ELECTRONIC BALLOT DELIVERY FOR UOCAVA VOTERS WITH EASE
TECHNICAL PROPOSAL

1) Catalog of Federal Domestic Assistance Number: **12.217**
2) BAA number: **HQ0034-FVAP-11-BAA-0001**
3) Title of Proposal: **Electronic Ballot Delivery for UOCAVA Voters with EASE Technical Proposal**
4) CAGE Code [redacted] and DUNs Number [redacted]
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8) ~~August 1, 2011 – September 7, 2012~~

12 April 2012 through 30 November 2016

[redacted]
WV Elections Director

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TECHNICAL APPROACH AND JUSTIFICATION

Executive Summary

This application is presented by the West Virginia Secretary of State (WVSOS) to request funding in support of our acquisition and implementation of a web-based electronic ballot delivery system for our military and overseas citizens. Our goal is to provide greater access to online tools in order to make the voting process easier for our UOCAVA voters. West Virginia recognizes that UOCAVA voters traditionally have a lower voting percentage than domestic voters. The MOVE Act was passed to narrow the gap between UOCAVA and domestic voters. A web-based ballot request, delivery, and tracking system will ensure that our state will be in full compliance with the MOVE Act while eliminating the gap between UOCAVA and domestic voters.

WVSOS has not selected a vendor for this project; however, the resulting solution will enable West Virginia to provide complete voter services to our UOCAVA voters. Voters will be provided full services such as voter registration links, ballot request information, ballot delivery, and ballot tracking. The state and counties will be able to provide complete usage data and reporting of each voter service.

The WVSOS is grateful for the opportunity to apply for the Electronic Absentee Systems for Elections (EASE) Grant. It is our desire to join with the FVAP to ensure our military and overseas voters are able to cast their ballot, and have it counted, from anywhere in the world as easily as if they were voting in person at a polling place.

Goals and Objectives

The primary goals of this project are to increase West Virginia's UOCAVA voter participation base and gather and provide comprehensive data detailing UOCAVA voter activities. We hope to deliver a voter life-cycle website which will include, but is not limited to, voter registration links, ballot request, ballot delivery and ballot tracking. More specifically:

- Develop and deploy new technology that will not only integrate with the existing voter database systems, but will also provide complete web-based voter services for our UOCAVA voters
- Develop and deploy innovative data tools to provide comprehensive gathering of statistics for UOCAVA voter services and activities for each election cycle
- To enhance our existing state-wide voter registration system (SVRS) to better control and automate portions of the process for absentee ballot request, delivery, receipt and tracking

The key objectives for this project include:

- Notify the UOCAVA voter during each step in the process by sending e-mail notifications when absentee ballot applications are received, ballots are delivered and received by the local election official and whether the ballot was counted or rejected
- Provide a standard format interface file that will integrate with the selected electronic ballot delivery vendor
- The web-based ballot deliver system is to be hosted in a secure environment where the site has built-in redundancy and provides for uninterrupted access regardless of the voter's location
- Support any bandwidth connectivity to the Internet with no time outs
- Utilize a Secure Socket Layer (SSL) address for access by use on any browser
- Provide ADA compliance
- Utilize the most secure interface (WVSOS standard is aspx.net)
- Provide an intuitive and user-friendly interface
- Generate a user-specific access to the on-line system that is sent to the SVRS for handling and storage
- Provide access only to individuals with the proper credentials, protecting the identity of the individuals
- Monitor access for intrusion and reporting any such attempts
- Log all transactions (Any on-line marking is not to be associated with a particular voter when providing this functionality)
- Link to WVSOS websites for additional information
- Provide for secure functionality for over/ under voting, a summary for review, and the ability to revise a ballot prior to printing when marking electronically
- Provide for the ballot and additional required documentation to be generated in an unalterable format that when printed on standard paper size so that it is easily verified
- Provide statistical reports daily in Excel format to WVSOS

Efforts

The efforts of this project will be accomplished by the coordination of the following:

- WVSOS internal staff
- West Virginia County Clerks
- PCC Technology Group, Inc. (PCC) - the architect and support of the SVRS

- On-line Ballot Delivery System Vendor – to be determined based on the State procurement process

Architecture

In order to automate and simplify the UOCAVA voter's absentee ballot experience, we have identified four highly desirable systems:

1) Enhancements and interfaces to and from the SVRS
2) The development of an On-line Voter Registration System
3) The development of a Ballot Creation System
4) Use of an On-line Ballot Delivery System

The SVRS would serve as the core of the system design. The database utilized is Microsoft SQL 2008. This system is enhanced and maintained by PCC. This system will serve as the repository for all related data. To incorporate enhancements, the system will require modifications to existing tables and development of new functionality.

The On-line Voter Registration System would be developed in-house by a .net programmer who will develop the system to integrate the captured data into the existing SVRS system for review by the County Clerks. The On-line Voter Registration system would be developed using WVSOS standards - aspx, C#, and .net with the data being stored in the SVRS SQL 2008 database.

The Ballot Creation System will also be developed in-house using WVSOS standards and stored within the SVRS, which will incorporate features and functionalities of an Election Management System.

The On-line Ballot Delivery System will be outsourced for each election cycle and will be required to securely interface with the WVSOS environment and follow industry best practices for securing both the system and the identity of the individual voters.

Security

Security is of the utmost concern in the handling of personally identifiable information - particularly in the use of web-based applications. It isn't enough to provide secure communications. A key feature to securing the site is to apply application development best practices.

As standard practice, WVSOS encrypts all personally identifiable information in the databases and uses secure methods to transfer any/all of this information. Vendors who are supplied our data are required to sign our confidentiality agreement.

One proof of concept that is currently being reviewed and tested is the *user-centric identity ecosystem* for the use of trusted digital identity credentials consistent with NSTIC principles. Dependent upon the timeframe of delivery, we will potentially incorporate these outcomes in our deployment.

The in-house applications and interfaces will be built utilizing the latest authentication methods and communications and software security measures. This applies to access for the users and storage of data in SQL databases. We will evaluate risk assessments and apply vulnerability testing to eliminate cross-site scripting, information vulnerability, and other potential security issues.

To increase compatibility and secure the data, we will be utilizing the latest common data formats currently being defined for NIST by IEEE. More specifically, for the secure ballot delivery process, we will utilize a digital EXML (Election XML) signature/encryption.

By outsourcing the on-line ballot delivery mechanism to a vendor who incorporates the latest security measures in physically securing the site as well as utilizing the latest secure development and verification tools, we are mitigating our risks and are not locked into one technology that will continually be enhanced with the latest and best practices for handling this sensitive information by people all over the world. We will be providing the services, utilizing the most secure systems available at the point-in-time required, and be assured that the vendor providing the service has incorporated the best practices for security quality.

WVSOS proposes to develop/contract development of a system to be used in-house to assign a unique identifier and the assigned ballot style as the only data that is exported to the on-line ballot delivery system. By handling this information in-house and storing the data in an encrypted format, we are providing minimal data to the vendor, eliminating any concern about correlation of ballot data to the voting individual by the vendor or the local election official.

We project that by fully deploying a new technology we will dramatically streamline and speed the balloting process for our UOCAVA voting population, as well as save significant staff time complying with the mandates of the MOVE Act. When compared to pre-MOVE Act levels we anticipate the following:

- Our ballot return rate will improve by well over 50% with the goal of eliminating the ballot return gap between UOCAVA and domestic voters
- That our UOCAVA voter participation rate will increase by over 35%
- The percentage of ballots delivered to ballots received will climb by over 40%.
- That our UOCAVA statistical reporting metrics and data aggregation tools will dramatically improve, thus enhancing our overall data metric reporting by over 75%.
- That state and local staff time spent complying with the MOVE Act requirements will fall by over 60%.

West Virginia absentee ballot return rates (as reported by the EAC's 2008 Election Day Administration and Voting Survey) are 82% for domestic absentee voters and 58% for UOCAVA voters.

The key metric for this State is to improve the ballot return rate for UOCAVA voters by at least 50% from pre-MOVE Act data over the next election cycle, and moving towards a future goal of a zero-gap between UOCAVA voters and domestic voters by 2016.

The FVAP funding will ensure West Virginia offers an intuitive, one-stop, seamless process to request a ballot online, receive notification of ballot availability, access and mark the ballot online, track the ballot's progress, and dramatically improve the ballot return rate.

Schedule and Milestones

The Secretary of State has identified the following as the initial schedule assuming a grant award date of August 1, 2011. Because of the complexities of the project, the WVSOS will be implementing a multi-phase approach. The phases are outlined below and detailed schedules will be agreed upon by the program team.

Phase One:
Enhancements to Existing Applications

1) Initiation and Planning
    a) Stakeholders group identified
    b) Define project scope
    c) Detailed project plan developed
    d) Change orders to existing applications identified and defined
        - **No later than August 15, 2011**
2) Design, Analysis and Installation
    a) Prioritize enhancements and finalize delivery dates
    b) Receipt and installation of any necessary hardware and software
        - **No later than September 19, 2011**
3) Testing and User Acceptance
    a) Develop test scenarios for software and integration points
    b) Identify acceptance criteria
    c) Implement identified test scenarios for compliance with acceptance criteria
    d) Sign-off on enhancements
        - **No later than October 17, 2011**
4) Training
    a) Develop training plan for end users
        - **No later than November 1, 2011**
    b) Train local election officials and staff
        - **No later than November 19, 2011**
5) Deployment
    a) All associated hardware, software and citizen and personnel procedures in place and ready for use
        - **Not later than January 3, 2012**

Phase Two:
Hosted Services

1) Initiation, Planning and Procurement
    a. Stakeholders group identified

b. Define project scope
c. Detailed project plan developed
d. Request for Quotation (RFQ) for electronic ballot delivery system vendor defined, published, opened and awarded
    - **No later than December 1, 2011**

2) Development and Installation
    a. RFQ opened and awarded
    b. Receipt and installation of all hardware and software
    c. Develop new application
        - **No later than January 3, 2012**
3) Testing and User Acceptance
    a. Develop test scenarios for software and integration points
    b. Identify acceptance criteria
    c. Implement identified test scenarios for compliance with acceptance criteria
    d. Sign-off on enhancements
        - **No later than January 25, 2012**
4) Training and Communications
    a. Develop training plan for local election officials and other users
    b. Develop outreach plan to promote use of the system by UOCAVA voters
        - **No later than February 1, 2012**
    c. Implement training plan for local election officials and other users
    d. Implement outreach plan to promote use of the system by UOCAVA voters
        - **No later than February 29, 2012**
5) Deployment
    a. All associated hardware, software and citizen and personnel procedures in place and ready for use
        - **Not later than March 15, 2012**

Reports

1. Programmatic and Financial Progress Reports

Beginning with the fourth quarter of 2011 and concluding with the first quarter of 2013, the Secretary of State will prepare quarterly programmatic and financial progress reports.

The programmatic and financial progress reports will provide:

- Overall status
- Current activity, accomplishments, and major and minor milestones met
- Milestones scheduled for next reporting period
- Risk Log. This is a log of project risks, each with a description, probability, mitigation approach, and current status
- A list of open issues and actions items being managed during the reporting period
- Expenditures to date and balance of grant funding

2. Data collection points reports

There will be two data collection point reports prepared throughout the grant period. The first report will follow the primary election and the second after the general election. Each report will contain the data collected for each election, environmental and circumstantial factors considered, an anomaly report, and findings and conclusions. The types of data collected will provide sufficient detail for analysis at each phase in the absentee voting process. This includes:

- Number of ballot requests
- Number of ballot styles supported
- Number of ballot styles downloaded
- Number of ballots successfully returned
- Number of ballots not returned
- Problems incurred
- Number and type of email notifications sent successfully/unsuccessfully
- Voter feedback through survey

3. Final Report

The grant period Final Report will be prepared during the Final Analysis and Reporting Phase and delivered at the conclusion of the grant performance period. The final report will include the final data collected, an analysis of the data, a report of important technological, environment, procedural, and circumstantial factors, findings and conclusions for each of the following areas:

- Overall
- Financial
- Security
- Significance
- Sustainability
- Impact
- Strategy
- Innovation
- Scalability
- Collaboration
- Cost vs. Benefits

MANAGEMENT APPROACH

Strategic Goal

The goal of the electronic ballot delivery solution is to eliminate the voting success-rate gap between UOCAVA voters and domestic voters by reducing impediments related to receiving and casting a ballot. The electronic ballot delivery solution will increase UOCAVA voter success rates through the implementation of a sustainable and affordable system that provides services to voters from registering to voter through ballot tracking.

Analysis for Current Process

UOCAVA voters apply to register to vote and request an absentee ballot through a hand-completed Federal Post Card Application (FPCA) or a West Virginia-specific voter registration form and absentee ballot application. While there are service providers who offer an interactive FPCA, such as the Overseas Vote Foundation, traffic to these sites is less than optimal. State-specific instructions for the FPCA can be difficult to find and even more difficult to interpret. This results in incomplete or unclear forms that require lengthy follow-up or rejection, placing timely absentee ballot requests at risk.
After requesting a ballot the local election official (LEO) determines if the applicant is eligible, and if so, the absentee ballot and related absentee ballot materials are sent to the voter at the appropriate time via USPS, facsimile or electronic mail (email) per the voter's designation to the address, facsimile number, or email address provided by the voter.

If the voter has chosen to receive the ballot through email, the LEO scans the appropriate ballot style, converts it to a portable document format (pdf), and sends the pdf and related ballot materials to the voter in an attachment to the email. Upon receipt of these materials, the voter prints the attached documents and marks the pdf hard copy and related ballot materials.

Returning the ballot and materials can be accomplished by sending the ballot and materials to the LEO via USPS or the voter can scan the documents, convert them to a pdf, and attach them to a return email to the LEO.

Process Identification

Voter provides completed absentee ballot application or Federal Post Card Application (FPCA) to LEO and designates "email" as the preferred ballot delivery method

The LEO denotes the voter's absentee ballot status and preferred delivery method in Statewide Voter Registration System (SVRS)

The State provides data to the vendor on a nightly basis that identifies UOCAVA voters who wish to receive their ballot through email. The system provided by the vendor identifies the appropriate ballot style based on the data provided from the SVRS and provides the appropriate ballot and related materials to the LEO. A URL and individualized access code (supplied by the

vendor) are provided to the voter by the LEO and includes all necessary instructions to log in and access the voter's individual ballot.

SVRS is updated to show voter's ballot has been sent using preferred method

Voter accesses the system and their ballot by navigating the URL and entering the access code along with a personal identifier (SSN last four, DOB, etc.)

Voter is provided with the appropriate ballot and offered these options for marking and returning the ballot:

1) Mark the ballot using the system tools
   - Print the marked ballot for USPS, facsimile or scan and email
   - Save the marked ballot as a pdf file for attachment to a return email to the LEO
2) Print the unmarked ballot for manual marking
   - Mark the ballot manually and return via USPS, facsimile, or scan and email to the LEO

Voter marks and returns ballot to the LEO using one of the options provided

Voter prints materials required for USPS, facsimile, or scan and email return methods, such as coversheet, oath of voter, etc. and returns to LEO

LEO updates SVRS to show that voter's ballot has been received

A web-based free access system will provide the voter with updated information on the status of the application, ballot delivery, and ballot receipt by the LEO. The tracking system will be available 24 hours a day for the convenience of the voter. Sixty days following the date of the election the tracking system will be purged to be made ready for the next election cycle.

Potential Risks and Mitigating Strategies

Project risks would include a sustained interruption of internet service rendering the online interface unavailable. UOCAVA voters would continue to have access to other absentee ballot request methods and electronic blank ballot delivery. In addition, these voters may use the Federal Write-In Absentee Ballot should a lack of time become a significant factor.

A second potential risk would be the interception of the voter's information during transmission to or from the voter. If the information were to be intercepted during transit to the voter, the voter would not receive his/her access information and would need to contact the LEO for further resolution. This would also alert the LEO, and subsequently the state and the vendor, of a potential risk and need for assessment. If the interception occurs in the transmission from the voter to the LEO, the voter will not receive a confirmation email from the LEO. As part of the instructions provided, the voter will be prompted to expect the confirmation email and be given instructions to follow in the event the confirmation is not received.

Performance Indicators

- Improved rate of completed UOCAVA voting transactions from ballot request to ballot return
- Increased percentage of UOCAVA voters participating and voting in Federal elections
- Reduced failure rates for UOCAVA voters experienced in each of the various stages of the absentee voting process
- Provide tools and services that can benefit other jurisdictions
- Provide security measures to protect users' personal identifying information and any transmitted election material
- Provide evidence and findings generated from authoritative and documented research efforts to measure and report on the success of the previous objectives

Modification Justification/Projections of Effectiveness

Our current UOCAVA absentee ballot process is a labor-intensive, manual environment in which our state and local elections staff must spend a disproportionate amount of time. We believe that every eligible voter should have equal access to the ballot. Therefore, regardless of the time it takes, our staff will ensure the ballots gets delivered and processed. Our key objective is to narrow the gap between domestic ballot return and UOCAVA ballot return. By automating the process with an electronic ballot delivery system, our UOCAVA voters will be able to request, access, mark, return and track their ballot and the status of their ballot, on-demand and online. In addition, automating the MOVE Act compliance requirements will free up state and local elections staff to perform other necessary elections critical activities that relate to all our voters, domestic and abroad.

We are confident that an automated, web-hosted solution will greatly narrow the gap between UOCAVA and domestic voters, while reducing the costs associated with a manual process. By deploying an electronic ballot delivery system we can offer ballot request, ballot access and ballot return in a more expedited manner than our tradition manual process. As a result of an electronic ballot delivery system, we expect less human resource hours will be spent on UOCAVA related ballot processes.

An electronic ballot delivery system will be available to every eligible voter around the world, on-demand, without relying on any one individual to mail or email a ballot package. Every laptop or computer with a browser will become an electronic ballot tool, delivering the correct ballot to the correct voter, no matter where in the world they live, regardless of physical disabilities.

Finally, our selected system will be reviewed and approved for the highest level of accessibility for disabled voters. Using the electronic ballot delivery system, every eligible UOCAVA voter, from Waziristan to Walter Reed will have access to their ballot, where and when they want it.

Performance Measures

- The number of voters who complete each phase of the process
- The percentage of UOCAVA voters who participate in at least one portion of the voting process
- The failure rate for each stage in the absentee voting process
- The number of received and counted ballots
- The number of ballot requests rejected
- The number of security issues reported
- The average amount of time of when the ballot is sent and when it is received by the LEO office

Current and Pending Project Proposal Submissions

We currently have no current or pending projects that overlap with this initiative. We have been in strategy discussions about the various balloting tools that are available to assist not only our UOCAVA voters, but also ways to assist our disabled population.

In 2009 the West Virginia Legislature approved a pilot program for online electronic voting for the 2010 primary election. The success of this pilot encouraged the legislature to extend it for the 2010 general election. The complete legislative report for this 2010 pilot program has been attached for your review. It would require a change in West Virginia Code by the legislature to allow online electronic voting in the future.

Personnel/Qualifications

Resumes are added as the qualification document attachment for the following internal personnel assigned to the EVRI project:

- Layna Brown, HAVA Coordinator/Grant Project Manager
- David Nichols, Elections Division Manager
- Beth Ann Surber, Chief Information Officer
- Jackie Harris, Policy Director
- Dave Tackett, Statewide Voter Registration System Coordinator
- Lisa Blake, NVRA Coordinator
- R. Curt Zickafoose, Legislative Director
- Brian Messer, Chief Financial Officer
- Vendor to be selected through state procurement process

BUDGET JUSTIFICATION for Electronic Ballot Delivery for UOCAVA Voters with EASE

Development		
Travel	$3,900.00	Travel to another state for personnel to observe system
Supplies	$1,500.00	Miscellaneous items needed - cables, peripherals, flash drives/cds, office supplies
Contractual	$259,000.00	PCC Change Order for SVRS
	$38,000.00	PCC Change Order for SVRS
	$8,910.00	Reserve for change order modifications/contingencies
Other	$20,000.00	Access encryption
	$7,150.00	55 email licenses (1 per county)
Total Development	**$338,460.00**	
Implementation		
Equipment	$21,000.00	Servers and related items
Supplies	$3,700.00	Miscellaneous items needed - cables, peripherials, flash drives/cds, office supplies
Contractual	$200,000.00	Electronic Ballot Delivery vendor
	$112,500.00	IT support: programmers, applications developers
	$35,000.00	PCC Change Order for SVRS
	$25,335.00	Reserve for change order modifications/contingencies
Total Implementation	**$397,535.00**	
Testing & Training		
Travel	$2,750.00	Travel for site visits & training sessions
Supplies	$5,000.00	Creation of training materials
Contractual	$15,750.00	Testing for ADA Compliance
Other	$25,000.00	Public Relations - providing information to voters
	$6,250.00	Costs associated with training state & local election officials (facilities, etc.)
Total Testing & Training	**$54,750.00**	
Total Justification	**$790,745.00**	

Return on Investment Justification for Electronic Ballot Delivery

Each of the 55 counties in West Virginia handles the processing and the budgeting for absentee voting. We have found that from county to county these processes and budgets vary greatly. We believe that by creating a statewide uniform process the amount of participation by UOCAVA voters will increase and the costs associated with absentee voting will decrease for each county.

The Return on Investment from this grant will produce the following:

Type of Transaction	**Return rate percentage**
Information Inquiries	↑ 50%
Absentee ballot applications	↑ 80%
Ballot Transmissions Received by voter	↑100%
Readable Ballot Markings	↑ 100%
Ballots returned on time & counted	↑ 85%, with a goal of 100%
Employee hours spent compiling package	↓ 60%
Full UOCAVA voter participation (send & receive)	↑ 35%