert on premises solutions to provide a flexible and scalable solution, and reduce operating costs, CSRA deployed the CITSS production environment on the Amazon Web Services (AWS) public cloud in 2012. With a long lead-time and up-front specification, procurement,

> **BENEFITS OF CSRA'S CLOUD SOLUTION**
> - Reduced time to provision resources to a couple of hours through automated provisioning capabilities.
> - Supports agility by making it easy to try different configurations at low cost to continually improve approach.
> - Capitalized on AWS's encryption and security to provide a safer hosting environment
> - Enables reporting, tracking, measuring, and managing of service related operations
> - Efficiency gained complements the environmental goals of the application by reducing infrastructure footprint

and contractual commitment requirements, the customer needed a flexible, interim solution with option to migrate to another solution or to retain and build our existing solution. With a time constraint of 30 days to configure and deploy initial application version, WCI sought environmentally friendly solution.

The CITSS hosting environment is designed to provide the typical features of a traditional hosting environment—security, availability, functionality, and recoverability—but with greater agility and at much lower operating and maintenance costs. CSRA met the design goals by implementing a highly automated cloud-based architecture utilizing infrastructure-as-a-service (IaaS) offerings from Amazon supplemented by software-as-a-service (SaaS) offerings AlertLogic (security

monitoring), New Relic (performance monitoring) LogEntries (log management), Pingdom (availability monitoring) to fill additional needs.

2.2 PUBLIC HEALTH SIMILAR EXPERIENCE

2.2.1 NATIONAL ELECTRONIC DISEASE SURVEILLANCE SYSTEM (NEDSS) BASE SYSTEM (NBS) SUPPORT

CSRA provides ongoing development, maintenance, and support of CDC's NBS, and introduces new and innovative ideas into the program. Innovation also helps prepare NBS for the future, such as with cloud capabilities that may be required by the National Notifiable Diseases Surveillance System (NNDSS) Modernization Initiative (NMI), and to spur additional interest by public health agencies to use NBS over manual methods and System Replacement Objectives. The NBS project demonstrates our proficiency in providing operations and maintenance, system support, standard message and vocabulary technical assistance for systems integration, capacity for surge support, and project management services in support of a CDC client.

2.2.2 APPLICATION SERVICE PROVIDER (ASP) HOSTING FOR NBS APPLICATION

Over an 8-year period, CSRA provided Application Service Provider (ASP) hosting and professional support services for the states of Rhode Island, Wyoming, and Montana. CSRA supported the initial implementation of the NBS for all three of these partners. Once the NBS was implemented in each state, CSRA conducted both 'run and maintain' support for daily operations, as well as other professional services such as Electronic Lab Reporting (ELR) on-boarding, and Page Builder development. In addition to these ASP hosted environments, CSRA also supports the State of Nevada through a professional services contract providing expertise in ELR management, Rhapsody usage and HIE interface support.

2.2.3 INTEGRATED SURVEILLANCE SYSTEMS (ISS) DEVELOPMENT, MODERNIZATION, AND ENHANCEMENT (DME)

CSRA provides development, modernization, and enhancement (DME) of the Integrated Surveillance Systems (ISS) of the Division of Health Informatics and Surveillance (DHIS) at CDC. SRA's responsibilities include stabilizing and securing the current operating environment; establishing and/or formalizing documented processes for operations and support; establishing a deployment process that allows agile, incremental system updates; performing an architectural review, establishing business and system architectural goals; and establishing a process to review changes and a process to allow the architecture to evolve as business needs change. This project demonstrates our capabilities in providing software development; software delivery and acceptance; quality assurance (QA); software deployment; enterprise architecture compliance; Department of Health and Human Services (HHS) Enterprise Performance Life Cycle (EPLC) compliance; application documentation; system security support; and emergency response software development, web design, and training in support of EpiInfo™.

3   TECHNICAL APPROACH TO MEETING THE REQUIREMENTS

CSRA will provide West Virginia's OEPS a state of the art, secure, reliable cloud environment for use with its WVEDSS. We will use Amazon Web Services (AWS) to provide the multi-tier (Test, Staging and Production) environments requested in the RFP. As the NBS prime contractor over the last 15+ years, CSRA is well aware of the configuration requirements for the NBS, and will ensure that the architecture created for West Virginia will maximize the efficient utilization of the NBS.

3.1.1   AWS ENVIRONMENT

As part of the NEDSS, the NBS continues to evolve to meet ever-changing disease reporting and tracking needs of government agencies, healthcare providers, and standards entities that make up the broad NBS user community (NUG). States are charged with reporting local incidence of nationally reportable conditions directly to the CDC electronically. The NBS, as the CDC's reference implementation of the NEDSS, does this effectively and offers jurisdictions tools and functions necessary to manage those local incidences. By implementing a cloud-based application service provider (ASP) solution to address its disease reporting needs, West Virginia

> **CSRA CLOUD SERVICES SOLUTION PROVIDES HIGH SECURITY AND PERFORMANCE FOR LOC**
>
> ♦ Our NBS cloud solution exists today and is FedRAMP High compliant.
> ♦ Our Technical Support approach is based upon 15 years of NBS support experience that provide quality, repeatable, and continuously improving services to Qwest Virginia.
> ♦ Our solutions fully integrate end-to-end FIPS 140-2 encryption to protect sensitive WVEDSS information.

will be assured of meeting its national reporting obligations, effectively managing its local cases, and efficiently and cost-effectively maintaining its NBS implementation, which is key to its surveillance success. CSRA recognizes the ever-increasing pressure states are under to meet increasing business demands with declining resources. ***Moving to the CSRA NBS AWS Cloud Hosting Solution will allow West Virginia to be on the leading edge of surveillance by ensuring that the AWS WVEDSS supports all federal regulations, state standards, and security policies; increase productivity and streamline business processes at the state administrative and local levels through improved data handling. Our hosting solution will improve IT services by taking care of all technical upgrades and/or patches, providing 24/7 technical support, while allowing West Virginia public health professionals to focus on disease surveillance.***

Successfully transforming WVEDSS requires engagement with a proven Federal Risk and Authorization Management Program (FedRAMP)-compliant Cloud Service Provider (CSP) and an experienced cloud broker with a track record of successful cloud migrations. CSRA provides a solution and implementation approach that provides both FedRAMP High compliant cloud services as well as deep experience in the support of the NBS. CSRA brings an entire team of resources with hundreds of years of experience in hosted solutions, including eight years hosting the NBS in particular.

3.1.2   COMPUTING PLATFORM

CSRA has architected a multi-tier solution for West Virginia that capitalizes on our experience and expertise with Amazon Web Services (AWS), along with our deep knowledge and experience designing, developing and supporting the NBS. We have worked closely with our corporate technology support office, as well as directly with

AWS support staff to ensure that the proposed architecture capitalizes on the FedRamp certified requirements as well as additional State Security Requirements. **Figure 1** illustrates a conceptual hosting model for the State of West Virginia NBS Production Environment and this model will be mirrored in each of the non-production environments as well.
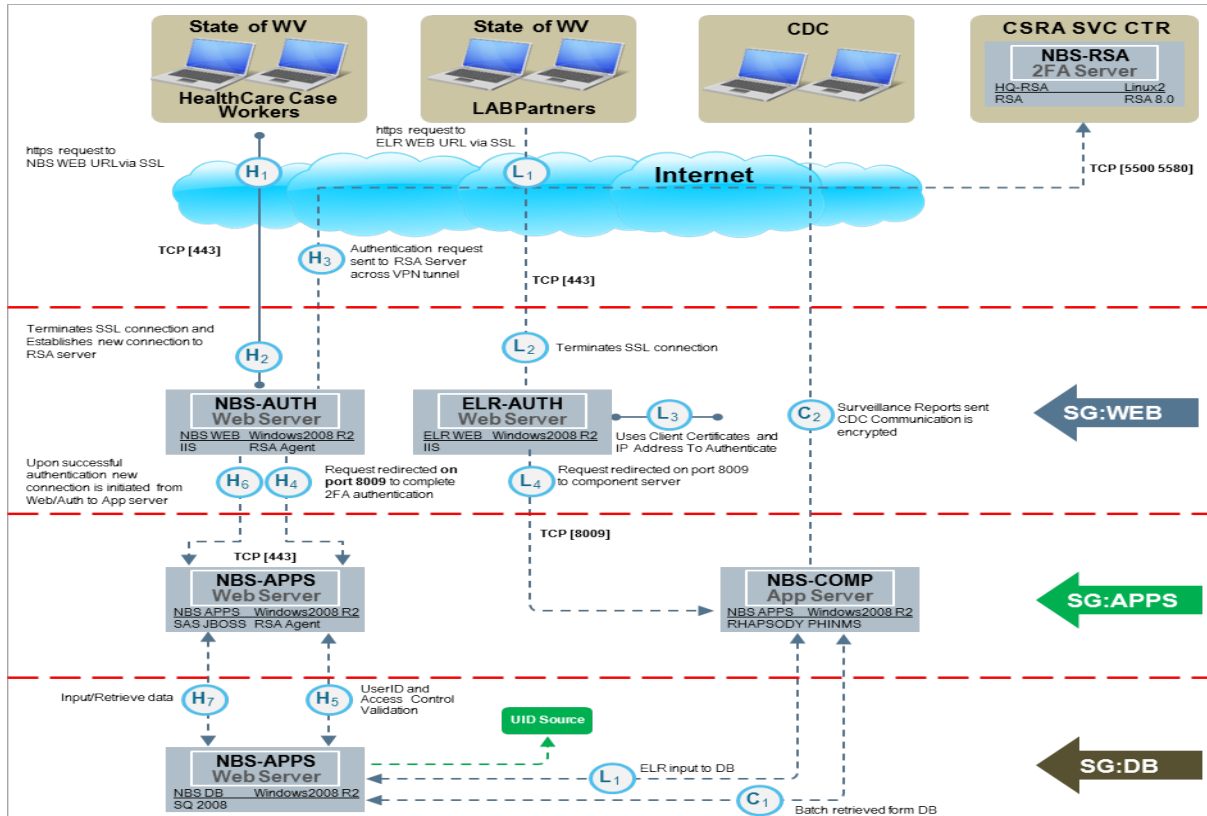
Figure 1: CSRA's proposed architecture capitalizes on the FedRamp certified requirements as well as any additional state needs

Figure 1 shows the two primary data flows involved in the NBS, data entry by health case workers (H1) and Electronic Lab Reporting (ELR) from lab partners (L1). The SG: Web layer indicates where user authentication occurs (H4 and H6), using the requested RSA solution (H3) for health case workers. Also in this layer, the electronic lab partners are authenticated via private/public key digital certificates (L3). Once authenticated user connections are re-directed to the NBS application. The application layer hosts the NBS application server, the SAS software, the Rhapsody software, ELR partners authenticate through the web proxy allowing the sending system to deliver the electronic message payloads where they can be consumed by the NBS. The final layer of the NBS architecture is the database layer where user roles and permissions are granted (H5). Additionally, the database layer manages data input, storage, and retrieval of data (H7).
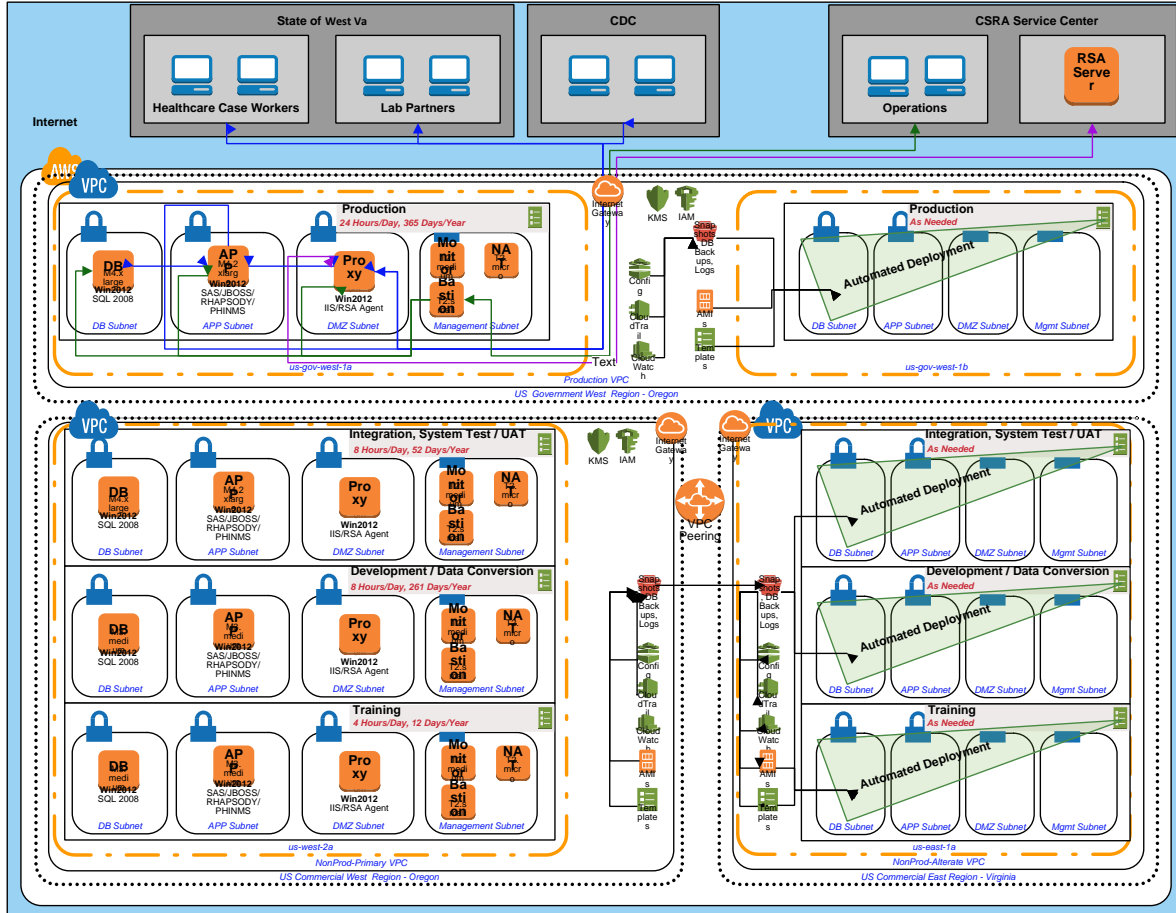
Figure 2: CSRA architected a highly secure NBS model

While **Figure 1** is a logical depiction of the NBS architecture, **Figure 2** is a more detailed presentation of the multi-tier environment created in AWS. We have architected a highly secure model with the West Virginia NBS production environment configured in the AWS GovCloud, with the non-production environments established in the AWS Commercial Cloud. **Figure 3** provides details about the configuration displayed in **Figure 2**, and maps to standards provided by the CDC NBS Team, indicating the size of the servers, the software included and the purpose of the servers in each environment.

ENVIRONMENT	SECURITY GROUP	COMPONENTS	CONFIGURATION	DESCRIPTION
APP	SG: Apps	PHINMS, Rhapsody, SAS, NBS	4-cores running at 2.0 GHz or higher, 32gb RAM, 60Gb	Reporting, Visualization, NBS Core Services, Message Transformation
DB	SG: DB	SQL	4-cores running at 2.0 GHz or higher, 16 GB RAM, 250gb	Data storage, Data backup, DR, COOP
PROXY	SG: Web	IIS, RSA	2 cores, 4gb, 15 GB disc	User authentication, ELR Sender authentication
Infrastructure (NAT, Bastion)	SG: Apps	RAID	Hardware RAID	Security,

ENVIRONMENT	SECURITY GROUP	COMPONENTS	CONFIGURATION	DESCRIPTION
			controller with cache	performance, Health monitoring

Figure 3: Software and hardware configuration in AWS

3.1.3 SECURITY STANDARDS

CSRA will provide a complete end-to-end framework of standards, processes and tools that identify, manage, and report IT security risk and assure compliance for the WVEDSS cloud. Our staff bring the highest level of expertise and assurance providing 1) services that identify, monitor, counter, and protect cloud services, 2) a flexible, tiered strategy as threat and security posture require, and 3) continuous monitoring to meet regulatory compliance mandates (e.g. FISMA, NIST).

LC52.239-3, FedRAMP, NIST and other national and international standards certifications establish our base compliance framework to applicable laws for data privacy and security. Established cybersecurity governance models, policies and controls are in place and, per NIST guidance, are inherited by each cloud tenant. As systems are integrated into the West Virginia NBS cloud infrastructure, compliance responsibilities are directly incorporated in project planning, execution, and delivery assurance. By tying together governance-focused, audit-friendly features with applicable federal compliance or audit standards, compliance is built to the standards of our cloud integrations from planning through delivery. Our governance-based approach helps WVEDSS to establish and operate business applications in secure, compliant and auditable control environments.

CSRA meets physical and information system security (ISS) requirements by providing a low risk, highly resilient, flexible, FedRAMP and NIST compliance architecture. We use a layered security governance process assuring we meet client governance and administration specific policies and orders with special attention to the physical and logical separation required by the OEPS. We will work with OEPS and their application owners to provide a cohesive foundation of continuous monitoring; incident response, disaster recovery and continuity of operations plan for high availability, integrity and confidentiality of OEPS data and information.
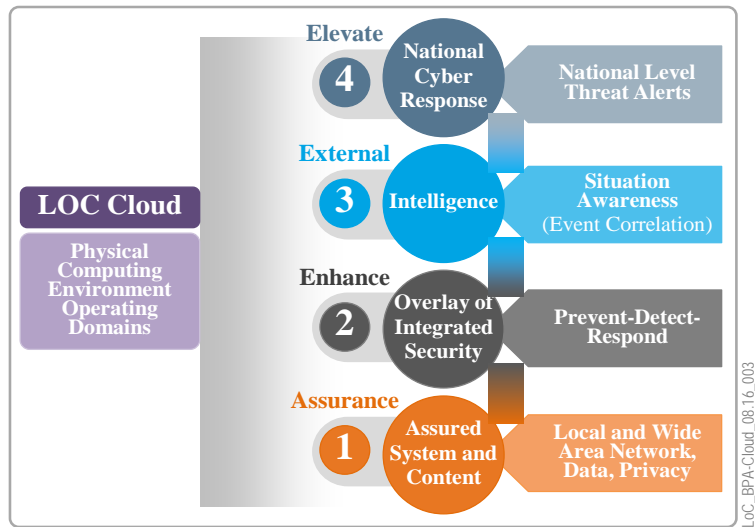
Figure 4: CSRA's layered security model is applied to the NBS cloud architecture to provide low-risk security management and posture.

Our Security Team follows a layered security model (stack) as a means to visualize the complexity of cybersecurity challenges. **Figure 4** shows a "security stack" that serves to

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illustrate the proposition that security is a combination of people, process, and technology. We apply a layered security model to the cloud operating domains thus assuring the completeness of the security solution. The cybersecurity blueprint is an integral part of this ecosystem in which the complete set of architectures is made secure and sustainable by design. Security of the WVEDSS cloud computing environments and data is a foremost concern to CSRA.

CSRA will comply with security measures for encryption as needed by the State of West Virginia. Example encryption techniques are as follows:

Server-Side Encryption. Amazon S3 has the capability to encrypt objects before saving it on disks in its data centers and decrypt it when the objects are downloaded.

Client-Side Encryption. The data on the client-side can be encrypted and uploaded to Amazon S3. CSRA will manage the encryption process, the encryption keys, and related tools. With the

> **FEDRAMP ACCREDITATION**
> ♦ CSRA is one of only three cloud service providers to receive the highest cloud services security accreditation, known as the Federal Risk Authorization Management Program (FedRAMP) High Baseline.
> ♦ Achieveing this distinguished certification demonstrates our commitment to providing highly secure cloud services and significantly strengthens the offerings we present to our government customers.

CSRA AWS solution, the State of West Virginia has access to an in-built recording and detection mechanism using AWS CloudTrail. AWS CloudTrail records user API activity on the cloud account and allows us to access information about this activity. Details about API actions, such as identity of the caller, the time of the API call, the request parameters, and the response elements returned by the AWS service. AWS Configuration records point-in-time configuration details for your AWS resources as Configuration Items (CIs). We can use a CI to answer, "What did my AWS resource look like?" at a point in time. We can use AWS CloudTrail to answer, "Who made an API call to modify this resource?" For example, we can use the AWS Management Console for AWS Configuration to detect security group "Production-DB" was incorrectly configured in the past. Using the integrated AWS CloudTrail information, we can pinpoint which user misconfigured "Production-DB" security group.

3.2   NBS SUPPORT REQUIREMENTS

CSRA has reviewed Section 4 of the RFQ and understands each of the individual deliverable requests, and will utilize its years of experience designing, developing, deploying and hosting the NBS to provide West Virginia unparalleled support for each of the requests.

CSRA understands the importance of user acceptance and satisfaction in successful utilization of any IT system. The NBS is no exception. CSRA will provide help desk services and user support through the current NBS Help Desk process, which utilizes an on-line tool, NBS Central, providing 24/7 access for raising issues and detailing them for appropriate and prompt responses. This system also provides Frequently Asked Questions (FAQ) sections, and a complete NBS Support Documentation library. We will create a separate West Virginia section inside the tool and will provide active management of the Help System *(Monday – Friday, 7:30am – 5:30pm EST)*. In the event that an issue occurs and is reported outside of business hours, the support team will

ensure prompt responses are provided the following business day. In addition to the on-line support access provided by NBS Central, our key support team can be reached via email and phone during normal business hours. Our team includes current NBS team members who are not only familiar with the NBS, but more specifically have supported West Virginia WVEDSS over the last ten years. In addition, if any help desk support issues indicate a need for further NBS training, our team will work with WVEDSS staff to identify the need, and organize additional NBS training.

Figure 5 shows an example of the NBS Central Support Desk for our current Services account with West Virginia.
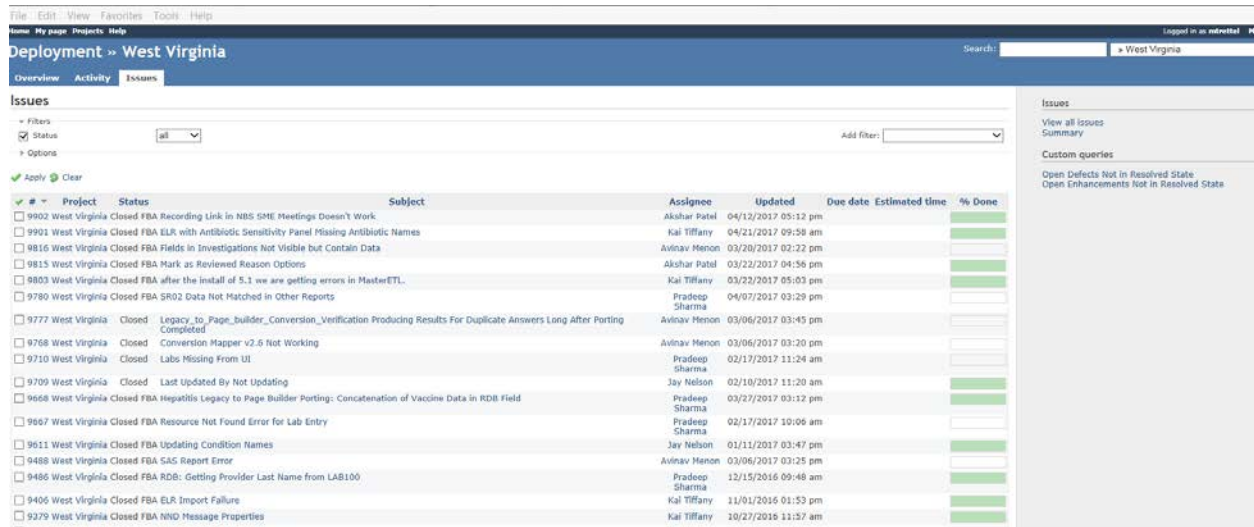
Figure 5: NBS Central Help Desk

3.3 DELIVERABLES

CSRA provides below a summary of the deliverables requested within the RFQ, specifically Section 4. As noted in the Staffing and Management Section of our response, we recommend a Kickoff Meeting as the initial Deliverable to ensure all parties begin the Project with solid expectations. **Figure 6** provides a list of the measurable deliverables CSRA will provide to West Virginia, along with the timing and delivery method of each.

DELIVERABLE/ ACTIVITY	DESCRIPTION	FORMAT	TIMING
Kickoff Meeting	CSRA will logon to the NBS each day and ensure that all batch services have executed successfully during the scheduled runs. We will also validate that the authentication server is up and running, and confirm that Wildfly services are 'on' so that users can access the NBS.	Meeting	One time, First week of Project
Initial Configuration of Cloud Hosting	Design, development and deployment of hardware and software components of three environments in Amazon Web Services cloud (AWS)	Architecture diagrams, configured environments	First two weeks
Migration of Current WVEDSS to AWS Cloud	Migration of all current WVEDSS data from current environments to sister environments in AWS	Fully configured NBS environments	First two weeks
Daily	Create, execute and monitor all daily processes including	Daily technical	Daily, 530am -

Deliverable/ Activity	Description	Format	Timing
Maintenance	batch jobs (MasterETL, Deduplication, etc.).	support	800am EST
Current ELR and Messaging Support	Execute and monitor the current ELR processes in WVEDSS	Inbound ELR messages delivered to proper user queues	Daily, 530am - 800am EST
Backups and Recovery	Ensure proper daily, weekly and monthly backups are taken and stored as per RFQ. Confirm full disaster recovery (DR) is configured utilizing AWS GovCloud.	DR and COOP documentation	Daily, weekly, monthly
Application Security and Authentication	Develop a secure multifactor authentication mechanism for user access to the NBS	RSA tokens and authentication mechanism	Ongoing
NBS and supporting Software Upgrades	Provide scheduled and unscheduled upgrades for NBS, Rhapsody, SAS etc.	Upgraded software in AWS	As identified and agreed upon through Change Management
Tier 1 and Tier 2 Help Desk Ticketing and Support System	Provide NBS Central database for West Virginia specific support requests	Ticketing system, ongoing status reports	Daily, 730am - 500pm EST
Network Monitoring and Support	Provide 24/7/365 monitoring and support for AWS configuration	Effective, efficient NBS environment	Ongoing, 24/7/365
Support ELR Partners	Per West Virginia identification will provide support to new ELR partners	Emails, Documentation, WebEx, Validation testing	As requested.
Support Page Builder Development	Per West Virginia, identification will provide support and guidance for establishing page builder development for new pages and questions.	Documentation, Completed Pages/Questions	As requested. Support assumes that data elements for each Page are properly defined per Message Guides and CDC expectations.
Provide Report View Development	Per RFP, will provide support for up to 5 new Views each year	Updated Customized Reports	As requested
Provide interface for West Virginia with CDC and other Public Health Partners	Will communicate on behalf, or with, West Virginia with CDC, APHL and other public health parties	Emails, documentation, WebEx	As requested
Project Manager Support and Status Reporting	Will provide ongoing project manager support for ensuring proper communication, reporting and support	Status Reports, Weekly calls,	Ongoing

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Deliverable/ Activity	Description	Format	Timing
		POC	
Provide interface for end users and outside software systems		Emails, documentation, WebEx	As requested
Weekly Reports	Will provide weekly updates on 'project' based NBS Central tickets and issues.	Word Document	Weekly, Mondays
Monthly Reports	Will provide Monthly reports including this month's accomplishments, next month's plans and any upcoming issues or projects (e.g. new release schedules)	Word Document	Monthly, 10th of month
Knowledge Transfer/Sharing	Will provide complete documentation and knowledge sharing with key West Virginia personnel as needed for knowledge transfer during, or after project expiration	Documentation, WebEx, Troubleshooting Guides	End of Project

Figure 6: Deliverables

4 STAFFING AND MANAGEMENT PLAN

CSRA will provide our most distinguishing differentiator to West Virginia, OUR PEOPLE. CSRA provides West Virginia, and other state partners, an unmatched pool of resources to not only support the operations and maintenance of the current WVEDSS, but the expertise in disease surveillance, cloud systems, HL7 and other public health areas to ensure West Virginia becomes a leader in NEDSS across the country.

4.1 STAFFING MATRIX

All team members listed in this Staffing Matrix are current CSRA employees, or current CSRA subcontractors. As the needs of the program change, we will review these key positions with West Virginia and jointly reassess if any additions or deletions to personnel are necessary. **Figure 7** contains a staffing matrix of the positions that may be called upon to support the West Virginia NBS Program. We indicate in this table the named

> **TEAM CSRA**
> ♦ CSRA has seven team members who have over 10 years of NBS experience in all aspects of the SDLC from Requirements through Deployment and Hosting Support.
> ♦ Team member Jennifer Ward has served in a State Public Health Department (Tennessee) and as CDC NBS Lead.

resource and labor category in column 1, the relevant qualifications and experience in columns 2-4. Team CSRA is proud to present these team members with their excellent qualifications. CSRA has assembled an incredible team of public health informatics specialists with experience with NBS as far back as 2001. Our team consists of 10 key personnel with NBS experience, including subject matter experts (SMEs) with experience in HL7, epidemiology, experience using the NBS in state public health departments, expertise in Orion Rhapsody and over 100 years of combined experience supporting the NBS. The Staffing Matrix in Appendix A includes a detailed description of each team member's qualifications.

Roles and Resources	Education	Experience (avg yrs)	
		NBS	Total
Project Manager, Michael Trettel	MBA	10	25
Public Health Analyst (Training), Hugh Kelsey	BA, MPA	10	40
NBS Support, Azam Chishti	BS	12	15
Public Health Analyst, Jennifer Ward	MS	10	25
Public Health Analyst, Christi Hildebrandt	BS	10	15
Public Health Analyst, Jay Nelson	*BS*	12	25
IT Specialist, Kai Tiffany	*TBD*	*10*	30
IT Specialist, Jit Gil	BS	14	14
Help Desk Support, Avinav Manov	BS	2	10

Figure 7: CSRA's proposed staff

In summary, CSRA is presenting the most complete team to West Virginia for this engagement. With over 100 combined years on NBS experience, we provide the deepest, most complete team to allow West Virginia to focus on disease surveillance. We are excited about the opportunity to expand our current support role as NBS contractor in West Virginia, and would hope this partnership will be seen by other states as a great way to do business as we continue to exceed the expectations of the CDC Program and the NBS State partners.

4.2 CSRA PROJECT MANAGEMENT

CSRA understands that West Virginia is looking for the awardee to provide planning and project management to the transition and implementation of the NBS system from its on premise environment to a cloud environment that will meet or exceed Federal and State regulations.

CSRA provides technology and management solutions to State and Federal Government customers in the Health, Civilian, and Defense markets. Our employees tackle difficult challenges on programs of national significance, consistently demonstrating outstanding value to each of our customers. The breadth of our experience covers enterprise systems integration; cloud and modernization capabilities; mobility and collaboration; strategy and enterprise architecture; informatics; and, IT service management. Agencies trust CSRA with mission-critical modernization and transformation initiatives, such as moving a state's core surveillance system to a cloud solution.

CSRA provides industry leading process improvement projects following Project Management Institute (PMI) best practices, and our own CMMI Level 3 processes. Based on our customers' feedback, we continually exceed their expectations and provide a lasting foundation of proven, repeatable solutions. Our local NBS team, for example, has well over 100 years of combined NBS and application hosting experience, which CSRA will apply to exceed West Virginia's expectations. Specific to the scope of work in this RFP, CSRA, as an organization, has over 15 years of experience developing, maintaining and supporting the NBS for the CDC, including more than eight years providing application hosting for three of the current NBS state partners.

We will work closely with the West Virginia team to transition the on-premises system to an AWS cloud solution starting with a Project Kickoff Meeting after award.

4.2.1.1 KICKOFF MEETING

As discussed in detail below, CSRA believes strongly in the value of kickoff meetings to initiate work on a Project and to ensure alignment and foster communication from the very beginning. Within ten business days of the task award date, CSRA will participate with West Virginia NBS Program in a kickoff meeting to review task order goals and objectives. Topics for discussion during the kickoff meeting will include establishing the deliverable review process; scheduling project status meetings; determining the scope of project status reports; introducing the Project Plan schedule; confirming communication and reporting relationships; validating the project mission; identifying high-risk areas; and defining an issue resolution process. CSRA believes this meeting is a vital first step in ensuring successful communication throughout the life of the program, from the initial implementation and migration through the daily operations and maintenance. While we recognize the schedules of key personnel can be prohibitively full, significant long-term

value can be derived from a face-to-face meeting for the initial Kickoff, especially given the long distance nature of the relationship. Frequent, open and transparent communication across the Project is the most important factor in successful implementation. Once a working relationship has been initiated in the face-to-face meeting, follow-up meetings can easily be done via conference call or webinar.

4.2.1.2 PROJECT PLAN

As discussed in earlier sections, CSRA prides itself on its commitment to following our PMI based project management approach, which is based on our experience performing on projects of national significance, including projects with CDC for disease surveillance and application support. We will apply our established methodologies and fully integrated processes to ensure the project follows proven project management practices. CSRA will work with OEPS to identify all tasks, activities, durations, sequencing and dependencies to create a Work Breakdown Structure (WBS) for each line of work, and will develop a Microsoft Project Plan (MS Plan) based on that WBS. See **Figure 8** for our sample WBS in our Project Management Plan Methodology. However, while we will ensure that we follow all of our processes, we will not allow process to interfere with execution and delivery.

As mentioned, CSRA will follow the Project Management Methodology developing and maintaining a WBS in Microsoft Project (MS Plan) which will be used to help define the completion date of each task and each milestone. The MS Plan will also include resource assignments for each team member (State and CSRA) involved in performing the assigned work. Our Project Manager (PM) will use this project plan during the project's life cycle, modifying the schedule to address new requirements, mitigate risks, and so forth. This Project Plan can also be used to support any value based management reports, as necessary.

WBS	Activity	Duration
1	Initiation	
1.1	Kickoff Meeting	0.25
1	Initiation	
1.1	Kickoff Meeting	0.25
2	Planning	
2.1	Project Plan	0.5
2.2	Meetings	
2.3	Status Reports	
2.4	Communication Plan	0.5
2.5	Risk Plan	0.5
2.6	Quality Assurance Plan	0.5
2.7	Change Management Plan	0.5
2.8	Knowledge Transfer Plan	0.5
3	Execution	

3.1	Evaluate Current West Virginia NBS System	16
3.2	Establish multi-tier AWS Environment(s)	12
3.3	Establish MultiFactor Authentication	16
3.4	Establish Monitoring	12
3.5	Establish Interfaces to Public Health Partners	60
3.6	West Virginia AWS NBS Environment	
3.6.1	Backup Current NBS	2
3.6.2	Create NBS 5.0 in Cloud	8
3.6.3	Copy Current NBS DBs to Cloud	2
3.6.4	Validate MultiFactor Access with Users	1
3.6.5	Validate incoming ELR Feeds	4
3.6.6	Perform additional State Customizations	2
3.6.7	Create Test Plans	4
3.6.8	Execute Test Plans	6
3.7	Provide Training	2
3.8	Create Help Desk	2
3.9	Repeat in Environment 2 (Integration, Development, Training)	4

Figure 8: Sample Work Breakdown Structure

4.2.1.3 PROJECT MEETINGS

As mentioned in Section 4.2.1.1 Kickoff Meetings, the key aspect of a successful project is communication. With that in mind, CSRA will work with OEPS to establish a meeting and reporting schedule that will facilitate frequent communication throughout the project life cycle. In addition to planned meetings, CSRA will accommodate ad-hoc meeting requests by WVEDSS team members as well to address any questions or concerns that arise between scheduled meetings. CSRA is the only partner capable of bringing the current NBS Support Team to the meetings as necessary to ensure each activity and milestone is addressed. During the Implementation Phase, these meetings are likely to be more frequent due to the 'project' nature of that phase. During the run and maintain/operations support phase the meetings may be less frequent as the day to day operations may require less scheduling and coordination. These meetings will follow a mutually agreed upon agenda utilizing some or all of the following criteria:

- Review and approval of previous meeting minutes,
- Contractor project status,
- State project status,
- Contract status and issues, including resolutions,
- Quality Assurance status,
- New action items,
- Outstanding action items, including resolutions,
- Setting of next meeting date, and

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■ Other business.

Each meeting will result in the development of meeting minutes, which will include a summary of the key discussion topics as listed in the agenda. CSRA will provide these minutes no later than the following business day.

4.2.1.4 PROJECT STATUS REPORTS

In addition to frequent meetings and their attendant communication documents, CSRA recognizes the importance of regular written status reports to ensure that project sponsors can be kept up to date with each milestone during project performance. Status Reports are also quite valuable amongst project members to ensure that the progress towards final implementation is agreed upon, and next steps and adherence to project schedule is maximized. The CSRA project management team will submit bi-monthly Project Status Reports on the 5th and 20th of each month. The bi-monthly reports will include, but are not limited to:

■ Overall Project Status: Schedule, deliverables, etc.
■ Current Period Accomplishments
■ Problems encountered and proposed/actual resolutions
■ Next Period Activities Plan
■ Open Issues
■ Quality Assurance status
■ Updated MS Project time line % completed, tasks assigned, completed and remaining
■ Identification of schedule slippage and strategy for resolution
■ Contractor staff assigned and their location/schedule
■ State resources required for activities during the next time period
■ Resource allocation percentages including planned versus actual by project milestone

CSRA may also offer specific dashboard reports and other ad hoc reporting to ensure OEPS leadership has necessary views into the status of its investment.

4.2.1.5 COMMUNICATIONS

As part of our overall Management Approach and to be compliant with PMI standards, CSRA will create a formal Communication Plan to ensure productive relationships with all concerned stakeholders. The Communication Plan is a part of the overall Project Management Plan and will include identifying which project stakeholders will receive the communication (audience), type of information provided (Status, Decision Requests, Change Requests, etc.), communication methods (status reports, meetings, documentation formats), communication frequency (weekly, bi-monthly, etc.), communication 'owner' (who is responsible for the communication). The Communication Plan will also include important information about generation, documentation, storage, transmission, and disposal of project information.

Figure 9 defines the timing, format, and description of some of the formal communication that will occur amongst the Project members during execution that will help ensure the Project is delivered on time and within budget.

Report Deliverable	Format	Method	Description
Daily Stand Up	Scrum Format	Phone Call	Discuss yesterday's activities and today's schedule. Quick review of project impact. (Only during initial configuration and migration phase)
Weekly Meeting	Scrum Format	Phone Call	Review of past week's activities and current week's plan. Summary review of open issues from daily calls.
Bi-weekly Meeting	Formal Agenda	Phone Call	Formal call reviewing MS Project schedule and open issues
Monthly Technical Progress Report	Word Document	Email	Project-based status report: Development Progress, Production Support Tracking Progress, State Customizations, ELR Adoption Progress
Issues Management Report	NBS Central	Email	Tracking of expected technical progress versus actual progress
Invoice	PDF	Email	Billing information, per the requirements outlined by CDC
Status Report Minutes	Word	Email	Details of any meetings and decisions

Figure 9: Report Deliverables

4.2.1.6 RISK MANAGEMENT

CSRA is aware that no project is without risk. As part of our overall Project Management Approach, we will work closely with OEPS to identify any initial areas of concern, and develop a Risk Register to record the risk, mitigation strategies and track results of our mitigation. **Figure 10**, Risk Register provides two examples of Risks that may be faced in an integration and migration project, and how CSRA will help mitigate those risks. In addition, our organizational structure is built upon engagement with local leadership to promptly address West Virginia's needs, to mitigate risks, and to provide flexibility to meet evolving WVEDSS requirements. CSRA's management and technical teams include highly experienced staff who know and have supported Public Health programs from a variety of perspectives, including over 15 years supporting the NBS, of which West Virginia has been a part since 2011. Our experience hosting the NBS for Rhode Island, Wyoming and Montana, uniquely enables CSRA to provide an extraordinarily low-risk transition that is virtually seamless to WVEDSS users and the NBS stakeholder communities.

RISK	INITIAL RISK	CSRA INVESTMENTS IN AVOIDANCE AND MITIGATION	RESIDUAL RISK
Delivering highly qualified staff on Day 1 to ensure no disruption in support	Critical	All key positions on the team are fully staffed. Key personnel have first-hand experience both working on NBS and in successfully transitioning NBS. We propose four key personnel and four other staff with NBS experience.	None
MultiFactor Authentication (RSA)	Critical	CSRA has a long established relationship with RSA, specifically the utilization of tokens in support of the NBS in Rhode Island, Montana, Wyoming.	

Figure 10: Risk Register

CSRA will work closely with OEPS on an on-going basis to continually monitor performance while staying alert for both internal and external influences that could affect project success.

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4.2.1.7 QUALITY ASSURANCE

West Virginia's level of customer satisfaction with the NBS Cloud solution will be directly proportional to the quality of the final product and the communication and support with which it is delivered. CSRA has planned, designed, and built quality into all of our processes. We use an integrated quality assurance (QA) approach*, which is a series of processes used to monitor and evaluate adherence to requirements, and standards reflected in product and service quality throughout all phases of our projects, not simply focused on 'quality control' at the end of development. CSRA will create high-quality documentation, materials, and procedures to assist West Virginia in its implementation, maintenance, and support of the NBS.

We will utilize appropriate supporting processes and procedures (such as MS Project, JIRA, AWS backups, etc.) to meet and, it is to be hoped, exceed OEPS expectations. Our experience supporting CDC's NBS for 15 years as well as our extensive overall public health and IT experience will ensure that we complete the transition to a cloud-hosted environment within budget and within agreed upon timelines.

4.2.1.8 CHANGE MANAGEMENT AND CONTROL PROCEDURES

West Virginia should be assured that CSRA recognizes that change is expected in most project situations. To that end, we will introduce a Change Management Plan as part of the overall Project Management Plan, which will be used by CSRA and the State to monitor Project progress, and identify alternative courses of action to be considered when requirements are updated, for example. CSRA will work with State Project Leads to review change management requests via Change Control Board meetings. These meetings will be scheduled on a regular basis to ensure requests are evaluated and prioritized for inclusion in the upcoming delivery period. Once the delivery period schedule is confirmed, we will update our Change Control Log (NBS Central/Redmine) and begin tracking the new request in the Project Plan and Status Reports. Additionally, should West Virginia identify any application level change requests, CSRA will work closely with CDC and the NBS Community to ensure those requests are well documented and considered for inclusion in upcoming release cycles.

Appendix A - STAFFING MATRIX

We indicate in this table the named resource and labor category in Column 1 and relevant qualifications and experience in columns 2-5.

Roles and Resources (All personnel at 100% LOE for base year except as noted)	Relevant Certifications, Skills, and Qualifications (All personnel have NACI clearance)	Educ	Experience (avg yrs)	
			NBS	Total
Project Manager Michael Trettel	♦ Recognition of government-wide and agency-specific investment management requirements, acquisition policies, and program management strategies that support assigned missions and functions; understand how to manage risk; understanding of the many factors that influence cost, schedule, and performance; attention to lessons learned; understanding of metrics needed to manage programs and projects that deliver quality, affordable, supportable, and effective systems/products. ♦ Specifically includes recognition of: Requirements Development Process, Technology Development Process, Core Management Skills & Processes, Risk & Opportunity Management, Communications Management, Working Groups and Teams. Five years or more experience with Program Management. PMP/PgMp certifications proffered.	MBA	10	25
Public Health Analyst (Training) Hugh Kelsey	♦ Recognition of government-wide and agency-specific investment management requirements, acquisition policies, and program management strategies that support assigned missions and functions; understand how to manage risk; understanding of the many factors that influence cost, schedule, and performance; attention to lessons learned; understanding of metrics needed to manage programs and projects that deliver quality, affordable, supportable, and effective systems/products. ♦ Specifically includes recognition of: Requirements Development Process, Technology Development Process, Core Management Skills & Processes, Risk & Opportunity Management, Communications Management, Working Groups and Teams. Five years or more experience with Project Management. PMP certifications proffered	BA, MPA	10	40
Technical Specialist (NBS Support) Azam Chishti	♦ In-depth knowledge of system deployment and support actives. Extensive help desk/ system support experience. Excellent troubleshooting and problem solving skills. Excellent customer care/support skills. Experience with both SQL and Oracle. Strong troubleshooting skills. ♦ Experience supporting client databases. Expertise in integration tools (Rhapsody required). Experience in preparing and conducting live or web-based trainings. Knowledge of public health surveillance activities, best practices and data standards. Knowledge of HL7. Five+-year experience. MS/BA degree in Computer Science.	BS	12	15
Public Health Analyst(Epidemiologist) Jennifer Ward	♦ Extensive knowledge in public health surveillance activities, best practices and data standards. In-depth knowledge of HL7. Knowledgeable in HL7 validation tools such as CDC's Message Quality Framework (MQF) and NIST Syndromic Surveillance Validation Tools.	MS	10	25

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CSRA

Roles and Resources (All personnel at 100% LOE for base year except as noted)	Relevant Certifications, Skills, and Qualifications (All personnel have NACI clearance)	Educ	Experience (avg yrs)	
			NBS	Total
Public Health Analyst (Data Architect) Christi Hildebrandt	♦ Experience in data architecture, data modeling and database design. Experience with Data Modeling & Data Administration Tools. Hands on experience with maintaining data dictionary and managing technical, process, and business metadata. Extensive experience with Data Quality or Data Integration toolsets for data profiling and data analysis (e.g., SQL, Oracle, SAS, etc.). ♦ Experience with business process design for managing Master Data throughout the SDLC, including data quality, metadata and workflow technologies. MS/BS in Information Technology, Computer Science, Engineering or related field and at least 8 years of experience in IT with 5 years as a Data Architect.	BS	10	15
Public Health Analyst (Implementation Lead) Jay Nelson	♦ Ability to analyze business problems and propose effective solutions. Ability to provide training, presentation and facilitation. Ability to effectively manage multiple assignments and priorities. Ability to develop good working relationships with business sponsors, business partners and technical staff. Requires ability to adapt to a variety of project team roles, such as analyst, tester, documentation writer, or trainer. ♦ Good knowledge of public health surveillance activities processes, best practices and standards (e.g. HL7). Good knowledge of hardware, software and programming. Creative approach to problem-solving. The ability to gather/interpret information from a large group of stakeholders and SMEs. Excellent communication and presentation skills. The ability to explain technical ideas clearly. 5+ years' experience as a System Analyst. MS/BS in Computer Information Systems.	*BS*	12	25
IT Specialist (Infrastructure Support) Kai Tiffany	♦ Ability to analyze business problems and propose effective solutions. Ability to provide training, presentation and facilitation. Ability to effectively manage multiple assignments and priorities. Ability to develop good working relationships with business sponsors, business partners and technical staff. Requires ability to adapt to a variety of project team roles, such as analyst, tester, documentation writer, or trainer. ♦ Good knowledge of public health surveillance activities and processes. Working knowledge of hardware, software and programming. Creative approach to problem-solving. The ability to gather and interpret information. Excellent communication and presentation skills. The ability to explain technical ideas clearly. 3+ years' experience as a System Analyst. MS/BS in Computer Information Systems.	*TBD*	*10*	30
IT Specialist (Technical Lead) Jit Gil	♦ Expertise and experience in OO design and programming with Java, Expertise and experience in Web application development with J2EE. JSP, Servlet, Struts, JavaScript, AJAX required; JSTL, JMS, JAXP, JDO desirable. Expertise in Rich internet applications highly desirable. Familiarity with XML, SOAP and Web services highly desirable. Expertise in at least one application server; Apache and Tomcat	BS	14	14

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Roles and Resources (All personnel at 100% LOE for base year except as noted)	Relevant Certifications, Skills, and Qualifications (All personnel have NACI clearance)	Educ	Experience (avg yrs)	
			NBS	Total
	preferred. Expertise in integration engines/tools such as Rhapsody required. ♦ Experience with SAS, Oracle and SQL required. Experience with at least one source control system; experience with SVN preferred. Visualization Tool skills (Google API, GIS based, charts software etc.) highly preferred. Good oral and written English. 5+ years of experience in Software development including analysis, design, implementation, testing and support. 5+ years of industrial experience in Java. MS/BS in Computer Science or equivalent.			
IT Specialist (Help Desk Support) Avinav Manov	♦ TBD	BS	2	10

Figure 11: Detailed Staffing Matrix

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Appendix B - DISASTER RECOVERY AND CONTINUITY OF OPERATIONS

CSRA recognizes the importance of providing continuity of operations and disaster recovery plans and processes to the State of West Virginia for their NBS operations. One of the many outstanding features of using the AWS cloud services is the durability and survivability its configuration provides. Businesses and government are using the AWS cloud to enable faster disaster recovery of their critical IT systems without incurring the infrastructure expense of a second physical site. CSRA will capitalize on the AWS infrastructure to be able to quickly launch resources in AWS to ensure business continuity, which will significantly minimize the impact on NBS data, systems, and your overall business operations.

CSRA recommends the consideration of two Disaster Recovery (DR)/Continuity of Operations (COOP) concepts for planning support for West Virginia.

Recovery time objective (RTO)[1] — We recommend a 4-hour RTO, the time it takes after a disruption to restore business processes back to its service level. For example, if a disaster occurs at 12:00 PM (noon) the DR process should restore the business process to the acceptable service level by 4:00 PM.

Recovery point objective (RPO)[2] — A second value is RPO, the acceptable amount of data loss measured in time. We recommend an RPO of 2 hours given the significance of the data that may be entered by the State during business hours. Therefore, if a disaster occurs at 12:00 PM (noon) the system should recover all data that was in the system before 10:00 AM. Data loss will span only two hours.

CSRA will establish a complete DR for West Virginia using AWS features and services such as regional separation, DNS and other storage and network features. We will establish a different DR configuration for Production and non-production environments to take advantage of best practices based on the importance of the data.

B.1 PRODUCTION DR/COOP

We will set Production up in AWS GOVCloud, which is a single region solution, but provides quicker and more efficient retrieval options. CSRA will create EBS Storage blocks, essentially hard disks where all point-in-time snapshots will be stored in Amazon S3 for unmatched durability. The EBS is stored independently from the life of an instance, and is replicated across many Availability Zones. As mentioned, the EBS will be stored in S3 on multiple devices, across multiple zones, providing 'eleven 9's of durability. Additionally, CSRA will create versioning of these storage instances for even stronger data retention. The configuration will also allow CSRA to spin up new instances of the existing configuration to allow restoration of the EBS through the Elastic Cloud Compute (EC2) services AWS provides.

B.2 NON-PRODUCTION DR/COOP

We will essentially follow the same features of the Production solution, however, the non-production environments will be configured in the commercial AWS, and span the East and West regions. This solution is more cost effective than the GovCloud, and in some ways affords more reliability because of the multiple regions. We will set up versioning and cross-region replication to maximize the efficiency of the multi-region solution

Key steps in the configuration of the AWS environment for DR are as follows:

- Follow data retention policy
- Assure appropriate security measures in place
- Setup EC2 instances to mirror data
- Ensure all software packages available in AWS
- Create AMIs
- Perform scheduled recovery tests

AWS Cloudwatch will also be implemented in the CSRA NBS Cloud solution. Amazon CloudWatch provides access to metrics about AWS resources, as well as custom metrics that can be application–centric or even business-centric. We will configure alarms based on defined thresholds will also set up Amazon SNS to send alerts in case of unexpected behavior, where our support staff will evaluate the situation and determine what actions, if any need to occur to ensure the health of the West Virginia NBS. We will also set up automation responses should there ever be an issue reaching one of our team members. Which will be initiated after 2 hours if no response.

There are no unique configurations involved in this DR/COOP solution. All of our current team members will be able to access any of the environments that may be initiated during a DR scenario, so Continuity of Operations is not an issue in these DR scenarios.

Please see the **Figure 2** for a visual explanation of the DR process available to West Virginia through the CSRA NBS Cloud solution.

Appendix C - AMAZON WEB SERVICES

The following describes many of the features and processes CSRA will provide to the State of West Virginia in support of its NBS application.

Bastion Host. A bastion is a special purpose server instance that is designed to be the primary access point from the Internet and acts as a proxy to your other EC2 instances. If you run Microsoft Windows instances in EC2, then you most likely use the Remote Desktop Protocol (RDP) for remote administration.

Network Address Translation (NAT) Host. CSRA managed instances that will allow resources in the private subnets to access the internet for patches and updates as needed. Instances without public IP addresses can route their traffic through a NAT instance to access the Internet. These instances use the public IP address of the NAT instance to traverse the Internet. The NAT instance allows outbound communication but does not allow machines on the Internet to initiate a connection to the privately addressed instances.

Amazon EC2. Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud. It is designed to make web-scale cloud computing easier for developers. Amazon EC2's simple web service interface allows you to obtain and configure capacity with minimal friction. It provides you with complete control of your computing resources and lets you run on Amazon's proven computing environment. Amazon EC2 reduces the time required to obtain and boot new server instances to minutes, allowing you to quickly scale capacity, both up and down, as your computing requirements change. Amazon EC2 changes the economics of computing by allowing you to pay only for capacity that you actually use. Amazon EC2 provides developers the tools to build failure resilient applications and isolate themselves from common failure scenarios. https://aws.amazon.com/ec2/?nc2=h_m1

Elastic Block Storage (EBS). Amazon Elastic Block Store (Amazon EBS) provides persistent block storage volumes for use with Amazon EC2 instances in the AWS Cloud. Each Amazon EBS volume is automatically replicated within its Availability Zone to protect you from component failure, offering high availability and durability. Amazon EBS volumes offer the consistent and low-latency performance needed to run your workloads. With Amazon EBS, you can scale your usage up or down within minutes – all while paying a low price for only what you provision.

EBS Snapshots. Amazon EBS provides the ability to save point-in-time snapshots of your volumes to Amazon S3. Amazon EBS Snapshots are stored incrementally: only the blocks that have changed after your last snapshot are saved, and you are billed only for the changed blocks. If you have a device with 100 GB of data but only five GB has changed after your last snapshot, a subsequent snapshot consumes only five additional GB and you are billed only for the additional five GB of snapshot storage, even though both the earlier and later snapshots appear complete.

https://aws.amazon.com/ebs/details/

Amazon S3. Amazon Simple Storage Service (Amazon S3) is object storage with a simple web service interface to store and retrieve any amount of data from anywhere on

the web. It is designed to deliver 99.999999999% durability, and scale past trillions of objects worldwide.

https://aws.amazon.com/s3/?nc2=h_m1

S3 Buckets. The basic container construct in which all S3 objects get stored. Every S3 object must be contained within an S3 bucket.

S3 Bucket Policies. Bucket Policies are similar to IAM policies in that they allow access to resources via a JSON script. However, Bucket policies are applied to Buckets in S3, whereas IAM policies are assigned to user/groups/roles and are used to govern access to any AWS resource through the IAM service.

S3 Bucket Policy Conditions. S3 Bucket Policies allow you to set conditions with the Policy, for example allowing specific IP subnets to access the Bucket and perhaps restricting a specific IP address. The example below shows how to implement such conditions.

S3 Access Control Lists. In addition to IAM Policies and Bucket Policies, S3 also has an additional method of granting access to specific objects through the use of Access Control Lists (ACLs), allowing a more finely grained access approach than a Bucket Policy. ACLs allow you to set certain permissions on each individual object within a specific Bucket. Again, access will always be granted on a least privileged condition if conflicts exist between ACLs, Bucket Polices and IAM Policies.

Snapshot Bucket. This bucket is controlled by AWS and you do not get direct access to this bucket.

Database Backup Bucket. Will host full and incremental DB backups and transactional logs.

Application Log Bucket. Will host bastion host, monitoring, NAT and application logs respectively for diagnostics and forensics.

CloudTrail Logs Bucket. Will host the AWS API call log tracked by the AWS CloudTrail service.

Configuration Log Bucket. Will host the AWS configuration updates as required

AMIs Bucket. Will host any S3 backed AMIs.

CloudFormation Template Bucket. Will host AWS CloudFormation template files. These buckets will have versioning installed to prevent accidental deletion enable change tracking. CSRA will establish least privileges S3 bucket policies and ACLs as required by CDC requirements.

AWS Configuration. AWS Configuration is a fully managed service that provides you with an AWS resource inventory, configuration history, and configuration change notifications to enable security and governance. Configuration Rules enables you to create rules that automatically check the configuration of AWS resources recorded by AWS Configuration.

https://aws.amazon.com/config/

AWS CloudTrail. AWS CloudTrail is a web service that records AWS API calls for your account and delivers log files to you. The recorded information includes the identity of the API caller, the time of the API call, the source IP address of the API caller, the request parameters, and the response elements returned by the AWS service.

https://aws.amazon.com/cloudtrail/?nc2=h_m1

AWS CloudTrail records user API activity on your account and allows you to access information about this activity. You get full details about API actions, such as identity of the caller, the time of the API call, the request parameters, and the response elements returned by the AWS service. AWS Configuration records point-in-time configuration details for your AWS resources as Configuration Items (CIs). You can use a CI to answer, "What did my AWS resource look like?" at a point in time. You can use AWS CloudTrail to answer, "Who made an API call to modify this resource?" For example, you can use the AWS Management Console for AWS Configuration to detect security group "Production-DB" was incorrectly configured in the past. Using the integrated AWS CloudTrail information, you can pinpoint which user misconfigured "Production-DB" security group.

AWS CloudWatch. Amazon CloudWatch is a monitoring service for AWS cloud resources and the applications you run on AWS. You can use Amazon CloudWatch to collect and track metrics, collect and monitor log files, set alarms, and automatically react to changes in your AWS resources. Amazon CloudWatch can monitor AWS resources such as Amazon EC2 instances, Amazon DynamoDB tables, and Amazon RDS DB instances, as well as custom metrics generated by your applications and services, and any log files your applications generate. You can use Amazon CloudWatch to gain system-wide visibility into resource utilization, application performance, and operational health. You can use these insights to react and keep your application running smoothly.

https://aws.amazon.com/cloudwatch/?nc2=h_m1

CloudWatch Logs is capable of monitoring and storing your logs to help you better understand and operate your systems and applications. When you use CloudWatch Logs with your logs, your existing log data is used for monitoring, so no code change are required. Here are two examples of what you can do with Amazon CloudWatch and your logs: Real time Application and System Monitoring: You can use CloudWatch Logs to monitor applications and systems using log data in near real time. For example, CloudWatch Logs can track the number of errors that occur in your application logs and send you a notification whenever the rate of errors exceeds a threshold you specify. Amazon CloudWatch uses your log data for monitoring and consequently it does not involve any code changes from you. You can configure the EC2Config service to send a variety of data and log files to CloudWatch including: custom text logs, Event (Application, Custom, Security, System) logs, Event Tracing (ETW) logs, and Performance Counter (PCW) data.

Amazon VPC. Amazon Virtual Private Cloud (Amazon VPC) lets you provision a logically isolated section of the Amazon Web Services (AWS) cloud where you can launch AWS resources in a virtual network that you define. You have complete control over your virtual networking environment, including selection of your own IP address

range, creation of subnets, and configuration of route tables and network gateways. You can use both IPv4 and IPv6 in your VPC for secure and easy access to resources and applications.

https://aws.amazon.com/vpc/faqs/

VPC Peering. A peering connection enables you to route traffic via private IP addresses between two peered VPCs.

Internet Gateway. The Amazon VPC side of a connection to the public Internet

AWS IAM. AWS Identity and Access Management (IAM) enables you to securely control access to AWS services and resources for your users. Using IAM, you can create and manage AWS users and groups, and use permissions to allow and deny their access to AWS resources. IAM is a feature of your AWS account offered at no additional charge. You will be charged only for use of other AWS services by your users.

AWS KMS. AWS Key Management Service (KMS) is a managed service that makes it easy for you to create and control the encryption keys used to encrypt your data, and uses Hardware Security Modules (HSMs) to protect the security of your keys. AWS Key Management Service is integrated with several other AWS services to help you protect the data you store with these services. AWS Key Management Service is also integrated with AWS CloudTrail to provide you with logs of all key usage to help meet your regulatory and compliance.

West Virginia OEPS
Hosting of WVEDSS Application EPS16-118
COST/PRICE SUMMARY

Period of Performance (PoP): June 1, 2017 - May 31, 2021
Summary of All Periods

LABOR CATEGORY	HOURS		TOTAL
Labor			
Project Manager	80	$	10,150.40
IT Specialist	200	$	21,537.50
Technical Lead	80	$	11,971.60
Senior Analyst	80	$	8,509.80
Subtotal CSRA Labor	**440**	**$**	**52,169.30**
Subcontractor Labor			
Initial Setup	83	$	11,379.54
Regular Monitoring	1,280	$	174,777.60
Subtotal Subcontractor Labor	**1,363**	**$**	**186,157.14**
OTHER DIRECT COSTS (ODC'S)			
AWS Hosting		$	155,586.89
Subtotal ODC's		**$**	**155,586.89**
TOTAL FIRM FIXED PRICE (FFP)	**1,803**	**$**	**393,913.33**

West Virginia OEPS
Hosting of WVEDSS Application EPS16-118
COST/PRICE SUMMARY

Period of Performance (PoP): June 01, 2017 through May 31, 2018
Base

LABOR CATEGORY	RATE	HOURS	TOTAL
CSRA Labor			
Project Manager	$ 121.26	20	$ 2,425.20
IT Specialist	$ 103.30	50	$ 5,165.00
Technical Lead	$ 144.14	20	$ 2,882.80
Senior Analyst	$ 101.43	20	$ 2,028.60
Subtotal CSRA Labor		**110**	**$ 12,501.60**
Subcontractor Labor			
Initial Setup	$ 136.56	83	$ 11,379.54
Regular Monitoring	$ 136.56	320	$ 43,699.20
Subtotal Subcontractor Labor		**403**	**$ 55,078.74**
OTHER DIRECT COSTS (ODC'S)			
AWS Hosting			$ 38,980.53
Subtotal ODC's			**$ 38,980.53**
TOTAL FIRM FIXED PRICE (FFP)		**513**	**$ 106,560.87**

West Virginia OEPS
Hosting of WVEDSS Application EPS16-118
COST/PRICE SUMMARY

Period of Performance (PoP): June 01, 2018 through May 31, 2019
Opt1

LABOR CATEGORY	RATE	HOURS	TOTAL
CSRA Labor			
Project Manager	$ 125.87	20	$ 2,517.40
IT Specialist	$ 106.79	50	$ 5,339.50
Technical Lead	$ 148.21	20	$ 2,964.20
Senior Analyst	$ 105.59	20	$ 2,111.80
Subtotal CSRA Labor		**110**	**$ 12,932.90**
Subcontractor Labor			
Regular Monitoring	$ 136.55	320	$ 43,696.00
Subtotal Subcontractor Labor		**320**	**$ 43,696.00**
OTHER DIRECT COSTS (ODC'S)			
AWS Hosting			$ 38,920.44
Subtotal ODC's			**$ 38,920.44**
TOTAL FIRM FIXED PRICE (FFP)		**430**	**$ 95,549.34**

West Virginia OEPS
Hosting of WVEDSS Application EPS16-118
COST/PRICE SUMMARY

Period of Performance (PoP): June 01, 2019 through May 31, 2020
Opt2

LABOR CATEGORY	RATE	HOURS	TOTAL
CSRA Labor			
Project Manager	$ 128.72	20	$ 2,574.40
IT Specialist	$ 108.94	50	$ 5,447.00
Technical Lead	$ 151.18	20	$ 3,023.60
Senior Analyst	$ 107.99	20	$ 2,159.80
Subtotal CSRA Labor		**110**	**$ 13,204.80**
Subcontractor Labor			
Regular Monitoring	$ 136.54	320	$ 43,692.80
Subtotal Subcontractor Labor		**320**	**$ 43,692.80**
OTHER DIRECT COSTS (ODC'S)			
AWS Hosting			$ 38,867.72
Subtotal ODC's			**$ 38,867.72**
TOTAL FIRM FIXED PRICE (FFP)		**430**	**$ 95,765.32**

West Virginia OEPS
Hosting of WVEDSS Application EPS16-118
COST/PRICE SUMMARY

Period of Performance (PoP): June 01, 2020 through May 31, 2021
Opt3

LABOR CATEGORY	RATE	HOURS	TOTAL
CSRA Labor			
Project Manager	$ 131.67	20	$ 2,633.40
IT Specialist	$ 111.72	50	$ 5,586.00
Technical Lead	$ 155.05	20	$ 3,101.00
Senior Analyst	$ 110.48	20	$ 2,209.60
Subtotal CSRA Labor		**110**	**$ 13,530.00**
Subcontractor Labor			
Regular Monitoring	$ 136.53	320	$ 43,689.60
Subtotal Subcontractor Labor		**320**	**$ 43,689.60**
OTHER DIRECT COSTS (ODC'S)			
AWS Hosting			$ 38,818.20
Subtotal ODC's			**$ 38,818.20**
TOTAL FIRM FIXED PRICE (FFP)		**430**	**$ 96,037.80**