

TECHNICAL PROPOSAL

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Title: Improving UOCAVA Voter Experience through Socially Networked Software

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District of Columbia Board of Elections ~~and Ethics~~,

with its development partners ~~Verafirma~~ and Election Management Consulting Services
Konnech, Inc.

Technical contact:

~~Paul Stenbjorn~~

~~Director Information Services, DC Board of Elections & Ethics~~

~~(202) 727-1911~~

~~pstenbjorn@deboec.org~~

441 4th St. NW, Suite 250 N

Washington, DC 20001

Administrative contact:

~~Rokey Suleman~~

~~Executive Director, DC Board of Elections & Ethics~~

~~(202) 727-2525~~

~~rsuleman@deboec.org~~

441 4th St. NW Suite 250 N

Washington, DC 20001

~~August 2011-November 2012~~

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Signature: [REDACTED]

Printed Name: Clifford D. Tatum

Date: 11/7/13

Clifford D. Tatum
Executive Director, DC Board of
Elections
(202) 727-2525
ctatum@dcboee.org
441 4th St NW, Suite 250 N
Washington, DC 20001

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Technical Approach and Justification

Executive Summary

According to studies published by the Federal Voting Assistance Program (FVAP) following the 2008 election, voter failure among uniformed and overseas voters was most frequently attributed to errors in the transmission of ballots between UOCAVA voters and their local boards of elections in a sufficient time for the ballots to be processed and counted¹. The study concluded that the FVAP website and electronic resources may help to streamline the absentee voting process.² To assist in FVAP's goal of providing solutions to ease the burden on military and overseas absentee voters, ~~the District of Columbia Board of Elections and Ethics (DCBOEE) intends to partner with Verafirma, a California-based nonprofit corporation~~ ^{Konnech, Inc.} to design and deploy an application that allows voters to access a cloud based version of both the FPCA and the DCBOEE's absentee ballot application from their touch screen computing devices (e.g. iPad, Android tablets). Voters will be able to complete the forms using these devices and transmit the data and a PDF of the application to the DCBOEE. The information DCBOEE receives will be in an electronic format that integrates with its existing voter registration software to allow for faster, more accurate processing of application data.

The program is a modular application, already deployed and tested by ~~Verafirma~~ ^{Konnech, Inc} and will be offered to DCBOEE at little or no cost apart from the integration into DCBOEE's existing systems. Once deployed, the application can be hosted on a variety of different websites and social media platforms. By leveraging the viral nature of cloud hosted applications, DCBOEE intends to empower candidates, advocacy groups and other governmental entities to deploy this application and increase the programs exposure among UOCAVA voters.

Using specified touch screen devices, voters may digitally sign the forms and the DCBOEE will accept them as a valid signature—essentially eliminating the need for UOCAVA voters to print and mail the forms via regular post.³ ~~The goal of the pilot program is to develop, deploy and test the application and the data processing system from August through October with final deployment available November 1, 2011 to ensure that ballots are available to eligible UOCAVA voters more than 45 days before the April 3, 2012 primary election in the District.~~ Because the digital transmission of the data removes human error caused by illegible handwriting and data entry errors, DCBOEE will be able to transmit ballots more quickly and more accurately, thus allowing UOCAVA voters more time to complete the ballots and return them. The digital entry of information will drastically reduce the number of ballots returned to the DCBOEE as undeliverable mail.

¹18th Report: 2008 Post Election Survey, Report by the Undersecretary of Defense, March 2011 pg. v.

²Id. at viii

³ During the pilot program, participating voters will also be asked to print and submit hard copy forms to the DCBOEE to ensure accuracy in processing.

Goals and Objectives

DCBOEE will deploy a cloud based FPCA application that electronically transfers information from the UOCAVA voters to the Board of Elections that reduces the number of FPCAs and absentee ballot requests returned as undeliverable mail.

During the 2008 election cycle, 1.4% of voting failure among UOCAVA voters occurred in registration or absentee ballot application failures, another 7.0% in ballots being returned as undeliverable, 78.2% in ballots transmitted but not returned at all or in time and 13.4% were cast but not counted.⁴ FVAP believes that the majority of voting assistance resources and efforts therefore should be applied to addressing the issue of ballot transmission failure. The process by which UOCAVA voters apply for and receive an absentee ballot has several steps which provide potential for delay and error. DCBOEE's proposed system seeks to address the problems of ballot application and transmission at several steps of the process. First, it will provide an exportable and user friendly interface through which UOCAVA voters could access and complete the FPCA or the DCBOEE absentee ballot application. The application will lead voters to a fillable PDF form which they can complete using their touch screen devices. This will go far to eliminate handwriting errors and provide clear and readable identification and address information.

Second, it will allow voters to digitally sign the form using their finger or a stylus. This digitized signature can be accepted as valid under the Uniformed Electronic Transaction Act⁵ and will eventually replace the need for absentee voters to print and transmit the ballot through regular mail. Finally, the application will transfer the data immediately over the Internet which will greatly eliminate the time it takes to send ballots overseas to local state election boards and will allow the boards of election to quickly process the application and send a ballot to the voter.

Rates of Return by Date of Ballot Request (November 2010 General Election)

Ballot Request Date	Total Voters	Ballots returned	Ballots not returned
<30 days before election	102	58	44
30-45 days before election	1239	418	821
45 + days	44	32	12

Statistics show that the block of voters with the highest rate of return are those voters who applied for and received their ballots earliest, therefore, if a system exists to speed up the process, it may be able to address the rate of return within the 30-45 day window. FVAP indicates that UOCAVA voters need their absentee ballots sent to them closer to 60 days before the ballots are due in the local election office to provide voters the proper amount of time for completion and submission⁶. By providing a faster processing time for the application and transmission of the absentee ballot, UOCAVA voters can easily apply for the ballot well in advance and receive their

⁴ 18th Report of 2008 Post election results, page vi.

⁵ D.C. Official Code §28-4901 *et. seq.*

⁶ 18th Report 2008 Post Election results, pg vii

ballots more quickly. In general, military voters are a more mobile population—frequently changing address every two to three years with interruptions for individual or unit deployments and temporary training. In light of this, FVAP recommends that all UOCAVA voters submit new FPCAs annually, at every change of duty station and before and after every overseas deployment.⁷ This application will make the process of completing the FPCA easier and thus increase the rate of communication between UOCAVA voters and their local election offices.

Konnech ~~Verafirma~~ and Election Management Consulting Services, LLC (EMCS), ~~will obtain the core system used to distribute and collect data for FPCA and absentee applications, hosted by Verafirma in a SAS70 Type II secured facility with redundant hardware, power and Internet connectivity. Verafirma~~ ^{Konnech, Inc.} will work with DCBOEE to tailor the application to mirror the look and feel of the DCBOEE website and to distribute the application to voters using 128-bit SSL encryption. DCBOEE then intends to offer the application as a pluggable gadget to advocacy organizations, military organizations, campaigns and other citizens or citizen groups interested in informing UOCAVA voters. Preliminary DCBOEE tests indicate that the larger touch screen devices, such as the iPad and the use of a stylus to capture signatures had a higher success rate in capturing accurate signatures than smaller devices like a smartphone. As a result, initial tests of the application's success will focus on iPad and other tablet technology. Once the PDF is completed digitally, it will be encoded and sent to a specified secure e-mail account maintained by the DCBOEE. The PDF documents will be embedded with a text data file containing all form contents entered by the voter.

Once the form has been transmitted digitally from the user's handheld device, the DCBOEE will inspect each PDF package received and will extract text files from each of the PDF documents and store these files on its secured server. The PDF documents will then be attached to voter records in the *Integrity* voter registration management system. EMCS, which currently manages the *Integrity* system, will create an automated data management routine using SQL Server Integration Services (SSIS) to parse and import the data from each text file and import it into the voter registration system. From there, FPCA data will be evaluated to establish voter registration status of the voter (i.e. voter not registered, active, inactive or cancelled). If the voter is not currently registered, voter data will be populated in the queue of pending voter registrations. Once signature verification is completed—either by acceptance of digitized signature on PDF or from receipt of paper FPCA form—the voter will be made active and an absentee request record will be created. When the absentee ballot request has been approved, DCBOEE will mail a ballot to the voter or provide the voter with an electronic link to the ballot in the next absentee ballot processing batch. The returned FPCA digital document or mailed paper document will be electronically attached to the voter's record. In the District of Columbia all returned absentee ballots, whether mailed or emailed, are required to be accompanied by a signed attestation by the voter.⁸ All absentee ballot envelopes received by mail are scanned and recorded as received. Signature panels on the absentee ballot envelopes are digitally scanned and stored as part of the absentee ballot record. These digitally captured signatures are compared to other digitally captured signatures on file within the voter's registration record to validate voter's

⁷ Id. at 15.

⁸ 3 DCMR §717.7 (h)

Konnech, Inc
Verifirma
identity. Use of the Konnech, Inc Verifirma digital signature capturing technology will introduce an additional digitized voter signature to this confirmation process.

The application provides a sustainable, exportable and user friendly solution to the absentee voting process at a low cost and using a technology that is increasingly more available to military voters.

Konnech
Verifirma
The costs for deploying this solution will be low. The principal vendor, Konnech Verifirma, is making its technology platform available to the DCBOEE at no cost aside from implementation costs. The costs associated with the proposal are limited to the implementation and the deployment of the “back office” function, specifically the redesign of the *Integrity* system to communicate with the Konnech, Inc Verifirma application. The majority of costs will go to integrating data received through the Konnech, Inc Verifirma system into DCBOEE’s exiting voter registration/absentee ballot processing system. Once the system is operational, the cloud based application provides a scalable platform that could gain wider adoption. Eventually, the use of a standardized data format for the collection of voter registration data can facilitate the use of a common data format for all voter registration data. Most importantly, the application interface is user friendly and will make the process accessible to UOCAVA voters.

The very nature of the technology is easily exportable. Cloud based technology allows access from any handheld device. Furthermore, cloud based technology and handheld computing is a rapidly growing area of technology gaining wide use within private and public sectors as well as the military. Military leaders currently are working with software developers to find ways to use iPads and other tablet technology to improve troop efficiency.⁹ Deployed personnel are younger, more mobile and more likely than the population as a whole to embrace touch screen technology. Developing a suite of software tools that utilizes familiar and accessible technology will increase the likelihood of UOCAVA voter participation.

Transfer of FPCA data electronically via cloud technology using leading data encryption technology will provide a stronger level of protection of UOCAVA voter’s personally identifiable information.

Using proven data encryption technologies will provide an acceptable level of risk in obtaining complete, unaltered data. Further risk mitigation strategies will be developed in concert with Konnech, Inc Verifirma and the DCBOEE will publish these strategies as part of its implementation plan.

⁹ <http://www.army.mil/article/36178/army-apple-meet-to-discuss-hand-held-solutions-for-soldiers/>

Konnech, Inc

~~Verafirma~~ has a great deal of expertise in the management and deployment of secure data across distributed networks and will employ the following security protocols:

Data Center Security

- State-of-the-art, SAS70 Type II secured facilities with redundant hardware, power and Internet connectivity.
- 24 x 7 x 365 onsite security
- 2 layers of controlled data center access
- 24 x 7 onsite systems administrators / NOC

Operational Security

- SAS70 Type II certified data center
- Systems access logged and tracked for auditing purposes
- Proactive application and system vulnerability testing

Application Security

- Full 128-bit SSL encryption for all mobile and web communication, documents and data
- Pure web application, no client downloads required
- Timed session IDs uniquely identify each signer
- Proactive application and system vulnerability testing

Transaction Security

- Full 128-bit SSL encryption for all communication, documents, and data
- Multi-factor authentication for document signing
- Detailed audit trails generated for all e-signed documents
- PDF documents digitally signed and certified

DCBOEE will also provide protection from fraud by individually validating the data it receives against existing voter data. Voters not previously registered will still be subject to statutory voter ID requirements, specifically, voters previously registered must provide some form of signature for attestation and identification purposes.

Schedule and Milestones

~~DCBOEE intends to begin development and implementation of the system as soon as possible to complete the necessary programming and testing. The goal is to ensure that the application is available for use by UOCAVA voters to ensure that the ballots are available more than 45 days before the April 3, 2012 primary election. With this in mind, DCBOEE has developed the following schedule.~~

~~See task list on next page.~~

ID	Task Name	Duration	Start	Finish	Predecessors
1	Develop agreement with EMCS and Verafirma	1 day	Mon-8/14/11	Mon-8/14/11	
2	Layout FPCA forms and DC absentee application forms in PDF format for cloud distribution	10 days	Tue-8/22/11	Mon-8/15/11-1	
3	Deployment of cloud based forms in Verafirma platform for system testing	0 days	Mon-8/15/11	Mon-8/15/11-2	
4	Security testing penetration testing of cloud based system	5 days	Tue-8/16/11	Mon-8/22/11-3	
5	Development of back end secure email file processing system to receive PDFs with embedded information	20 days	Tue-8/23/11	Mon-9/19/11-4	
6	Test processes for acceptance of PDF documents and receipt of text files	10 days	Tue-9/20/11	Mon-10/3/11-5	
7	Test file transmission of data files from cloud based system to DCBOEE servers	5 days	Tue-10/4/11	Mon-10/10/11-6	
8	Remote access test of cloud based system	5 days	Tue-10/4/11	Mon-10/10/11-6	
9	Initial deployment test of importation of text files into voter registration system	0 days	Mon-10/10/11	Mon-10/10/11-7	
10	Structured test of social network deployment of cloud based system	16 days	Tue-10/11/11	Tue-11/4/11-9	
11	Programmatic and Financial Report-1	1 day	Wed-11/2/11	Wed-11/2/11-10	
12	Final Deployment of production system	0 days	Wed-11/2/11	Wed-11/2/11-11	
13	Notice to voters posted online and in social media	0 days	Sun-1/1/12	Sun-1/1/12	
14	Application available for voters' use	0 days	Mon-1/16/12	Mon-1/16/12	
15	Initial reporting period for voter's system use	24 days	Mon-1/16/12	Thu-2/16/12-14	
16	Programmatic and Financial Report-2	1 day	Wed-2/1/12	Wed-2/1/12	
17	45-day deadline for ballot mailing for primary election	0 days	Fri-2/17/12	Fri-2/17/12	
18	Reporting of FCPA submission by deadline	5 days	Fri-2/17/12	Thu-2/23/12-17	
19	Primary election date	0 days	Tue-4/3/12	Tue-4/3/12	
20	Deadline for receipt of absentee ballots	0 days	Fri-4/13/12	Fri-4/13/12	
21	Preliminary report of absentee ballot return rates	10 days	Fri-4/13/12	Thu-4/26/12-20	
22	Final analysis of system use for primary election	20 days	Fri-4/27/12	Thu-5/24/12-21	
23	Programmatic and Financial Report-3	1 day	Tue-5/1/12	Tue-5/1/12	
24	Revision of application based on analysis of user feedback and system process reporting	40 days	Wed-5/2/12	Tue-6/26/12-23	
25	Programmatic and Financial Report-4	1 day	Wed-8/1/12	Wed-8/1/12	
26	Announcement of availability of application for general election 2012	0 days	Wed-8/15/12	Wed-8/15/12	
27	45-day deadline for ballot mailing for general election	0 days	Fri-9/21/12	Fri-9/21/12	
28	Reporting of FCPA submission by deadline	5 days	Fri-9/21/12	Thu-9/27/12-27	
29	General election date	0 days	Tue-11/6/12	Tue-11/6/12	
30	Deadline for receipt of absentee ballots	0 days	Fri-11/16/12	Fri-11/16/12	
31	Preliminary report of absentee ballot return rates	10 days	Fri-11/16/12	Thu-11/29/12-30	
32	Final analysis of system use for primary election	5 days	Fri-11/30/12	Thu-12/6/12-31	
33	Final Report	1 day	Mon-12/3/12	Mon-12/3/12	
34	Revision of application based on analysis of user feedback and system process reporting	10 days	Tue-12/4/12	Mon-12/17/12-33	

Project: DCBOEE FVAF2011
Date: Mon-7/11/11

Task

Split

Progress

Milestone

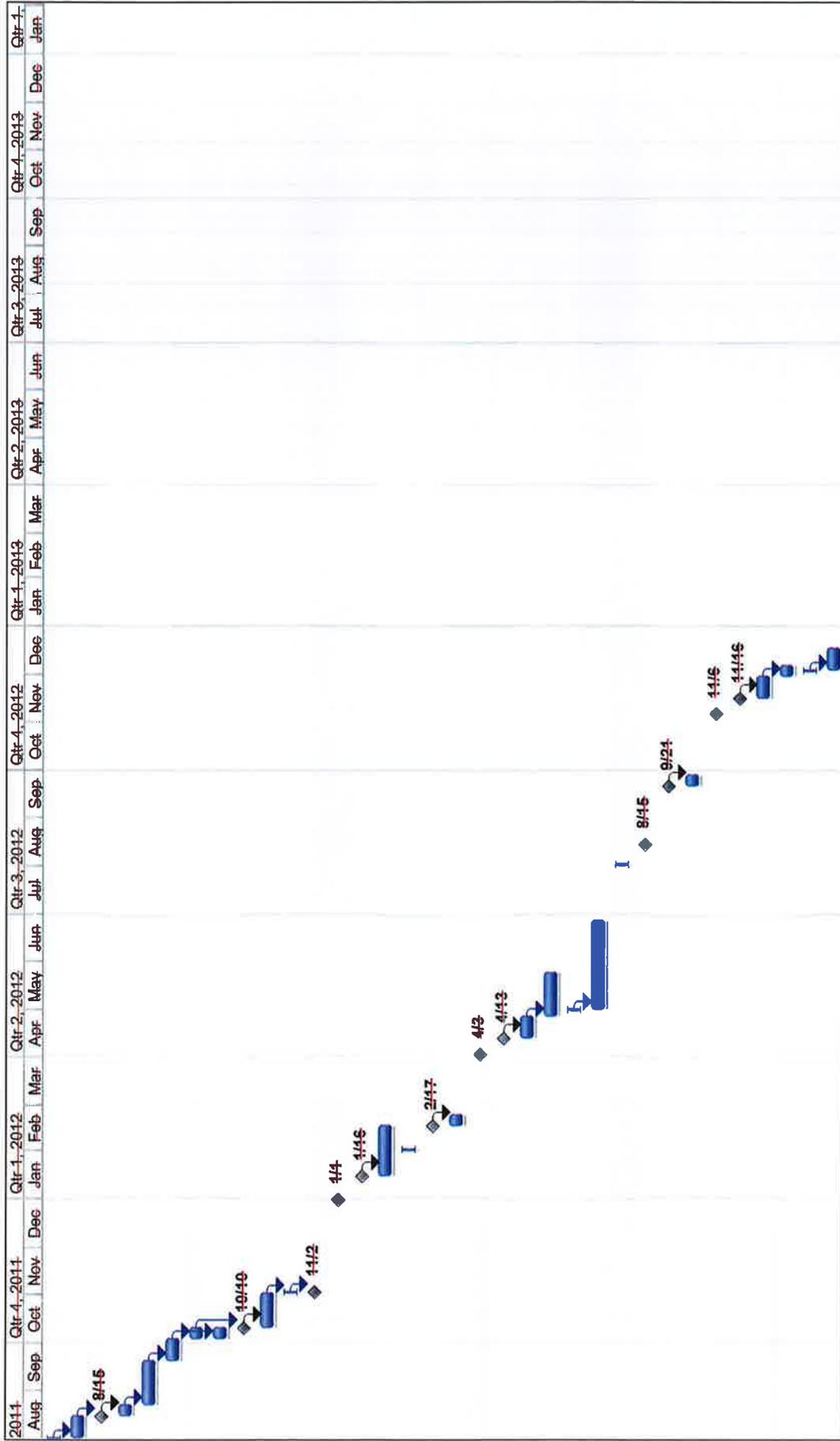
Summary

Project Summary

External Tasks

External Milestone

Deadline



Project: DCBOEE_FVAP2014
 Date: Mon 7/11/11

Task	Milestone	External Task
Split	Summary	External Milestone
Progress	Project Summary	Deadline

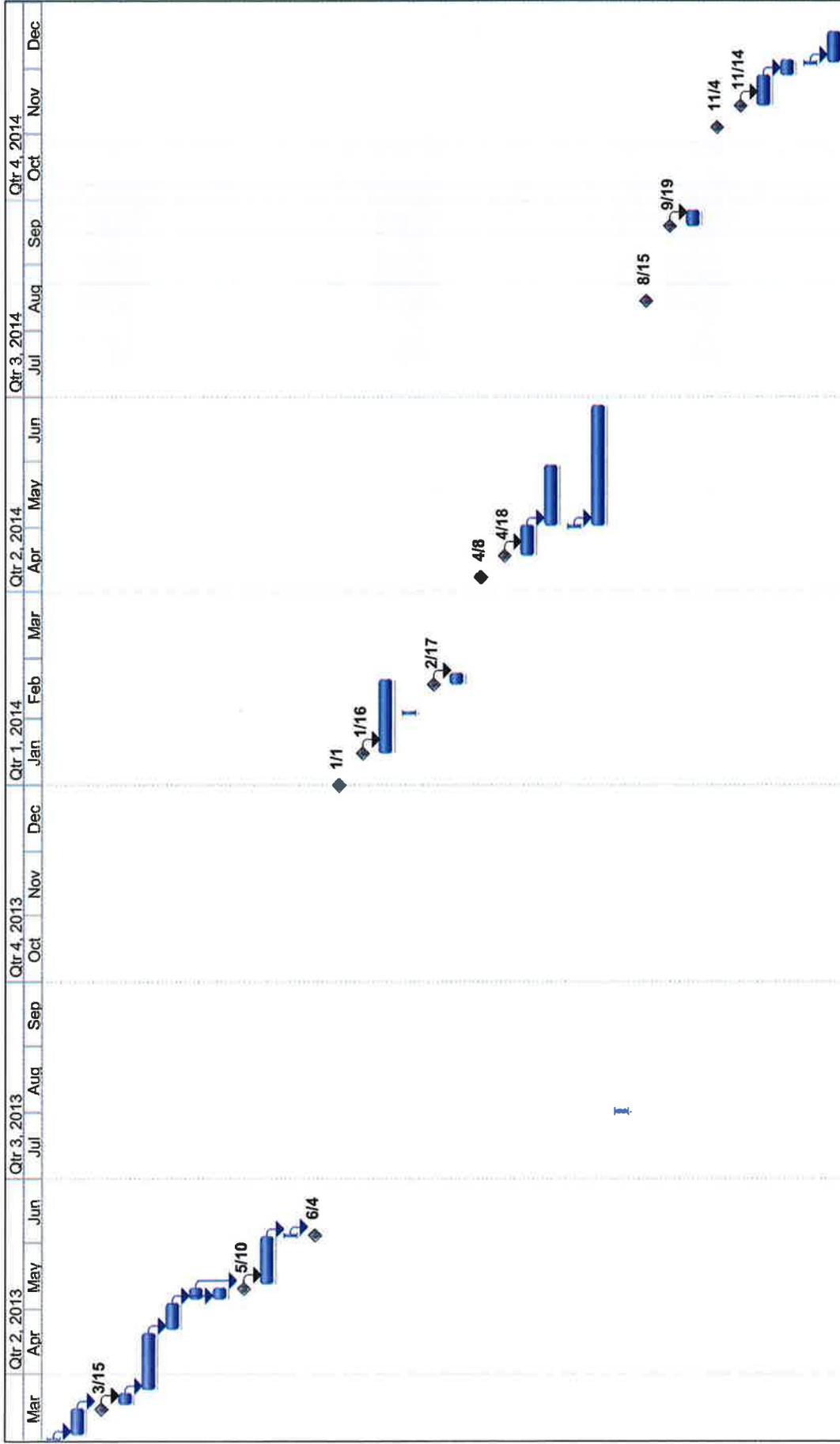
ID	Task Name	Duration	Start	Finish	Qtr 1, 2013
					Jan Feb M
1	Develop agreement with EMCS and Verafirma Konnech, Inc	1 day	Fri 3/1/13	Fri 3/1/13	
2	Layout FPCA forms and DC absentee application forms in PDF format for cloud distribution	10 days	Mon 3/4/13	Fri 3/15/13	
3	Deployment of cloud based forms in Verafirma platform for system testing	0 days	Fri 3/15/13	Fri 3/15/13	
4	Security testing penetration testing of cloud based system	5 days	Mon 3/18/13	Fri 3/22/13	
5	Development of back end secure email file processing system to receive PDF's with embedded information	20 days	Mon 3/25/13	Fri 4/19/13	
6	Test processes for acceptance of PDF documents and receipt of text files	10 days	Mon 4/22/13	Fri 5/3/13	
7	Test file transmission of data files from cloud based system to DCBOEE servers	5 days	Mon 5/6/13	Fri 5/10/13	
8	Remote access test of cloud based system	5 days	Mon 5/6/13	Fri 5/10/13	
9	Initial deployment test of importation of text files into voter registration system	0 days	Fri 5/10/13	Fri 5/10/13	
10	Structured test of social network deployment of cloud based system	16 days	Mon 5/13/13	Mon 6/3/13	
11	Programmatic and Financial Report 1	1 day	Tue 6/4/13	Tue 6/4/13	
12	Final Deployment of production system	0 days	Tue 6/4/13	Tue 6/4/13	
13	Notice to voters posted online and in social media	0 days	Wed 1/1/14	Wed 1/1/14	
14	Application available for voters' use	0 days	Thu 1/16/14	Thu 1/16/14	
15	Initial reporting period for voter's system use	24 days	Thu 1/16/14	Tue 2/18/14	
16	Programmatic and Financial Report 2	1 day	Mon 2/3/14	Mon 2/3/14	
17	45 day deadline for ballot mailing for primary election	0 days	Mon 2/17/14	Mon 2/17/14	
18	Reporting of FCPA submission by deadline	5 days	Mon 2/17/14	Fri 2/21/14	
19	Primary election date	0 days	Tue 4/8/14	Tue 4/8/14	
20	Deadline for receipt of absentee ballots	0 days	Fri 4/18/14	Fri 4/18/14	
21	Preliminary report of absentee ballot return rates	10 days	Fri 4/18/14	Thu 5/1/14	
22	Final analysis of system use for primary election	20 days	Fri 5/2/14	Thu 5/29/14	
23	Programmatic and Financial Report 3	1 day	Thu 5/1/14	Thu 5/1/14	
24	Revision of application based on analysis of user feedback and system process reporting	40 days	Fri 5/2/14	Thu 6/26/14	
25	Programmatic and Financial Report 4	1 day	Thu 8/1/13	Thu 8/1/13	
26	Announcement of availability of application for general election 2012	0 days	Fri 8/15/14	Fri 8/15/14	
27	45 day deadline for ballot mailing for general election	0 days	Fri 9/19/14	Fri 9/19/14	
28	Reporting of FCPA submission by deadline	5 days	Fri 9/19/14	Thu 9/25/14	
29	General election date	0 days	Tue 11/4/14	Tue 11/4/14	
30	Deadline for receipt of absentee ballots	0 days	Fri 11/14/14	Fri 11/14/14	
31	Preliminary report of absentee ballot return rates	10 days	Fri 11/14/14	Thu 11/27/14	
32	Final analysis of system use for primary election	5 days	Fri 11/28/14	Thu 12/4/14	
33	Final Report	1 day	Wed 12/3/14	Wed 12/3/14	
34	Revision of application based on analysis of user feedback and system process reporting	10 days	Thu 12/4/14	Wed 12/17/14	

Project: DCBOEE_FVAP2013
Date: Mon 1/7/13

Task Split Progress

Milestone Summary Project Summary

External Tasks External Milestone Deadline



Project: DCBOEE_FVAP2013
 Date: Mon 1/7/13

Reports

UOCAVA already requires the DCBOEE to keep detailed records of the number of absentee ballots it sends and receives from voters abroad. To measure the success of the cloud based initiative, DCBOEE will create reports to determine the effectiveness of the use of socially networked applications on participation rates, data quality, and back office process improvements that result from using the digitally distributed FPCA application. The implementation of the application will use Agile development methodology which emphasizes flexibility in responding directly to the needs of testers over a formalized reporting schedule. Key reporting dates are included in the overall project implementation schedule as they will be conducted and addressed simultaneously with the overall project deployment. These reports should measure the number of voters using the electronic system compared with the paper system along with demographic data for these voters. Reports will also address comparative analysis of participation rates for voters using this system versus other methods, the average return rate of ballots from voters using different application technologies and the average mailing address failure rates of different application technologies.

DCBOEE staff will prepare and publish all reports from the use of this system quarterly online on its website, www.DCboee.org.

Management Approach

~~This program represents a partnership between the DCBOEE and Verafirma, a San Jose based non-profit corporation. Verafirma has offered to provide DCBOEE with the application, along with hosting in a SAS70 Type II secured facility with redundant hardware, power and internet connectivity free of charge for the duration of the pilot program. The majority of the costs will be directed to EMCS¹⁰ which currently designs and manages Integrity DCBOEE's voter registration software and in acquiring the necessary technology to test the application and run the pilot program.~~

The back office implementation of this proposal involves programming to the Board's server to receive the electronic information transmitted by the cloud based application and deliver it to *Integrity* in a format that provides for the transfer of voter information into the system. DCBOEE plans to host an instance of the application on its website using the same cloud based gadget technology available to all interest parties. The website currently contains a single point platform from which UOCAVA voters can obtain a blank FPCA or absentee ballot request. What makes this program unique to other single point electronic voting systems is the distributable nature of the technology. Voters will be able to not only complete the FPCA by accessing the site via their tablet, but transmit the form electronically. The application can be hosted on a variety of sites at once and word of the application can be spread quickly and virally through many social media platforms. Furthermore, the application is sustainable and can only grow in future election cycles. As cloud computing becomes more and more prevalent in other sectors, voters will become more willing to utilize this type of technology for ballot requests. Ultimately, as tablet computing use becomes more universal more voters will have access to this or other hosts of the distributed technology.

Strategic Goals

By implementing this project, DCBOEE will advance several strategic goals that are in line with its core mission:

Trust

DCBOEE strives to maintain and strengthen the recognition among DC voters that we administer the elections in a fair, consistent, effective and transparent manner. This project will increase effectiveness of our election operations through the reduction of duplicate data entry thereby improving the quality of the information in the DCBOEE's voter registration system. Similarly, it will simplify the back office process involved in distributing absentee ballots to ensure that more voters are able to actively participate in elections.

Accessibility

DCBOEE seeks to increase accessibility of the electoral process by testing innovative ways to vote and offering electors additional ways to register. This project will increase

¹⁰ For more information about Verafirma or EMCS, please see the Qualifications section included herein.

the availability of ballots to overseas and military voters by utilizing the social networking infrastructure to distribute the FPCA. The result is a newer, simpler method for UOCAVA voters to request and receive absentee ballots from the DCBOEE that is on pace with a growing technological field.

Engagement

DCBOEE seeks to increase DC citizens' understanding of the electoral process, the importance of voting and the process of becoming candidates in elections and to work collaboratively with other federal, state and local governmental entities and other non-governmental entities in developing innovative methods of strengthening the electoral process

This project will represent a collaborative effort with FVAP, the DCBOEE and the private sector development community to design and deploy an application that builds off of the best of the emerging field of cloud computing. The result will be an online independent platform for UOCAVA voters to more easily participate in the electoral process

Development and Testing Strategy

DCBOEE and its vendors intend to follow the Agile development methodology generally for the deployment of this solution as detailed below. A dynamic programming methodology is ideal for this environment because of the distributed nature of the software being deployed and the flexible systems required as new platforms to host the online FPCA tool are integrated. Our guiding principles in development and testing are as follows.

- Development is incremental not necessarily sequential. Online forms will be developed in rapid cycles that result in small, incremental releases with each release building on the previous releases' functionality.
- Interactions between the users and the system are emphasized, rather than processes and tools. Staff, developers, and testers interact with each other regularly. This interaction ensures that the developer is aware of the requirements for the features and develops them to meet users' expectations.
- Working software is the priority rather than detailed documentation.
- "End user" collaboration is emphasized and requirements will be driven by the user experience. All Agile projects include the end users as a part of the team. When developers have questions about a requirement, they immediately get clarification from the group of people who will ultimately be employing the application.
- Flexibility is emphasized, rather than extensive documentation of requirements. Post implementation documentation will enable future iterations.

Using the Agile methodology, the testing phase is combined with development to become part of the continuous improvement model. Specifically, software testing as implemented will involve

feedback mechanisms which guide testers through scripted scenarios that validate data quality, application logic, application connectivity and system security. Initial testers will include DCBOEE staff, voters and external advocacy groups.

In Agile development, the test cases are developed based on incremental deployment of the software in its current iteration. By pairing developers and testers (both technical and function testers) each task can be fully vetted and completed. The critical management process will be to ensure that each series of tasks builds logically upon the system as currently developed.

During the initial deployment phase, DCBOEE will keep track of the following data:

- Who uses the application—DCBOEE will measure the use and success of the application among new and returning UOCAVA voters and then compare the rates of return from previous election cycles.
- Where the application is accessed—The system will be able to keep track of the location of the user as well as the site from which they accessed the application. The Board will keep track of whether the application is accessed from a government, organization or military website. This will allow us not only to track the popularity and use of our site but will also assist in tracking the Internet habits of UOCAVA voters and their preferred method of communication with their local election offices.
- Consumer response from the online customer facing feedback tools
- Ballot disposition-- DCBOEE will keep track of the ultimate status of the ballots and develop a report indicating the percentage of ballots requested through these systems.

Analysis and measurements of current processes

While UOCAVA voters are currently permitted to request electronic ballots either from the DCBOEE's website or from FVAP or other external sites, the vast majority of them (over 95%) request ballots via paper forms (either FPCA or DC absentee ballot application form). Evaluating participation rates of UOCAVA voters compared with other absentee voters reveals a dramatic disparity in returned ballots. (See Table below) Domestic voters return absentee ballots at nearly twice the rate of UOCAVA voters. While many factors play into this disparity including some outside the scope of this project, we are aware of several current processes that can be improved by this proposed system. These improvements include:

- 1) Accuracy of mailing address information
- 2) Legibility of handwriting on FPCA forms and DC specific forms
- 3) Speed of processing ballot requests
- 4) Timely mailing of requested ballots and availability of electronic ballots for download.

Rates of Return: District Absentee voters vs. UOCAVA voters (November 2010 general election)

Ballot Status	Other Absentee	Percent Total	UOCAVA Absentee	Percent of Total	Total Ballots Requested	Percentage of Total ballots mailed
NOT RETURNED	1415	27%	877	63%	2292	35%
RETURNED	3798	73%	508	37%	4306	65%
Grand Total	5213		1385		6598	

Automation Process and Design Plan

Under the current system, the process for requesting and obtaining an absentee ballot has multiple steps. The proposed program will address several steps of this process to improve the transmission of information between the voter and the DCBOEE.

The current process for obtaining an absentee ballot is as follows:

- Voter mails or emails a completed FPCA or DC specific absentee ballot application to DCBOEE. The absentee ballot information contains the voter’s permanent address and their current address as well as a signature that serves as verification for future ballots.
- DCBOEE clerk determines the eligibility of the voter to receive/cast a ballot in the District by checking the voter’s information against the records kept in its *Integrity* software system.
 - If the voter submitting the FPCA is not currently registered, the clerk creates a voter record by entering the information written on the form into the DCBOEE voter registration system and then creates an absentee ballot request.
 - If the voter is registered, the clerk then creates an absentee ballot request record in the voter registration system.
- Once candidate, contest and ballot position for all contests in an election are determined, as stipulated in DC Code, ballots are designed, proofed and printed. Ballot styles are prepared for each election based upon the lowest common denominator of electoral precinct and voting district and each voter is associated to a specific ballot style through their residential street address mapped to the respective precinct split.
- Ballots are sorted, collated and inserted into postal envelopes in a partially automated process whereby data created by entering the absentee requests into the voter registration system are exported to a mail processing system. The ballots, bar coded with unique ballot style identifiers, are then collated using an automated sorter and matched to the respective voters.

- Voters can also receive their blank absentee ballots via a link from our website that directs them where to download their correct local ballot after their FPCA is approved.
- The mail processing system then creates a data file that is imported into the voter registration system which indicates when the ballot was transmitted to the voter.
- Each piece of outbound mail is bar coded. When mail is returned, all ballots are scanned, imaged (to capture a digital image of voter's signature on the envelope) and sorted into electoral precinct or precinct split.
- Data are collected from the sorter and imported into the voter's record within the voter registration system to indicate the return of ballot.
- Signatures are then digitally compared between envelope and digitized signature on file for affirmation of identity of voter

Research has suggested that the current process results in unacceptably high rates of return mail leading to low completion rates of absentee ballots sent to UOCAVA voters. Administrative errors result from illegible handwritten forms and error in data entry. The process also takes several days to complete often resulting in an insufficient time for UOCAVA voters to complete and return the ballots. The proposed system offers voters the option of submitting the application for an absentee ballot or the FPCA electronically. Under this system, instead of receiving a signed paper form via regular mail, the information is provided in a digital format, including a digitized signature. This information will import directly into the voter registration system and eliminate the need for a clerk to enter that information by hand from the paper form. This will, we predict, decrease data entry errors thus decreasing the number of ballots that are returned with undeliverable addresses.

Financial Management Strategy

The District of Columbia Board of Elections ~~and Ethics~~ is an independent agency that receives the majority of its funds from local revenue. The process for managing federal grant funds will mimic the current practices used to manage and account for federal funds released under the Help America Vote Act. Upon receiving federal grant funding, the District of Columbia's Chief Financial Officer ("CFO") will establish an account for the management of the federal funds. These funds will be monitored for programmatic compliance by the CFO through the Office of Financial and Resource Management (OFRM), which currently serves, by mutual agreement, as the DCBOEE's budget entity. The Office of Finance and Resource Management (OFRM) reviews all federal grant terms and conditions to ensure that the federal dollars are being utilized for the intended purposes. DCBOEE submits a weekly expenditure report to the OFRM to review all expenses to determine if those expenses are allowable, prior to the agency submitting various reports to the federal government for approval.

In addition, the Board's independent election administration consultant, who has expertise in compliance, regulatory auditing, and federal/DC elections rules, will serve as the grant monitor and assist the Board and the CFO's office in monitoring all expenditures and ensuring compliance with federal law and accepted accounting principles. The Board's consultant will file the required financial reports and program reports to ensure compliance with federal law and generally accepted accounting principles. The consultant will assist the Board in facilitating an effective audit and maintain records that are consistent with generally accepted accounting principles of expended FVAP grant payments in accordance with the Act and related administrative requirements. The auditor will also ensure that records are maintained consistent with sound accounting principles.

Risks and Mitigation Strategies

As with any computer based system, there is a risk of willful and malicious attacks on the core system. To mitigate these risks, DCBOEE and its vendors will ensure that Tier-I providers conform to security and auditing protocols, have redundant systems, and alternate sites available. With the initial tests and deployment, interruption of service may also be a risk. To anticipate this, DCBOEE will request that all users participating in the trial phases of this application submit their applications in paper form as well. The goal of the project is to eventually allow for the FPCA process to be completely automated however, for the present time, an alternate means of FPCA submission will be available through email, fax and the Overseas Vote Foundation (OVF) website that will allow for mitigation of any errors that may arise from the initial deployment of the online application.

Performance Indicators:

The Board will measure the success of the program by determining and comparing the following metrics:

- 1) Number of FPCA's processed,
- 2) Number of undeliverable UOCAVA ballots,
- 3) Elapsed time from receipt of request to transmission of ballot
- 4) Return rates of completed UOCAVA absentee ballots

As discussed above, the automation of the data entry process will reduce the number of incorrect address entries that result from human error or illegible forms. With a return mail rate at near zero, this should increase the number of UOCAVA voters who receive their ballots and return them on time. Furthermore, the automation will increase the turnaround time on a ballot application which will increase the amount of time a military or overseas voter has to complete and return the ballot to the DCBOEE.

Measurements of performance

The success of this project will be measured by the number of UOCAVA voters who successfully access and use the system to process their application data. The DCBOEE will also measure the success of the program, as discussed above, by quantifying the rate of returned mail and the back office processing time. The user feedback tool will provide an indicator of the accessibility of the application as well as alert the project managers to areas to be improved. One of the principle measures of the performance of any socially networked application is its proliferation in the digital sphere. DCBOEE intends to monitor the number of outlets incorporating this tool set and will promote the availability of the application using available social media websites such as Facebook and Twitter, where the Board already maintains an online presence. DCBOEE will also encourage other external websites catering to military and overseas voters to host the application and increase the program's visibility.

Current and Pending Project Proposal Submissions

DCBOEE currently administers projects funded under the Help America Vote Act (HAVA)¹¹ that seek to improve the voter registration process, enhance voting equipment operation and improve voter communications. However, to date, DCBOEE has made no additional application for funds and has no projects that are funded by other sources concurrent with the execution of the attached proposal.

A brief summary of HAVA funded initiatives is provided below. A full HAVA project funding plan can be made available upon request.

HAVA funded initiatives

Voter Registration System Modernization:

To enhance the current voter registration system to automate the processes of voter registration via online voter registrations and NVRA agency submission, DCBOEE has contracted with EMCS (described herein) to provide these services funded by HAVA.

Voting Equipment Enhancement:

In 2010 DCBOEE purchased and deployed voting equipment manufactured by ES&S and electronic pollbook equipment manufactured by Hart Intercivic to fulfill its requirements under the District of Columbia Omnibus Election Reform Act of 2009. The deployed DRE equipment with voter verifiable paper audit trails were deployed at both election day polling places and at five early voting centers. New precinct optical scan recording equipment was also deployed at

¹¹ Help America Vote Act, 42 U.S.C. § 15301 (a)-(d).

election day polling places and at one early voting center. Central tabulation systems were installed and used at DCBOEE central offices for tabulation of absentee and provisional ballots. Electronic pollbook hardware and software were deployed to all early voting and election day polling locations to facilitate the enactment of same day voter registration and permit transparent disclosure of early voting and same day registration data.

Qualifications

The following are a list of key project personnel within the DCBOEE as well as relevant information on key personnel within Verafirma and EMCS:

Key personnel

Agency staff (resumes available upon request)

~~Paul E. Stenbjorn, Director Information Services DC Board of Elections and Ethics~~

~~Project manager, developer, user acceptance test coordinator~~

~~Rokey W. Suleman, II, Executive Director, DC Board of Elections and Ethics~~

~~Sponsor, administrative leadership~~

~~Sylvia Goldsberry-Adams, Director of Operations, DC Board of Elections and Ethics~~

~~Financial management and reporting~~

Contractors

~~Michael Marubio, Co-founder, Verafirma~~

~~Michael is an entrepreneur who has worked extensively in the cryptography and electronic signature markets. For the past 15 years, Michael has led teams that have built and sold the electronic records management and signature systems to such organizations as the Federal Reserve, Citi, Travelers Insurance, NetSuite, and JP Morgan Chase. Michael has founded several companies including OnePage (acquired by Sybase), VF Signature, Retail Expansion Network, and Bellalingua; and is currently the CEO of Xignature, an electronic signature company.~~

~~Michael has done his time in politics as a fundraiser and activist in Chicago and Washington D.C., and is excited to be part of a venture that combines electronic signing and politics.~~

~~Jude Barry, Co-founder, Verafirma~~

Jude has worked in local government, California state campaigns, and national politics as a top-level strategist and manager. He advises Fortune 500 companies, political candidates, and non-profit organizations. Jude is currently one of the lead strategists for the San Francisco 49ers' efforts to build a new NFL stadium. Because of his expertise in politics, policy, and technology, Jude is a regular and respected source for local, state, and national news reporters.

Jude has earned local, state, and national recognition for his expertise in government and politics during the last three decades. Most notably, in 2006, he was the campaign manager for Westly for Governor, managing a statewide California political and media operation with a \$45 million budget. During the 2004 presidential cycle, Jude served as the California state director for former Vermont Governor Howard Dean's campaign. He helped develop the cutting-edge technology strategy that allowed the Dean campaign to recruit and organize an unprecedented 100,000 volunteers in the state. In local government, Jude was chief of staff to the Mayor of San Jose and developed San Jose's strategy to maintain its standing as the "Capital of Silicon Valley" and the "Internet Capital of the World."

Edmund Bernosky, Technical Partner, Election Management Consulting Services, LLC

See resume attached

Christina Clark Rehfuss, Administrative Partner, Election Management Consulting Services, LLC

See resume attached

Agency Staff:

Kenneth Obey, IT Support Specialist, Board of Elections

-Agency testing

Randy Legette, IT Specialist, Board of Elections

-Agency testing

Sylvia Goldsberry-Adams, Director of Operations, Board of Elections

-Financial Management

Clifford Tatum, Executive Director, Board of Elections

-Administrative leadership

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**AB
VOTE**

KONNECH PROFILE

Konnech, Inc. began in 1999 and incorporated in 2002 near East Lansing, Michigan. It is a leading designer of customized solutions in web communications. Initially the company focused on emerging technologies such as VoIP and computer telephony integration and began web polling in 2003. Since 2004 we have partnered with Microsoft to develop extensive integration with common Microsoft programs. In 2008 Konnech developed PollChief, a comprehensive data warehouse that manages the logistics of elections. In 2010 Konnech developed ABVote, a program that delivers ballots electronically to uniformed and overseas voters in accordance with the MOVE act. In 2011 Konnech developed apps for iPhone and Android smart phones for these programs. In 2012 Konnech developed programs for re-directing lost voters to their correct polling places and for monitoring petition signatures.

The City of Detroit reported on its official website that in the first year, PollChief® reduced poll worker management time by 50% and payroll processing time by 75%. Leon County, Florida, reports that PollChief® has reduced elections inventory management time by two thirds (66%).

In the 2010 General Election Konnech's ABVote program for Nevada and Montana had the highest voter completion and was rated by the Federal Voter Assistance Program as providing the fastest and easiest process for voters as well as providing the fullest back end for election administrators from among all the programs for providing ballots for uniformed and overseas voters. In the 2012 General Election, 93% of the users in Montana rated themselves as "satisfied" or "very satisfied".

Our focus from the beginning has been to exceed our customers' expectations in both value and quality. Our goal is to equip our customers with technology that will enhance cost-effectiveness and productivity. We are able to customize solutions that fit the exact requirements of the election authority.

Konnech is a Microsoft Silver Certified Partner, a Microsoft Windows 7 phone developer, a Google Android phone developer, and a member of Microsoft Independent Software Vendors (ISV), Microsoft Hosting Solution Providers, and Apple iPhone iOS Developer Program.

Resumes

Resumé of Eugene Yu

Name:	Eugene Yu	President, Konnech Inc.
Assignment:	Project Manager	
Responsibility	Oversee every aspect of the project, direct all Konnech personnel, ultimate responsibility	
Qualifications:	<p>Project Management Training, Project Management Institute, Lansing, Michigan</p> <p>Non-voting Member of IEEE 1622</p> <p>Application Developer, Database Administrator, and Project Manager in a wide variety of business applications. Particularly experienced in client/server and relational database design using MS-SQL Server. Considerable experience in turning desk top server-based applications to web-based ones integrated with unified intelligent communications.</p> <p>Applies these skills to the arenas of K12 communications and US election management.</p>	
Professional experience:	<p>Nine-year's experience with Konnech implementing multimillion-dollar, statewide implementations of intelligence management and analysis systems.</p> <p>Originator of PollChief Election Logistics Management Program used in City of Detroit, Michigan; Leon County, Hillsborough County, and Alachua County, Florida; Allen County Indiana;</p> <p>State of Montana FVAP Online Ballot Delivery – 2010 to 2012</p> <p>New Jersey and Nevada FVAP Online Ballot Delivery – 2010</p> <p>City of Edmonton Election Logistic and Census Management System – 2011 – 2012</p> <p>Originator of ABVote, absentee registration and ballot delivery for New Jersey, Nevada, Montana, City of Detroit</p> <p>Originator of Mobile Voter, tested in mock election by City of Detroit under a grant from the Federal Voter Assistance Program</p>	

	<p>Originator of iPetitioner program to automate signature verification on petitions</p> <p>Originator of pLocation program redirecting lost voters in 2012 General Election</p> <p>Accounting Manager for a hospital for 2 years with extensive experience and leadership to manage a large accounting department. 7 years as Financial Adviser with large financial institutions with Security License of Series 7 and 65.</p> <p>10 years leading development of large software projects, primarily in the elections industry. High marks from all served customers.</p>
Education	<p>MBA, Operation Management, Wake Forest University</p> <p>BS, Internal Combustion Design, Thermos Physics Dept.</p> <p>Zhejiang University, Hangzhou, PR China</p>

Resumé of Kelly Shettler

Name:	Kelly Shettler	Product Manager, Konnech, Inc.
Assignment:	Deputy Project Manager/Trainer	
Responsibility	Attend all client webinars, design customized screens, analyze project, manage project analysts, designers, testers and tech writer, communicate with client, teach all training, knowledge transfer to stakeholders and to help desk	
Qualifications:	Experienced leading many elections projects—designing, analyzing, trouble shooting, testing. Projects include elections help desks, poll workers plus poll worker online training/access, poll locations, election assets, election night results posting, absentee enrollment systems, UOCAVA ballot delivery	
Professional experience:	<p>Five Years at Konnech, Inc., as product manager of PollChief Election Management Suite.</p> <p>Deputy project manager, designer, trainer, and overseer of data warehouse projects for:</p> <p>City of Detroit Election Locations Management System</p> <p>City of Detroit Election Night Results Posting System</p> <p>City of Detroit Walk-In Absentee Request System</p> <p>Leon County Florida poll worker, polling location, election asset, help desk,</p>	

	<p>poll worker online training and access, and early election management systems.</p> <p>Alachua County, Florida Election locations and asset management systems</p> <p>Hillsborough County, Florida Election asset management systems</p> <p>St Charles County, Missouri, poll worker, poll locations, poll help desk, and elections night results posting management systems</p> <p>Allen County, Indiana, poll locations, worker, and online training and access systems</p> <p>City of Edmonton, Canada, poll and census worker, poll and census locations, poll and census assets, special (absentee) registration, candidate nomination/filing (creates ballot data for municipal elections), and Where-To-Vote modules</p>
Education	Bachelor of Arts: Communications, Interpersonal Communication, Michigan State University, East Lansing Michigan

Resumé of Laura Potter

Name:	Laura Potter	Account Manager, Konnech, Inc.
Role:	Project Analyst and Subject Matter Specialist	
Qualifications:	<p>Experienced in developing easy, intuitive screen designs for elections workers with limited technical experience.</p> <p>Experienced in developing easy, intuitive screen designs for voters with limited technical experience.</p> <p>Experienced analyzing logical flow.</p> <p>Experienced in UOCAVA ballot delivery systems.</p>	
Professional experience:	<p>Initial Project Manager for Department of Elections, Allen County Indiana,-- Performed gap study, interviewed client, designed customized screens, coordinated with engineers, tested</p> <p>Assistant Project Manager, Montana Electronic Absentee System for Elections version 2. Led the re-design of the EAS for Montana UOCAVA voters. Perform gap study, interview client, design, coordinate with engineers, test. Over 2,000 voters used the system to access their ballots, over 5% filled out the survey, 93% rated themselves satisfied or very satisfied with the system, and 5% of the users (87% of all survey takers) filled in comments. Some comments were:</p>	

	<ul style="list-style-type: none"> ➤ “Very easy to use and convenient.” ➤ “Efficient and I have peace of mind. It's perfect, thank you.” ➤ “The process is good, don't fix it!” ➤ “Excellent in every way, no area in need of improvement.” ➤ “I am in the military. This is the first time I was able to vote due to multiple duty stations, deployments and multiple addresses.” <p>2010 Assistant designer for New Jersey, Nevada, and Montana electronic ballot delivery systems, In the 2010 General Election Konnech’s absentee ballot delivery program for Uniformed and Overseas voters had the highest voter completion rate and was graded by the Federal Voter Assistance Program as providing the fastest and easiest process for voters as well as providing the fullest back end for election administrators from among all the programs for providing ballots for uniformed and overseas voters.</p> <p>2003 – 2008 Publisher, Dining Digest Magazine. Created, designed, edited, and interviewed.</p>
Education:	<p>Associate Science. Degree, Legal Assistant, Kapiolani Community College, Honolulu Hawaii</p> <p>Adobe Photoshop I, II, III Certificate</p> <p>Adobe Illustrator I, II, III Certificate</p> <p>Adobe InDesign I, II, Certificate</p> <p>Microsoft Access I, II, Certificate</p>

Resumé of Heather Zeng

Name:	Heather Zeng	Technical Writer, Konnech, Inc.
Role:	Documentation and Technical Lead	
Responsibility	Project analyst, testing leader, write manual, attend all webinar teleconferences, test the system, assist the Deputy Project Manager	
Qualifications:	Experience in analyzing, designing, and testing election management products. Experienced writing technical manuals for elections software systems.	
Professional experience:	Acting Project Manager, Lead software tester and assistant designer for City of Edmonton Election and Census Management Suite—candidate nomination filing, election night results posting. special [absentee] system, locations,	

	<p>workers, assets, help desk, pay system – 2012</p> <p>Lead software tester and assistant designer for election asset and location management systems for Alachua County, Florida, and Hillsborough County Florida—2011-2012</p> <p>Assistant software tester for Leon County, Florida, PollChief Election Management Suite—locations, workers, worker online access and training, inventory, assets, and help desk—2011.</p> <p>Software engineer for Supersymmetry Services Pte Ltd in Singapore, participating in the development of 3D visualization and analysis software on Silicon graphics workstation, 1992 – 1994</p> <p>Software engineer for Wuhan Architectural Design Institute, Wuhan, Hubei, P.R. China, MicroVAX II installation, and performed the system administration and management in the VMS operating system, Provided training and technical supports to users, Developed application software in data processing, structural analysis and calculation, 1988 -1991</p>
Education	<p>.Net Programming, Project Management Institute, Lansing, Michigan</p> <p>Master of Science Degree, Computer Aided Design, Department of Agriculture, Huazhong University of Science and Technology, P.R. China</p> <p>Bachelor of Science Degree, Department of Computer Science, Huazhong University of Science and Technology, P.R. China</p>