

*Maryland State Board of Elections
Volume 1 – Technical Proposal*



Grant Information:

Catalog of Federal Domestic Assistance Number: 12.217

BAA number: H98210-BAA-11-0001

Title of Proposal: Online Voter Registration & Ballot Marking and Counting: An Adaptable and Open Source Solution

Applicant Information:

CAGE Code: [REDACTED]

DUNS number: [REDACTED]

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Proposed Period of Performance: Date of Award – April 2013

Proprietary Information: SBE has designated as proprietary four pages in the appendices to the *Volume 2 – Budget Proposal*. The pages with proprietary information are pages 13 and 14 of Appendix A and pages 19 and 20 of Appendix B.

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1 Technical Approach and Justification

1.1 Executive Summary

Over the years, the State of Maryland has implemented measures – including many recommended by the Federal Voting Assistance Program (FVAP) – that have made voting more accessible for Maryland’s uniformed and overseas voters (UOCAVA voters). With funds from the FVAP’s Electronic Absentee Systems for Elections Grants, the Maryland State Board of Elections (SBE) will improve the participation and voting experience of UOCAVA voters by implementing an online voter registration system and enhancing the State’s existing online absentee ballot delivery system. This proposal is significant in that it addresses three critical components of the voting process – registering to vote, requesting a ballot, and voting the ballot.

The proposed online voter registration system will be a new system in Maryland. SBE in-house technical resources will design and develop the system to:

1. Allow UOCAVA voters to register to vote in Maryland or update their existing voter registration record online
2. Allow UOCAVA voters to submit a request for an absentee ballot as part of their online voter registration application
3. Be cost-effective, sustainable, and easily adapted for use by other jurisdictions using different voter registration systems

The proposed innovative enhancements to the State’s online ballot delivery system are:

1. Integrating a ballot marking wizard tool
2. Capturing the voter’s selections in a barcode that can then be used during canvassing to reproduce the voter’s ballot in an optical scan readable format
3. Designing a cost-effective and scalable ballot delivery system that does not have to be used with the existing voter look-up website but can be shared with and easily implemented in other jurisdictions

In partnership with the Overseas Vote Foundation (OVF), SBE proposes to collect data to measure voter satisfaction with and the effectiveness of the registration and balloting process, ballot return, and acceptance rates and to track intervening variables that may impact results. A post-election survey of UOCAVA voters will be conducted, and data will be compared across time and across states.

1.2 Goals and Objectives

SBE proposes to develop, maintain, and host two web-based systems – an online voter registration system and online absentee ballot delivery system – for the life cycle of both systems.¹ The decision to develop and manage these systems internally (as opposed to buying a vendor’s solution and the associated support and maintenance packages) is possible because of SBE’s existing, in-house technical expertise. This offers two significant, cost-effective benefits:

1. Existing technical staff with extensive knowledge of the voter registration and absentee ballot process will develop the systems internally. This will allow SBE to maintain ownership of the base code and data, maintain the system at lower costs, and make modifications quickly and cost-effectively.
2. SBE will build a generic, system-neutral interface with existing election systems. Because Maryland will be returning to a paper-based voting system, it is prudent to develop the proposed systems so that extensive programming is **not** required if and when the existing systems change. This is a more sustainable and affordable model than tightly integrating the proposed web-based systems with the State’s current election systems.

Another benefit of the proposed model is that SBE’s systems can be easily shared with other jurisdictions. While the recipient jurisdiction will need to make software changes to reflect its laws and practices, radical changes will **not** be needed to integrate with their existing systems. SBE also intends to minimize logic that is specific to Maryland, which further eases implementation in another jurisdiction. This scalable model can offer other jurisdictions a proven and no-cost solution.²

After thorough internal testing, SBE proposes to consult with outside security auditors to review the code base and conduct a security audit and penetration testing for both systems.³ Once the code base has been reviewed and found to be secure, the code will be licensed as open source under the GPL-3.0 license⁴ and subsequently released. At that point, any individual can review the code base for security flaws, and SBE will establish a process to receive and review any feedback. It will also allow another jurisdiction or vendor to use the code and modify it as needed on the condition that the code continues to be open source.

The existing online absentee ballot delivery system (described in more detail in Section 1.2.2.1) currently includes measures to protect users’ personal identifying information and any transmitted election material. The system’s auto-generated documents are created when the voter selects the link to print the documents and are not stored in the system once the voter closes the window with the documents displayed. If there are five minutes of inactivity, the system

¹ While the State has an existing online absentee ballot delivery system, SBE is rewriting the code because the existing system includes hardcoded business logic, is tightly bound to the State’s existing voter look-up website, and will not work with SBE’s choice of web servers.

² Both systems will be designed to provide information in English and Spanish and will be coded to add additional languages as needed.

³ The proposed security audit will include physical access testing, software and server hacking, and a review of the code for security holes.

⁴ <http://www.opensource.org/licenses/gpl-3.0.html>

ends the voter's session, and the voter must re-enter the system. Because the unique documents exist only as long as the voter has the window open on his or her computer and no longer than five minutes, there is reduced risk that someone other than the voter can obtain the documents. The database is behind a secure firewall, and the website has an industry standard SSL security certificate. In addition to incorporating existing security measures, the re-written online absentee ballot delivery system and the proposed enhancements to the online absentee ballot delivery system will also meet the National Institute of Standards and Technology guidelines for distributing blank ballots.

The proposed online voter registration system and proposed enhancements to the online absentee ballot delivery system collectively address voter registration, ballot request, and ballot delivery. The impact of these systems will be significant as it will improve how UOCAVA voters interact with three critical aspects of the voting process.

1.2.1 Online Voter Registration System

In its 2011 Legislative Session, the Maryland General Assembly authorized online voter registration. Generally, an individual must have a Maryland driver's license number or Maryland identification card number to use the online registration system. A UOCAVA voter who does not have either number may use the system if he or she enters a social security number and consents to use this number as his or her signature. A paper signature will not be required.

Because users must provide an identifying number to use the online voter registration system, the application will query in real-time the Maryland Motor Vehicle Administration's database to validate the driver's license or identification number. For UOCAVA applicants who provide a social security number, the application will store the number and include it in the next file of social security numbers that is sent to the Social Security Administration for verification. Files are generally sent three times a week but increase to six times a week before an election.

The online voter registration system will not directly interface with the voter registration system. Instead, the online voter registration system will use a custom database schema with look-up tables for screen display and saving voter registration data, and it will use and then transfer the data to the production voter registration system database. This transfer eliminates the need for the local boards of elections to enter manually voter registration data, and the lack of direct interface with the statewide voter registration system will enable other jurisdictions to use SBE's system with limited code changes.

SBE's preferred method of data transmittal to the voter registration database is an XML file that complies with the EML standards currently being developed by the IEEE. If, however, IEEE's standards are not published in time for implementation, SBE will use a database table available for back-up and restore to production. A future modification will include changing the data transfer process to use an XML file. This is necessary for ease of use by other states.

SBE's online voter registration system will be written in ASP.Net using Visual Basic (VB) and will work with either Oracle or SQLServer. The system will be installed on a robust set of servers that will be both load balanced and configured, so additional servers can be added easily if needed.

Offering UOCAVA voters a way to register to vote and to request an absentee ballot online dramatically simplifies the registration process, eliminates the transit time that prevents some UOCAVA voters from participating in the election process, and reduces the likelihood of election officials' data entry processing errors, which can lead to misrouting of registration and voting materials. SBE, with OVF, proposes to evaluate whether an online voter registration system increases UOCAVA voter participation and satisfaction. One method of evaluating voter participation is to compare the number of untimely voter registration applications and requests for absentee ballots from the 2008 General Election to the number of untimely applications and requests in the 2012 General Election. A decrease in the number of untimely applications and requests for absentee ballots will be one measure of the proposed system's success.

1.2.2 Online Absentee Ballot Delivery System

In July 2012, SBE will maximize the cost-effectiveness of the State's existing online absentee ballot delivery system by transitioning from a vendor-supported system to an internally supported and managed system. SBE's internal technical expertise, supplemented with outside consulting services, will enable the State to have direct control over the system and more effectively manage current and future costs.

1.2.2.1 Overview of Existing Online Absentee Ballot Delivery System

The State's existing online absentee ballot delivery system is tightly integrated with the State's secure voter look-up website (www.elections.state.md.us). To access the voter look-up website, the user must enter his or her first and last name, date of birth, and zip code. If the information entered matches that of a registered voter, voter information is displayed.

When ballots are ready for transmission, SBE sends an email to each voter who requested an electronic absentee ballot. In this email, SBE gives the voter the link to the voter look-up website and a tracking number that is unique to the voter, the ballot, and the election. When the voter logs into the voter look-up website, he or she clicks on the link to the voter's absentee ballot for the requested election and is prompted to enter the unique tracking number.

After entering the correct tracking number, the voter views and prints the absentee ballot and all of the associated documents. The system seamlessly selects the correct ballot and auto-generates static documents that are unique to the voter.⁵ The voter makes selections on the printed ballot and returns by mail the voted ballot, signed oath and other requested documents.

This system was first used in the 2010 elections and improved the efficiency and accuracy of distributing electronic absentee ballots. Prior to this system, election officials created individual emails and manually attached the appropriate documents for the voter. The system eliminated the risk of attaching the wrong ballot or documents and replaced the manual and time-consuming process of creating individual emails.

⁵ Under Maryland law, an absentee voter must submit a signed oath with his or her absentee ballot. The system creates a unique oath for each voter and auto-populates the voter's name and tracking number on the oath template.

For a variety of reasons, electronically delivered absentee ballots cannot be read by the State's optical scan voting system. First, timing marks on optically scanned ballots must be exact, and most printers cannot print to this exactness. Second, ballots must be of a certain paper weight (90 lb), and most voters do not have access to this weight of paper. Lastly, only paper of certain sizes can be read by these units. The standard paper size for overseas citizens (A4) is not scannable by an optical scan voting unit. As a result, electronically delivered absentee ballots must be duplicated when they are returned for canvassing. Under the current system, the process of duplicating ballots is manual, with bipartisan teams of election officials transferring votes from the electronically delivered absentee ballots to scannable ballots.

Since the 2006, 2008, and 2010 elections, SBE has tracked the number of UOCAVA ballots received by day. SBE will track this data for the 2012 elections to establish whether the number of timely UOCAVA ballots has increased. This is the expected outcome if UOCAVA voters receive their absentee ballots earlier and have more time to complete and return them. Comparing the 2012 data to the 2008 election will be most helpful as the elections are of the same type (presidential) and follow the same election calendar, but SBE will also compare 2012 data with the 2010 General Election as it was the first election after the passage of the Military and Overseas Voter Empowerment Act.

1.2.2.2 Proposed Enhancements to Existing System

To improve the voting experience for UOCAVA voters and the accuracy of their ballots, SBE proposes two enhancements for the 2012 General Election: (1) an online ballot marking wizard; and (2) printing a barcode on the voter's ballot that represents the voter's selections. These proposed enhancements will improve the accuracy and readability of the voter's ballot, reduce voter intent issues, and ease the administrative burden on local election officials of duplicating ballots during canvassing.

1.2.2.2.1 Online Ballot Marking Wizard

With this wizard, the voter will make his or her voting selections on a computer, review a summary screen showing the selections he or she made, and print a ballot with the voter's selections marked. This wizard will improve the accuracy and readability of the voter's voted ballot as it will be designed to prevent overvotes and other voter errors, decrease the likelihood that an election official has to determine the intent of the voter, and increase voter satisfaction with the voting process. These benefits will lead to increased ballot return and acceptance rates.

With voters using the ballot marking wizard, the accuracy of the ballot should improve and the error rate for voters using the wizard should decrease, including the number of "no votes⁶." SBE, with OVF, will compare 2012 error rates with rates from the 2008 General Election and error rates on ballots completed using the online ballot marking wizard with rates on ballots completed by hand. Additionally, SBE and OVF will evaluate voter satisfaction with the wizard.

⁶ A "no vote" is a ballot on which the voter did **not** cast a vote for the highest contest on the ballot.

1.2.2.2 Use of Barcodes on Voted Ballots

SBE proposes to integrate into its online absentee ballot delivery system innovative technology that will capture the voter's selections and other ballot information in a barcode printed on the voter's ballot. The voter will mail to the appropriate local board of elections his or her voted ballot with the barcode printed on it, and during canvassing, the local board of elections will use the barcode to produce a ballot that can be scanned by Maryland's current optical scan voting units used for absentee voting.

To implement this technology, each local board of elections will need:

1. At least one ballot-on-demand printer capable of printing up to 18" ballots with such precision that the State's optical scan voting system can scan and read the selections
2. At least one barcode scanner to read the barcode printed on the voters' ballots
3. Windows PC installed with the .Net 4.0 framework, a lightweight database system, and Adobe's Acrobat Reader
4. SBE's software, which will be written in ASP.Net using VB and use the free iTextSharp library for manipulating PDF documents

The software referenced above has two different functions. First, the software will convert the selections made with the online ballot marking wizard into a Quick Response (QR) barcode⁷ and print the barcode on the voter's ballot. This functionality requires an enterprise database.

Second, the software will be used during canvassing to print a ballot with the voter's selections that can be read by an optical scan voting unit. For this function, the software requires a lightweight, single user database. Prior to each election, SBE will update the database with ballot display details (position of timing marks, etc.) and load onto the Windows PC PDF versions of each ballot. When a local election official scans the QR barcode, the software will use the information in the barcode (e.g., ballot style and precinct identifier) to locate the ballot details in the database, determine which PDF document is the correct ballot for that voter, and using the appropriate positions defined in the database, fill the selections onto the ballot (in memory). Finally, the software will display the filled in ballot in PDF form, and the local election official can print it on official ballot paper. This ballot can then be scanned and read by one of the State's optical scan voting units. Before scanning, a bipartisan team of sworn election officials will compare the two ballots to ensure that the voter's selections are accurately reflected on the scannable ballot.

This innovative enhancement has two significant benefits over the current process of manually duplicating ballots. First, it serves an important safeguard during the canvassing process and improves the accuracy of the counting process by reducing the risk of transcription error when manually duplicating a ballot. It also improves the efficiency of the canvasses

⁷ A QR barcode is a two-dimensional barcode that is readable by QR barcode readers and camera telephones. It consists of black modules arranged in a square pattern on a white background.

conducted by local election officials by replacing a manual process with a primarily automated process with a manual verification.

Second, the hardware associated with this enhancement can be used to print ballots that can be scanned by the optical scan voting unit. Due to the complexity of printing ballots, the State has only one certified ballot printer, and the proposed ballot-on-demand printers can be used to print ballots if Maryland's certified ballot printer is unable to provide absentee ballots on a timely basis. These printers provide a cost-effective, back-up solution to ensure that absentee ballots are transmitted to UOCAVA voters by the 45th day before an election.

1.2.3 Research and System Evaluation

SBE proposes to partner with OVF, a leader in research concerning overseas and military voters and voting, to evaluate the proposed systems' impact on UOCAVA voters' participation, satisfaction, and success. Research and system evaluation are important to establishing the long-term sustainability of a project. Through measurement and analysis, SBE will be able to identify those parts of the system with which voters had the most trouble (e.g., registration vs. balloting) and make adjustments for future elections.

OVF proposes to establish metrics to measure outcomes and the collection of accurate data. OVF's metrics for success include both micro-level individual data (such as voter satisfaction with the registration and balloting processes) as well as macro-level data (such as usage of the online absentee ballot delivery system and ballot return and acceptance rates). These metrics also provide a basis for comparisons across states and facilitate the collection of comparable data.

During both the registration and balloting phase, OVF, with SBE's assistance, will collect data important to measuring outcomes and track those intervening variables that would impact results. These variables include voter experience (e.g., new voters versus experienced voters), the type of voter (civilian or military), age, education, and gender. OVF proposes to measure voter satisfaction in an online post-election voter survey and collect from election officials aggregate data after the election.

Measuring the success of program implementation not only involves comparisons across elections but also comparisons across states. A comparison of the results from 2010 to 2012 may produce skewed results, due to the expected overall voter turnout increase for 2012, a presidential election year. Therefore, a more accurate comparison would be ballot return rates and ballot acceptance rates.

In partnership with SBE, OVF will help SBE:

1. Identify and define metrics for success, important variables to include in the study, and baselines for comparison with other states
2. Prepare monthly reports

3. Design, distribute, conduct and analyze the 2012 Post-Election Maryland voter survey
4. Prepare a final report analyzing the 2012 experience and final metrics. This final report will include comparisons across time and states and will use OVF's existing post-election research and access to data from other states

1.3 Schedule and Milestones

Task	Project		End Date
	VR*	AB**	
Hire technical consultants	√	√	30 days after award notice
Procure hardware & software	√	√	10/1/2011
Quarterly financial report	√	√	10/31/2011
Hardware delivery	√	√	11/1/2011
Software delivery	√	√	11/1/2011
Hardware installed	√	√	1/1/2012
Software installed	√	√	1/1/2012
Test printers		√	1/1/2012
Coding and development	√	√	1/1/2012
Data Access Layer	√	√	8/31/2011
Business Objects Layer	√	√	10/31/2011
Absentee Ballot Wizard Interface		√	11/30/2011
User Interface Layer	√	√	12/31/2011
Quarterly financial report	√	√	1/31/2012
“Go Live” Date	√		7/1/2012
Printer delivery to local boards of elections		√	7/1/2012
Quarterly financial report	√	√	4/30/2012
Code testing & review	√	√	3/1/2012
2012 Primary Election: Early Voting			3/24 – 3/29/2012
Security Audit	√	√	3/31/2012
2012 Primary Election: Election Day			4/3/2012
Mock Election testing	√	√	4/1 – 5/31/2012
Quarterly financial report	√	√	7/31/2012
“Go Live” Date		√	9/2012
2012 General Election: Early Voting			10/27 – 11/1/2012
Quarterly (annual) financial report	√	√	10/31/2012
2012 General Election: Election Day			11/6/2012
Post-election survey	√	√	11/6/2012 – 12/30/2012
Quarterly financial report	√	√	1/31/2013
Data collection & analysis	√	√	2/15/2013
Final report	√	√	3/31/2013

Table 1 - Proposed Schedule and Milestones

* VR is the online voter registration system.

** AB is the online absentee ballot delivery system and the proposed enhancements.

1.4 Reports

SBE proposes to provide performance, data and financial reports during the performance period of this project. Performance and data reports will be prepared monthly, and financial reports will be prepared quarterly. These reports will be submitted at the interval established by FVAP. The final report will be provided by April 30, 2013.

SBE and OVF propose to provide monthly data reporting starting July 1, 2012, when the online voter registration system is scheduled for implementation. The monthly reports will incorporate data collection points, which will allow election officials to monitor usage and evaluate the impact of any outreach efforts. If outreach efforts do not have the desired effect, election officials can adjust their plans to distribute resources in an effective manner.

Reporting measurements will include:

1. A comparison of the submission and success of UOCAVA applicants using the online voter registration system to register to vote, update voter registration records, or request an absentee ballot against the submission and success of UOCAVA applicants using the Federal Post Card Application or other paper form
2. Data on the absentee ballot delivery methods requested by UOCAVA voters
3. A comparison of the success of UOCAVA voters using the online absentee ballot delivery system against the success of UOCAVA voters who received absentee ballots by mail
4. A comparison of the acceptance and error rate of UOCAVA ballots completed using the online absentee ballot delivery system against the acceptance and error rate of ballots completed manually

Upon request of FVAP, SBE will provide data reports after the grant performance period. Without on-going funding, however, SBE would not be able to conduct and analyze a post-election voter survey.

2 Management Approach

2.1 Strategic Goals

The goal of the proposed projects is to simplify the voter registration and ballot marking process for UOCAVA voters and to improve the accuracy and efficiency of the ballot canvassing process. The proposed systems offer UOCAVA voters a secure and efficient way to submit voter registration information, request absentee ballots, and mark absentee ballots. The expected outcome is that UOCAVA voters will have increased rates of voter participation and satisfaction and that the accuracy of the voted ballots will improve.

SBE's decision to use internal resources to develop and maintain the proposed systems is based on the hypothesis that these systems will be more cost-effective to maintain over the systems' life cycles and that modifications can be made quickly and efficiently. SBE staff members with extensive knowledge of existing systems can efficiently apply that knowledge when developing and maintaining the proposed systems.

2.2 Project Methodology

In all information technology (IT) projects and conducting elections, SBE uses the project management approach methodologies in accordance with the Project Management Institute's *Project Management Body of Knowledge*. These methodologies will also be applied to the proposed online voter registration system and the online absentee ballot delivery system. SBE has already conducted an extensive planning process for both of the proposed systems. Each project will follow a project schedule with milestones and tasks that will provide structure and a roadmap for completion in a timely, cost-effective manner. Each project team lead will drive the project schedule and maintain communication of project status through weekly team status meetings.

2.3 Personnel, Resources & Consultants

SBE's proposed systems take advantage of SBE's existing, in-house resources. Because the proposed systems are interrelated and under simultaneous development, there will be some overlap in the SBE's personnel roles. Between the two projects, no more than eight SBE employees will be required during the development period.

To supplement SBE's in-house resources, SBE proposes to contract with two individuals to provide short-term, technical support with completing and reviewing the initial technical development. Additionally, these projects will require four consultants to address aspects of the proposal that SBE does not have the capability to handle with internal resources.

For the two proposed systems' organizational charts, see Appendix A. Both projects will have the following personnel:

- [Redacted]
- [Redacted]

[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]

Table 2 - SBE Resources

2.4 Existing Processes, Risks and Mitigation Strategies, and Performance Indicators

2.4.1 Voter Registration and Absentee Ballot Request Process

Currently, a UOCAVA voter is required to submit a voter registration application⁸ by mail to register to vote in Maryland. The completed application is required by mail because State law requires an original signature when an individual registers to vote. This requirement increases the time needed to become a registered voter and increases the risk – especially for UOCAVA voters – that the completed application will not be timely received by the appropriate local board of elections.

If a UOCAVA voter who is already registered to vote wants to update his or her voter registration information or request an absentee ballot, s/he can submit the request via mail, fax, or email (scanned as an attachment). While a signature is required to make a change to a voter registration record or request an absentee ballot, the signature does not have to be an original

⁸ To register to vote, update information, and/or request an absentee ballot, a UOCAVA voter can submit either a Federal Post Card Application or the State’s voter registration application and the State’s absentee ballot application.

signature. As a result, the local boards of elections can accept and process changes to voter registration records and requests for absentee ballots received by mail, fax, or email.

While there are more transmission options for updating information and requesting an absentee ballot, challenges still exist for UOCAVA voters. If the UOCAVA voter obtains forms from a website, s/he must return the completed form and have access to certain technology (scanner and Internet or fax machine) to submit the form quickly.

An online voter registration system provides the UOCAVA voter with a streamlined and single point registration process. The UOCAVA voter will need only access to the Internet, and, recognizing UOCAVA voters' time constraints, SBE will design the system to minimize the time needed to register to vote or to update an existing voter registration record and request an absentee ballot.

The risks associated with the current processes for registering to vote and requesting an absentee ballot and the inability to mitigate these risks adequately with the current processes are well known and documented. Implementing an online voter registration system offers a solution to many of the risks with the current processes but introduces different risks to the voter registration and absentee request process. The risks and the associated mitigation strategies to the online voter registration system are:

1. The online voter registration system does not function properly, and UOCAVA voters are unable to access the system. If the system is not working properly and cannot be restored in the short-term, SBE's website will direct voters to the voter registration application posted on SBE's website or Federal Post Card Application to complete and return by mail (required for initial voter registration), fax, or email.
2. Information stored by the online voter registration system does not accurately reflect the information entered by the user. The system will include a screen summarizing the information the user provided. The system will display a summary screen showing all data provided by the user before the application is finalized. The user will be able to edit data if needed and only finalize when the data is accurate. In its planned internal testing and using the proposed security consultants, SBE will vigorously test the system and verify that the data entered via the website matches the data transferred to the database.
3. The connection between the online voter registration system and the Motor Vehicle Administration's database does not work. The system will be designed to continue accepting applications without verifying driver's license or State identification numbers against the Motor Vehicle Administration's database and queue those applications submitted while the connection was not working. Once the connection is restored, the verification checks will be conducted offline. SBE will develop procedures to notify applicants that their driver's license or State identification numbers did not subsequently verify.
4. The security of the online voter registration system is jeopardized (e.g., the system has been breached). In its planned internal testing and using the proposed security

consultants, SBE will vigorously test the system and strengthen any weaknesses identified in the penetration and other security testing. This testing will be conducted periodically over the life of the system to ensure the handling of any new threats.

SBE expects that the simplification of the registration, update, and ballot request processes will increase participation and satisfaction of UOCAVA voters. OVF's proposed post-election survey will measure voters' satisfaction, and OVF's prior post-election surveys and analyses can provide data against which to compare the results of the proposed 2012 Maryland post-election survey. SBE's voter registration records will be analyzed to establish UOCAVA voter participation. SBE can currently establish the number of UOCAVA voters whose initial voter registration and requests to update voter registration records and absentee ballots were not timely received, and this data will be used to measure the success of the proposed online voter registration system (e.g., how many more applications from UOCAVA voters are timely).

2.4.2 Absentee Voting Process

When requesting an absentee ballot, a UOCAVA voter can request to receive the ballot by mail, fax, or email. As described in detail in Section 1.2.2.1 of this proposal, a UOCAVA voter who requests to receive an absentee ballot by email receives an email when his or her ballot is ready for download from the State's existing online absentee ballot delivery system.

The current delivery system provides the voter with static PDF documents to print. The voter votes the printed ballot manually and returns by mail the voted ballot, signed oath, and any other required documents. Once the local board of canvassers votes to accept and count the ballot, a bipartisan team of election officials duplicates the voter's selections from the ballot marked by the voter onto a ballot that can be scanned and read by the State's optical scan voting system. The duplication process is time-consuming for the local boards of elections and introduces some level of risk of inaccurate duplication, although this risk is mitigated by the bipartisan team requirement and existing business procedures.

Transmitting blank absentee ballots electronically provides the voter with more time to vote the ballot and increases the likelihood that the voted ballot is timely received. SBE has data identifying the number of untimely absentee ballots from UOCAVA voters from the 2006 through 2010 elections and will collect and compare the data from the 2012 elections; the comparison between the 2008 and 2012 elections will be most useful as it compares similar election cycles and calendars, although the 2010 General Election will be reviewed as it was the first election since the passage of the Military and Overseas Voter Empowerment Act.

The local boards of elections will be surveyed to estimate the time and cost (if available) from the 2010 General Election attributable to duplicating ballots. This will enable SBE to compare the time attributable to duplicating ballots in 2010 to 2012, when SBE proposes to use barcodes and ballot-on-demand printers during the canvass process. SBE expects that the duplication time will decrease by up to five minutes per ballot with the proposed enhancements, and the decrease will be significant in those jurisdictions with a large number of voters who requested an electronic absentee ballot. Less duplication time equates to reduced costs as some local boards of elections pay the members of the local board of canvassers and staff by the day.

With the current online absentee ballot delivery system, the UOCAVA voter manually votes the ballot, and as a result, there are opportunities for voter error (e.g., voting for more than the maximum number of candidates), and voter intent can be difficult to decipher. The integration of the proposed online ballot marking wizard should reduce opportunities for error as it will prevent voters from “overvoting” and will provide voters with a summary screen to review before printing their ballots. SBE has data on error rates for the various methods of voting and will use this data as the baseline for measuring error rates on ballots completed using the proposed online ballot marking wizard against those completed manually. It is expected that the error rates on absentee ballots completed using the proposed online ballot marking wizard will be lower than those completed manually.

An online absentee ballot delivery system and SBE’s proposed enhancements address many of the risks of the current process, but as with the online voter registration system, this approach introduces different risks that must be addressed. The risks and the associated mitigation strategies to the online absentee ballot delivery system are:

1. The online absentee ballot delivery system does not function properly, and UOCAVA voters are unable to access the system. When the current ballot delivery system was implemented for the 2010 Primary Election, the system became unavailable for two days when the connection with the database was interrupted. Once the connection was re-established, the system performed as expected through the 2010 Primary and General Elections. Starting with the 2011 elections, the current system will automatically send the network administrators alerts if the database connection goes down. If the system cannot be restored in the short-term, state and local election officials will return to the previous way electronic absentee ballots were delivered – via individual emails sent to voters – until the system is restored.
2. The online absentee ballot delivery system is available and works, but the online ballot marking wizard does not. SBE intends to offer voters the option of using the online absentee ballot marking wizard to complete the ballot or downloading and printing the ballot and marking it manually. If the online ballot marking wizard is not available for use, SBE will direct voters to download the ballot and other documents and vote the ballot manually.
3. The ballot printed by the online ballot marking wizard or the QR barcode on the printed ballot does not reflect the voter’s selections. SBE will integrate a summary screen into the online ballot marking wizard to provide voters with the opportunity to review their selections before printing their ballot. In its planned testing and through its proposed security testing, SBE will vigorously test the system and verify that both the printed ballot and the content of the QR barcode accurately reflect the voter’s selections. Ideally, a voter reviewing his or her printed ballot would notify SBE of any inaccurate marking. Until the system is restored, SBE will direct voters to download the ballot and vote the ballot manually.

4. The software used to read the QR barcode and generate a scannable ballot does not work. While the software will be thoroughly tested, in the event it does not work, the local boards of elections will utilize the 2010 strategy – that is, they will create bipartisan teams to duplicate manually the ballots.
5. The software used to read the QR barcode and generate a scannable ballot prints selections that are not the voter’s selections. Because SBE will continue to require the local boards of elections to have bipartisan teams comparing the ballot the voter returned against the ballot generated by the ballot-on-demand printer, the bipartisan team will identify any incorrect selections. If any selections are inaccurate, the bipartisan team would manually duplicate the ballot.
6. The security of the online absentee ballot delivery system is jeopardized (e.g., the system is breached). In its planned internal testing and using the proposed security consultants, SBE will vigorously test the system and strengthen any weaknesses identified in the penetration and other security testing. This testing will be conducted periodically over the life of the system to ensure the handling of any new threats.

2.5 Financial Management and Cost-Effectiveness

Financial management will be the responsibility of the project managers of the proposed projects. For the named vendors, SBE has negotiated fixed-price-by-deliverable bids for this project and will negotiate the same types of bids as the remaining vendors are selected. The pricing structure will enable SBE to manage to the proposed budget.

To the extent possible, funds will be tracked by project and aggregated for any reporting required by the FVAP. Financial reports (e.g., SF-425) will be prepared quarterly and submitted at an interval established by FVAP.

When considering the various implementation and maintenance strategies for systems that will benefit UOCAVA voters, it became clear that the most cost-effective solution was to develop and maintain internally an online voter registration system and an online absentee ballot delivery system. This decision means a reduction in the current budget for the online absentee ballot delivery system and a reduction in the implementation and maintenance costs of the online voter registration system. These cost-saving measures include:

1. Transitioning the online absentee ballot delivery system from a vendor-supported system to an internally supported and managed system. As described in Section 1 of this proposal, SBE expects to save funds by using existing, in-house resources and eliminating overhead expenses usually associated with using external vendors.
2. Using innovative barcode technology in the absentee voting process that will reduce the staff time for canvassing. This means less wages and salary cost for the local boards of elections, which previously manually duplicated ballots.

3. Using in-house resources to develop, implement, and maintain the online voter registration system. This sustainable approach will require less funding than outsourcing to a third party vendor, even one selected through a competitive procurement process.
4. Reducing the need for local boards of elections to enter manually voter registration information submitted by UOCAVA voters into the statewide voter registration database.
5. Retaining ownership of the code base and data of both proposed systems, so SBE can maintain the systems at lower costs over their life cycles and make modifications quickly and cost-effectively.

2.6 Collaborative Activities

SBE regularly collaborates with Maryland's 24 local boards of elections. There are a variety of committees led by SBE and comprised of representatives of the local boards of elections that make recommendations and decisions on all aspects of election administration. It is rare that a decision is made by SBE that has not been vetted by local election officials.

SBE has previously collaborated with the Pew Charitable Trusts' Make Voting Work project to develop an election audit pilot program and is currently working with Pew and other states on its voter registration data exchange program (ERIC). SBE has not previously collaborated with federal agencies.

2.7 Current and Pending Project Proposal Submissions

In its 2011 Legislative Session, the Maryland General Assembly allocated \$250,000 of State funds for the development and implementation of an online voter registration system. These funds are currently budgeted for software modifications to the statewide voter registration system and web hosting expenses, and SBE has funds to pay the salaries and associated fringe benefits of SBE staff members who will develop and maintain the online voter registration system. SBE does not have any current or pending funding for the proposed security review or the research consultant. If SBE's proposal is funded, any unallocated State funds will be used in the following fiscal year for operations and maintenance of the online voter registration system.

Because SBE proposes to use in-house resources to develop and maintain the online absentee ballot delivery system, the salaries and associated fringe benefits of these employees are funded in both the current and next fiscal year. SBE does not, however, have current or pending funding for the QR barcode scanners, ballot-on-demand printers, associated supplies, the proposed security review, the technical consultant for the online absentee ballot delivery system to supplement in-house resources, or the research consultant.

Since the webhosting costs apply to both proposed systems as well as other SBE projects, SBE proposes to share the costs of webhosting services between State funds and grant funds. SBE has allocated 50% of the costs for web hosting and software development costs to State funds and 50% to FVAP grant funds. Software development costs were likewise shared between the two funding sources.

SBE has no current or pending proposals requesting funds for the proposed projects.

2.8 Qualifications of Key Personnel

[REDACTED]

[REDACTED]

[REDACTED]

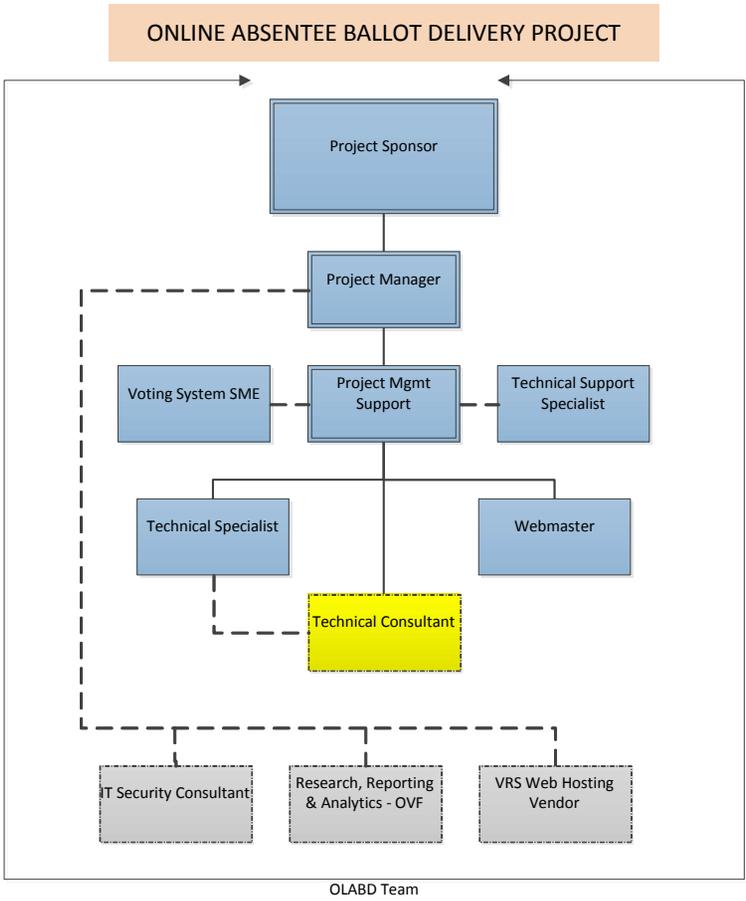
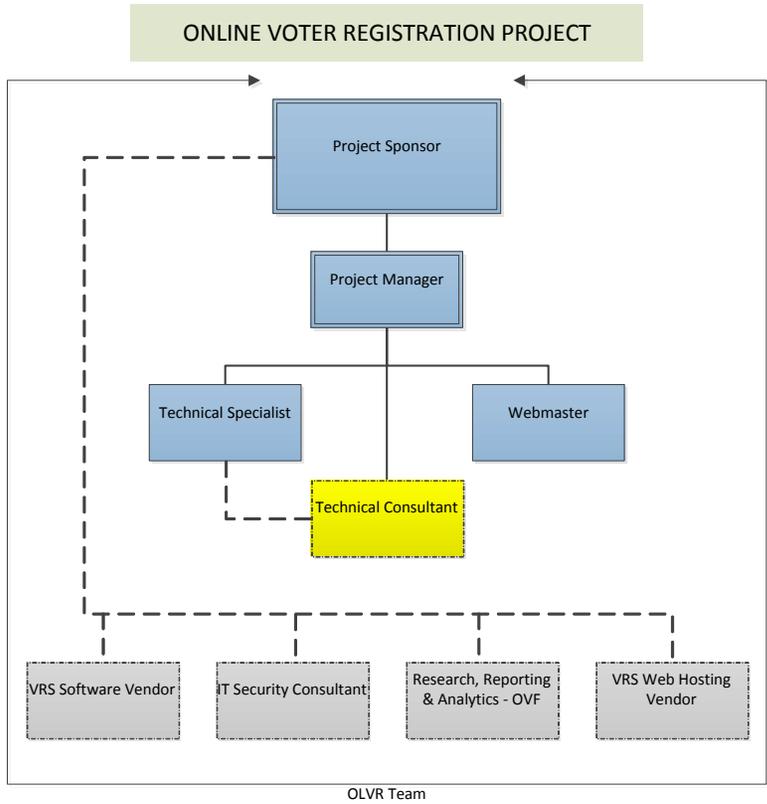
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Appendix A: Proposed Organization Chart

FVAP EASE GRANT PROPOSAL ORG CHARTS



SBE FTEs
 On-Site Consultants
 Off-Site Consultants

Appendix B: Curriculum Vitae for Dr. Claire M. Smith, Research Director for OVF

DR. CLAIRE M. SMITH

Krandelstr. 5 | Wildeshausen, 27794 GERMANY | +49 4431 946 6914 | claire@overseasvotefoundation.org

RESEARCH AND ACADEMIC EXPERIENCE

Overseas Vote Foundation, September 2008 – Present

Research Program Director

- Oversaw analysis of 2008 and 2010 voter and local election official post-election surveys
- Conducted original research on the impact of state UOCAVA policies on voters. This paper created an UOCAVA State Policy Index in order to determine which states have been the most progressive in implementing federal standards. I then tested hypotheses about the effect of these laws on ballot return rates, ballot rejection rates, and voter satisfaction using EAC aggregate data and OVF survey data.
- Editor and contributor to monthly research newsletter, including articles on indentifying the correct number of UOCAVA voters and evaluating available data sets
- Organized academic panels for UOCAVA Summit 2010 and Summit 2011, including theme development and speaker recruitment
- Prepared materials for research and outreach grant proposals for the Carnegie Corporation, Pew Center on the States
- Prepared testimony for congressional hearings, as well as answering questions from congressional staff regarding the impact of policy
- Answered questions from the "Voter Help Desk," communicating to voters around the world

Carl von Ossietzky Universität, Oldenburg, Germany, 2005 - 2006

Adjunct Professor, Department of Political Science

- Classes Taught: Federalism in the U.S., Voting and Participation in the U.S., Parties and Organizations in Germany

University of Notre Dame, South Bend, IN, 2000 - 2002

Teaching Assistant and Research Assistant

- TA for: Introduction to American Politics, Introduction to Comparative Politics
- Collected data for projects investigating the impact of women's suffrage (with Prof. Christina Wolbrecht), social capital and state policy outcomes (with Prof. Rodney Hero)

MANUSCRIPTS

"It's in the Mail: The Military and Overseas Voting Experience," (with Judith Murray), book manuscript in progress

"Barriers to Overseas Voting and Satisfaction with the Voting Process," (with Thad Hall) Journal article

EDUCATION

University of Notre Dame, South Bend, IN
PhD Political Science, May 2005

- First Field: Comparative Politics; Second Field: American Politics
- Subspecialties: political parties, party systems, federalism, electoral systems
- Dissertation: "Money to Burn: Party Finance and Party Organization in Federal Countries"

University of Notre Dame, South Bend, IN

MA Political Science, January 2002

- Master's Thesis: "Dimensions of Political Finance Legislation in the U.S. States: An Institutional Exploration"

Radford University, Radford, VA

BA Political Science and German (magna cum laude), May 1999

ADDITIONAL CERTIFICATIONS AND QUALIFICATIONS

ICPSR Training Program in Quantitative Methods of Social Research, University of Michigan
Summer 2000

Cambridge Certificate in English Language Teaching to Adults (CELTA), Hamburg, Germany
July 2006

ENGLISH TEACHING EXPERIENCE

Bildungswerk Cloppenburg, Cloppenburg, Germany, 2009

Consultant and English Teacher

- Created and implemented new certificate course in Business English, including syllabus design, literature selection and setting end of course standards

CNC Language Network, Cloppenburg, Germany, 2006 –2008

Owner, English Teacher

- Sales responsibilities included identifying, visiting and making presentations to clients
- Negotiated prices and terms of payment with clients
- Conducted needs analysis for customers and designed courses to meet customer needs
- Organized teachers, work schedules, and other personnel issues
- Management duties included planning and implementing marketing strategy, accounting, and customer service relations

inlingua Sprachschule, Oldenburg and Cloppenburg, Germany, 2004 – 2005

English Teacher

CONFERENCE PAPERS

"When No One Can Knock on Your Door: Getting Out The Vote to Overseas Americans." Presented with Paul Herrnson and Michael Hanmer. Annual Meeting of the American Political Science Association, September 2011.

"*Time to MOVE: Overseas and Military Voter State Policy Innovation.*" Midwest Political Science Association Conference, April 2011.

"*Overseas Voter Satisfaction in 2010.*" Presented with Thad Hall. Midwest Political Science Association Conference, April 2011.

"*Defending Votes: Legislative Policy and Military Voting.*" Midwest Political Science Association Conference, April 2010.

"*It's in the Mail: Surveying UOCAVA Voters and Barriers to Voting.*" Annual Meeting of the American Political Science Association, September 2009.

"*Ask and then Ask Again: Party Finance Laws and the Rise of Fundraising in Canada and the U.S.*" Midwest Political Science Association Conference, April 2005.

"*The Ties that Bind: Party Finance and Party Organization in Canada and the U.S.*" Northeastern Political Science Association Conference, November 2004.

"*Money to Burn: Party Finance and Party Organization in Germany and Austria.*" Midwestern Political Science Association Conference, April 2004.

"*Dimensions of Political Finance Legislation in the U.S. States: An Institutional Exploration.*" Midwestern Political Science Association Conference, April 2002.

"*Where's the Party? Federalism and Political Finance in the United States and Germany.*" Annual Meeting of the American Political Science Association, August 2001.

"*Democracy's Dilemma: The Role of Political Culture in Democratic Consolidation.*" Presented with Karrie Koesel at the Midwestern Political Science Association Conference, April 2001.

"*Adapting Consociationalism: Viable Democratic Structures in Burma.*" International Studies Association – Midwest Conference, October 2000.

AWARDS

Kaneb Center Outstanding Graduate Student Teacher Award, *University of Notre Dame*, April 2002
Outstanding Student of the Year, *Radford University*, 1999

SCHOLARSHIPS AND FELLOWSHIPS

Kellogg Institute Dissertation Year Fellowship, *University of Notre Dame*, 2003-2004
Friedrich Ebert Stiftung Dissertation Support, *Germany*, 2002-2003
Nanovic Institute Dissertation Fellowship, *University of Notre Dame*, 2002 - 2003
Kellogg Institute Seed Money for Graduate Students, *University of Notre Dame*, Summer 2002
Downs Summer Training Travel Grant, *University of Notre Dame*, Summer 2000
Zeta Tau Alpha Foundation Achievement Scholarship, 1999

PROFESSIONAL MEMBERSHIPS AND SERVICE

American Political Science Association (APSA)

Midwest Political Science Association (MWPSA)

American Citizens Abroad (ACA), Country Contact for Americans in Germany

- Participated in Overseas Americans Week 2009, 2010 (OAW) in which representatives of three major overseas citizen advocacy organizations meet with legislators, staffers, and key government agencies

ADDITIONAL SKILLS

Foreign Languages German (fluent), French (some spoken)

REFERENCES AVAILABLE UPON REQUEST