State of Colorado Uniform Voting System
Request for Proposal (RFP) Cover Sheet

SEALED RESPONSES MUST BE MAILED OR DELIVERED TO:
Colorado Department of State
Attn: Al Davidson
1700 Broadway
Suite 200
Denver, CO 80290

SOLICITATION NUMBER:	CDOS-UVS-2013-01
DEADLINE DATE AND TIME:	**December 4, 2013 at 5:00 PM MOUNTAIN TIME**
PURCHASING CONTACT:	Al Davidson
PHONE NUMBER:	303-895-2200, ext. 6361 (for delivery questions only)

BIDDERS MUST SUBMIT ONE (1) ORIGINAL AND NINETEEN (19) COPIES OF THE PROPOSAL
AND ONE ELECTRONIC COPY FOR BOTH THE BUSINESS PROPOSAL AND COST PROPOSAL. BIDDERS MUST COMPLETE THE BELOW INFORMATION.

F.E.I.N.	06-0495050
DELIVERY DATE	12/4/13
AUTHORIZED SIGNATURE	
TYPED/PRINTED NAME	Timothy Bates
TITLE	VP Marketing Enterprise Solutions Group
COMPANY NAME	Pitney Bowes Inc., through its Document Messaging Technologies Division
ADDRESS	37 Executive Drive
CITY/STATE/ZIP	Danbury, CT 06810
CONTACT FOR CLARIFICATIONS	Elvis De Freitas
CONTACT TITLE	Regional Account Manager
PHONE NUMBER	(203) 512-2837
FAX NUMBER	(203) 749-7620
EMAIL ADDRESS	elvis.defreitas@pb.com

IMPORTANT: THE FOLLOWING INFORMATION MUST BE ON THE OUTSIDE OF THE RFP SUBMITTAL ENVELOPE AND/OR PACKAGE. SEE THE RFP FOR MORE DETAILED INSTRUCTIONS.

<VENDOR NAME>
RFP # CDOS-UVS-2013-01 <BUSINESS OR COST> PROPOSAL
DUE ON DECEMBER 4, 2013 AT 5:00PM MDT
PACKAGE # OF #

Please be advised that telegraphic or electronic responses (Fax, Western Union, Telex, etc.) cannot be accepted as a sealed proposal. Bidders are urged to read the RFP documents thoroughly before submitting a response.

This Proposal Cover Sheet **must** be signed by a representative of the vendor who is legally authorized to bind the vendor to their proposal. Vendors will be required to submit confirmation of their F.E.I.N. number prior to any issuance of Contracts, Purchase Orders, or payments resulting from this RFP.

RETURN THIS SHEET WITH THE PROPOSAL

Timothy Bates
VP Marketing Enterprise
Solutions Group

Pitney Bowes Inc., through its
Document Messaging
Technologies Division
37 Executive Drive
Danbury, CT 06810
T: (203) 792-1600
F: (203) 460-3264
timothy.bates@pb.com
www.pb.com

Transmittal letter

December 4, 2013

Al Davidson, UVS Project Lead
Colorado Department of State
1700 Broadway Street, Suite 200
Denver, CO 80290

Re: State of Colorado - Uniform Voting System RFP #CDOS -UVS-2013-1

Dear Mr. Davidson:

Pitney Bowes is very pleased to receive and respond to your Request for Proposal covering the request for a Uniform Voting System for the State of Colorado. We value our business partnership with the State of Colorado, and welcome the opportunity to expand our offerings and business relationship.

Pitney Bowes has a clear understanding of the fundamental objectives and goals that the State of Colorado is looking to achieve as we have assisted 30 other counties with similar requirements. Working with Pitney Bowes, a financially stable corporation, the State of Colorado can be assured consistent high quality support from day one through the life of your equipment.

Our response provides a combination of proven technologies and services that will enable you to increase integrity, add flexibility, reduce ballot postage costs, as well as enhance operational efficiencies and productivity. Our single vendor elections solution will allow you to control your annual cost of service, reduce the operational stress created by multiple vendor maintenance contracts, as well as create a uniform standard for production and tracking of the outgoing and returned absentee ballots.

Once again, thank you for allowing Pitney Bowes this opportunity to share our knowledge, technology and vision. We have supplied an abundance of information in support of your request, and would very much welcome the opportunity to discuss and present greater details on our Relia-Vote™ solutions at your earliest convenience. Please do not hesitate to call with any questions as you are working through your review process.

Pitney Bowes

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Transmittal Letter Requirements

All Vendors shall submit a Transmittal Letter positively stating their willingness and ability to comply with all work requirements, general contract requirements, and other terms and conditions specified within this RFP. If this is not the case, any exceptions or proposed deviations from requirements listed in this RFP must be described and explained. Additional requirements for the Transmittal Letter are that it:

Pitney Bowes fully understands the work and requirements called out in the RFP and sincerely believe that we have the financial backing, manufacturing resources and knowledgeable support team with many years of vote-by-mail experience to comply with all work requirements, general contract requirements, and other terms and conditions specified in the RFP. We are ready to earn your business and work with CDOS to implement an Automated Ballot Envelope Scanning and Signature Verification system per the RFP requirements. We also understand the time line and will work with CDOS to ensure that we are fully staffed and ready to achieve all agreed upon targets and requirements.

Pitney Bowes DMT has the ability to deliver up to 200 sorting systems per year depending on the type of platform, configuration and complexity of the requirements. Capacity can be increased by 20% leveraging overtime and additional cross trained team members. Additional capacity can be garnered by providing updated forecast requirements and associated demand planning to our global supply chain.

1) Must be on official company business letterhead

As noted above we have complied with this requirement with our standard corporate letterhead.

2) Must identify all material and enclosures comprising your proposal

Our enclosed proposal includes 1 original and 19 copies as requested in the RFP. Each Business Proposal includes a 2012 Pitney Bowes Annual Report.

3) Must acknowledge receipt of all modification notices to this RFP

10/10- RFP Response Deadline change - Received

10/10- Amendment 1 - Received

10/23- Vendor Q/A posted - Received

10/25- Amendment 2 – Received

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4) Must disclose all current or pending projects with the State of Colorado

We do not have any current or pending projects going on at this time with the State of Colorado.

5) Must disclose any known conflicts related to this RFP

No conflicts that we can see with any of the details within the RFP.

6) Must disclose intended use of any subcontracts

We are not planning to use any subcontractors to meet any of the stated requirements within the RFP.

7) Must itemize any objections to items in the Administrative Information section or in the contract template in RFP Appendix G – State Contract Template.

A. Section 2, Administrative Information, Section 2.24, Agreement Type.

Pitney Bowes is happy to use the State Contract Template as a basis for contract negotiations with a few exceptions. Pitney Bowes has submitted its one-year Relia-Vote warranty language for consideration, and would like it to apply to the Relia-Vote equipment and software if we are chosen as a successful Vendor. In addition, for related Relia-Vote software incorporated with the Relia-Vote equipment, Pitney Bowes has submitted its Sorter Software License and Maintenance Agreement, which maintains our rights to our proprietary software and provides for software maintenance. We understand that the State of Colorado owns the SCORE software license; our software is compatible with the SCORE software. We have also included our ServiceWorks Agreement which provides specific terms of service for equipment maintenance. Each of these agreements is part of the Appendix to this submission.

If the State would prefer a lease option for this equipment, leasing terms can be provided, and will apply.

B. Appendix G, State Contract Template

Section 4, Definitions, Work Product. Pitney Bowes owns, or has permission to sublicense, the proprietary software made part of this submission. We would like to amend this section to carve out such software or any materials associated with the software.

Section 15, Remedies, B. Early Termination in the Public Interest. If the State chooses a leasing option, any lease must be exempt from early termination, or a lease payment penalty will apply. Termination due to non-appropriation is included in the lease terms.

Section 15, Remedies, C. Remedies Not Involving Termination, v. Intellectual Property. We would like to discuss subsection c, the final remedy with you.

Pitney Bowes

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Solutions Group

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Section 17, Rights in Data. Documents and Computer Software. Pitney Bowes owns, or has permission to sublicense, the proprietary software made part of this submission. We would like to amend this section to carve out such software or any materials associated with the software.

8) Must acknowledge permission for your references to release information to the State of Colorado.

We have provided four references as requested within the RFP. Additionally we have contacted each of the provided references and they have agreed to release information to the State of Colorado.

9) Must indicate if you are proposing a UVS solution that addresses all eight categories

(A-H) of the requirements in RFP Appendix B – System Requirements Table. If not, specify to which of the eight categories you are proposing a solution.

Pitney Bowes RFP response proposal consists of Pitney Bowes responding to the following sections:

E, Automated Ballot Envelope Scanning and Signature Verification
G, Vendor Training and Support
Parts of H, Miscellaneous Requirements

10) Must not disclose any pricing information or elements of cost

We have followed the guideline for the RFP and have not included any cost information in our proposal section.

11) Must be signed by an individual authorized to commit your company to the work proposed

As noted below, we have complied with this request. Timothy Bates is legally authorized to sign on behalf of Pitney Bowes Inc., through its Document Messaging Technologies Division.

Sincerely,

Timothy Bates
VP Marketing Enterprise Solutions Group
Pitney Bowes Inc.
(203) 792-1600

NOTICE OF CONFIDENTIALITY

THE RESPONSES PROVIDED HEREIN ARE INTENDED FOR FURTHER DISCUSSION PURPOSES AND NOTHING CONTAINED HEREIN IS INTENDED AS A BINDING AGREEMENT, WHICH CAN ONLY BE REACHED BY A MUTUAL WRITTEN DEFINITIVE AGREEMENT ENTERED INTO BY THE PARTIES. THE INFORMATION CONTAINED IN THIS DOCUMENT AND THE SOLUTION PROPOSED BY PITNEY BOWES INC., THROUGH ITS DOCUMENT MESSAGING TECHNOLOGIES DIVISION ("DMT") IS PROPRIETARY AND CONFIDENTIAL TO DMT. THESE MATERIALS CAN BE USED SOLELY FOR THE PURPOSE OF EVALUATING A POSSIBLE TRANSACTION BETWEEN DMT AND ITS PROSPECTIVE CUSTOMER. NO RECIPIENT OF THESE MATERIALS MAY USE THEM FOR ITS OWN COMMERCIAL ADVANTAGE. THE RECIPIENT OF THESE MATERIALS MUST HOLD THEM IN CONFIDENCE AND SHALL NOT DISTRIBUTE THEM, IN WHOLE OR IN PART, TO ANY OTHER INDIVIDUAL OR ENTITY IN ANY FORM WITHOUT THE PRIOR WRITTEN CONSENT OF DMT MANAGEMENT.

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1.0 – EXECUTIVE SUMMARY

The Executive Summary should provide CDOS with an overall understanding of the proposal. Include a brief review of the proposal. The review must be prepared in such a manner as to make it understandable to individuals not familiar with the terminology peculiar to a project of this type.

Pitney Bowes RFP response proposal consists of Pitney Bowes responding to Section "E" for an Automated Ballot Envelope Scanning and Signature Verification ballot sorting solution. We will also be responding to section "G" Vendor Training & Support. Also some items on section "H" Miscellaneous Requirements section and section "F" Mail Ballot Tracking.

We sincerely feel that Pitney Bowes is the best suited vendor for this project, with over 30 successful Relia-Vote implementations and various other successful large sorting projects worldwide. As well as being one of the pioneers of the vote-by-mail automation process, Pitney Bowes continues to develop secure vote by mail solutions leading to several patents held by Pitney Bowes.

The Pitney Bowes Relia-Vote vote-by-mail elections solution is designed to provide a full suite of tools for the production of vote-by-mail ballots that includes:

- File preparation software (prepare the mail ballot files for tracking to the constituent and back to the County) – This is an optional feature for possible consideration and is normally used for out bound ballots which is as far as we know is currently being done by a vendor.
- Relia-Vote high integrity automation solutions for vote-by-mail ballot package production
- Mail ballot tracking through production and delivery – This is an optional feature for possible consideration and is normally used for out bound ballots which is as far as we know is currently being done by a vendor.
- Returned mail ballot sorting, scanning, date/time stamping, opening and auto signature verification.

We provide various custom sorter configurations for customers around the world based on using our standard sorting platforms. These same platforms are designed to use our Relia-Vote high integrity software. We evaluate several things when recommending a sorting system for our customers such as the speed required, environmental requests, volume of vote-by-mail ballots, production requirements, peak volumes, etc. Our Relia-Vote expert project team members will work with the State of Colorado based on "best practices" to design and implement the best solution make-up for each specific County. This will allow for a trouble free transition to automating your vote-by-mail operation for any Counties who decides to move forward with an Automated Ballot Envelope Scanning and Signature verification solution.

We have analyzed the population and vote-by-mail volumes for each of the 64 Counties provided in the RFP. We would like to present the following volume band strategy for consideration. I am sure that you would agree that ballot envelope processing is a complex and very sensitive process as with all election solutions. In our opinion, it would be best to work with the individual counties to design a specific configuration as well as an interface and process for using the proposed Pitney Bowes Relia-Vote Automated Ballot Envelope Scanning and Signature Verification solution using one sorting platform to maintain conformity across all counties.
Utilizing the state-of- the-art and proven Pitney Bowes Relia-Vote™ solutions, the State of Colorado Election Division will be able to automate a number of steps to expedite the vote-by-mail process and increase the level of accuracy for all elections. Some of these steps consist of the following:

- Sort ballot envelopes at a high speed
- Scan the returned ballot envelope for valid Voter ID
- Record each ballot envelope's receipt and print the date/time stamp on ballot envelopes
- Capture the image of the ballot envelope for signature comparison
- Automated signature verification
- Outsort ballot envelopes based on user defined status
- Sort verified ballot envelopes to Precinct, Townships, etc.
- Selectively open envelopes in-line during sort process (This is an optional feature as the RFP does not call out for this option)
- Provide data to reconcile your vote-by-mail voter files
- Perform selectable audit functions
- Piece-level tracking to the tray
- Generate tray tags for each tray
- Generate reports providing a complete ballot envelope chain of custody
- Access reports and envelope status through a secure browser-based application

Automated Signature Security Tab Removal System

Most counties have a return ballot envelope which is designed with a flap that covers the signature of the voter on the return mail ballot envelope. Depending on the volume of returned mail ballots, it can take excessive time and labor to manually remove the flap and expose the signature for scanning and verification. We are currently finalizing an off-line automated solution that will remove the signature flap at high speeds and dispose of the strip into a vacuum collection system. We sincerely believe that an approach to an off-line solution would be much more beneficial and productive over an in-line approach. Should CDOS decide that this is something that they would be interested in we would be happy to provide further details and pricing for this solution.

Annual Service Support

Pitney Bowes has several different options available for providing service support to our customers. We can provide on-call service support which would include all labor and parts. We can provide on-site service support where we would have a service person on-site ready to provide service should a problem occur. Or we can provide a parts support agreement where we would just provide parts.

We are also willing to agree to a customized support agreement which would meet the specific requirements and needs of each specific county. A big advantage and cost savings for selecting Pitney Bowes as a service provider is that our annual maintenance cost includes all consumable parts which are classified as all ware items and would not include supplies.

Pitney Bowes Statewide Strategy

We have taken the time to analyze the provided vote-by-mail volumes and growth over all 64 Colorado counties. We believe that the following breakdown of 3 population levels would be a much better and realistic match on the proposed configurations for the vote-by-mail incoming ballot envelope scanning and sorting system proposed.

1. Population size between 10,000 to 50,000 (Small Counties)
2. Population size between 50,001 to 150,000 (Medium Counties)
3. Population size above 150,001 (Large Counties)

We understand that the smaller Counties identified in the provided "County Polling Location Minimum Counts" which consists of the lowest volumes of 613 voters and up to 9,999 voters could be in rural areas, also may not be able to justify the cost to automate or might not be able to obtain the necessary space for an Automated Ballot Envelope Scanning and Signature Verification solution. So we are suggesting that any Counties which are larger than 10,000 voters consider an automated solution.

We are proposing our high security and scalable Reliant Relia-Vote sorting platform to match the above volume bands 1, 2 and 3. The basic sorting system will have a processing speed of up to 18,000 mail ballot envelopes per hour. We believe that by using the same platform between the Counties this would be scalable for the identified low volume Counties, medium volume Counties and also large volume Counties.

Should a county need to have more upstream processing time for shorter windows they may want to consider the Pitney Bowes optional Vantage Relia-Vote sorting system which is more of a high speed and larger volume sorting system. Also should CDOS want to consider a Centralized operation for processing ballot envelopes for multiple Counties such as consolidating the ballot envelope processing for smaller Counties you may want to consider the Vantage Relia-Vote sorting system as a possible option. Also as another possible consideration we are able to provide two Reliant Relia-Vote sorting systems and network them together to run off of one server. This would provide extra redundancy for larger Counties or a Centralized operation.

The proposed Reliant sorting system for the small Counties would be configured with 4 sort pockets to meet and exceed the requirements called out in the RFP. Additional sort pockets can be added in 4 pocket module increments, if required for finer sorting of challenges and additional mail ballot envelope sorts. We are also proposing the Reliant sorting system for the medium and largest counties. The proposed sorting system configuration would be 8 sort pockets to meet and exceed the requirements called out in the RFP. Additional sort pockets can be added in 4 pocket module increments, if required for finer sorting of challenges and additional mail ballot envelope sorts. Based on the modular design a maximum of 108 sort pockets can be added to the proposed Reliant sorting system to provide unlimited sorting possibilities. Should a County require a finer sort or have other applications that may require additional sort pockets to be used for separating different counties, elections, ballot types, etc they would be able to add additional sort pockets, the system is fully upgradeable in the field. If CDOS should decide that they need more upstream processing for shorter windows you may want to consider the Vantage Relia-Vote sorting system for faster speeds, we would propose a minimum sorting system configuration with 8 sort pockets to meet and exceed the requirements called out in the RFP. Additional sort pockets can be added in 8 pocket module increments, if required for finer sorting of challenges and additional mail ballot envelope sorts.

The system is designed to be on wheels to make it easy to move/transport and store the system between elections. We believe that the proposed Reliant sorting system would be an excellent fit for Colorado small, medium and large Counties. This would provide a uniform platform between all Counties and allow for cross training people between the various Counties.

The Pitney Bowes Reliant Relia-Vote automated inbound ballot envelope processing solution:

Ballot envelope validation, signature verification, sorting and envelope opening – all on one streamline scalable system.

The Reliant was designed for election officials with low to large volumes of Vote-by-Mail ballot envelopes, our compact and scalable solution can process inbound ballot envelopes at speed up to 18,000 per hour.

- Modular design is scalable for low to large jurisdictions
- This system goes anywhere, at only 34” in width it fits through a standard door and can be placed against a wall.
- No prior mail automation experience is needed with this easy to use system
- Standard 120V power requirements simplify installation and conserve valuable space.

Auto Signature Verification:
This feature will be part of the proposed solution to meet the Automated Signature Verification requirements. This feature will assist each County in allowing them the

option to automate their election operations by reducing the time it takes to verify every signature while processing the ballot envelopes on the proposed Reliant sorting system. This is a proven and tested software feature which will perform the automated signature verification process and pass only the remaining “challenged” signatures to the manual process.

No Signature Detection:
This included feature will detect for the absence of a signature on the initial scan pass and automatically outsort identified ballot envelopes to a challenge sort pocket.

Check Box Detection:
This included feature will detect for the presence or absence of a check box and sort the ballot envelopes according to the selected sort criteria.

Separator Card Detection Feature:
This included feature will support future precinct sorting requirements.

This section should also include the following:

1) A brief statement of understanding and compliance with the terms and conditions as set forth in RFP Section 2 Administrative Information.

Pitney Bowes has read and understand the terms and conditions of the RFP and feel that we are compliant to all requirements.

2) A statement of understanding of the work and system requirements associated with the Uniform Voting System project. It is important that your company understand the size and scope of this project.

Pitney Bowes fully understand the work and requirements in implementing an Automated Ballot Envelope Scanning and Signature Verification system per the RFP requirements. We also understands the time line and will work with CDOS to ensure that we are fully staffed and ready to achieve all agreed upon targets and requirements.

3) Any information you wish to add that is pertinent to your company doing business with the State of Colorado.

Pitney Bowes is part of the business community in Colorado and has two offices in the state of Colorado, a Pitney Bowes Pre-Sorting business and a Pitney Bowes Global Mailing Solutions business. Both businesses have over 30 employees each, their addresses are below.

Pitney Bowes GMS
385 Inverness Parkway, Suite 400
Englewood CO 80112

Pitney Bowes PS
11909 East 51st Avenue
Denver, CO 80239

Both of these divisions as well as our Document Messaging Technology division are currently doing business in the state of Colorado. We provide various hardware, software, supplies and support services to many companies within the state of Colorado.

4) Disclosure of non-U.S. ownership of all or any portion of your company.

Please refer to the Form 10-K section of the included Annual Report for Pitney Bowes Inc. ownership information.

PITNEY BOWES INC. OVERVIEW

Pitney Bowes, headquartered in Stamford, Connecticut, has been a leader in providing and implementing high volume mail and document messaging systems for over ninety years. We created an industry when we introduced the postage meter in 1920, and today we continue to lead the development of messaging technology. In addition to our postage meter products and related services, we have been manufacturing, marketing, and

servicing a full line of production mail and paper handling systems for nearly four decades. During that time, Pitney Bowes has remained in constant touch with this rapidly expanding market.

- We are a $4.9 billion, Fortune 500 company, now celebrating 93 years as the world leader in mailing, shipping, document management products, software and related services
- We are a stable company with a solid financial profile.
- We are a publicly traded company listed on the NYSE.
- Our products, services, technologies, and business systems are in use by approximately 2 million customers in more than 100 countries
- We invest over $125 million annually in research and development
- We are committed to the business of message delivery as shown through our investment of over $1 billion in the acquisition of companies and technology
- Pitney Bowes World Headquarters is located at 1 Elmcroft Road, Stamford CT 06926-0700. The telephone number is 203-356-5000.
- Pitney Bowes Federal Identification Number is 06-0495050.
- Pitney Bowes has a certification of Good Standing with the State of Colorado

Pitney Bowes Inc. through its Document Messaging Technologies division will agree to all mandatory requirements included in RFP # CDOS-UVS-2013-01. Our core expertise is high integrity, high productivity solutions. We have demonstrated our equipment flexibility and seamless integration to many of the counties around the State of Colorado and would like to do the same for you.

Pitney Bowes has acquired World Class companies in our portfolio to enable single vendor document processing, print, finish, and mail tracking, and reporting, production systems for our customers. We are unique in that we design solutions through the use of internal teams and consultative expertise from our various divisions. This allows our team to work with the State of Colorado to design, manufacture, implement, manage, support and maintain the exact solution from ballot envelope production and mailing through inbound scanning and sorting as a single point of contact. No other vendor can provide and support this all-encompassing ballot and mail production solution.

ABOUT OUR DOCUMENT MESSAGING TECHNOLOGY DIVISION

The Document Messaging Technologies (DMT) Division, of Pitney Bowes, provides the state and local marketplace with a complete line of high speed inserting and sorting systems, along with related software products that allow you to easily modify, integrate, and manage your absentee ballots from creation through production and mail as well as full tracking to the constituent and back to your central location.

Our product line allows you to choose flexible systems that can be field upgraded as your volumes and production requirements change in the future. Our software can help you modify digital documents and output them in various formats to allow you dynamically alter

your delivery preferences. An example might be to allow constituents to choose between web based output or print and mail delivery.

As computers and software change, so can the types of files you can manage. As your printer output requirements change, we can redirect output to virtually any manufacturer's printer or digital presentment channels.

SUPPORT AND CUSTOMER SATISFACTION

Organizations invest significant time and effort in the selection of technology. The most overlooked process is the analysis of the long term support that will be provided by the chosen vendor. The right questions can help you determine whether prospective providers are really committed to meeting your needs.

Some compare performance metrics such as speed, accuracy and throughput. Others conduct side-by-side tests before making a commitment. Most technology buyers understand, however, that such system capabilities represent only one part of the buying decision. Service after the sale, ease of doing business and a commitment to meeting customer needs also play critical roles in overall satisfaction.

How a vendor or technology provider measures customer satisfaction says a lot about how they will deliver satisfaction going forward. By learning more about a firm's approach to capturing and managing customer feedback, buyers can gain insight into the level of satisfaction they may expect after becoming a client.

Leaders in this discipline, including Pitney Bowes, employ dedicated resources to measure customer satisfaction. We constantly search for new ways to exceed expectations and act upon the insights we collect. Pitney Bowes understands that there are limited pools of potential customers and that satisfaction; loyalty and purchase behavior are closely aligned.

As a large and diverse company, Pitney Bowes does not employ a one-sized-fits-all approach. Customer satisfaction measurement programs are built, designed and managed around the distinct needs of customers. Our division provides high-end, integrated systems and services. Here, dedicated sales and service executives will have close relationships with multiple levels of management within our accounts.

Since the implementation of a new measurement program, Pitney Bowes has seen a dramatic increase in customer satisfaction and business performance. Today, 86% of customers report that they are very satisfied and 96% of customers would recommend Pitney Bowes. With your continued input, our goal is to push this higher as our service team continues to grow.

WHY PITNEY BOWES FOR THE STATE OF COLORADO?

Pitney Bowes has applied more than 9 decades of mailing industry expertise to the mail balloting process, establishing itself as the innovation and technology leader in vote-by-mail processing. The result is Relia-Vote™ Solutions, a unique set of solutions that deliver

exceptional value for election officials like the State of Colorado Clerk's Election Division.

Pitney Bowes Document Messaging Technologies Division ("Pitney Bowes DMT") is committed to providing the State of Colorado with the finest products backed by the highest quality care and service. Our DMT production facility is ISO9000 certified, ensuring high quality products and services.

State of Colorado partnership with Pitney Bowes

- Our commitment to the State of Colorado and the Vote-by-Mail business will allow you to work with a trusted team of consultants that will recommend solutions that will last into the future as technology changes the way we communicate with our constituents.
- Our service team continues to monitor customer satisfaction to ensure the quality of our support services can be sustained or increase during our fast paced growth.
- Our financial stability during this economic downturn and continued R&D investment and acquisition of technology companies to extend our offerings in this industry and adjacent markets ensures stability in strong long term partnership
- Inserting and sorting equipment are manufactured at our DMT facility in Danbury, Connecticut, USA. We welcome you to visit our facility so that we may demonstrate the many advantages of doing business with Pitney Bowes implementing our various state-of-the arts solutions.

■ **Build on a solid technology platform:** The state is looking for technology that is current, dynamic and flexible. All Pitney Bowes solutions are designed to be modular, efficient, flexible, offers the highest level of tight integrity and trouble free operations. All of this would support the most cost effective solution and protect your investment for future upgrade requirements.

■ **Set the Performance Standard for Efficiency:** Productivity is essential to the State of Colorado in reaching all your cost-efficiency goals. The challenge in our industry has been achieving high-speed results without sacrificing integrity, along with having equipment that is easy to operate, maintain and performs consistently.

■ **Financial Performance of Assets:** Cost-per-piece and Total Cost of Ownership are the standard metrics for our industry. Achieving predictably financial goals is a desired result from overall factory performance. Sorter performance (up time, run time, stop time) is a critical metric, which directly affects labor, maintenance and quality costs. Because our solution is reliable and predictable, achieving the State's financial goals is easier and more attainable. This is particularly valuable in planning and predicting future growth and expenses.

■ **World Class Implementation:** Our knowledge and experience of large, multi-site enterprises processes and people will enable us to provide a highly effective and trouble

free implementation. Our detailed process for system build and installation further ensures our success.

■ **Ongoing Support & Continuous Improvement:** Pitney Bowes utilizes a combination of tools, best practices, and customer communications to deliver a proactive, goal oriented support model.

We Are Committed to the Production Mailing Industry

- $25,000,000+ invested in our family of sorting products
- $52,000,000+ investment for MPS™
- $20,000,000+ investment for MAILSTREAM EVOLUTION™ Series
- $15,000,000+ invested in our DFWorks® family of software products

Pitney Bowes has revolutionized the physical mail processes, metering, address management, mail finishing, inserting, sorting, and tracking with innovative technology, patented solutions and unparalleled quality.

PITNEY BOWES RELIA-VOTE™ EXPERIENCE:

Beginning with our first implementation in 2005, Pitney Bowes has now worked with 30 jurisdictions including five of the six largest counties in the U.S. to successfully implement our proven and successful Relia-Vote™ Solution.

Patents: As one of the pioneers of the vote-by-mail automation process, Pitney Bowes continues to develop secure vote by mail solutions leading to Pitney Bowes patents (several attached in the appendix for your review). These patents are the basis of our high integrity processes and developments implemented in our Relia-Vote solutions. These patented technologies serve as a statement that Pitney Bowes has engineered the highest level of integrity to eliminate tampering and fraud from mail elections. Other related Pitney Bowes patents include our Automated Disaster Recovery Equipment (PADRE ™) to help you bring the Relia-Vote computers back on line faster and with no or little data loss.

With our state-of-the-art technology, our customers processed nearly 18% of all mail ballots in 2008 and over 24% of early voting in 2012. Our success is built upon more than 90 years in the mailing industry providing secure, dependable and innovative solutions. We have more than 200 customer's nationwide utilizing Pitney Bowes sorters. With this proven experience and extensive knowledge of the vote-by-mail process, the Pitney Bowes Relia-Vote™ team provides State of Colorado with the foundation for a successful transition from manual to automated mail ballot processing.

3.0 – COMPANY FINANCIAL STATUS

You must provide company financial information. If the company is publicly traded, include a financial statement for the last two years, which includes at a minimum, a profit and loss statement and a balance sheet. If the company is not publicly held, submit a copy of the most recently audited financial statement and organization/financial structure of your company. Unaudited financial statements or Dun and Bradstreet reports alone are unacceptable and, if submitted without additional supporting documentation, may be grounds to eliminate the company from consideration. You must identify any financial information (except public information for a publicly held company) that should be treated as confidential and should be used for the proposal evaluation only.

You must also include a statement of your other contractual obligations that might have an influence on your capabilities to perform the conditions of a contract resulting from this RFP process. Examples of influences are personnel constraints or a financial condition deemed to be a risk to CDOS for successful performance of a subsequent contract.

CDOS may disqualify from consideration any Vendor who is involved in bankruptcy proceedings.

Please refer to the enclosed Pitney Bowes Annual Report 2012 for audited financial statements for the last three years.

Pitney Bowes has no other contractual obligations which would influence our ability to perform the conditions of the resulting contract from this RFP process.

Pitney Bowes is requesting confidentiality for the municipal references submitted in response to this RFP requirement. In order to meet the RFP requirement, we have separately submitted Pitney Bowes' reference information.

4.0 – RELEVANT BUSINESS EXPERINCE

You must provide adequate detail, including contacts of any state where you performed a multi-jurisdictional implementation of your product and served as the prime contractor. A minimum of three references should be submitted. Each implementation referenced must be in production and serve as the official system for the respective election jurisdictions. Information provided for additional implementations is encouraged. If you have implemented your proposed system in all jurisdictions (statewide) for a state, include the implementation as part of the required references.

Each referenced implementation must include both a primary and secondary client contact person, with name, current telephone, fax number and email address for each. For each referenced project, describe if the project was completed on time and within the original bid amount. If not, identify and explain any time and cost overages. Additionally, disclose any litigation you have been involved with over contract performance. CDOS reserves the right to contact and verify the quality of products and services and the degree of satisfaction with your performance, with any clients with whom you have been known to have conducted business.

Each reference should include the following information:

1) Description of the project
2) Reference contact information
3) Project timeline from start to finish (planned and actual)
4) Contract performance issues, if any
5) Quantity, type and version of voting equipment and software installed
6) Poll worker training provided
7) Election staff training provided
8) Support provided for early voting, election day voting and post-election activities
9) Any problems reported regarding election results accuracy and, if so, how handled
10) Any problems reported regarding equipment availability and, if so, how handled
11) Description of project management services you provided to the project

If the product you are proposing has not been implemented in a production environment (e.g. pending certification, implementation in process, etc.), please provide whatever information you can for this section regarding your business experience in the voting arena.

1. Description of the project:

2. Reference contact information

5.0 – PRIOR PROPOSALS

Vendor must disclose any voting system projects in which the Vendor has submitted bids or proposals (as prime or sub) for consideration by a state or territory between July 2008 and the date of this RFP. Vendors proposing a solution to a single element (e.g. Mail Ballot Tracking solution) of this RFP shall identify proposals in which the vendor offered similar bids or proposals in the past 5 years. At a minimum, this information must include:

1) State or territory
2) Contact name, telephone and email address
3) Date proposal submitted
4) Result of your bid
5) Brief description of your proposal

Pitney Bowes has used its best efforts to produce information responsive to this request for voting system RPF information. However, due to changes in record keeping processes and personnel changes during the last 5 years, we may have inadvertently left out a proposal.

California

1. San Bernardino County
2. Angela Glasby, (909) 387-2046, aglasby@rov.sbcounty.gov
3. April, 2011
4. Awarded to PB
5. Relia-Vote Sorting and Auto Signature Verification System

1. Riverside County
2. Ines Mark, (951) 955-4937, imark@co.riverside.ca.us
3. January, 2012
4. No award
5. Relia-Vote Sorting and Auto Signature Verification System

1. Santa Clara County
2. Michael Johnson, (408) 491-7405, michael.johnson@proc.sccgov.org
3. February, 2012
4. Awarded to PB
5. Relia-Vote Sorting and Auto Signature Verification System

1. Solano County
2. Lindsey McWilliams, (707) 784-3364, LPMcWilliams@solanocounty.com
3. January, 2012
4. Upgraded current PB sorter
5. Inbound sorting system

1. City of Los Angeles
2. Thomas Reindel, (213) 978-0376, thomas.reindel@lacity.org
3. No date available
4. Olympus Relia-Vote Sorter
5. Not awarded to PB

1. Kern County
2. Saron Vaughn Wallace
3. No date available
4. Olympus Relia-Vote Sorter
5. Awarded to PB

1. County of San Diego
2. Germaine Howson, (858) 715-6462, Germaine.Howson@sdcounty.ca.gov
3. No date available
4. Olympus Relia-Vote Sorter
5. Awarded to PB

1. San Joaquin County
2. Austin Erdman, (209) 468-2898, aerman@sjgov.org
3. No date available
4. Olympus Relia-Vote Sorter
5. Not awarded to PB

1. County of Sonoma
2. Celia Peterson, (408)379-0911
3. No date available
4. Olympus Relia-Vote Sorter
5. Not awarded to PB

Colorado

1. Jefferson County
2. Shawna Weir, (303) 271-8154, smweir@jeffco.us
3. June 2010
4. Awarded to PB
5. Olympus Relia-Vote Sorter

1. Douglass County
2. Carolyn Nemmers, (303) 660-7430
3. No date available
4. Not awarded to PB
5. Olympus Relia-Vote Sorter

Florida

1. Broward County
2. Mary Hall, (954) 712-1962, mahall@browardsoe.org

3. No date available
4. Awarded to PB
5. Vantage Relia-Vote Sorter

1. Hillsborough County
2. Buddy Johnson, johnsonb@hillsboroughcounty.org
3. No date available
4. Awarded to PB
5. Olympus Relia-Vote Sorter

Georgia

1. Fulton County
2. William Long, (404) 612-5800, william.long@fultoncountyga.gov
3. No date available
4. Awarded to PB
5. Olympus Relia-Vote Sorter

Illinois

1. Cook County
2. Cho Ng,312.603.2391,cho.ng@cookcountyil.gov
3. April, 2012
4. Awarded to Runbeck
5. Reila-Vote sorting system

Ohio

1. Adams County
2. Liz Estrada, lestrada@co.adams.co.us
3. No date available
4. RFP Rescinded
5. Reliant Relia-Vote Sorter

Oregon

1. State of Oregon
2. Brent Kirby, (503) 986-0514
3. No date available
4. Not awarded to PB
5. Olympus Relia-Vote Sorter

Alaska

1. Anchorage
2. Shawn Henderson, (907) 465-3899
3. February, 2011
4. Awarded to PB
5. Relia-Vote Outbound Ballot Assembly System

Washington

1. Clark County
2. Ken Karraker, (360) 397-2345, Ken.Karraker@clark.wa.gov
3. No date available
4. Awarded to PB
5. Olympus Relia-Vote Sorter

Washington D.C.

1. District of Columbia
2. Sylvia Goldsberry-Adams, (202) 236-7451, sadams@dcboee@dcboee.org
3. No date available
4. Awarded to PB
5. Compact Relia-Vote Sorter

6.1 – PROJECT MANAGEMENT

Describe the approach to project management that you propose for managing the Colorado UVS project. You may use ***RFP Appendix D – Statement of Work, Track 1: Project Management*** as a guide.

The Pitney Bowes method used for all Relia-Vote implementations is consistent with the methods prescribed in RFP Appendix D and the Project Management Institute's PMBOK standards.

It is typical for new customers to expect the project to include:

- One week of installation time required for:
  - Hardware
  - Servers
- One week of operator training
- 2-3 days of on-site Mock election testing (acceptance)

The Project Plan is a living document agreed to by the County and Pitney Bowes Project Teams, with planning activities considering Plan Objectives including,:

- Project Plan tasks
  - Schedule – all timelines
    - Pre-install
      - Site Preparation
        - Environmental
        - Site Surveys
      - SCORE interface planning
    - Manufacturing
      - FAT
    - Installation
      - Ballot Sorter
      - SCORE Integration
    - Testing
    - Training
  - Risk Management
  - Change Request / Management
  - Issue Identification / tracking /resolution
  - Risk Management
  - Training
    - County Team
      - Operator
      - System Administrators (Server)

- Other
  - As identified by the project team that may be unique to a particular county and called out in the project plan and statement of work.

6.2 – UVS SOFTWARE

Provide a detailed description of the software proposed for the Colorado UVS. Describe your desired process for clarifying requirements and determining gaps between your software solution and the system requirements of CDOS.

Pitney Bowes Relia-Vote Software is a high integrity ballot envelope scanning, data capture, sort, and auditing tool used by election administrators across the country.

The key components are:

Relia-Vote Operator User Interface

This interface resides at the Ballot Envelope sorter and is the primary operational interface between the system and the operator.

- It allows the operator to perform the basic data gathering used by jurisdictions
  - Run the machine
  - Create specific election criteria to insure separation when multiple elections are in progress (such as overlapping)
  - Incoming Ballot Envelope Scanning for Signature and barcoded Application ID
    - Cropped Signature Image
    - Full face envelope image
  - Ballot Envelope mailpiece data file (for VR system)
  - Image Archiving
  - Sortation be user definable parameters
    - Read reject
    - Challenge Ballots
    - Successful Read (precinct range definable)
    - No Signature present
  - Data import and export
    - Voter Ballot envelope
    - Status
      - Received
      - Status (Validated, No Validated, Challenged)
- RDC
  - Sort Scheme Editor
  - Remote Diagnostics
- Site Server

- ASV Reference Image Storage
- ASV Application
- Scanned Image (to compare with ASV Reference Image
- Shared files (SIF and ASV)

Pitney Bowes is compatible with Colorado's SCORE system and there are no gaps.

Describe the programming language(s), along with version numbers, used to develop your system's software.

- C# - Visual Studio 2010 (SP1)
- C++ - Visual Studio 6
- TSQL – SQL Server 2008 R2

If your proposed application utilizes any 3rd party software, please identify such and explain how you will work with the 3rd party to resolve any problems.

- Microsoft SQL Server 2008 R2 – We have full MSDN subscription which includes support
- Retrospec (Computer backup software) – Pitney Bowes Service Department has a full license with support and maintains that application

Describe your position on access to application source code by CDOS.

Pitney Bowes Relia-Vote Application Source Code is proprietary and is not available to end users

Describe your position on escrowing your software. Also describe any processes, such as hash functions or trusted builds, which will ensure software code being executed in an election is the same as the escrowed code.

The Pitney Bowes Relia-Vote Ballot Envelope Sorting solution is not a Voting System as defined in Rule 1.1.33 (c) of the Colorado Election Rules, however, Escrowing ballot sorting software can be arranged on mutual agreement by Pitney Bowes and the contracting county for an additional cost.

6.3 – UVS HARDWARE

Provide a detailed description of the hardware proposed for the Colorado UVS.
The Pitney Bowes Relia-Vote Ballot Envelope Sorting solution is not a Voting System as defined in Rule 1.1.33 (c) of the Colorado Election Rules, however, See proposed Solution (as described in the Executive Summary) and Options below.

Ballot validation, signature verification, sorting and envelope opening – all on one streamline scalable system.

The Reliant was designed for election officials with low to large volumes of Vote-by-Mail ballots, our compact and scalable solution can process inbound ballots at speed up to 18,000 per hour.

- Modular design is scalable for low to large jurisdictions
- This system goes anywhere, at only 34" in width it fits through a standard door and can be placed against a wall.
- No prior mail automation experience is needed with this easy to use system
- Standard 120V power requirements simplify installation and conserve valuable space.

Auto Signature Verification:
This feature will be part of the proposed solution to meet the Automated Signature Verification requirements. This feature will assist each County in allowing them the option to automate their election operations by reducing the time it takes to manually verify every signature while processing the ballot envelopes on the proposed Reliant sorting system. This is a proven and tested software feature which will perform the automated signature verification process using threshold settings to accept matching signatures and and outsort the remaining "challenged" signatures to the reconciliation process.

No Signature Detection:
This included feature will detect for the absence of a signature on the initial scan pass and automatically outsort identified ballot envelopes to a challenge sort pocket.

Check Box Detection:
This included feature will detect for the presence or absence of a check box and sort the ballot envelopes according to the selected sort criteria.

Separator Card Detection feature:
This included feature will support future precinct sorting requirements.

Optional Items

Possible Additional Sort Pockets:
Additional sort pockets can be added to the Reliant sorting system in 4 sort pocket incremental sections. The Reliant system is a modular designed and is fully field upgradeable for flexibility as each County requirements may change. Additional sort pockets can be added to the optional Vantage sorting system in 8 sort pocket incremental sections. The Vantage system is also modular design and is fully field upgradeable for flexibility as each County requirements may change.

Thermal Transfer Label Kit:

This optional printer will recreate damaged barcodes on incoming vote by mail ballots. The barcode will be printed on a label and attached over any damaged barcodes for scanning on the Relia-Vote system. This would eliminate the need for manual ballot package reconciliation

Spare Parts Kit
This optional kit was designed to provide on-site consumable parts for immediate access should the need arise for needing a consumable item. Pitney Bowes would replace items used to ensure that these consumable items would always be on hand for a trouble free operation as it pertains to consumable items.

Selective Envelope Opener Module:
The Selective Envelope Opener is an optional module and associated software that will allow an operator setup the sorting system to selectively open the return ballot envelopes while the ballot envelopes are being processed based on rules within the legal timeframe. This feature is flexible so that it can also be setup to open "all" ballot envelopes in a batch process as a simple "high speed" opener as well.

Optical Double Detector
For out of spec ballot envelope redundancy, the county may add an Optical Double Detector which uses a PC based device that utilizes a specialized USB camera system to identify double fed mail pieces. The camera is a line scan device designed with two viewing regions. The camera focuses on the bottom edge of the ballot envelope where it illuminates the target using white lighting. The lower 20-30mm of the ballot envelope address face is viewed using an infrared lighting spectrum. The side view provides useful information to help identify special piece types. The combination of the two views provides a great deal more data about the ballot envelope, providing a higher level of accuracy. This additional detector will ensure 100% verification that they system will never double feed two ballot envelopes.

Automated Signature Security Tab Removal System
Most counties have a return ballot envelope which is designed with a flap that covers the signature of the voter on the return mail ballot envelope. Depending on the volume of returned mail ballots, it can take excessive time and labor to manually remove the flap and expose the signature for scanning and verification. We are currently finalizing an off-line automated solution that will remove the signature flap at high speeds and dispose of the strip into a vacuum collection system. We sincerely believe that an approach to an off-line solution would be much more beneficial and productive over an in-line approach. Should CDOS decide that this is something that they would be interested in we would be happy to provide further details and pricing for this solution.

Describe your desired process for clarifying requirements and determining gaps between your hardware solution and the system requirements of CDOS.
In reviewing all requirements, our solution will have no gaps between the requirements and proposed solution.

Provide specifications for each of the hardware devices you are proposing for the UVS.

Reliant Relia-Vote Sorting System

Specifications:

Minimum Size	Maximum Size
Length: 5"	Length: 13"
Height: 3.5"	Height: 10"
Thickness: .007"	Thickness: .375 "

Design Speed:	18,000/hr #10 Envelopes 18,000/hr Postcards

Vantage Relia-Vote Sorting System

Specifications:

Minimum Size	Maximum Size
Length 5”, Height 3.5”	Length 13”, Height 10”
Width .007”, Weight .07 oz	Width .25”, Weight 8.8 oz.

Design Speed:	45,000/hr #10 Envelopes 45,000/hr Postcards

Describe prescribed preventative maintenance schedules for each of your hardware devices.

Preventative maintenance will consist of inspecting, cleaning and periodically lubricating various components as well as replacing any worn parts.

Pitney Bowes shall inform Customer of the timing and nature of preventative maintenance required and Pitney Bowes and Customer shall mutually agree on the scheduled time for CSRs to perform the preventative maintenance. Pitney Bowes shall use commercially reasonable efforts to conduct preventative maintenance as scheduled.

Customer shall make the Products reasonably available to Pitney Bowes for preventative maintenance.

6.4 – DATABASE

Provide information regarding the database utilized by your proposed UVS application. Please address the following:

1) Database system being proposed, including version identification, and any supporting capabilities (e.g., utilities, special backup considerations);
   Microsoft SQL Server 2008 R2 Standard Edition
   Database backups are scheduled through our software package
2) Describe any techniques used by your proposed system to secure the data in the database and in any other data files;
   Database access is controlled via logins and passwords designed by Pitney Bowes
3) Describe any database backup and disaster recovery plans you provide;
   Hardware includes redundant hard drives, daily backups are created, as well as SQL server Table backups is maintained through Pitney Bowes service application "Retrospec".
4) Describe the technical requirements of county computers used to store the database;
   Not Applicable. The database used on the Relia-Vote Sorting platform is stored on the system server. The county will not need to provide computers.
5) State your affirmation that CDOS or County will be sole owner and custodian of all election related data in the system you provide and shall have the unrestricted right to access and use this data without interference by or assistance from you.
   The Relia-Vote server stores election data related to the incoming ballot packages in a mailpiece data table. This is a secure database not directly accessible; however, a mirror copy is created that allows the user to extract data as needed.

6.5 – DATA MIGRATION

Describe your approach to data migration, including how data mapping between systems will be defined, cleansing/reformatting of data, testing and the final conversion to the production environment during implementation rollout. For example, explain how counties will be able to convert jurisdictional data from their existing Election Management System (EMS) to the EMS in your system.
The Pitney Bowes Relia-Vote Ballot Envelope Sorting solution is not a Voting System as defined in Rule 1.1.33 (c) of the Colorado Election Rules.

Describe the type and level of Colorado support desired during data migration efforts.

Identify any EMS of a competitor from which you have successfully converted data into your EMS.

Not applicable. Our system databases are maintained within the Relia-Vote Server is not an EMS environment.

6.6 – TEST STRATEGY

Provide a description of your proposed test standards and methods used to ensure the new UVS is working properly in each county installation. The description must address test plan creation, test case or script generation, test phases, the execution of the test plan, and proposed participation by CDOS/County staff.

You may use ***RFP Appendix D – Statement of Work, Track 1: Project Management*** Test Strategy Plan section as a guide.

Our test strategy would be to conduct an agreed upon acceptance test for each county which would fully demonstrate that the implemented Relia-Vote Solution meets all requirements defined in the agreed upon Statement of Work. We would conduct a full mock election that would provide an End-to-End System test with the assigned Pitney Bowes team and the county assigned team. Together we will prove and validate full functionality of the implemented system to meet all of the specified requirements within the RFP. This section covers all agreed upon acceptance criteria which would be specified in the award contract. Additionally, copies of all reports, files, database exports, and sample ballot envelopes generated as part of all test will be provided to the County.

Customer Responsibilities

- We would expect that each county would provide sufficient quantities of properly barcoded sample ballot envelopes for all identified testing
- Participate in a full End-to-End system mock election test validating that all documented functionality meets the requirements in the agreed upon Statement of Work

Additionally, mail ballot envelopes should be processed for inbound scanning, sorting, file transfer, signature verification process (VR system) and files returned to the proposed sorter for final sorting.

This process will follow all steps possible as if a real election is being conducted.

Create VR file for each mock test election, assemble ballot packages as if a return ballot is being sent back to the County. In the past, Counties have provided return ballot envelopes used in a recent past election as possible test material. Blank pieces of paper are used to create rigidity in these secrecy envelopes. The purpose is to run these ballot envelopes through the sorter and processed them in a mock live environment. This

allows for a Voter signature capture, pass through Automated Signature Verification, and then transfer the file back to the County EMS system for any manual verification.

Run Relia-Vote Sorter to Validate:

- Inbound Scan Pass
  - Doubles Detect
  - Signature Capture
  - Over / Under Size
  - Date Time Printing
  - Tray Tag Printing
- File transfer for Auto Signature Verification
  - Completed ASV File transfer to County EMS
    - County Manual Signature Verification on EMS
- File transfer to Sorter for Repass if needed
- Correct Final Sortation
  - Selective Open (Optional Item)
- Print Inbound Reports

6.7 – TRAINING

The expectation of CDOS is that Counties will require training for various categories of UVS users. Describe the proposed content and delivery of your training. Include information about the typical class size and duration of training. Also, describe any self-paced training products you may provide.

Define the support and accommodations you need from CDOS or a County to support your training efforts.

Please refer to the "On-Site Training" section of the provided Statement of Work on page 78.

6.8 – IMPLMENATION

The RFP Statement of Work includes change management, deployment and user training as deliverables within Implementation. Describe your approach and experience on prior implementations and your proposed approach to implementation on the Colorado UVS project.

Please refer to Section 10.0 for the Relia-Vote implementation plan.

6.9 – SUPPORT

This RFP solicits post-implementation support from the Vendor in each of the following

support areas:

1) Warranty Period Support
   Pitney Bowes will provide on-site and remote support during the installation, configuration and training phases as well as during an agreed upon warranty period.
2) Maintenance Support
   After the warranty period Pitney Bowes will provide on-site and remote support required for back-ups, updates, and mechanical & software preventive maintenance.
3) Election Setup Support
   Pitney Bowes will provide on-site and remote support needed for back-ups, updates, testing and mechanical & software system checks during an established and agreed upon election cycle.
4) Election Processes Support
   Pitney Bowes will provide on-site and remote support required for break-fix and stand-by service.
5) Post-Election Support
   Following an election period, Pitney Bowes will provide on-site and remote support for back-ups, and mechanical & software system checks.

Indicate your approach to the various areas of support and your recommendations as to how support should be structured, if different from how described in the ***RFP Appendix D – Statement of Work, Track 4: Contractor Support***. Describe the support activities included in each support area. Provide a table which includes the various categories included in your typical Service Level Agreements for each support area and the recommended levels of service values (e.g. response time, staffing levels).

	Response Time	**First Call Resolution**	**Mean Time to Repair**	**Callbacks**
Warranty Period	Scheduled appointment	Measured against target	Measured against target	Measured against target
Maintenance Support	Scheduled appointment	Measured against target	Measured against target	Measured against target
Election Set-up Support	Scheduled appointment	Measured against target	Measured against target	Measured against target
Election Processes Support	30 minute call back, 2 hour on-site	Measured against target	Measured against target	Measured against target
Post-Election Support	Scheduled appointment	Measured against target	Measured against target	Measured against target

An assumption is that some Contractor support will be onsite and that some support can be provided by Contractor help desk personnel. Describe the process associated with your support help desk in managing questions and issues from the UVS users. Describe the automation tools you utilize to track help desk metrics. Include a discussion of your

help desk configuration, normal and peak election hours of operation, and expected response time.

Our helpdesk is staffed 24 hours a day, 7 days a week. When a call is placed into the helpdesk a qualified service agent will work with our client to attempt to identify, troubleshoot and resolve the problem they are experiencing. If a resolution cannot be identified during this process an escalation is made to either a product specialist or a request for a field service agent to be dispatched will be made. Calls placed into the helpdesk are monitored and tracked for follow up, reporting and training purposes. All service activities are logged and tracked via an automated service call system.

Key Performance Metrics

	Average handle time	*Abandonment Rate*	*Resolution/Success Rate*	*Ability to Resolve*
Warranty Period	Measured against target	Measured against target	Measured against target	Measured against target
Maintenance Support	Measured against target	Measured against target	Measured against target	Measured against target
Election Set-up Support	Measured against target	Measured against target	Measured against target	Measured against target
Election Processes Support	Measured against target	Measured against target	Measured against target	Measured against target
Post-Election Support	Measured against target	Measured against target	Measured against target	Measured against target

In the future, certain areas of UVS support may be transitioned from the Contractor to CDOS or a third-party (e.g. local university). Please state your willingness to participate in executing a transition plan should this occur and any experience you have in such a transition.

Pitney Bowes is willing to participate in possibly transitioning certain areas of support to the State or a third party. We can provide the necessary technical training at our National Training Center. Prices are based on the specific requirements of the transition plan.

Typically the customer and Pitney Bowes together review the technical competency of the training candidates to ensure they have the necessary skillset and aptitude in order to be successful in the actual training class. Once this assessment is completed and candidates certified as being eligible, an agreed upon class date is set.

Upon completion of the course, Pitney Bowes can, at the customer's agreement, provide onsite follow up mentoring with the newly trained technicians for a period of usually 10 days. This mentorship program is chargeable at a discounted labor rate.

At that point the customer technicians would normally be self-sufficient and would be support by our Pitney Bowes Sorter Helpdesk team which provides a host of remote support tools to help ensure the technician success.
The customer would also have the option of purchasing an annual extended parts agreement to provide for service spare parts (including wear items called consumables) for a single fixed price.

7.0 – SAMPLE REPORTS

You must provide a list of the various reports available from your proposed system, as well as examples of those reports. At a minimum, provide the first and last page of each report.

Reports

Relia-Vote™ has several levels of audit reporting and integrity built into the Pitney Bowes Management Console (PBMC). Piece level data for each event is recorded into the Relia-Vote database to ensure a total audit trail and to enable tray-based reporting that shows total history and last known location of each piece (sample below). As mailpieces are received and sorted into trays on Incoming Pass, a summary report is available displaying quantities and Piece ID's of Valid, Challenged, and Diverted pieces. Workflow screens and reports indicate which trays are ready for signature verification and also after signature verification which trays are ready to be re-ran on the sorter under a Sort/Audit pass. Detailed reports display from this pass the quantities and piece ID's of valid ballots and the challenge ballots into which separate pockets and trays. If a piece was in the election but was not seen on the final audit pass, we note the missing piece, by Piece ID to enable complete reconciliation and total audit control. The Pitney Bowes Management Console includes the following reports:

- Incoming Scan
- Incoming Status
- Incoming Work
- Incoming Challenged Report
- Audit Tray
- Tray
- Empty Tray
- Job Status
- AutoSignature Verification
- Application ID review
- Election Import File Log
- Audit Report
- Batch File
- End of Day

PLEASE SEE SAMPLE REPORT EXAMPLES BELOW

EXAMPLE 1:

INCOMING STATUS REPORT

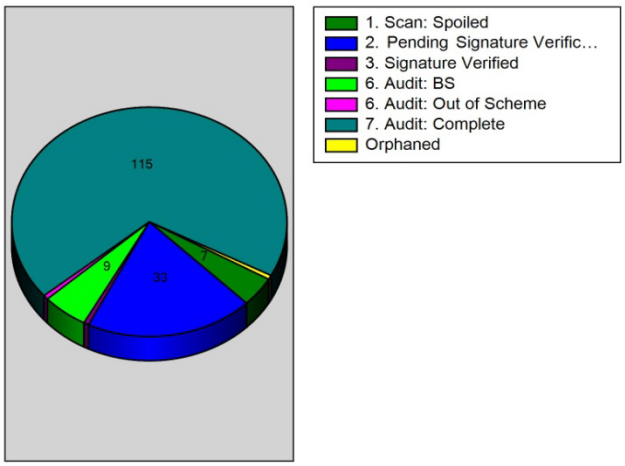
Pitney Bowes

Document Messaging Technologies

Incoming Status Report

Customer, Election pb, 9977

Status	Count
1. Scan: Spoiled	7
2. Pending Signature Verification	33
3. Signature Verified	1
4. Sort: Rejection	0
5. Sort: Valid	0
6. Audit: BS	9
6. Audit: Out of Scheme	1
7. Audit: Complete	115
Orphaned	1
Other	0
	167



EXAMPLE 2:

TRAY REPORT LISTING PIECE IDS FOR IN A TRAY.

Application Listing for tray pb_9977_10008 (2. Pending Signature Verification)

Customer, Election pb , 9977 Count: 25

Application ID	Application ID	Application ID	Application ID	Application ID
997704152274401	997705015930801	997705047182001	997705057051601	997705090370401
997705091691401	997706016630602	997706017281601	997706017339402	997707006951002
997707007233602	997707008454601	997707008828702	997707009291402	997707009291602
997707013920301	997707018487401	997707019421201	997707019460001	997707024069701
997707024525601	997707033561601	997720031166401	997720044030202	997720044881401

Count: 25

EXAMPLE 3:

INCOMING STATUS – TRAY LISTING

Pitney Bowes

Document Messaging Technologies

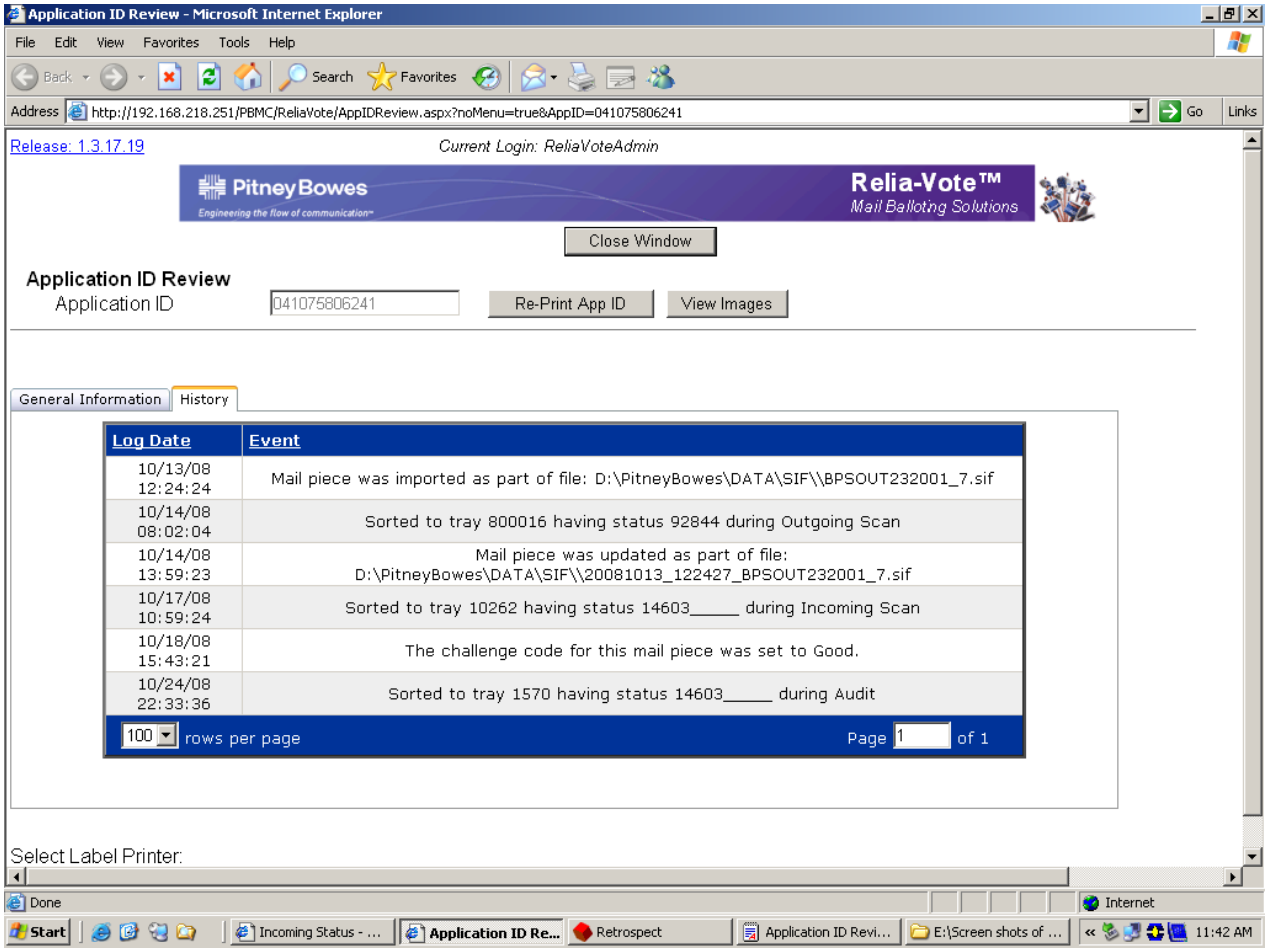
Incoming Status Report - Tray Listing (1. Scan: Spoiled)

Customer, Election pb,9977

Tray	Count	Tray	Count	Tray	Count	Tray	Count
pb_9977_40001	7						

EXAMPLE 4:

APPLICATION ID REVIEW (PIECE DETAILS)



8.0 – SAMPLE PROJECT ARTIFACTS

Provide sample project artifacts, such as a project plan (schedule and planning documents), from a Voting System project in which you have participated and you consider to be representative of your work, the quality of your work, and the level of communication and detail that you provide. At your request, these materials will be treated as confidential. These sample artifacts may be used to assess the format and detail you may provide if selected in Colorado. Respondents are encouraged to organize, label, title or describe these materials to indicate their content and purpose if it is not clearly apparent in the materials. Where page limitations are a restriction, you may consider providing a table of contents and excerpts.

We have attached a Statement of Work from a recent installation. This implementation was using an Olympus sorter, which has been replaced with the Vantage as is proposed to CDOS in this RFP. The Relia-Vote process is the same for the Olympus and the Vantage. We have changed the names to protect the customer confidentiality.

The following pages 40 to 87 are an example of the content we provide in a Relia-Vote Statement of Work.

Pitney Bowes

Engineering the flow of communication

ARTIFACT COUNTY LOGO

Statement of Work

ARTIFACT COUNTY

1234 Main Street,

Artifact, Colorado

Relia-Vote™ Auto Signature Verification Solution

Tom Tanaka	Relia-Vote™ Account Manager
Brian Vance	CDE
Rolando Esteva	Project Manager
TBD	SIS / SSE
John Smith	Service Manager
UA101265	Application Number

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1. Revision History

Revision	Date	Author	Description
0.0	4/14/11	B. Vance	Initial draft
1.0	4/29/11	B. Vance	Updates from customer meeting
2.0	5/26/11	B. Vance	Addition of Mail Ballot Precincts designations and final updates from customer meeting

2. Project Team

County Elections Contact List			
Name	**Title**	**Office Phone**	**Email**
Mark Jones	Registrar of Voters	123-555-1212	Mark.Jones@rov.ac.gov
Tom Kemp	Chief Deputy Registrar of Voters	123-555-1213	Tom.kemp@rov.ac.gov
John Hart	Business Applications Mgr - IT	123-555-1214	John.hart@rov.ac.gov
Sarah White	Elections Technician	123-555-1215	Sarah.white@rov.ac.gov
Marjorie Howell	Staff Analyst II	123-555-1216	Marjorie.howell@rov.ac.gov
Vendor Contact List			
	ELECTION DB Systems		
	A&B Envelope		
Pitney Bowes Relia-Vote™ Contact List			
Tom Tanaka	Relia-Vote Sales Executive	310-714-9945	Tom.tanaka@pb.com
Brian Vance	Customer Development Engineer	520-275-2857	brian.vance@pb.com
Rolando Esteva	Project Manager	203-739-3525	Rolando.esteva@pb.com
Robert Siverand	Service Director	203-512-8362	Robert.siverand@pb.com
John Smith	Service Manager	123-555-1300	John.smith@pb.com
Rick Stevens	System Specialist	909-388-6931	Rick.stevens@pb.com

3. Statement of Work Executive Summary

3.1 *Introduction*

The purpose of this document is to define specifications and requirements for the Relia-Vote™ Auto Signature Verification solution to be delivered by Pitney Bowes to Artifact County (AC) and to serve as an agreement between Pitney Bowes and Artifact County as to the responsibilities and requirements from each party that are necessary to ensure a successful implementation of the Relia-Vote™ solution.

This is a version-controlled document and should be verified before use. Section *1* contains the **Revision History** for this document.

For purposes of this document, the terms:

- ASV Solution or Relia-Vote™ solution will be used to refer to the Olympus II Relia-Vote™ Auto Signature Verification Mail Balloting System

Artifact County's approval of this document is required before the Relia-Vote™ solution will ship. Upon acceptance and signature of this document, it becomes the controlling document for technical specifications and requirements for this Relia-Vote™ solution.

As this document may define new or custom functionality, it will serve as the basis from which engineering specifications are derived.

Changes to this document require a joint review and approval by Pitney Bowes. Customer-driven changes or requests for functionality outside of the scope of this document will be managed through Pitney Bowes' **Change Management Process** (refer to section *12* of this document).

Artifact County is ordering an Incoming Relia-Vote™ ASV solution to work in-conjunction with their VR system ELECTION DB-Net and their outbound service bureau.

Pitney Bowes solution includes an interface to the County VR vendor that provides the ability for viewing side by side signatures from the VR database to those captured on the returned ballot envelopes. This solution will increase the integrity and audit ability of the signature verification process while allowing for the ever increasing numbers of the voters choosing to vote by mail.

3.2 *Customer Overview*

Artifact County is the fifth largest (by voter) in the State of XXXX. They have 1.229 million eligible of which 829,756 were registered to vote in 2008 Presidential. 27% chose to vote by absentee ballot (229,185) and another 46.66% voted at the polling places (387,135) for a total of 616,320 ballots cast and 1391 precincts counted. The 2004 Presidential saw 142,781 (20%) vote by absentee ballot, 385,606 voted at polling places

for a total of 528,387 of a total registered database of 737,559. These numbers will grow in the 2012 Presidential Elections so the county needs to implement new technologies to keep up.

"We need to find a more efficient way to process our incoming vote by mail ballots. Currently, we pay the Post Office to sort the ballots down to the precinct level. We then scan barcodes on the envelopes into batches for signature verification. Signature verification is the process of checking the signatures on the envelopes against signatures in our database. Then we merge these ballots with ones that were previously checked. When we are able to open the envelopes, we use OOOO mail openers - keeping the precincts together. Then there is a crew that "inspects" the ballots. Basically, the ballots are unfolded and looked over for any obvious problems with counting through our counting machines (torn ballots, bleed-through, etc.)."

A&B processes their outgoing ballots from the permanent file.
On the front of the purple envelope, the barcode is used by the post office for sorting the ballots. It is the 9 digit zip of the Registrar of Voters plus the 4 digit precinct no of the voter.
On the back of the envelope:

1. The 3 corners of the envelope are last 3 digits of the voter's precinct number
2. The 7 digit number on the left side of the envelope is the Absentee voter id number which is the same as the barcode in the address label area.

On the white address label area is:

1. barcode above name & address of voter is used by our publishing company
2. barcode below the name & address of voter is the Absentee voter id number which is scanned into ELECTION DB when the ballots are returned
3. bottom-most barcode is zip plus 4 digits of the voter's address for the USPS to sort for outgoing mail.

ELECTION TITLE	ELECTION DATE	REG VOTERS	TOTAL VOTED	% OF TURNOUT	VOTE BY MAIL ISSUED	VOTE BY MAIL VOTED	% OF VBM VOTED	VBM % OF TOT VOTED
Presidential General Election	11/04/2008	829756	616320	74.28	302957	229185	75.65	37.19
Statewide Primary Election	06/03/2008	754978	154977	20.53	254619	97965	38.48	63.21
Presidential Primary	02/05/2008	723661	376614	52.04	224997	147520	65.57	39.17
Consolidated Election	11/6/2007	583421	77315	13.25	168850	54352	32.19	70.3
BigHorn Recall	8/28/2007	1465	662	45.19	1465	662	45.19	100
Special Election	6/5/2007	11888	3880	32.64	4118	2506	60.85	64.59
General Election	11/7/2006	751652	358417	47.68	209891	138167	65.82	38.55
Gubernatorial Primary	6/6/2006	748385	185579	24.8	180834	86111	47.61	46.4

Vote by mail ballots received **prior to Election Day** are fed through readers and totals are stored until the polls close at 8:00 p.m. on Election Day. At that time, the first bulletin is created and released). (approximately 8:15 to 8:30 p.m.). No additional vote by mail ballots are counted on election night (this may change in the future)

Polling place ballots are counted at the Registrar of Voters on election night. Counting will continue until all polling place ballots are counted.

Mail Ballots - Pursuant to Election Code 3005, Mail Ballot Precincts are for remote areas, or areas that have jurisdictional boundaries requiring a unique ballot and that have less than 250 voters. Voters who are assigned to mail ballot precincts receive a ballot in the mail 29 days before the election. Mail ballots are processed in the same manner as Vote by Mail (absentee) ballots.

There are upcoming elections in July, August (first targeted RV solution use), and November 2011.

4. Application Profile

4.1 *General*

- The initial ballot mailing is outsourced to A&B.
- The issuance of daily ballots is processed internally, through a manual process.
- The VR database is provided by ELECTION DB-Net.
- There are single or two page ballot elections; not intermixed within an election.
- They have just over 800,000 registered voters with 200,000 Vote-by-mail.
- The equipment will be used only for Automatic and manual signature verification at this time with a final grouping to Good Mail Ballot Precincts, Good all others, and Challenged. They will not sort to districts (19) or precincts (1414). The county will manually sort after tabulation.
- Artifact County will use this machine primarily for election mail processing as described in the statement of work. Currently there are not any non-election applications defined, but if desired by the County for future use the application would need to meet the capability and specification of the Pitney Bowes Olympus II System (Sections 6 and 7)

4.2 *Incoming Ballot Return Mail*

- 5-5/8" x 10-1/2" Affidavit Return Envelope (see scanned images in Section 4.5)
  - The envelopes are purple and blue with a white area for the address and barcode.
  - The County will be making changes to their affidavit envelopes in the near future that may impact envelope size and barcode and signature area location. The system can be reset on site for these changes when appropriate.
    - At the same time the signature area will be modified to enable the highest possible crop results for ASV processing. See Section 7.2 for specifications and best practices for the signature area.
  - The voter mailing address and barcode are printed on the bottom right side of the envelope
  - See sample images in Section 4.5 for printed contents
  - Over the counter, dailies, and re-mails use an internal envelope label to apply the address and barcode.
- The blue envelope is for their Mail Ballot Precincts. These will be sorted to a separate pocket, using a defined list of precincts as loaded into the sort scheme.
- The Overseas / Military Return Envelope is the same size and color but with different size/thickness ballots. These may be rejected by the thickness detect, and would be processed back through separately.
- The AVID is printed on the envelope below the address
  - It is a 7 character 3of9 Unique Tracking Number from ELECTION DB. This is an incrementing number from election to election. If a voter requests a new ballot it gets a new number.

- Artifact County can open and extract the ballots 7 weekdays prior to election, once signatures have been verified and no other challenge codes exist, in order to prepare for tabulation on Election Day.
    - Refer to Attachment 12 - Inbound Processing Detail for a full description of the Relia-Vote™ Process as applied to Artifact County

4.3 *Suggested Pocket Assignments and Sort Scheme*

- Soration will be Good and Challenged. Will sort Good into two groups: Mail Ballot precincts and all other precincts. See list in Section 4.5.
    - Artifact County may peform an additional pass for envelopes received prior to E-7. The pass configuration will be:
        - Scan Pass – Rough sortation to groups by count (may sort by large groups of precincts as this is standard processing method)
        - Sort Pass – Challenge sort, valids will remain in rough sortation and staged
        - Audit Pass – On or after E-7 the staged valid envelopes will be fine sorted to precincts, audited and opened.
    - Envelopes received on or after E-7 may be processed in two passes:
        - Scan Pass – Rough sortation to groups by count (may sort by large groups of precincts as this is standard processing method)
        - Sort/Audit Pass – Good from Challenge sort, valids will be audited, and opened.

- 1 pocket for Good, Mail Ballot precincts

- 2 pockets for Good, all other precincts (3 pockets in Scan Pass)

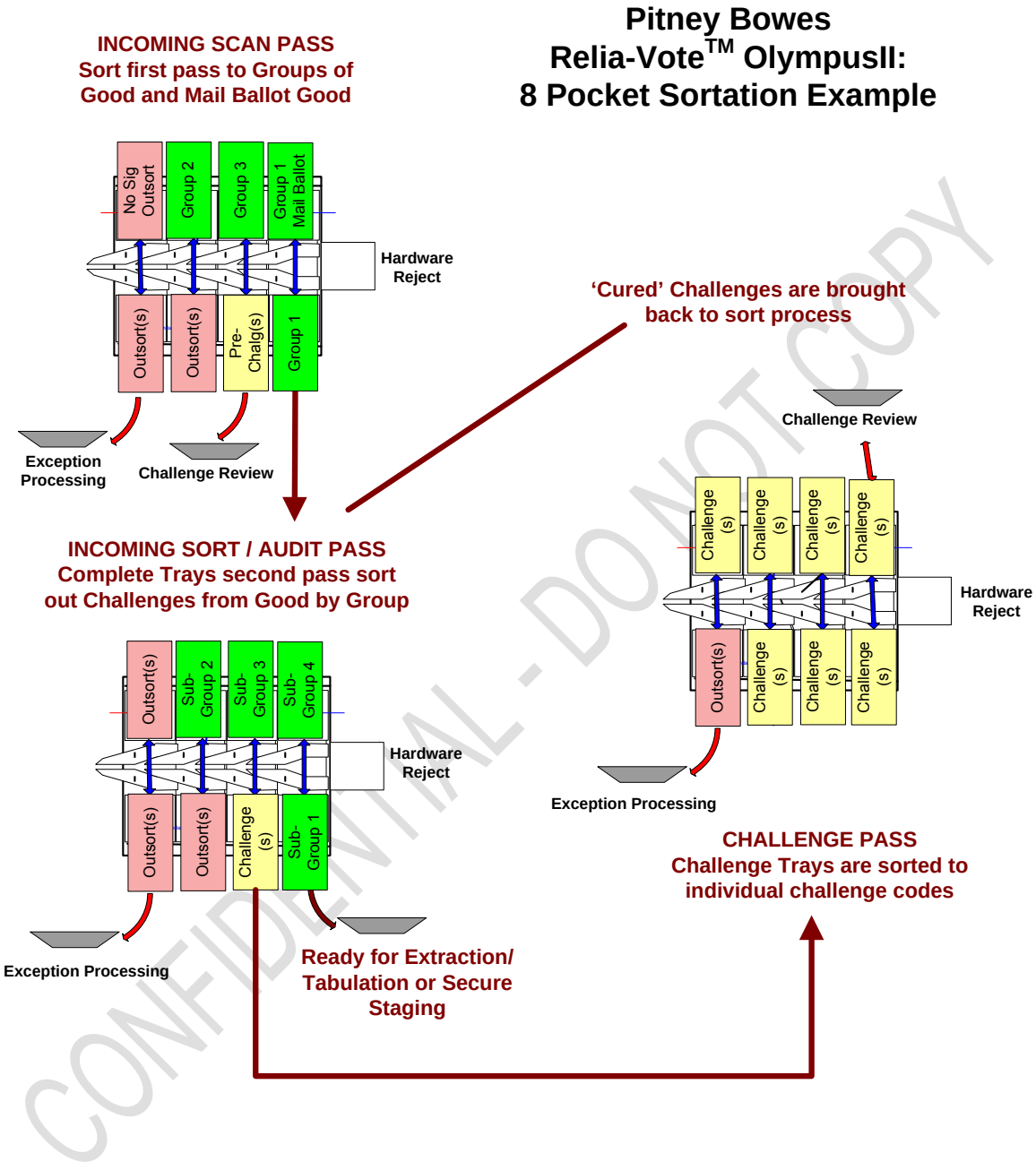
- 1 pocket for Pre-challenges (Scan Pass) and 2 pockets for Challenges (Sort Pass) (grouping to be confirmed during setup)
    - A Challenge sort pass will be available to sort out pre-challenges and challenges into individual pockets after Signature Verification and Sort Pass.
    - Certain challenges that require immediate attention or are received at a higher quantity could be sorted to their own pocket. E.G. Mismatched Signature or No Signature

- 3 pockets for Rejects and Outsorts (grouping to be confirmed during setup)
    - Over/Under size
    - Out of Scheme
    - Duplicates
    - Missed scans / missing AVID
    - Doubles
    - Invalid AVID
    - Invalid Tray (sort pass only)
    - No Signature Outsort (dedicated pocket during Scan Pass)

- End bin for hardware rejects

- The system priority order for outsorts are:
    1) Rejects (AVID, size, etc)
    2) Checkbox (not used)
    3) No Signature

4) Pre challenges



4.4 *Challenge Codes*

NOTE: Challenge Codes can be modified or added to the system as required.

abbr	message	Used for VBM ballots:	Removed on Scan pass?	Priority	Remove on Sort pass?
NHS	SIGNATURE MISMATCH	where the signature does not match what is on file	No	No	Yes
NOSIG	NO SIGNATURE	where the voter didn't sign the envelope	Reject (Not as challenge)	Yes	Yes
ADD	RESIDENCE ADDRESS WRONG	**challenge code not used	No	-	No
SUSPD	SUSPENDED	when a newer ballot has been reissued to the voter	(TBD)	Yes	If not removed on Scan
WDUPE	WANDA FOUND A DUPLICATE RETURN	when ELECTION DBnet has already recorded this ballot as returned. This usually is caused by an incorrect barcode reading.	TBD (in file?)	Yes	No (TBD)
WANDA	WANDA FOUND A PROBLEM	when the voter record has been cancelled, inactivated or fatally pended after the ballot was issued.	TBD (in file?)	Yes	No (TBD)
TOLAT	TOO LATE	received after 8pm on election day. We expect that we will continue to upload these using our current process.	No	-	No (yes?)
MICNR	MIC NOT RETURNED	that need special handling. The ballots are challenged with this code prior to any returns being received. (aka Special Pull, via SIF file)	(TBD)	Yes	If not removed on Scan
3RDPY	AUTH BOX NOT COMPLETE	**challenge code not used	No	-	No
2BALS	TWO BALS/ONE SIG	after extraction once we have discovered that too many ballots were returned in the envelope. (current process)	Reject (Not as challenge)	Yes	No
FAILS	FAILSAFE CHALLENGE	when a provisional has been returned from a voter that was also issued a VBM ballot. Provisionals are processed after VBMs are completed.	No	-	No
EXCP	EXCEPTION (OTHER)	when someone has written a special message on the envelope, such as 'deceased'. Envelope will probably be picked up in the Signature Mismatch or No Signature challenge codes.	No	-	Yes

NOBAL	NO BALLOT	after extraction once we have discovered that a ballot was not returned in the envelope. (current process)	Reject (Not as challenge)	Yes	No
SGBAL	BALLOT SIGNED	**challenge code not used	No	-	No

Pre-challenge questions:

- Determine if Canceled, Fatal Pend, Suspended would/could be pre-challenges during Scan Pass. Depends on value in VR file and sort scheme configuration. Otherwise it would be sorted out during the sort pass after signature verification.
- Determine if Wanda found a Duplicate or found a Problem would be available in the VR file and could be pre-challenged. Otherwise it would sorted out at the sort pass after signature verification.

4.5 *Precinct List – Normal and Mail Ballot Precincts*

The precinct value will be included in the VR/SIF file as a 6 character 'Consolidation' number.

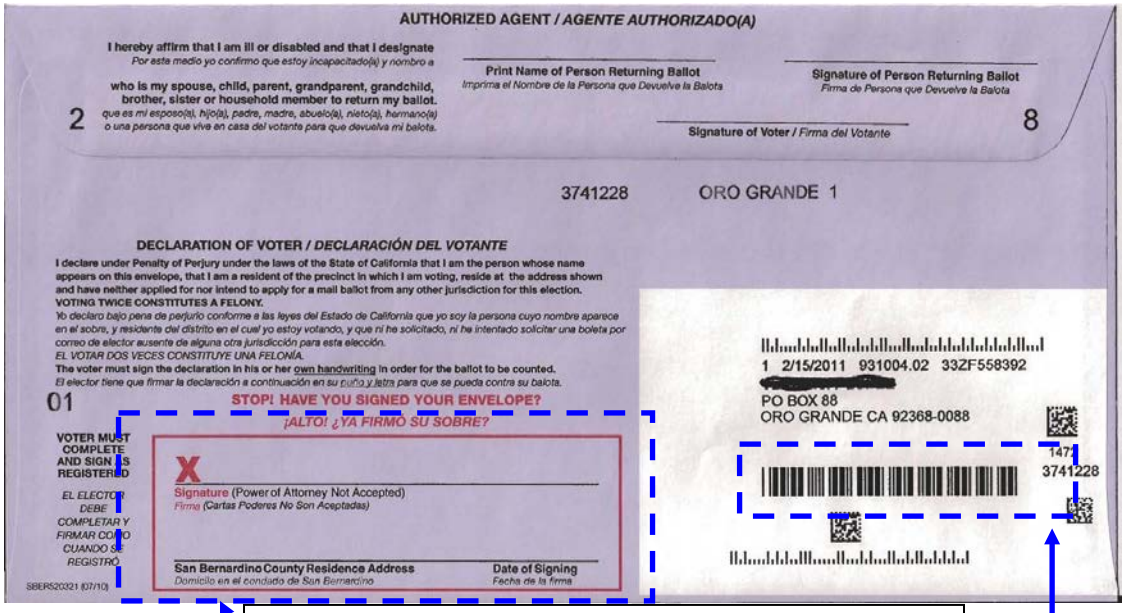
Sort good envelopes into two sets:

1. Mail Ballot Precincts as defined in "Vote by Mail Precincts – November 2010 election.xls (432 listed). There are 432 listed, which are a subset of the 1,414 precincts.
2. All other Precincts as defined in "Numeric Reference to a Precinct with MBP – November 2010 Election.xls for complete list of precincts. There are 1,414 listed, minus

Updated list of Precincts includes indication of Vote by Mail (aka Mail Ballot Only) Precincts. List is too long to imbed into document. See spreadsheets as named above.

4.6 *Incoming Envelope Samples*

Domestic Bulk Mailing, purple envelope – Printed Barcode and Signature Crop Details



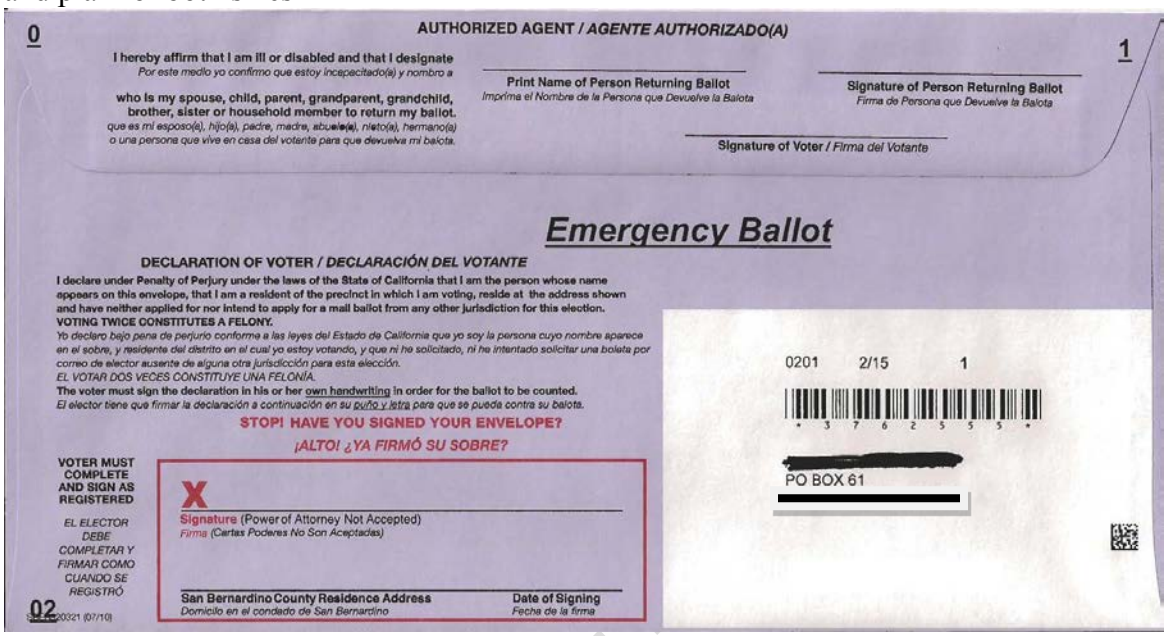
The AV ID Barcode is a 3of9 barcode printed horizontally under the mailing address on the back-side of the return envelope.

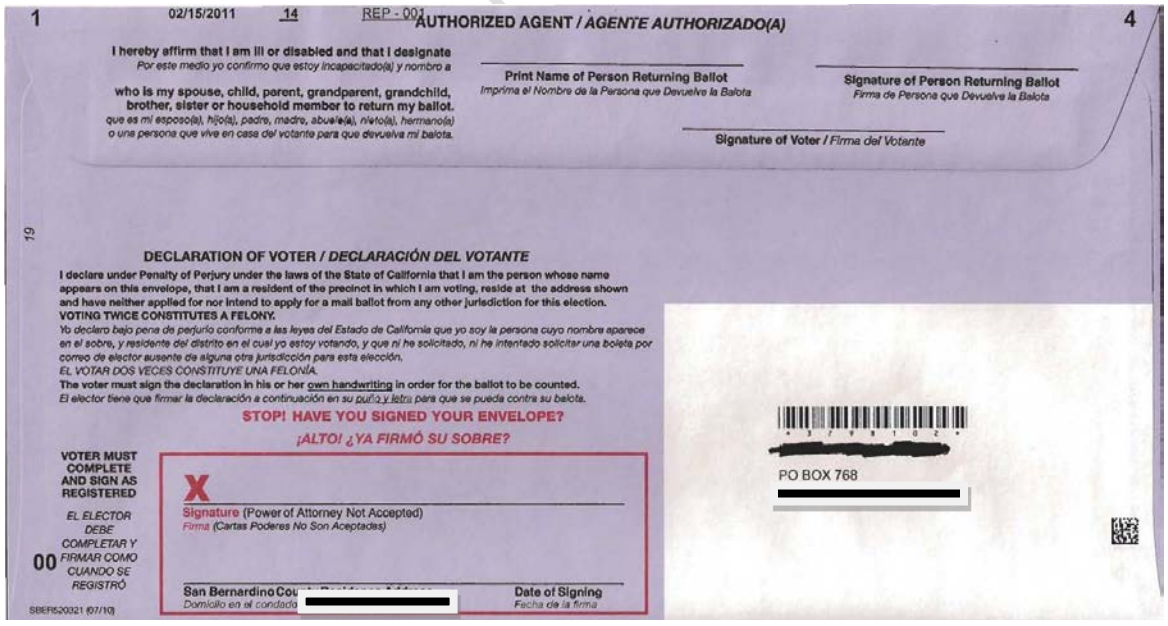
- There must be ½" leading/trailing and 1/8" top/bottom clear space around the barcode.
- The bar height must be between ¼" and ½".
- The AV ID Barcode must be unique for each mailpiece. This would require reprints for the same voter to be assigned a new AV ID
- 7 character AVID. May change to 9 (leading pad with zeros)

AFFIDAVIT BARCODE CONTENT DEFINITION – 3OF9			
FIELD	FIELD TYPE	START	LENGTH
1	Asterisk	0	1
2	Tracking Number	1	7
4	Asterisk	10	1

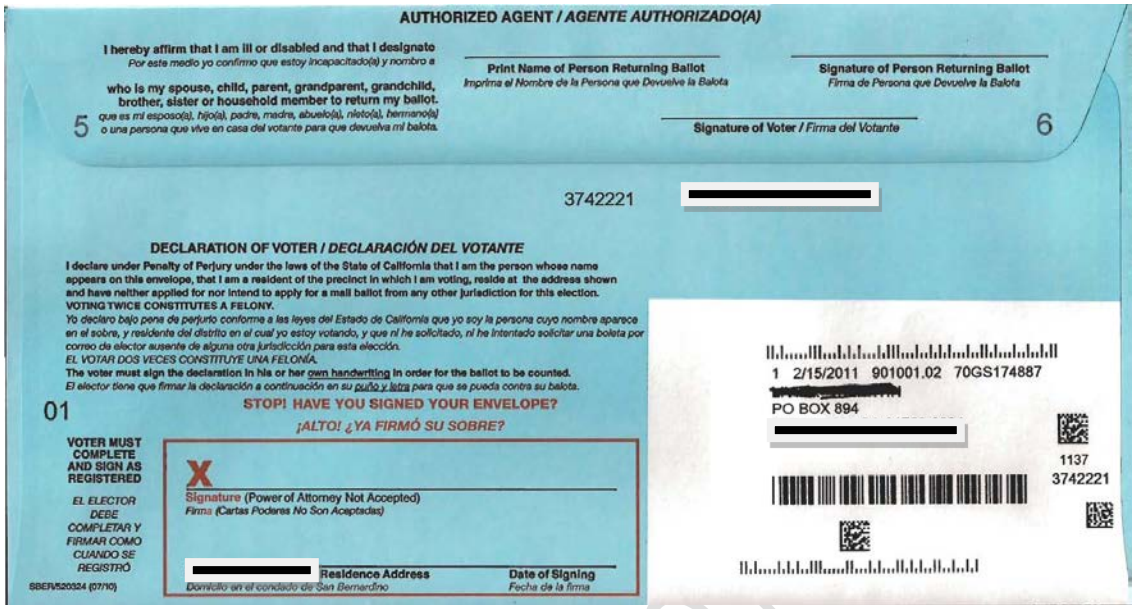
Dailies/OTC with printed address, green envelope (purple shown). There are 2 internal methods of print, note barcode size.

AR County acknowledges the two barcode sizes occur via two print methods. They will look into changing print template to standardize to larger barcode size but for now test and plan for both sizes





Mail Ballot Precinct (blue envelope)



Overseas / Military

Same size envelope, purple. Different size and/or qty ballot sheets (printed locally on 8.5x11).

Other

There is also a special while envelope. Does not include a barcode, the system would outsort.

5. File Formats and Reference Documents

5.1 *File Format Specifications*

- VR File Format (aka System Input File or SIF)
  - Data source is the Input File from the County lection DB-Net VR System
  - VR Input File Format specification document available as listed in table below
  - The Input File is used by the ASV solution to import into the database for validation of inbound mail ballot envelopes.

- Summary of file transfer points:

  1. To PB - VR System Input File (SIF) (see VR Input File Format, AKA ELECTION DB AV Multi Purpose File, specifications). The SIF defines the valid voters for an election. This file 'tells' the system what pieces, based on barcode value, to accept and what pieces are not valid for this election and consequently reject.
     a) Initial upload containing all permanent voters that were mailed ballots
     b) Daily uploads for OTC and changes
  2. To PB - Reference signature files from ELECTION DB for PB Auto Signature Verification Client. These images are named to match the corresponding AVID value within the SIF file and printed AVID on the envelope.
  3. From PB - Multi-Image Tiff files and corresponding AVIDs from Relia-Vote. The files are based on a tray of mail, referred to as a batch within ELECTION DB. 1 file is a text file with a single column of AVIDs. The second file is a multi-image TIFF. This file is comprised of each cropped signature in the batch and corresponds in order with the avIDs in the text file. These files are uploaded into ELECTION DB, similar to the WANDA process, for signature verification.
  4. From PB - Disposition results from auto and manual signature verification to ELECTION DB. PB produces a text file consisting of 2 columns (AVID and disposition code). This file is generated after signature verification. The file is placed in the designated folder.
  5. From PB – (Optional) Final batch location for each envelope after Audit. If desired, a file can be generated after mail is audited showing the AVID, final batch (tray) number and original batch (tray) number. This file can be uploaded into ELECTION DB for historical purposes.

- Artifact County's SIF structure will be verified to meet the Relia-Vote specification
  - Show sample of AC specs/file layout here, if different than PB spec

- Reference Images are supplied from the VR system for Relia-Vote Auto Signature Verification. The image filenames must match the AVID value, or the value of the barcode on the envelope that is scanned by Relia-Vote. This dictates that the reference images would be downloaded for each election as the AVID value is different for each voter between elections. New reference signatures would also need to be downloaded for new request ballots and re-issues.
    - Reference images must be named <AVID>.tiff, between 200 and 400dpi

- Final Incoming Sort Schemes will be configured on site during implementation, and can be adjusted as needed as elections and groupings evolve.

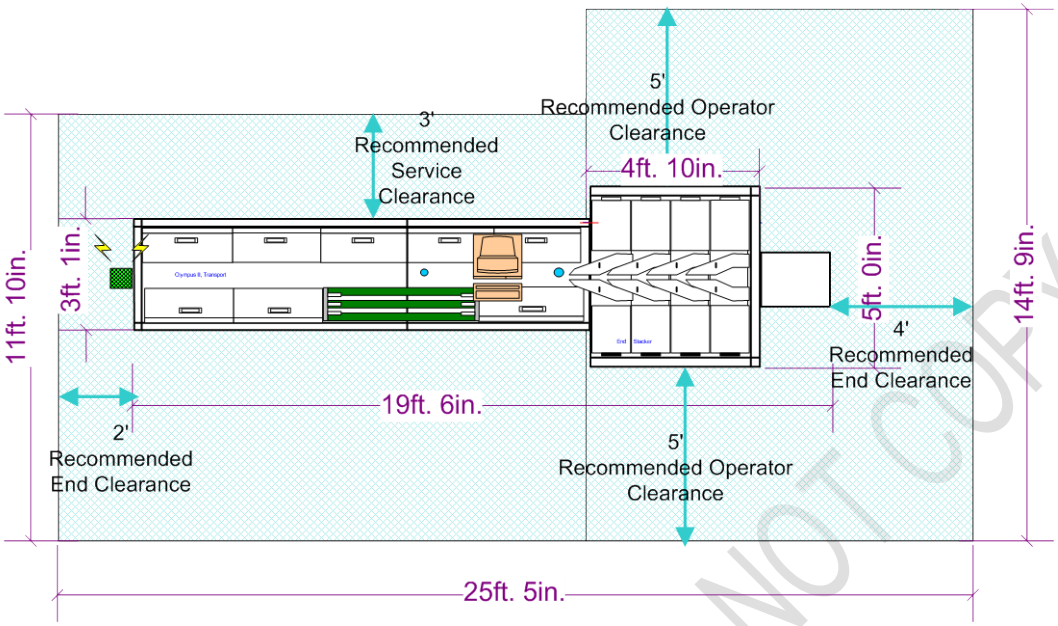
5.2 *Reference Documents and Specifications*

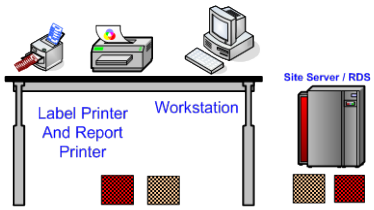
Reference	Revision
Relia-Vote™ VR Input File Format	Rev1.6
ELECTION DB AV Multi Purpose File Format	
Relia-Vote™ Signature Verification Interface (includes image naming conventions, and batched multi-image files)	Rev 1.15
ASV released documentation (as available)	
Reference Image guidelines	
Relia-Vote User Manual	
Relia-Vote PBMC Software Operator Training Guide	
Wave 2 Incoming Scan Process Training Guide	
ASV Signature Area Best Practices	

6. Solution Configuration

Artifact County Relia-Vote™ Auto Signature Verification Solution - 8 Pocket Olympus II		
PCN	**Description**	**Qty**
	24K Olympus II Relia-Vote™ Base System	1
	Olympus II Base Transport	
	RDC	
	Standard Relia-Vote Reporting Package	
	Absentee Ballot Data Capture and Integration (includes CodX WABCR)	
	Local Image Archiving	
	PBMC and Tray Based Reporting (W2)	
	Standard Relia-Vote Site Server	1
	22U Rack for Standard Relia-Vote Site Server	1
	Pocket Sections (8 pockets per section)	1
	Two-line LCD Display	1
	Eight (8) Standard Sorting Racks	1
	Imaje Date/Time Stamp Printer (with Imaje Option Kit SRBK)	1
	One (1) Hewlett Packard High Speed Network Laser Printer	1
	Mail Piece Size Verification & Thickness-based Double Document Detection	1
	Barcode Repair Label Thermal Printer	1
	Handheld Scanner	2
	One Set (2) Tray Tag Printers (see chart for requirements)	1
	Separator Card Upgrade Kit including Separator Cards	1
	Remote Console	1
	Precinct Sort, Relia-Vote	1
	Checkbox Detect	1
	No Signature Detect	1
Installation and Support		**Qty**
PM	Project Management Support (2wks)	Y
	Systems Engineering Support (2wks)	Y
	Installation	Y
Annual License Fees		**Qty**
	Annual License Fee, Relia-Vote	Y
	Automatic Signature Verification, Unlimited annual license	Y
Annual Service Fees		**Qty**
EMA	Relia-Vote™ Service Level	1yr

6.1 *System Drawings*





Sorter Power Requirements:
208V, 80 Amp. 3-Phase Hard
Wired 5-wire (Dedicated Line)

Network Requirements:
Ethernet Cat5a or 6 - RJ45 Connector
(See SOW for drop quantity and
connection details)

Optional Workstation/Server
Power Requirements:
4 - 120V, 15 Amp. Single Phase
(Dedicated Line)

Note: Dimensions are approximate. Recommended work space as shown.

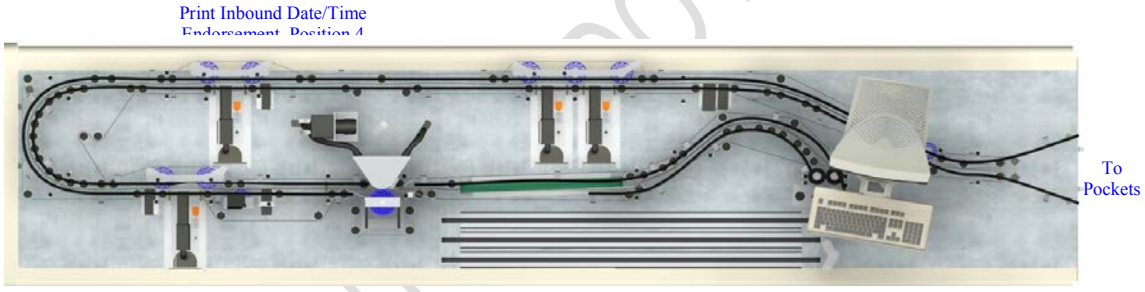
8 pocket sample installation (no tray racks shown)

Module size and floor loading chart

MODULE	Length	Width	Weights	Leveler Qty	Load(lbs) per leveler	Caster Qty*
SINGLE TIER TRANSPORT	12' 8"	3' 1"	2047	8	319.8	10
SELECTIVE OPENER	5' 2"	3" 1"	316	4	98.8	4
SINGLE-TIER STACKER	4' 8"	5'	675	4	210.9	4
END ST STACKER W/ BIN	6' 9"	5'	705	4	220.3	4

*NOTE: Using Casters with Levelers during installation does not distribute weight further.
(The casters and levelers are close to each other, plus the casters may be lifted off by the levelers to level the machine)
If load points need to be further distributed, a metal plate is installed under the levelers on each side of the transport.

6.2 *Reader and Printer Locations and Functions*



7. Olympus II Mail Specifications

Materials — Mail pieces can be constructed of any paper or card stock material except for Polywrap and Tyvek. The mail piece material must have sufficient porosity to absorb inkjet ink (liquid ink normally requiring non-glossy or non-coated paper) Otherwise, the mail piece will require a label to create a barcode clear zone. Stiff binders, paper clips and staples are excluded from the mail spectrum.

Design — The design of mail pieces to be processed in the Olympus II system is to be of either standard envelope construction or post card format (post card mail pieces are to be constructed of strong card stock material).

Envelope construction may include glassine windows for address block presentation. For operation at specified performance levels the glassine window must be fully sealed on the face of the envelope ensuring that no edge may be lifted during the processing of the mail piece in the Olympus II system.

Envelope flap construction is to be with the sealable flap located across the top of the mail piece as viewed in a landscape orientation. For envelopes with sealable flap construction other than across the top of the mail piece, specified performance levels shall not apply (i.e.: envelopes with a vertical flap presentation as viewed in a landscape orientation).

Closure — Envelope closure is to be such that no loose flaps or edges, which are capable of being lifted, are to be present on mail pieces processed. For non-conforming mail pieces presented for processing, specified performance rates shall not apply. (NOTE: Testing to occur specifically for tear flap and lower open window)

Rigidity — The mail piece will have a minimum stiffness of an unfilled envelope constructed from normal quality paper (80 g/m2) such that when the mail piece is presented standing on it's longest axis in a landscape orientation it is capable of bearing it's own weight without collapsing. The mail piece will have a maximum stiffness of a loosely filled envelope of the above construction not to exceed either the maximum size or maximum weight profile.

Addressing — The Olympus II has the ability to scan a 9.5" vertical image. This OCR will try to resolve this image. Light print, such as pencil, impression printing, and some light ink may appear very light or broken in the image.

Dimensional Constraints

	Length	Height	Thickness	Weight
Minimum Size	127mm [5"]	90mm [3.5"]	0.18mm [0.007"]	2g [0.07 oz]
Maximum Size	330mm [13.0"]	254mm [10.0"]	6.35mm [0.25"]	250g [8.8 oz]

* Samples of your specific mail will be run at the factory. Factory Acceptance Testing will be run with your mail prior to shipment. See testing plan and project schedule for details.

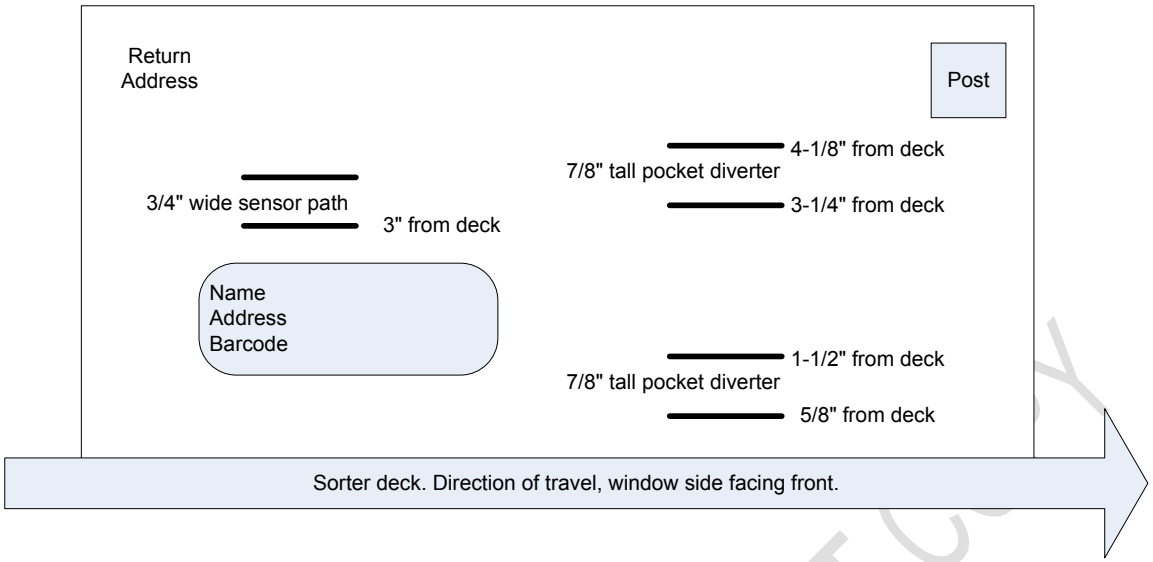
	Maximum deviation of envelope surface is +/- 3 mm [0.12"] from highest point to lowest point, vertically and horizontally across the mail piece, on each side.
Aspect Ratio	Length/Height Minimum 1.3, Maximum 2.5

Olympus II Single Tier Module Details

Transport Speed	Capable of running the feeder from 0 to 36,000 #10 mail pieces per hr, depending on pass
Reader	Wide Area Barcode Reader for pre-bar-coded mail. Outgoing OCR is not part of this configuration but can be retrofitted after installation if requested.
Double Detection	Double Detection: identifies and outsorts overlapping envelopes on transport. Enhanced version also verifies size and thickness of envelopes.
Opener	Selectable opener mills open the bottom edge of accepted envelopes, leaving rejects sealed
Pocket Design	Single Tier pockets with adjustable tension for clean postcard to flats stacking, with LCD displays and tray racks above.
Tray Tag Printers	1 Integrated printer per side for on demand printing from each pocket.
Diagnostics Tools	remote diagnostic computer
Internal Reports	May include, but is not limited to: Audit Tray Report, Challenged Ballot Report, Incoming Rejection Report, Incoming Scan Report, Incoming Status Report

7.1 *Envelope hole and window guidelines:*

Use to determine if an opening like a viewing hole or open window would be in line with the photocell or pocket guides. The guides are a concern only on the back side pockets if running the envelopes in normal orientation.



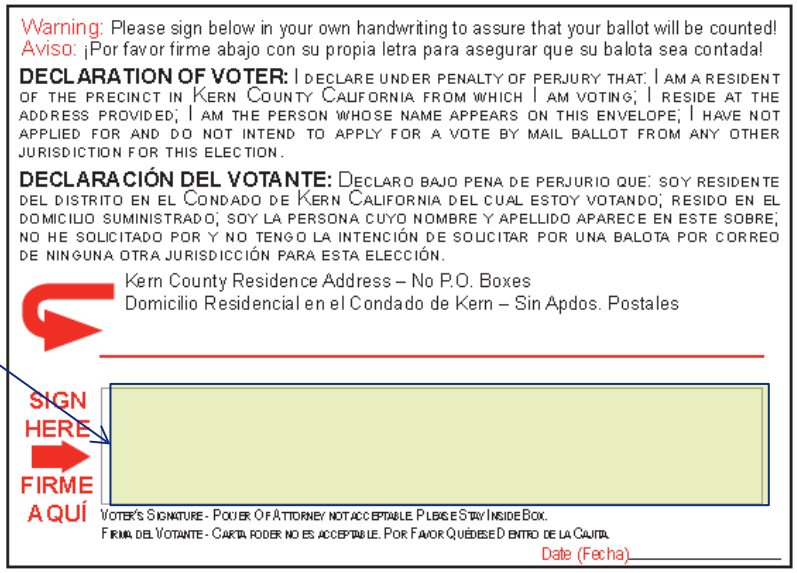
7.2 *ASV Signature Area Best Practices*

- Auto Signature Verification Processing Requirements
  - The envelope and reference images are compared based on an "Application ID"
  - The barcode on the envelope (refer to Section 4.6) and the application ID of the reference signature must match 100% (including leading zeros i.e. "00123476")
  - Reference signatures are provided by the county and should be properly formatted and ready for verification.
    - Binary TIFF – CCITT 4 (Group 4 Fax Encoding)
    - Ideally 200-300 DPI
  - Envelope Images are automatically collected by the PB Sorter (212 DPI) during the Scan Pass
  - Optimally the reference signatures captured at the same DPI as the envelope will have better success in matching.
  - A special sorter Signature Capture Pass is available to help counties capture reference signature update cards
- Optimizing Signature Field Layout (on envelopes and signature cards)
  - The signature field should be at least 3-¼" x 1".
  - If several signature fields are arranged in a vertical column on one page, then the space between each field must be a minimum of ½".
  - Other input fields should also be spaced at least ½" from signature field to provide adequate white space.
  - Minimize "Noise". Unnecessary lines, text and background patterns reduce the match rate to maximize readability of the automated signature verification.

- There should be no pre-printed markings within the signature fields (see example below). Alternatively use red color ink for all boxes, lines and text around the signature field as the sorter camera won't pick up the red leaving a clean image.
- Location of signature field should in the same physical location on different envelope types

- The ASV system will perform some cleansing of the captured images. Additional cleansing can be done manually by the county to the reference and/or captured images using the provided PB ASV software tools.
  - These images can be saved back as references images if the county processes and VR system allow it, thereby progressively improving the reference image quality and matching rates.

Ideal crop zone for Sorter



* Note that the Arrow, Address, and Date areas are outside the signature box.

8. Facility Requirements

8.1 *Electrical Requirements Summary*

Module	Voltage	Phase	Amps	Connection	Compressed Air	Remarks
Olympus II Sorter	208	3	80	Hard-wired	Internal	Fixed 5-wire (with Neutral) dedicated
Aux Power Drop	120	1	20	NEMA 5-20R		(4) Receptacles (Quad-plex)
Sorter Site Server	120	1	15	NEMA 5-15R		Two Duplex Drops
Network Printer	120	1	15	NEMA 5-15R		Two Duplex Drops
Remote Sorter Console	120	1	15	NEMA 5-15R		Two Duplex Drops (Optional)

8.2 *System Operating Environment*

- Room operating temperature range 50-80 °F (10 – 27 degrees °C)
- Humidity range 15% to 80% relative humidity non-condensing
- Ventilation room air turnover 3 times per hour
- Ambient illumination, direct sunlight should be avoided

8.3 *Compressed Air Requirements*

- Operating Air
  - Pitney Bowes will provide an internal air compressor with the appropriate capacity required to support the Imaje printer located in the transport module.
- Cleaning Air
  - There is a daily cleaning maintenance operation on the machine. This operation will require a portable shop vacuum cleaner. NOTE: on the machine, low pressure air is used with the printer but *only vacuum may be used* for cleaning the machine transport area to prevent affecting the adjustment of the camera and mirrors.

8.4 *Floor Loading Weight*

- See Drawing and Chart in Section 6

8.5 *Estimated BTU's*

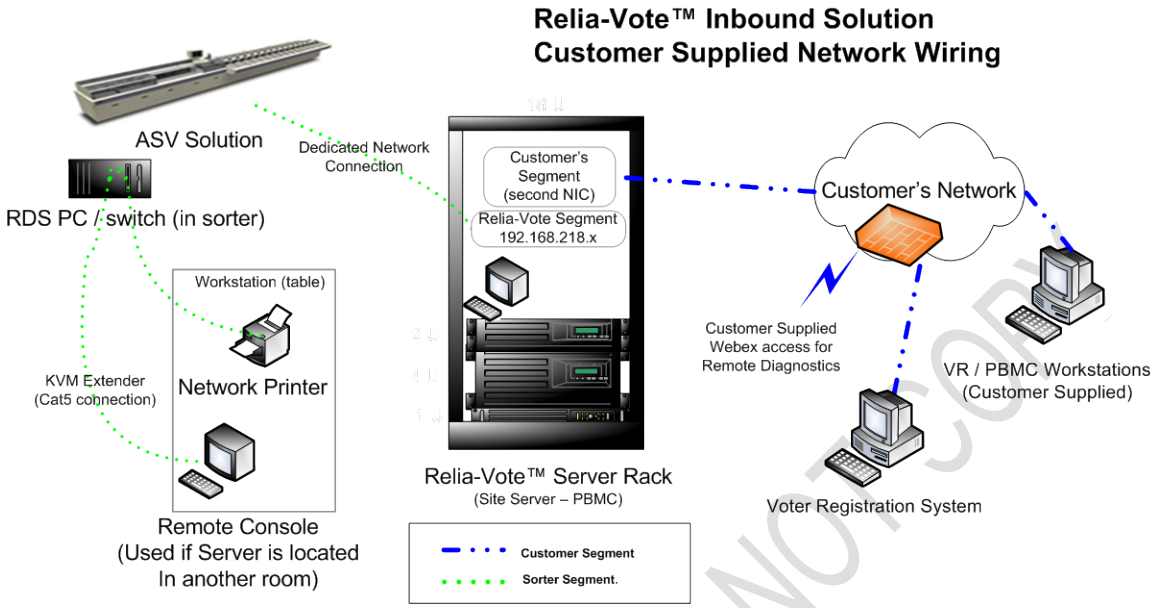
- The Olympus II system used for outgoing and incoming will run at 11,000 BTUs including the site server.

8.6 *22U HP Server Rack and Workstation*

- The Relia-Vote™ Solution Server will arrive on site installed in a 22U server rack. This server rack is shipped on a shock pallet. The rack size is (H x D x W): 38.5" x 39.7" x 24".
- The Server rack containing the site server and RDC would be located by the system directly networked to the machine computers (not through the customer switch and network). A second NIC from the server would be connected to the customer network for VR file transfer and external Webex diagnostics.

- The PB Site Server is maintained by PB, any software updates must be done by PB.
- A workstation table is recommended near the system for the remote console, and report and label printers. These will be networked to the Server through a PB supplied hub.

9. Network Wiring Configuration



9.1 *Network Requirements*

- The ASV solution will require a minimum of (1) one network drop at the installation location to the site server. An extra network drop is recommended for redundancy purposes.
- Signature Verification Transfer to Voter Registration System Port: 8085 needs to be opened on site server for Inbound and Outbound data traffic (same as used on current site server)
- All network cabling should be a minimum of CAT5 (5e or 6 1Gig recommended) and adhere to the IEEE 802.3 specifications for maximum lengths (300ft max) and routing requirements.
- All network cables should terminate in the location designated for the installation of the Relia-Vote™, resulting in a segmented network isolated from other network traffic.
- Refer to the "Relia-Vote™, Networking Specification" document for additional details.
- The Relia-Vote network is a dedicated network. Network connections Summary
    1. Direct 'home-run' network connection from machine computers to site server rack (not passing through County switch or network). This connection will occur between the server and machine computers via the RDC PC switch.
    2. Direct connection between remote console and RDC PC located in machine via KFM Extender using Cat5 cable (used when server is not located near the machine)
    3. Direct connection between network report printer and RDC PC via PB supplied switch

4. Optional workstation PC can be placed on the work table (or any location in the facility). This could connect to the RDC switch or the county network to access the PB database (PBMC) for viewing and reports.

9.2 *External Connections*

- An intranet network connection is needed via second NIC card between server and County network for VR data file transfer. The transfer will take place using flat files placed into a shared directory. PB will not access the VR system. See section 5.1 for data transfer details.

    - County computers would be used to access the Relia-Vote browser based PBMC database front end for reports and signature verification. The same computers used for access to the VR system can be used to access PBMC.

- An internet data connection is needed to connect to the Relia-Vote system for remote diagnostics using a secure PB WebEx connection via firewalled customer LAN/WAN. Network integrity is protected through:
    - 128 bit SSL encrypted connection
    - AES data encryption for all presentation data
    - Attended Access Only (security, safety) - initiated and monitored by OSP
    - Block all internet sites except for https://secure.logmeinrescue.com

  Instruction Manuals will be provided.

10. System Implementation – Testing/ Installation/Training

10.1 *Test Material Requirements*

Pitney Bowes requires that sample material be provided and highly recommends that customer supplied test material be available for use in the integration of systems in the PB factory as well as the County facility. Voter Registration files that match the test materials provide are also required. Samples and test material must be supplied in accordance with the Sample and Customer Supplied Test Material Process.

1) MATERIALS TO SUPPORT TESTING IN DANBURY:

- At least 3,000 – Printed Return Envelopes
  - Stuffed, sealed, and with AVID's showing as prepared by voter
  - Also include:
    - 100 daily internally printed envelopes (include both barcode sizes)
- Corresponding SIF files from ELECTION DB
- ASV testing requires:
  - AVID Matching reference signature files; for at least 500, 1,000 preferred.
    - Files to be named as <avid>.tiff, 200 to 400 DPI
  - NOTE: A quantity of images is required up front to test for determining expected resolve rates. Guidelines and suggestions may be provided for maximizing the performance levels of reference images. The crop area must be set to minimize any 'noise' from print around the signature block.
  - IF possible, signed envelopes to match the SIF file and reference images.
- All material sent to the factory test will be shipped back with the machine or destroyed.

2) MATERIALS TO SUPPORT TESTING AND TRAINING AT ARTIFACT COUNTY'S FACILITY:

- Up to 5,000 same as above
- Corresponding SIF files from ELECTION DB
- Matching reference signature files
- Matching actual signed envelopes, as many as possible (e.g. 50 to 200)

Material and shipping is the responsibility of the customer. Quantities above are recommended for a standard factory test, but are negotiable if necessary.

General guidelines for shipping test material:

Test material should be packaged so it arrives at PB in good condition. In order for the system to be configured to optimally handle each application, the test material should be representative of the condition that material would arrive at the machine during normal operations. Printed items should be tightly packed in order to avoid damage during shipment. Any folding or wrinkling of pages can render them unusable for testing.

Disposal of used/unused material:

All customer-provided test material is shredded prior to disposal. Upon request, the processed and/or remaining unprocessed test material can be returned to the customer with the delivery of the system.

10.2 *Factory Testing Process*

10.2.1 Factory Testing - PB

All systems must pass comprehensive testing by the Integration team prior to releasing for service checkout and/or shipment. Functionality testing is performed on:

- Controls (levers, latches, knobs, etc. used to access system areas)
- Adjustments (fold plates, feeder knobs, etc. used for operator application set-up)
- Indicators (jam detection, error messages, feeder delay, etc. used to notify operator of system status
- Generic test material is loaded on the system to setup and test the mechanical paper pathF

A Service specialist and/or a local Customer Service Representative will also perform additional testing in the factory prior to shipment. This process consists of validating that the system configuration will meet customer requirements and performing controlled test runs, using customer provided samples, with application processing validation.

- The VR file provided from the County is loaded and tested
- The County test material is processed through the machine to test the entire system
- Signature Verification Client is configured and tested from captured images

10.2.2 Factory Testing – Customer

Artifact County has the right to attend testing at the factory prior to shipment. This process consists of validating that the system configuration will meet customer requirements and performing controlled test runs, using customer provided samples, with application processing validation.

10.3 *Installation*

A Service specialist and a local Customer Service Representative will arrive after the machine to move the components into the allocated floor space. (see site survey) These modules will be assembled in place and then the system will be systematically powered

up and tested. The team will utilize the same test details from the Factory Test Plan to validate all components and processes. The County will supply a test VR file and matching test ballots for installation and testing.

Testing similar to the factory testing will also occur in Artifact County once the system has been installed. Any deficiencies with the system identified as a result of testing must be remedied by the PB team.

10.4 *9.2.3 On-site Testing and Acceptance*

Testing will also occur in Artifact County once the system has been installed as one of the conditions of acceptance. Any deficiencies with the system as identified by Artifact County as a result of testing must be remedied by the Service team.

On-Site Test Detail

The goal of the on-site test is to demonstrate that the implemented Relia-Vote™ Solution meets the requirements defined in the Statement of Work. To accomplish this goal an End-to-End System Test will be performed. This document covers the criteria to be met for a successful test.

County Responsibilities

- Setup a test election in the VR system and provide a properly formatted AV file with at least 500 records
- Provide properly barcoded Sample Ballots, required inserts and Envelopes that correspond to the test elections AV File
- Provide a properly formatted Over the Counter (OTC) file with 10 records
- Provide at least 10 properly barcoded Sample (OTC) return envelopes that correspond to the OTC file.
- Provide reference images for Signature Verification
- Provide results of signature verification through Voter Registration Interface for Signature Verification
- Participate in the End-to-End system test validating that functionality meets the requirements in the Statement of Work.

Inbound Rough sort and Image Capture Test

- Date and Time Stamp the Inbound ballot envelopes
- The ability of the Relia-Vote™ to process envelopes with windows.
- The ability to detect double fed envelopes
- The ability to detect return ballot envelopes that are not part of the current election.
- The ability to properly reject envelopes with barcodes that are unreadable. Display re-labeling process and ability to accurately read and sort with new label.

- The ability to detect return ballot envelopes that are too thick/too thin.
- Scanning the Voter ID and matching it to the database file
- The ability to detect an invalid Voter ID condition by feeding an invalid ballot
- Capture and archive the image of the valid inbound ballot envelopes
- Crop and image the signature block and pass the image with Voter ID to Signature Verification Interface
- Verification that machine batch count is accurate (by hand count).

Signature Comparison Interface Test

- Operators will assign disposition codes to the 500 test pieces that had images captured.
- Testing will occur from multiple workstations to simulate actual process. This may be done onsite if not available at the factory.
- The disposition codes will be inserted into the Relia-Vote™ database
- The test pieces will be brought back to the system for final sort/audit of the pieces.

Sort/Audit Pass Test

- Correct Sorting of the ballot envelopes to the pockets designated from the return codes of the Signature Verification Interface (testing all available accept and reject codes).
- The ability to detect double fed envelopes
- Create Exception Report.
- Printing of a sequence number on each ballot envelope for the pocket designated by the sort scheme
- Create batch pocket report(s).
- Selectively Open ballots as designated by the sort scheme
- Creation of export files for accepted/rejected records (by Voter ID) for import into ELECTION DB

10.5 *On-Site Training Process*

A Division Trainer will spend 4-5 days training the assigned operators on the Hardware and Relia-Vote database software solution and how to operate it. It is recommended to keep the class size to 2 or 3 main operators for the machine and at least 2 (and 2 backups if desired) bin sweepers for the operation during elections.

The basic training for the operators can be at one time or part of the training could be held during the beginning of the first election. The trainer would come out within 3-4 days after the initial ballot drop when the first returns begin to come in and will spend 3 - 4 days during the election process and to make any necessary adjustments with remote technical support if necessary or onsite support if available. Scheme training is performed after first election and preparing for second election.

As a final validation of the installation and training a Mock Election will be performed where all steps of the process are performed using a test VR file and matching test ballots provided by the County. The County would participate in the Mock Election and be utilized as a training review with a key emphasis to validate the installation.

10.6 *Implementation Milestones*

Key milestones of the project are listed below. Please refer to Project Schedule for detailed and most current information and refer to the Agreement for Related Agreements and terms.

Task	Comments	Date
Order Awarded		TBD
Customer sends samples for review	Samples sent to Sales/CDE	Complete
CSR site survey	CSR goes to customer site and performs a site survey	Complete
ELECTION DB interface validated	Date ELECTION DB module is complete for integration with Relia-Vote	In Process
Customer is provided installation packet	PB provides installation packet to customer, includes SOW and supporting documents such as installation plan	
SOW agreed to by customer	SOW is signed off by PB and the customer	
Test material and file shipped to Danbury	Customer notifies PB when material ships	TBD
Test material received in Danbury	PB will evaluate and accept the material once received	
Test material approval	PB will acknowledge acceptance of material	
Factory Acceptance	Artifact County Staff to witness machine operation in Danbury	
Site prepared for equipment installation	All power, air, vacuum, etc. requirements are in place. Final drop/connection to occur during system install.	
Service check out in Danbury	CSR goes to Danbury to check out the system (2-3 days)	
System ships from Danbury	System leaves Danbury	
System arrives at site	Date system arrives on site	
System installation begins	Date PB Service Team starts the installation process	
Training	Training of the county employees that will operate the system	
Mock Election	Formal validation of the system	
Acceptance	Date County accepts system for use in primary election	

11. Agreements

In order to ensure successful delivery and installation of the Relia-Vote™ solution, each party must meet certain responsibilities. Failure to meet these responsibilities may result in schedule slippage, price change, or failure of the Relia-Vote™ solution to meet The County's expectations. These responsibilities are defined below.

11.1 *Pitney Bowes Responsibilities*

Pitney Bowes is responsible for

- Providing the *Statement of Work*
- Providing a *Contract*
- Providing a *Pre-Installation Checklist*
- Provide network requirements, including server configuration – (SOW)
- Delivering and Installation to meet the agreed upon specifications
- Meeting agreed upon Project Mile Stones and Dependencies assigned to Pitney Bowes

11.2 *Artifact County's Responsibilities*

The County is responsible for

- Providing a Purchase Order for the Relia-Vote™ Solution to Pitney Bowes
- Reviewing and signing the *Statement of Work*
- Reviewing the *Pre-Installation Checklist* and ensuring the site is properly prepared to receive the Relia-Vote™ Solution. This will include power requirements, phone lines, and network/Internet connectivity
- Provide the necessary tables/cabinets to support equipment (such as computers and printers) not contained within the Relia-Vote™ Solution.
- Ensuring the appropriate individuals attend Relia-Vote™ Solution training.
- Operating and supervising the operation of the Relia-Vote™ Solution during elections.
- Provide proper level of equipment maintenance to ensure the Relia-Vote™ Solution stays in proper working order – (On-Site service contract executed with dedicated CSR)
- Meeting agreed upon Project Mile Stones and Dependencies assigned to Artifact County.

11.3 *Change Management*

The Statement of Work provides detailed information about the system design, system features, and work to be performed for The County. Any changes to job specifications, paper flow, barcode locations, barcode content or layout, system specifications, system capabilities, hardware, software, or additional options/accessories necessary to comply with changes requested by or caused by The County will result in delayed implementation and additional charges.

In the event changes are required the following procedures will be implemented:

1. A change order must be filled out with the requested changes (See attached Project Change Request form).

2. Pitney Bowes Document Messaging Technologies will communicate the reasons, scope, timing, and costs associated with the change order to Artifact County prior to proceeding with the change.
3. The County must formally approve the change, including associated timing and costs, prior to implementation of the change order.
4. Pitney Bowes Document Technologies will implement the specified change and invoice Artifact County as per change order agreement.

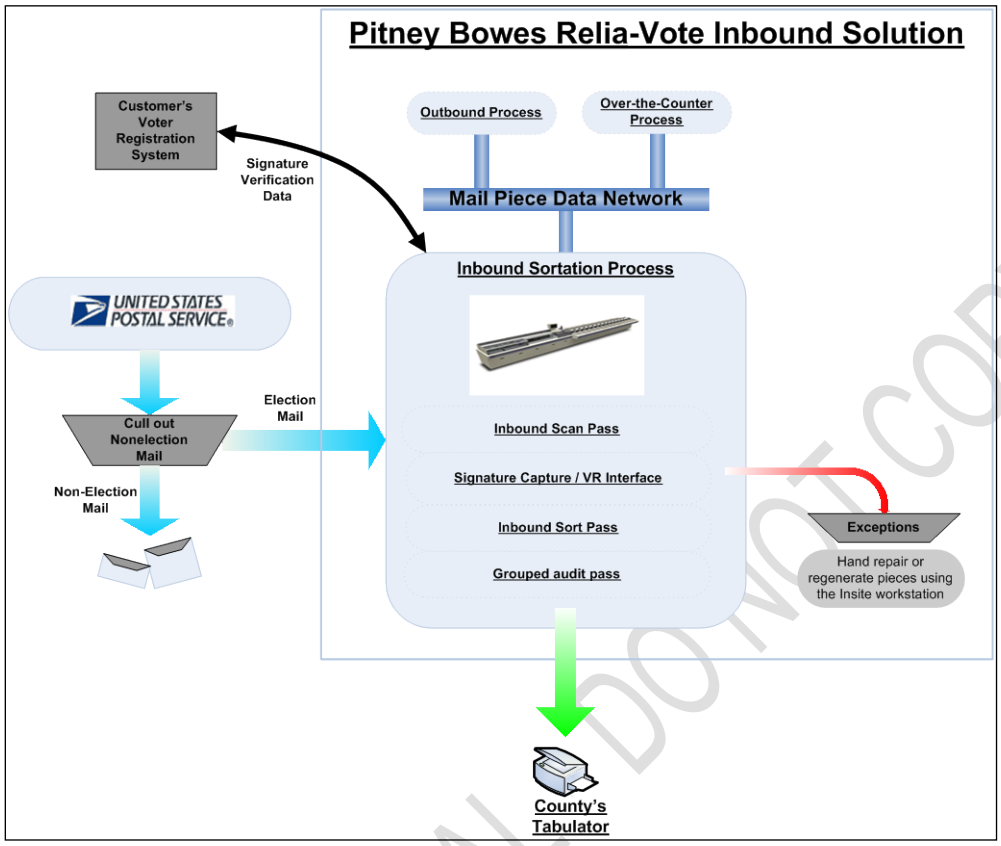
11.4 *Agreement*

Signature of this document represents approval of the specifications defined within, and agreement as to the responsibilities of each party. Signature is required before the Relia-Vote™ solution can be delivered.

Any additional functionality outside of the scope as specified in this document will be managed through Pitney Bowes' Change Request Process, and will be scheduled and priced (if deemed necessary) at a future date.

ARTIFACT County Official	Date
Pitney Bowes Sales	Date
Pitney Bowes Customer Development Engineer	Date
Pitney Bowes Management	Date

12. Attachment A: Relia-Vote™ Inbound Processing Detail



12.1 *Inbound Processing Process Overview*

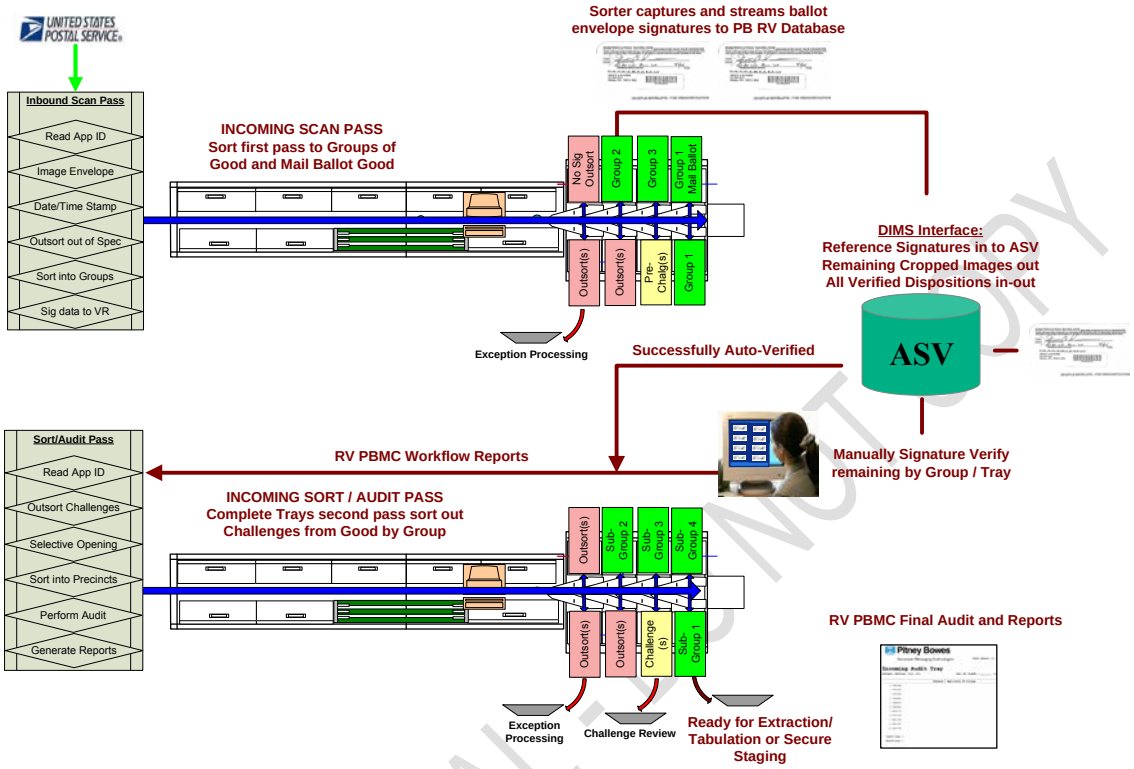
This section provides a general overview of the Relia-Vote process and is not intended to be utilized for configuration and testing of the County Relia-Vote ASV solution.

Voter's Ballots are returned in the "Return/Reply Envelope" through the USPS. The County culls out non-election mail as a manual process; anything left with the ballot mail would be pulled as out of spec by the system. The election mail pieces are then run through the Inbound Sortation Process by the County operator. The Inbound Sortation Process requires that the Relia-Vote™ database in the Site Server be populated with the mail piece's application data. This data is loaded by the County into the Relia-Vote™database using a System Input File (SIF) (reference Relia-Vote™ Signature Verification Interface specification) This file is provided on a pre-determined basis from the VR vendor after the Outbound Insertion or the Over-the-Counter mailings are complete. Reference signatures are also provided for Auto Signature Verification.

The Inbound process is a multi-staged solution, the purpose of which is to validate the signatures of returned ballots and sort pieces based on the signature-matching criteria. The scanned side of the return envelopes has an *AVID (Absentee Voter Identification) Barcode* as well as a *signature block*. The return envelope application details and barcode

contents are defined in the Application Profile Section. The following sections provide a detailed description of this process once the SIF file is loaded into the database.

12.2 *Inbound Scan Pass*



This is the first Inbound process step that reads the barcode on the mail pieces through the system. This process step performs the following:

- Each envelope will be checked for a physical double feed and rejected if failed
- Each envelope will be checked against set parameters for physical size and visual thickness to ensure thinner (no ballot or secrecy envelope), thicker (too many ballots), and larger or smaller (non-ballot mail) are rejected
  - Items rejected as these 'out-of-spec' reasons are sorted from the rest of the envelopes into a defined pocket. A report is generated for each reason and pocket at the end of the run. These items are then available to be evaluated and processed manually to maintain separation from the remaining envelopes or if 'cure-able' can be placed back into the stream.
- Attempts to read the AVID of the Mail piece and is rejected if not read
- If the Olympus successfully reads the AVID barcode, it will query the database to determine if the ballot is valid and was successfully processed as outgoing and that the AVID number was seen only once. Otherwise the envelope would be rejected or assigned as Manual Verify (e.g. an AVID number seen more than once) and diverted.

- Mail pieces set to Outsort in the database will be diverted to appropriate pocket
- Operator can re-run all rejects under Rescan mode to allow second attempt to read and sort
- Envelopes designated as Manually Verify by the solution are processed by the operator within the Site Server system to define status and rescan/sort appropriately
- The current time/date will be printed on every envelope regardless of disposition. The location of print is configurable based on available area with the envelope design.
- Applicable pre-challenges and rejects (over/under size) are rejected.
- If equipped, any envelopes that are detected to have a completed Checkbox or a Missing Signature would be outsorted (Checkbox and No-Signature are optional features). The solution will list in a tray report the AVID numbers and quantity that were detected and diverted. The County would remove the pieces for validation and remove for manual processing. If a piece is erroneously diverted (e.g. due to stray marks) the operator can try to rerun the piece. It may be required to remove the stray mark or disable the feature for the piece to process successfully.
- For every remaining ballot envelope where the AVID barcode is successfully read:
    - An image of the entire front of the envelope will be archived
        - The solution will capture an image for all rejected pieces, except pieces with a missing or unreadable AVID and doubles.
    - A cropped image of the voter's signature will be archived
        - The image path for each mailpiece containing the full and cropped images will be available by lookup using the AVID via an Application ID Review Screen that will pull up a separate browser page displaying the appropriate image.
    - Envelopes are sorted into tray size batches and assigned a batch number
        - Tray/batch size is calculated by the system using the physical tray size and maximum envelope thickness as input parameters. The system allows a max tray size setting provided it is less than the calculated maximum.
        - The envelopes change batch numbers as they change categories and move through the Relia-Vote process. The system tracks and reports the history of each mailpiece and reports the final batch number to the VR system. Batch numbers will be non-repeating within an election.
        - Status and batch location of a ballot envelope that has been processed on Relia-Vote™ can be found via the browser-based Pitney Bowes Management Console (PBMC). This application is available with login security for access by

designated Artifact County staff using computers on the machine user interface and the County network.

- Status and batch location of a ballot envelope that has been processed on Relia-Vote™ can be found via a Web based application with login security for access by designated County staff using computers on the County network.

- The operator will complete the processing of all rejects and Manual Verifies to close out batch(es) using a Re-scan mode.
- A tray tag is supplied for each completed tray.
- A Batch Tray Report is created for all good envelope batches to enable selecting the trays for processing into the VR system.

12.3 *Signature Verification Interface*

Signature Verification to validate a ballot and provide a disposition code is performed by the Pitney Bowes Signature Verification Client in conjunction with the ELECTION DB interface.

The interface between ELECTION DB and the Relia-Vote™ Signature Client and ASV Inbound process is as follows:

System Input files (SIF) will be provided *to* Relia-Vote™ database as a file from the ELECTION DB prior to the scan pass to prepare the system for receipt of the returned ballot envelope.

- The initial file is provided after the bulk outbound mailing.
  - It is created by a ELECTION DB database query
- The same format is used to create periodic (daily) files for Over the Counter ballot envelopes and Daily mailings.
  - A label is applied to the envelope at the time of request that contains the AVID barcode and other county information
- The files must be the same data structure as, or include the required data fields to be mappable to, the Relia-Vote™ SIF spec.
  - There is a "Challenge Status" field defined in the file specification used to utilize pre-challenge codes if desired.
  - File to follow 'OTC_' prefix naming convention

Reference Signature Files will be provided *to* Relia-Vote™ database as individual files from the ELECTION DB prior to the scan pass to prepare the system for receipt of the returned ballot envelope.

- Reference signature files would be named to match the AVID values for each mailed envelope.
  - Files to be named as <avid>.tiff
  - 200-400 DPI
  - Guidelines are available for maximizing the performance levels of reference images. The crop area must be set to minimize any 'noise' from print around the signature block.

Cropped signature images, AVIDs, and initial batch numbers will be exported *from* Relia-Vote™ to a shared directory during the Scan Pass. (Refer to the Relia-Vote™ Signature Verification Interface Document for specification details).

- The cropped signatures stored by the Pitney Bowes Relia-Vote™ solution during the Scan Pass will be associated with each voter record. The crop size is determined by the needed viewing area of the county and capability of the VR terminal.
- The Relia-Vote Auto Signature Verification utility will perform the first attempt at verifying signatures based on the threshold settings. Remaining unvalidated images will be made available for the VR system so the County can perform side-by-side manual verification.
- Upload of the remaining batched images will be done by Multi-image tiff files and matching AVID flat files provided from Relia-Vote and loaded into the VR system via the Wanda process. A work report is created to show which batches are ready for signature verification.
    - The signature verification for each envelope will be image to image on the VR screen. The physical envelope is not used by the County for this process.

Signature Verification envelope status will be supplied from the ASV process or sent *to* Relia-Vote™ from the VR system via a stored procedure during the signature verification process.

- Once the County personnel have finished validating all the remaining ballot envelope batches, the VR system will transfer the dispositions via flat file (ELECTION DB-Net preference) to the Pitney Bowes Relia-Vote™ database for sort pass processing.
- A stored procedure is also acceptable, provided it meets the specifications within the Relia-Vote™ Signature Verification Interface Document. It is recommended that only one method or the other be used.

Envelope batch number updates are available to be exported *from* Relia-Vote™ to update the VR with the final batch after the Sort / Audit pass utilizing a three-column, comma separated flat file.

- Each line will contain the AVID, original batch number, and current batch number for every mailpiece that has successfully gone through Audit.

12.4 *Inbound 'Sort' Pass*

This sort pass is run after the County's verifiers complete the Signature Verification process to separate good and challenged envelopes. Trays can be sorted as completed while other trays are still in Signature Verification. This performs the following:

- Complete trays are checked in by the operator as designated from the Work Report
- If the Relia-Vote™ solution successfully reads the AVID barcode, it will query the Relia-Vote™ database to determine if the ballot was processed by the Signature Verification process.

- Signature Verification Actions:
  - Tagged as "Good" - process per specified Sort Scheme rules. Sort Scheme is a configurable tool on the system that directs envelopes to specified pockets on the machine based on envelope status (e.g. No Reads go to pocket 1)
  - Tagged with a "Challenge Code" - Sort into the appropriate challenged pocket
    - Each Challenge code, or groups of challenge codes, can be assigned to a separate pocket. Pocket assignments are definable per election.
    - During the signature check process The County will assign a specific challenge code related to the signature. After the specific challenge code is assigned an additional sort pass could be conducted to sort the envelopes by challenge code.
- Sortation Scheme Actions - Query the voter database to determine the sort level (Good/challenged, batch, etc) for each Good mail piece. The system will then place the mail piece into the appropriate pocket.
  - The size and content of the groups are determined by the number of available pockets remaining after challenge and reject assignments. Two or more passes may be required through the system depending on quantity of precincts and available pockets.
  - In this case the first pass will group the incoming ballot mail pieces into ranges of groups. Each group would be stored and processed together during a second pass to break the ranges into each specific final grouping
- The operator will complete the processing of all rejects and Manual Verifies to close out batch(es).
- After the Sort Pass(es), all or select challenged envelopes may go through a manual Signature Verification reconciliation.
  - At this step the actual envelopes would be reviewed against the VR system on a tray by tray basis.
  - A Challenged Ballot report will be available from Relia-Vote™ indicating the contents of the tray.
  - After the tray has been reviewed, a new SIF file would be transferred to update the Relia-Vote database with any disposition changes. Then the tray would be processed through the ASV solution to re-sort any cured envelopes or any that changed challenge codes.
  - A tray tag is supplied for each final challenge tray and newly cured envelopes that are now sorted into their final grouping.

12.5 *Inbound Audit Option*

This option is performed in the same run as the Sort pass as a finalization to any good and cured envelopes. Each unique grouping (Good, challenge, or batch etc) must be processed separately.

Any mail in the same grouping but processed on different days can be combined prior to running it through the system. This option performs the following:

- Prints on the envelope's lower-right hand corner:
  - The election ID number
  - The precinct ID
- Supplies a tray tag for each completed tray
- Supplies a final Audit Tray Report

12.6 *Opening, Extraction, and Tabulation*

During the Sort and Audit Pass options the mail pieces are grouped by the final unique level in labeled trays and are now ready for transportation to storage or the County's Extraction, and Tabulation processes.

13. Attachment B: Pitney Bowes Recommendations

Pitney Bowes recommends the following envelope jogger for ensuring proper registration of address and barcode in the envelope window prior to processing outbound and inbound envelopes through the machine.

Envelope / Check Jogger

The *FD 402E2 Jogger* quickly settles the contents of incoming mail prior to opening with an automated envelope opener. It's also ideal for aligning checks, bills and notices for further processing.

FORMAX®

Corporate Headquarters
44 Venture Dr
Dover, NH 03820 USA
Ph: 800-232-5535 / 603-749-5807
Fax: 603-743-6366

http://www.formax.com/Jogger_Product_Page.htm

14. Attachment C: Project Change Request Form

The following section is to be completed by the Customer:

Project Name	
Request Short Name:	
Date Submitted:	*(mm/dd/yyyy)*
Requested By / For:	
Required By:	*(mm/dd/yyyy)*
Request Description:	
Business Justification:	

The following sections are to be completed by the Pitney Bowes Project Manager:

Description of Change to Project			
Impact of Change to Project (Schedule, Cost, Quality)			
Pricing			
Task Description	Components	Professional Services	Costs
Pricing Notes:			
Risk Assessment			
Evaluated By	Signature	Date	

The following sections are to be completed jointly by the Pitney Bowes Project Manager and the Customer:

Agreement		
Evaluated By	Signature	Date

Authorizations			
Disposition	**Signature**	**Project Manager**	**Date**
☐ Approved ☐Rejected		Pitney Bowes	
☐ Approved ☐Rejected		Customer	

Last page of the provided SOW

9.0 – GENERAL QUESTIONS

The following is a list of questions regarding various aspects of the UVS functionality and the UVS project. Please provide detailed answers to these questions. Note: Do not include any cost information in this section of the RFP.

1) What staff support from CDOS and counties do you envision needing during the implementation of the UVS in a county? Identify each resource by location (CDOS or county), role or responsibility, technical skills needed, suggested expertise in years, and any clarifying comments.
   From a customer standpoint, a typical support team consists of a designated Project Manager, IT representative, and operator team members.

2) How many county implementations do you feel you could support simultaneously?
   Pitney Bowes has the ability to provide support personnel that can be scalable to the needs of the State of Colorado to meet your timelines and milestones.

3) What is your coverage, terms, and duration for warranties of the hardware, software, and other deliverables provided pursuant to this RFP?
   Our standard warranties for Relia-Vote equipment is one (1) year from completion of system installation. Please refer to the appendix section "Pitney Bowes Document Messaging Technologies division: Relia-Vote WARRANTY", for our warranty details.

4) What is your coverage, terms, and duration for maintenance of the hardware components of your UVS solution?
   Service Level Agreements are on an annual basis. SLA provides support during normal business hours of Monday through Friday 8:00 AM – 5:00 PM for on-call support. Extended support hours can be provided during an election cycle per request by a county.

   For terms please refer to the Appendix, to the document titled:
   "DMT Service Works Solutions Agreement Form"

5) What is your coverage, terms, and duration for licensing of the software components of your UVS solution?
   Standard Software Level Agreements are on an annual basis, and provides 24 hour by 7 days per week remote desk support.

   For terms, please refer to the Appendix to "Software License Maintenance Agreement"

6) Are updates and modifications to the UVS because of legislative mandates a part of your support agreement or are they custom enhancements?

Depending on the changes, some may be made as part of the support agreement while others may be made (within the limits of the system capability) for a change component fee.

7) What is the certification status of each component within your proposed solution? Include a matrix showing the following:

- Component Identification
- Federal certification date
- The federal certification standard currently met (e.g. 2005 VVSG)
- Any state certifications
- Projected certification date and standard if not currently certified
- Projected certification date and standard for a future planned upgraded certification

The Relia-Vote Envelope Sorting System is not a voting system and we are not aware of system certifications specifications have been issued. We will work with the state as needed to develop a certification if needed.

8) What features of your proposed solution exist to ensure ballot secrecy? Please describe those features.

The proposed Relia-Vote Envelope Sorting solution does not automatically open returned envelopes, however some counties may wish to purchases an inline optional selective opener. This device mills the bottom of the returned ballot package in such a way to make downstream ballot extraction an easy process. Ballots are not removed from the envelope on the envelope sorter. The envelope sorter is typically a controlled access environment, with only authorized users permitted in the area.

9) What is your organizational chain-of-command for escalating problems needing resolution?

Please refer to the Appendix, "Relia-Vote Service Escalation Process 2013"

10) What purchase options do your company offer (e.g. payment in full upon delivery, financing, leasing)?

We offer a straight cash purchase option or can also provide various leasing options. We can and will support a straight cash purchase with payment on acceptance or leasing options also with payment upon acceptance.

11) What is the maximum number for each of the following items that your Election Management System allows:

- Precincts
- Contests
- Candidates

- Political Parties
- Ballot Styles
- Precincts per Ballot Style
- Ballot Styles per Precinct
- Other limitations?

The Relia-Vote envelope sorting system is not defined as an Election management system.

12) What interface capabilities, with the CDOS voter registration system (SCORE), can your Election Management Software provide? Is there a defined extract format for precinct and district definitions, registration statistics, and candidate or contest information that is or may be made compatible with SCORE? What interface data formats are available (e.g. EML, XML, CSV, and ASCII)?

We are SCORE compliant for Ballot Envelope Sorting and data capture.

EXP-004 Ballot Verification System Export
The EXP-004 is a text file containing relevant ballot information needed by the Pitney Bowes Ballot Envelope Verification System. County users of SCORE have the ability to provide a complete file containing all ballots within a specific election. They also have the ability to provide supplemental EXP-004 files containing recently sent or recently modified ballots.
File Format
The EXP-004 file is a comma separate double-quote qualified .txt file.

Data File Import
File Format
The import file produced by the Ballot Envelope Verification System is a comma separated double-quote qualified .txt file and includes a header row.

13) What are the security features and capabilities of your proposed system and processes? Include the following areas in your response to this question:
The Pitney Bowes Relia-Vote Ballot Envelope Sorting solution is not a Voting System as defined in Rule 1.1.33 (c) of the Colorado Election Rules, however, we can respond to items that we believe to be associated to a Ballot Sorting system.

- How do you protect the audit logs (e.g., encryption, hashing)?
  No audit logs are generated by the Sorter applications.

- Does your system documentation contain suggested security auditing procedures? If so, please provide.
  No

- Do you provide an executable application whitelist with digitally signed programs?

No

- How does your system prevent unauthorized, non-whitelisted applications from running?
  N/A

- What specific hardening procedures and standards are your voting devices held to?
  N/A

- What database encryption mechanisms are used by your system for data at rest and in transit? Please describe, in detail, all uses of data encryption/decryption in your proposed solution.
  None

- What password features are included in your proposed solution (e.g., complexity, reuse)?
  The user logins and passwords are maintained by the customer through an Admin account. Enforcement of length and expiration is enforceable by the administrator.

- Is there any remote communication technology associated with your proposed solution? If so, explain.
  Remote access is not required but can be initiated by the customer to allow service/engineering aid in cases of field issues.

- What processes are you using for source code review and compiler security verification?
  Source code reviews are tracked internally with Rational Team Client and application and installer builds are automated in a secure virtual machines maintained within the Pitney Bowes network.

- What independent security audits has your proposed system received?
  None

14) What post-election audit capabilities are provided by your system and what processes or procedures do you offer to support a post-election audit, including a risk limiting audit?
  The Pitney Bowes Relia-Vote Ballot Envelope Sorting solution is not a Voting System as defined in Rule 1.1.33 (c) of the Colorado Election Rules

15) To what extent, if any, do the hardware and software products you are proposing to Colorado meet the requirements of Section 508 of the Rehabilitation Act of 1973 and subsequent amendments to that Act?
  The Pitney Bowes Relia-Vote Ballot Envelope Sorting solution is not a Voting System as defined in Rule 1.1.33 (c) of the Colorado Election Rules

16) What products or services do you provide in the areas of Voter Education and Voter Outreach? This is an informational question only.
Pitney Bowes does not products or services in this area.

10.0 – PRELIMINARY PROJECT SCHEDULE AND STAFING PLAN

The Vendor selected to fulfill this RFP may need to begin the effort shortly after contract execution, as there may be one or more counties interested in implementing or piloting a new system for the November 2014 election. The exact number of initial UVS counties has not been determined as of the issuance of this RFP.

You must propose a Preliminary Project Schedule and Staffing Plan, as described in RFP Appendix D– Statement of Work, Track 1: Project Management. For the purposes of responding to this section of the RFP, you shall develop your schedule and staffing plan for implementing the UVS in a large Colorado Target County within a 50-mile radius of the Denver metro area. For sizing purposes, the target county statistics are:

- 350,000 Registered Voters
- 12 Early Voting Locations
- 24 Election Day Voting Locations
- All Registered Voters will be issued ballots by mail; however the voters may choose to vote in person.

This section must provide a project organization chart of proposed project personnel, listed by name and position on the project. It must also describe relationships between your organization and any subcontractors. The qualifications of proposed staff are addressed in RFP Section 5.3.13 Proposed Staffing.

The Preliminary Project Schedule shall provide a roadmap of tasks, resources, and timing necessary to complete the work in the target county. The Preliminary Project Schedule shall include but not be limited to the following:

1) Tasks with scheduled start and completion dates
2) Milestones
3) Personnel assignments and estimated duration for each task. Time must be listed for:
    a) Your personnel
    b) Required CDOS or County election program personnel (please define needed skill types or business area)
    c) Required technical personnel.

Relia-Vote™ Implementation Plan

Upon receiving notification that Pitney Bowes would be selected as the vendor of choice, the assigned Project Manager, will initiate a project plan for implementation on the agreed upon Relia-Vote™ solution. This project plan will consist of the following four (4) key phases designed to ensure a successful trouble free implementation

Phase 1 - Requirements Analysis and Solution Design

Joint face-to-face and teleconference meetings are held between Pitney Bowes and the necessary members of State of Colorado Election project team to document all of the requirements. The initial meeting will be scheduled immediately after Pitney Bowes receives selection notification and can be held as soon as County rules permit. Additional features and functions can be considered during this phase. Among the deliverables from this project phase are a Statement of Work (SOW) and a Project Plan. The SOW is the definitive source document of all features and functions to be developed. The Project Plan specifies tasks, schedules and the party responsibilities for each project task.

Phase 2 - Solution Development and Unit Testing

During this phase, Pitney Bowes creates a Master Test Plan, to be mutually agreed upon by the State of Colorado Election staff and Pitney Bowes. This Master Test Plan outlines the scope of the Quality Assurance (QA) effort, the types of tests to be performed, the specific features and functions to be tested, any features that are not to be tested, performance tests, testing methodologies, and QA responsibilities.

Phase 3 - Solution Integration and Quality Assurance Testing

In this phase, Pitney Bowes and State of Colorado Elections integrate all development items and execute the Master Test Plan. State of Colorado election staff will be trained to operate the equipment, manage the Relia-Vote™ process, perform daily preventative maintenance and troubleshoot basic problems. This phase is performed at the Customer's site

Phase 4 – Turn-over and Knowledge Transfer

In this phase all documentation needed to sustain the project is finalized. A Knowledge Transfer session(s) is conducted to review the documentation. It is assumed that any Customer personnel assigned to continued operation on this application will participate in the Knowledge Transfer session(s). The Relia-Vote™ Project Manager along with the Customer's Project Manager conducts a final Project Wrap-up session for this phase of the Relia-Vote installation.

Sample Project Plan

Below is a basic sample project plan for a Relia-Vote™ sorter installation to be used for estimating timelines. However, as every customer may have different needs and requirements we would create a project plan which would be specific to CDOS Uniform Voting System project.

Task Name	Start	Finish	Responsible Party
Administrative			
Pitney Bowes selected as vendor		Day 1	County
Statement Of Work defined	Day 1	Day 10	Pitney Bowes County voter registration Admin and Elections
Contracts	Day 1	Day 21	Pitney Bowes County Procurement
Machine build and installation			
Application & Mail piece Validation	Day 1	Day 20	Pitney Bowes County Elections
voter registration System & Sorter Input File Integration	Day 1	Day 20	Pitney Bowes County voter registration Admin
Build sorter	Day 1	Day 14	Pitney Bowes
Test Sorter	Day 15	Day 29	Pitney Bowes
Facility Ready at County Location Power/Network	Day 1	Day 36	County Facilities and Elections
Ship Sorter	Day 30	Day 37	Pitney Bowes
Receive Sorter at County Location	Day 37	Day 44	Pitney Bowes County Elections
Integrate Sorter County Location	Day 41	Day 44	Pitney Bowes
Test Sorter, simulate election process and voter registration integration.	Day 44	Day 46	Pitney Bowes County Elections and voter registration Admin
Signature Verification Interface			
Verify signature comparison application with voter registration System	Day 1	Day 20	Pitney Bowes Pitney Bowes County voter registration Admin and Elections
Install and testing of signature comparison interface	Day 1	Day 20	Pitney Bowes County voter registration Admin
Training			
Operator Training	Day 47	Day 50	Pitney Bowes County Elections

11.0 – PROPOSED STAFFING

The Vendor selected in response to this RFP must provide experienced, qualified professionals to ensure the success of the UVS project. All key personnel anticipated to be assigned to the project must have been involved in at least one large jurisdiction implementation or have commensurate experience conducting elections. Vendors must provide resumes and references for the personnel being proposed. Since this is a multi-year phased approach project, CDOS recommends you identify potential staff for 2014 implementation involvement.

Provide adequate documentation, references, and certifications to substantiate the expertise of your personnel. Resumes must describe each individual's educational background, experience, other pertinent professional data, and should be sufficiently detailed to demonstrate an individual's qualifications and experience.

CDOS or County retains the right of approval over all proposed personnel, including potential substitutions to those proposed in response to this RFP. You must commit to replace project personnel whose performance is unsatisfactory to CDOS or County, with other personnel whose experience and skills are acceptable to CDOS or County.

The terms of this section apply to any and all vendors, including subcontractors, assignees, and successors involved in this project.

Name: Ken Vaughn
Title: Relia-Vote™ Sorter Support Director
Email: Kenneth.Vaughn@pb.com
Pitney Bowes 1983 to Present
30 years of industry experience in high speed sorting / imaging systems in various service, installation, and project management roles serving the voting and mailing industry
Role: Provides leadership and direction as needed to support all technical support and service product management functions related to Relia-Vote™ products

Name: Casey Graddy
Title: Customer Development Engineer, Project Manager, Relia-Vote
Email: casey.graddy@pb.com
Summary of Experience Customer Development Engineer/ Project Manager
Pitney Bowes August 2011 to Present, Relia-Vote™ Project Manager
26 years of industry experience in high speed sorting / imaging systems in various service, installation, and project management roles serving the voting and mailing industry
Role: Project Manager for all pre and post Relia-Vote™ installations. Also involved in all required and requested changes that might be required over the life of the installation.

Name: Eddy Craig
Title: Supervisor Level 2, Sorter Support
Email: eddie.craig@pb.com
Pitney Bowes 1990 to present, serving in various Service roles for sorters
Role: Part of installation and integration during initial installation; Provide first line technical support for local service;

Name: Daniel Flood,
Title: Product Support, Sorter
Email: daniel.flood@pb.com
Pitney Bowes 2005 to present, serving as a Product Support Engineer;
Role: Provide first line technical support for local service;

Name: Rick Whitney
Title: Western Division Relia-Vote™ Trainer, DMT Service
Email: richard.whitney@pb.com
Hired with Pitney Bowes in 1975 (36 years) all in various Service -Tech, Mgmt and Training Rolls

Name: Dave Luperti
Title: CSR 3
Email: dave.luperti@pb.com
Pitney Bowes 1988 to Present
25 years of industry experience in field service on products designed for high speed sorting / inserting / imaging systems. Also provides installation services on these products.
Role: Provides field service related to Relia-Vote™ products.

Name: David Opperman
Title: CSR 3
Email: david.opperman@pb.com
Pitney Bowes 1985 to present
28 years of industry experience in field service on products designed for high speed sorting / inserting / imaging systems. Also provides installation services on these products.
Role: Provides field service related to Relia-Vote™ products.

Name: Rex Whetten
Title: CSR 2
Email: rex.whetten@pb.com
Pitney Bowes 1985 to present
28 years of industry experience in field service on products designed for high speed inserting / imaging systems. Also provides installation services on these products.
Role: Provides field service related to inserting products.

12.0 – UVS SYSTEM REQUIREMENTS

Information provided in this final section of your Business Proposal will be used by the evaluation committee to determine how well your proposed system meets the requirements of Colorado.

The RFP Team has drafted a list of requirements that address the voting system needs of the State. These requirements are listed in RFP Appendix B – System Requirements Table. You must copy the requirements tables into this section of your proposal response and complete the table by following the instructions provided at the beginning of Appendix B. The Appendix instructions address the situation where you may only be interested in satisfying State requirements for a specific portion of the UVS.

CDOS understands that you may not meet all system requirements. That is not necessarily a reason to not be selected as the awarded vendor.

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM A – ELECTION MANAGEMENT SYSTEM (EMS)				
Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Election Creation	A-1	Allow county and state election officials the ability to generate and maintain an administrative database containing the definitions and descriptions of political subdivisions and offices within their jurisdiction.		This section "A" is not part of our response as we do not offer a solution for an Election Management System
Election Creation	A-2	Provide definition for separate ballot styles that reflect different combinations of contests that are included depending on place of residence of the voter or similar administrative criteria.		
Election Creation	A-3	Provide software capability for the creation of newly defined elections.		
Election Creation	A-4	Provide software capability for the retention of previously defined election setups.		
Election Creation	A-5	Provide software capability to copy, edit, and delete previously defined elections.		
Election Creation	A-6	Generate all required master and distributed copies of the voting program in conformance with the definition of the ballot for each voting location and voting device, including devices required to facilitate mail-in voting and voters with disabilities.		
Election Creation	A-7	Provide for all distributed copies of the voting program, resident or installed, in each voting device to include all software modules required to monitor system status and generate machine-level audit reports, to accommodate device control functions performed by voting location officials and maintenance personnel, and to accept and accumulate votes.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM A – ELECTION MANAGEMENT SYSTEM (EMS)				
Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Election Creation	A-8	Provide for a unified, integrated centralized database that allows global edits by authorized users. **Note:** Please describe how the system minimizes the need to update a particular data element in multiple locations for a change made to that data element anywhere within the database. For instance, removing a candidate that appears in multiple ballot styles or changing a voting location designation that appears in multiple places in the database.		
Election Creation	A-9	Provide a test mode which supports testing to validate the correctness of election programming for each voting device and ballot style and ensure that the ballot display corresponds with the installed election program.		
Election Creation	A-10	Be able to import electronically from the Secretary of State and counties in an agreed-upon format that contains, at a minimum, the following data: a. Full candidate name b. Candidate sequence, title and text of ballot questions, and voting language options c. Office name d. Contest name, including candidate name in case of retention contest e. Maximum number to vote for each office f. Party affiliation g. Number of eligible registered voters at the precinct h. Number of active registered voters at the precinct.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM A – ELECTION MANAGEMENT SYSTEM (EMS)				
Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Election Creation	A-11	Be able to export electronically to the Secretary of State and counties in an agreed-upon format that contains, at a minimum, the following information: a. Full candidate name b. Office name c. Contest name d. Number of votes for each candidate and ballot question e. Number of votes against each ballot question f. Number of undervotes in each contest g. Number of overvotes in each contest h. Number of people voting by precinct and by party affiliation (if applicable) i. Number of registered voters at the precinct level (by party affiliation, if applicable)		
Election Creation	A-12	Allow EMS authorized users the ability to create custom voter instructions that may include images.		
Election Creation	A-13	Provide the flexibility to have an election created by an authorized user (vendor, county, state or other third party) and import or export as necessary.		
Election Creation	A-14	Accommodate multiple languages (English and Spanish required). **Note:** Please explain the capabilities of your system to handle multiple languages.		
Election Creation	A-15	Allow for a mock election setup and support for public use prior to the initiation of a live election.		
Election Creation	A-16	Allow for precinct numbers containing at least 10 digits/characters.		
Ballot Creation	A-17	Provide for standard ballot layout prototypes to be edited for ease of election specification.		
Ballot Creation	A-18	Provide an authorized user the ability to customize the standard ballot layouts.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM A – ELECTION MANAGEMENT SYSTEM (EMS)				
Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Ballot Creation	A-19	Provide software capability for authorized users to create newly defined ballot layouts. The system will be designed so as to facilitate error-free definition of ballot layouts for electronic voting equipment and paper ballot optical scanning equipment. For example, the system should have the capability to report discrepancies between ballot layouts.		
Ballot Creation	A-20	Allow for creation of two-sided and multi-page ballots. **Note 1:** Please explain how your system handles the creation of multi-page ballots. **Note 2:** Please explain any built-in control your system has for preventing bleed-through ink from erroneously marking votes on both sides of a two-sided ballot.		
Ballot Creation	A-21	Have the capability to reprogram, download, and reinstall a ballot for an electronic voting device or paper ballot optical scanner. **Note:** Please explain the process and procedure, with time frames, required to reprogram, download, and reinstall a ballot on the voting device in the event that there is a change to a name or contest on the ballot in the final few weeks before an election.		
Ballot Creation	A-22	For each election, generate and maintain a contest title and candidate name database and provide for the production or definition of properly formatted ballot layouts for use on paper ballots and electronic voting devices. This database will assist the operator to design and edit ballot layouts for paper ballots and electronic voting devices with a minimum amount of repetitive tasks.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM A – ELECTION MANAGEMENT SYSTEM (EMS)				
Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Ballot Creation	A-23	Provide a mechanism for the definition of the ballot, including the definition of the number of allowable choices for each office, contest, measure, and for special voting options such as write-in candidates. **Note:** Please state your solution's maximum number of potentially active voting positions (arranged to identify party affiliations if a primary election), offices and their associated labels and instructions, candidate names and their associated labels and polling instructions, and issues or measures and their associated text and instructions.		
Ballot Creation	A-24	Provide for the retention of previously defined ballot layouts.		
Ballot Creation	A-25	Provide for the modification of previously defined ballot layouts, subject to additional security requirements, after an election has been defined.		
Ballot Creation	A-26	Provide for all voting options and specifications as provided for in the Colorado Revised Statutes, including the requirements for a recall election and instant runoff voting (IRV) (section 1-7-1003, C.R.S.). **Note:** Ranked Voting Methods, including IRV, are currently features used in local jurisdiction elections and not at the State or County level. However; since counties often conduct elections for local jurisdictions, please explain the capabilities of your system to create and process a ballot that contains one or more contests requiring a ranked voting and tabulation process.		
Ballot Creation	A-27	Generate sample ballots for each ballot style that will not be accepted or counted by a scanner.		
Ballot Creation	A-28	Generate a consolidated sample ballot containing all races, issues and questions.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM A – ELECTION MANAGEMENT SYSTEM (EMS)				
Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Ballot Creation	A-29	Produce ballot content output for paper ballot printing, with the following capabilities: a. Accommodate non-proprietary print-ready format (e.g. PDF). b. Accommodate multiple stub sizes within same election. c. Accommodate multiple stubs on a ballot. d. Accommodate variable paper ballot stub sizes up to three inches. e. Customize paper ballots with sequential numbering and static fields on ballot stubs. f. Handle multiple font features. g. Handle special character sets associated only with non-English languages. **Note 1:** Please provide your ballot size capabilities and layout options. **Note 2:** Please provide information about your system's font capabilities (e.g. typefaces, sizes, kerning and leading, color, bolding, underscoring, and italics).		
Ballot Processing	A-30	Output ballot content to an election media device for use in equipment (electronic voting devices, scanners, tabulators, etc.).		
Ballot Processing	A-31	Output ballot content to accommodate accessible voting, including adjustable audio and visual output. **Note:** Please detail capacity limits of data fields for accessible voting (e.g. font sizes, display options).		
Ballot Processing	A-32	Allow authorized users to electronically adjudicate ballots to reflect voter intent, while retaining the originally marked ballot image. **Note:** Please explain the process of ballot adjudication using your system.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM A – ELECTION MANAGEMENT SYSTEM (EMS)				
Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Vote Results Reporting	A-33	Report vote tally results by individual voting device. **Note:** For the purposes of this RFP, the Vote Results Reporting requirements are shown as part of the EMS. Some vendors may have a reporting module that is considered separate from their EMS and, if so, can explain that in their response to this requirement.		
Vote Results Reporting	A-34	Report vote tally results by contest jurisdiction-wide.		
Vote Results Reporting	A-35	Report vote tally results by contest by precinct.		
Vote Results Reporting	A-36	Report the total votes for each candidate for each contest, as well as by candidate by precinct.		
Vote Results Reporting	A-37	Report vote tally results by voting location.		
Vote Results Reporting	A-38	Report vote tally results by ballot source (e.g. Early Vote, Election Day, Mail, and Provisional).		
Vote Results Reporting	A-39	Report votes by ballot style.		
Vote Results Reporting	A-40	Report votes by ballot batch.		
Vote Results Reporting	A-41	Report votes by ballot style within precinct.		
Vote Results Reporting	A-42	Report undervotes and overvotes in each contest, with the option to exclude from reports.		
Vote Results Reporting	A-43	Provide the capability to report ranked-choice voting results.		
Vote Results Reporting	A-44	Report a summary of results in addition to the detailed Statement of Votes Cast reports.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM A – ELECTION MANAGEMENT SYSTEM (EMS)				
Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Vote Results Reporting	A-45	Report certified write-in candidate results in each contest with the ability to exclude from reports.		
Vote Results Reporting	A-46	Import election night voter registration counts for Active and Total voters and report percent turnout relevant to vote tally for both Active and Total registrations.		
Vote Results Reporting	A-47	Report and export each report in either PDF, XLS, TXT, EML, or CSV formats. **Note:** Please identify the formats available in your system.		
Vote Results Reporting	A-48	Provide for Zero reports to be printed prior to first upload of voting results.		
Vote Results Reporting	A-49	Allow the capability to select any combination of reports to be run and logged at any time permissible.		
Vote Results Reporting	A-50	Provide customization of report headers (e.g. “Unofficial” or “Final Unofficial”), contest labels and print layout. **Note:** Please explain any character limitations imposed by your system on labeling, reporting or exporting.		
Vote Results Reporting	A-51	Include creation date, time, and page numbers on all reports.		
Vote Results Reporting	A-52	When the total number of votes cast by voters on a specific ballot style/precinct or with a particular voting method or at a particular voting location is less than the currently allowed threshold of ten, the vote tallies for all such subgroups are to be reported in aggregations such that each category always contains at least ten, per section 1-8-308(b), C.R.S. This is also applicable to property owner ballots. **Note:** Please explain how your system will accommodate this requirement for all reports to maintain voter privacy.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM A – ELECTION MANAGEMENT SYSTEM (EMS)				
Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Vote Results Reporting	A-53	Allow the minimum threshold number of votes to be changed if the legal requirement changes. This requirement refers to section 1-8-308(b), C.R.S.		
Vote Results Reporting	A-54	Be able to include or exclude property owner ballot results from reports.		
Vote Results Reporting	A-55	Provide an option to suppress a race or candidate from all reports, when either is withdrawn from the ballot.		
Vote Results Reporting	A-56	Provide an easily readable method to identify the candidate(s)/measure with the most votes in each contest. If more than one winner is possible, identify all winners. **Note:** Your system should have this feature as an option, so not used on partial results reports.		
Vote Results Reporting	A-57	Have the capability to report political party designation for each candidate for partisan elections.		
Import/Export	A-58	Import/export ballot information and voter registration information files to be exchanged from/to Colorado's centralized statewide voter registration database (SCORE).		
Import/Export	A-59	Display detailed upload status for each portable vote storage media unit (e.g. memory card) by polling location and counting center. **Note:** For example, users should be able to visually confirm an exact match between the physical portable vote storage media unit being uploaded and the unit identified by the EMS. (e.g. If an authorized user is uploading "Polling Location A, Memory Card 01", onscreen the user should be able to visually confirm that the system is uploading "Polling Location A, Memory Card 01." Please explain how your solution handles this scenario.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM A – ELECTION MANAGEMENT SYSTEM (EMS)				
Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Import/Export	A-60	Prevent the upload of wrong or duplicate portable vote storage media units. **Note:** Please explain your system's safeguards against errant or multiple uploads from portable vote storage media units and how to correct the problem if it should happen.		
Import/Export	A-61	Produce and print a list, at any time in the process, showing which portable vote storage media units have and which have not been uploaded.		
Import/Export	A-62	Save a report to a local or portable drive for transfer to a networked computer in a non-proprietary format.		
Import/Export	A-63	Display error messages and instructions to recover during importing and exporting operations.		
Data Storage and Processing	A-64	Maintain election data in a secure environment. **Note:** Please describe how EMS data is stored and secured from unauthorized access and/or manipulation.		
Data Storage and Processing	A-65	Provide the capability for counties to upload, from election media, externally created election setup data.		
Data Storage and Processing	A-66	Provide a means to upload vote count results to the EMS from vote collection/tabulation equipment.		
Data Storage and Processing	A-67	Provide statistics of batches (e.g. number of ballots in each batch, number of batches pending, number of batches deleted, and number of batches saved). **Note:** Does your system have a batch size and/or number of batches limitation and, if so, what is it?		
Data Storage and Processing	A-68	Have the ability to delete saved ballot batches from the system. **Note:** Please explain how your system manages batch accountability identification.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM A – ELECTION MANAGEMENT SYSTEM (EMS)				
Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Data Storage and Processing	A-69	Have data backup capabilities. **Note:** Please explain any system data backup capabilities and protocols within your system.		
Data Storage and Processing	A-70	Have redundancy capabilities. **Note:** Please explain any general and real time redundancy features.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM B – POLLING LOCATION BALLOT SCANNING AND TABULATION EQUIPMENT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Scanning	B-1	Accurately capture votes from paper ballots. **Note 1:** Please indicate the speed of your polling location ballot scanner. **Note 2:** Please describe how acceptance/rejection criteria for ballot marks are established for your polling location scanner. **Note 3:** Please explain how your polling location scanner is impacted by ballots containing fold creases or other irregularities.		This section "B" is not part of our response as we do not offer a solution for Polling Location Ballot Scanning and Tabulation Equipment.
Scanning	B-2	Notify the voter or an authorized user of errors before accepting the ballot.		
Scanning	B-3	Accept overvoted ballots, upon review, in a manner that allows the voter to review each case of an overvote, one case at a time, and to provide clearly understandable options to further review the ballot, or cast the ballot without further review if the voter chooses not to ask for a replacement ballot.		.
Scanning	B-4	Accept undervoted ballots, upon review, in a manner that allows the voter to review each case of an undervote, one case at a time, and to provide clearly understandable options to further review the ballot, or cast the ballot without further review.		
Scanning	B-5	Handle, and reliably account for, multi-page ballots, including when the pages become separated from each other. Count votes regardless of the sequence that pages are scanned or if some pages are not scanned. **Note:** Please explain how your system reliably accounts for multi-page ballots, including when the pages become separated from each other.		
Scanning	B-6	Display a Public Counter, which shows the number of ballot pages processed.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM B – POLLING LOCATION BALLOT SCANNING AND TABULATION EQUIPMENT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Scanning	B-7	Display a Protective Counter showing the count of all ballot pages processed on the equipment, which is not reset after an election.		
Scanning	B-8	Accept ballots in any of the four possible orientations.		
Hardware	B-9	Display the unit serial number(s) of tabulation devices both physically and within any applicable software, logs, or reports.		
Tabulation	B-10	Have the ability to write cast vote records to an election media device during operation that the EMS can disallow from being tabulated prior to the close of polls on Election Day. **Note:** Please describe the security your equipment provides for ensuring media is not removed until procedurally authorized.		
Tabulation	B-11	Provide a secure means to upload vote count results to the EMS.		
Error Handling	B-12	Identify and reject ballots that are not valid. **Note:** Please explain how your system identifies ballots that have been printed on nonstandard paper or on a home printer.		
Transportability	B-13	Be easily transported by one person. **Note:** Describe the transportability characteristics of your equipment (e.g. weight, width, height, wheels).		
Supplies	B-14	Provide dust-and-moisture-proof covers for transportation and storage purposes. **Note:** Please describe your equipment covers.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM C – CENTRAL BALLOT SCANNING AND TABULATION EQUIPMENT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Scanning	C-1	Accurately scan paper ballots into identifiable and locatable batches. **Note 1:** Please indicate the speed of your central location ballot scanner. **Note 2:** Please explain how your central location scanner is impacted by ballots containing fold creases or other irregularities.		This section "C" is not part of our response as we do not offer a solution for a Central Ballot Scanning and Tabulation Equipment.
Scanning	C-2	Be capable of establishing single ballot batches.		
Scanning	C-3	Retain an electronic image of each voted paper ballot in a non-proprietary format. **Note 1:** Please describe the format(s) you offer for ballot images. Also describe how your system handles adequate resolution of saved images relative to the paper original. **Note 2:** Please describe how each electronic image will retain its relationship to the voted paper ballot and any reduction in resolution or compression used before retention of the image.		.
Scanning	C-4	Allow the authorized user to verify ballot quantities counted to ballots provided by batch prior to saving to the system.		
Scanning	C-5	Allow the authorized user to verify ballot quantities counted to ballots provided by batch after saving to the system.		
Scanning	C-6	Allow the authorized user to rerun a batch of ballots, if necessary, without impacting results to date.		
Scanning	C-7	Have the ability to logically delete (not physically) saved ballot batches from the system. **Note:** Please explain how your system manages batch accountability identification.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM C – CENTRAL BALLOT SCANNING AND TABULATION EQUIPMENT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Scanning	C-8	Identify and segregate ballots or ballot images with overvotes for adjudication. **Note:** Please explain how your central count solution allows for physically locating a specific ballot in a batch of ballots.		
Scanning	C-9	Identify and segregate ballots or ballot images with write-ins for adjudication.		
Scanning	C-10	Identify and segregate, for adjudication, ballots or ballot images that cannot be read.		
Scanning	C-11	Identify and segregate, for adjudication, ballots or ballot images that are read as blank.		
Scanning	C-12	Provide information to an authorized user as to why a ballot was segregated.		
Scanning	C-13	Assign a unique number to the batch of ballots and verify that the count is zero upon beginning a scan and giving a total number of ballot pages processed at the close of the batch scan.		
Scanning	C-14	Handle scanning of both front and back page of a ballot when data is contained on back of ballot page.		
Scanning	C-15	Handle and reliably account for multi-page ballots, including when the pages become separated from each other. Count votes regardless of the sequence that pages are scanned or if some pages are not scanned. **Note:** Please explain how your system reliably accounts for multi-page ballots when pages are out of order or when all ballot pages are not returned, including when the pages become separated from each other.		
Scanning	C-16	Accept ballots in any of the four possible orientations.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM C – CENTRAL BALLOT SCANNING AND TABULATION EQUIPMENT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Scanning	C-17	Display publicly the number of ballot pages processed.		
Scanning	C-18	Display a Protective counter showing the count of all ballot pages processed on the equipment, which is not reset after an election.		
Scanning	C-19	Allow the option to disable or enable the review of undervoted ballots.		
Hardware	C-20	Display the unit serial number(s) of tabulation devices both physically and within any applicable software, logs, or reports.		
Tabulation	C-21	Accurately capture votes marked by a voter or a ballot marking device on a paper ballot without adjusting machine thresholds. **Note 1:** Please characterize the accuracy of your central ballot scanner in capturing voter intent. **Note 2:** Please describe how acceptance/rejection criteria for ballot marks are established for your central location scanner.		
Tabulation	C-22	Account for overvotes in every contest where overvotes occur. **Note:** Please explain how overvotes are handled by your system.		
Tabulation	C-23	Account for undervotes in every contest where undervotes occur. **Note:** Please explain how undervotes are handled by your system.		
Tabulation	C-24	Have the ability to write cast vote records to an election media device during operation that the EMS can disallow from being tabulated prior to the close of polls on Election Day. **Note:** Please describe the security your equipment provides for ensuring media is not removed until procedurally authorized.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM C – CENTRAL BALLOT SCANNING AND TABULATION EQUIPMENT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Tabulation	C-25	Provide a secure means to upload vote count results to the EMS.		
Error Handling	C-26	Identify and reject ballots that are not valid. **Note:** Please explain how your system identifies ballots that have been printed on nonstandard paper or on a home printer.		
Error Handling	C-27	Continue ballot scanning while electronically or physically segregating and sorting ballots to user-identified categories that need additional attention. **Note 1:** Please describe how your system handles these situations: a. Ballots are unreadable by the scanner. b. Notifying an authorized user whether a ballot has been scanned successfully or not. c. Notifying an authorized user that a ballot has been previously scanned. d. Identifies where a voter marked the box for a write-in but did not write in a name, and where the voter did not mark the box but did enter a write-in candidate on the line. **Note 2:** Please describe how the relationship of paper ballot to ballot scan to cast vote record will be maintained when this physical or electronic sorting or segregation is taking place.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM D – ELECTRONIC VOTING EQUIPMENT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Ballot	D-1	Display choices for the contests, (candidates and measures) of the election for each ballot style.		This section "D" is not part of our response as we do not offer a solution for Election Voting Equipment.
Ballot	D-2	When activated for the voter, display prominent ballot identifiers, including precinct, party, and similar identifiers, in order to give the voter the opportunity to verify that they will be voting on the correct ballot.		
Ballot	D-3	Record each voter's candidate and measure selections as the ballot is cast. **Note:** This requirement is not applicable to certain ballot marking devices that depend on a produced paper ballot being processed and tabulated elsewhere.		
Ballot	D-4	Have a public counter that displays the number of ballots cast or marked, depending on the functionality of the electronic voting equipment.		
Ballot	D-5	Make clear to the voter how to cast a ballot or print a marked ballot, such that the voter has minimal risk of doing so accidentally, but when the voter intends to cast the ballot or complete the ballot marking session, the action can be easily performed.		
Ballot	D-6	Assure that the ballot marking device automatically returns to a state such the next voter cannot learn how the previous voter voted, once the paper ballot is printed.		
Ballot	D-7	Allow voters, including voters with disabilities, to be able to review their write-in input to the ballot interface, edit that input, and confirm that the edits meet their intent. **Note:** Please describe how voters, including voters with disabilities, will be able to review their write-in input to the ballot interface, edit that input, and confirm that the edits meet their intent.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM D – ELECTRONIC VOTING EQUIPMENT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Ballot	D-8	Provide a method by which voters with disabilities can choose the language of the ballot visually and through the audio interface. **Note:** Please describe how your electronic voting units provide a method by which voters with disabilities can choose the language of the ballot visually and through the audio interface.		
Hardware	D-9	Display a Protective counter showing the count of all ballots processed on the equipment, which is not reset after an election.		
Hardware	D-10	Display the unit serial number(s) of tabulation devices both physically and within any applicable software, logs, or reports.		
Accessibility	D-11	Provide electronic voting equipment designed to allow for installation in a voting location accommodating access by voters with disabilities in compliance with the Americans with Disabilities Act (ADA), HAVA and all applicable federal and state laws that address accessibility to voting for persons with disabilities. **Note:** Please describe how your system's features comply with HAVA, ADA and other Federal and State laws that require accessibility for voters with a variety of disabilities, including visual or cognitive impairments. Identify the EAC standards your system meets.		
Accessibility	D-12	Meet the standards for accessible voting systems listed in section 1-5-704, C.R.S. The size of a ballot position and the font size of candidate information must be in accordance with Colorado Election Rules. **Note:** Please stipulate the maximum available positions on the voting device, based on such size of a ballot position and the font size of candidate information, to be used for an election.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM D – ELECTRONIC VOTING EQUIPMENT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Accessibility	D-13	Include a privacy enclosure or voting booth that contains the electronic voting device(s) designated for voters with disabilities and complies with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) providing sufficient dimensions to allow access to voters who use wheelchairs. **Note:** Please explain how your voting device complies with all forward and side reach requirements of the ADA and ADAAG.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM D – ELECTRONIC VOTING EQUIPMENT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Accessibility	D-14	Include electronic voting units adaptable for voters with disabilities either through adjustability of the device or the voting booth or inclusion of an auxiliary device. The auxiliary device should also be lightweight and removable making it portable for use on a voter's lap or provide an alternative solution. **Note 1:** Please describe your accessible alternative input devices. List such devices and explain the operation of each device and how it accommodates voters with disabilities. **Note 2:** Please explain how your proposed system accommodates voters with visual disabilities. Include with the description how portions of the displayed ballot may be intensified and/or enhanced, in contrast and font size and then restored to the initial size. **Note 3:** Please explain how your electronic voting device can be repositioned to accommodate a variety of voters with disabilities. Include any information about the ability of the voter to independently adjust the device. **Note 4:** Is the voting screen glare-free regardless of positioning? **Note 5:** Please explain any magnifying capacity of the electronic voting device. **Note 6:** If your electronic voting unit uses an activation card, please explain how it may be used easily by voters, including voters with disabilities. **Note 7:** Please explain how your electronic voting unit adequately provides privacy for a voter who uses a wheelchair. **Note 8:** Please explain how a voter can verify the accuracy of the cast votes. **Note 9:** Please describe additional features of your system that are designed to accommodate voters with disabilities.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM D – ELECTRONIC VOTING EQUIPMENT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Accessibility	D-15	Allow for importing of audio ballot content from an outside source (e.g. candidates or pre-recorded audio.). **Note:** Please explain the process and procedure, with time frames, required to re-program the audio read-back on the voting device in the event that there is a change to a name or contest on the ballot in the final few weeks before an election.		
Accessibility	D-16	Allow for a voter to change volume and/or speed of an audio ballot. **Note:** Explain how the voter can fast-forward through instructions and measure text.		
Accessibility	D-17	Provide for audio instructions for the ballot and a mechanism for voters with visual impairments to cast a ballot or print a marked ballot, either on the voting unit itself or on a separate device designed for this purpose. The process shall imitate the process used by sighted voters with the exception of the audio interface.		
Accessibility	D-18	Support an enlarged-print ballot screen image for voters with visual impairments. Following the casting of a vote or the printing of a marked ballot, the machine must reset to its initial state to accommodate the next voter.		
Accessibility	D-19	Accommodate voters regardless of their ability to read.		
Accessibility	D-20	Allow for connection of personal auxiliary devices, such as sip/puff or jelly switch devices. **Note:** Please describe such capabilities provided by your system.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM D – ELECTRONIC VOTING EQUIPMENT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Ease of Use	D-21	Be designed so that actions performed by the voter, such as making a vote selection or changing a vote, are easily understood so that errors are prevented to the maximum extent possible, and so that recovery from an erroneous action is facilitated by the features of the system prior to casting the ballot or printing a marked ballot. **Note:** Please explain how your proposed system facilitates voter actions prior to casting a ballot or printing a marked ballot.		
Ease of Use	D-22	Accommodate font sizes that are adjustable for ease of sight.		
Ease of Use	D-23	During the voting process or prior to casting the vote, display (visually or using audio, as applicable) a summary indicating the choices made or skipped.		
Ease of Use	D-24	Allow the voter the ability to change a selection until the voter is satisfied with the choice at any time prior to the final casting of a ballot or printing a marked ballot. **Note:** Please explain here how your proposed voting system allows the voter to review and/or modify his/her selections before final casting of the vote or printing of the marked ballot.		
Ease of Use	D-25	Provide a method for the voter to confirm the choices before casting the ballot or printing a marked ballot, signifying to the voter that casting or printing the ballot is irrevocable and directing the voter to confirm his/her intention to cast or print the ballot, and shall further signify to the voter that the ballot has been cast or printed after the voting session is complete..		
Ease of Use	D-26	Provide a means to demonstrate the operation of the electronic voting device to the voters.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM D – ELECTRONIC VOTING EQUIPMENT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Ease of Use	D-27	Disallow a voter to overvote a contest and will enable the voter to correct the selections. **Note:** Please explain how your proposed system shall not allow a voter to overvote a contest and enable the voter to correct his or her selections.		
Ease of Use	D-28	Warn voters that they have undervoted a contest and permit them to correct or accept the undervote. **Note:** Please explain here how your proposed system shall warn voters that they have undervoted a contest and permit them to correct or accept the undervote.		
Ease of Use	D-29	Provide a means of recording the votes cast for write-in candidates for any contest that allows write-in candidates. This capability shall allow the entry of as many names of candidates as the voter is entitled to select for each contest in compliance with Colorado's Election Law. **Note:** Please explain how your proposed system allows for write-in votes for any authorized contest.		
Ease of Use	D-30	During election setup, provide an option to provide the voter with a list of certified write-in candidates.		
Ease of Use	D-31	Provide a screen response that will allow a voter to request a list of certified write-ins if the election setup provided that option.		
Ease of Use	D-32	Allow authorized users the ability to modify the voter instructions for an electronic or audio voting session.		
Ease of Use	D-33	Provide an authorized user an ability to reset screen calibration, including between uses in an election. **Note:** Please explain if your electronic voting equipment logs such calibration and produces any warnings when calibration needs to be reset.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM D – ELECTRONIC VOTING EQUIPMENT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Uninterrupted Operation	D-34	Provide, in case of power interruption, a means for voting operations to continue. This feature shall consist of either an un-interruptible power supply (UPS) or other means to keep electronic voting equipment active. **Note:** Please specify how your system will provide notice of power loss or low-battery state, so that election judges or election officials can take appropriate steps.		
Uninterrupted Operation	D-35	Provide for continuous uninterrupted operation for a minimum of two hours in case of power failure. **Note:** Please specify how long your system will operate without an external power source and under what conditions. If the device does not have a battery backup, what size of UPS will be required to maintain operation for two hours?		
Uninterrupted Operation	D-36	In the event of the failure of an electronic voting unit, retain a record of all votes cast prior to the failure. **Note:** Please explain how your system retains and reports votes cast in the event of a loss of power.		
Voter Verifiable Paper Trail	D-37	Include, with each voting device, the functionality of a Voter-Verified Paper Audit Trail (VVPAT) that meets all Federal and State Certification requirements. **Note 1:** Please explain how your proposed voting device complies with this requirement. **Note 2:** Explain if your proposed system has an alternate means of counting a non-ballot type of VVPAT for audit purposes. The alternative means can include but is not limited to the availability of bar codes and readers for the VVPAT.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM D – ELECTRONIC VOTING EQUIPMENT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Voter Verifiable Paper Trail	D-38	Provide a means for voters with disabilities (visually impaired or unable to read) to review the VVPAT. **Note:** The review of the VVPAT by voters that cannot see or read the VVPAT requires a feature that enables read-back from the physical VVPAT.		
Voter Verifiable Paper Trail	D-39	Have the capability, if proposing a VVPAT solution that is not an official marked ballot, for the print on the VVPAT to be large enough and dark enough for voters to verify and for election judges to read easily during a recount. **Note:** Please explain the type of paper used to record the VVPAT and the characteristics of the paper impression to ensure ease of reading and fade resistance. For instance; 18 point font, bold and double spaced would be preferred.		
Transportability	D-40	Be easily transported. **Note:** Describe the transportability characteristics of your electronic voting equipment (e.g. weight, width, height, wheels).		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM E – AUTOMATED BALLOT ENVELOPE SCANNING AND SIGNATURE VERIFICATION				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Mail Ballot Envelope Processing	E-1	Provide hardware with the capability to scan mail ballot envelopes and perform the following functions: a. Scan and capture voter ID barcode b. Scan and capture envelope and signature images c. Log envelope as received d. Endorse (customizable) & date/time stamp envelope e. Separate envelopes that may need manual intervention **Note 1:** Please provide information about your ballot envelope sorting equipment, including what versions are available for counties with various volumes of envelopes. Can your equipment perform all these above functions in a single pass? If not, please explain the number of passes required and the actions taken on each pass. Note 2: Please indicate if your solution has the capability, assuming envelope and ballot are designed properly, to determine the ballot style of the enclosed ballot.	1	The Pitney Bowes Relia-Vote sorter software can be integrated on all of our hardware sorting platforms. It has been integrated on 3 different Pitney Bowes Sorting Platforms to address various ranges of mail ballot envelope volumes and sorting requirements. The requirements may include sorting down to the precinct level for storage, and simultaneously sorting multiple elections, as examples. •Relia-Vote Vantage 45K system with 8 sort bins (Large Counties) •Relia-Vote Reliant 18K system with 8 sort bins (Large or Medium Counties) •Relia-Vote Reliant 18K system 4 sort bins (Small Counties) Based on the requirements which are identified in items a-e, we would estimate that a single pass would be sufficient. Our sorting systems are designed to further sort mail ballot envelopes to separate multiple elections, sort to precincts/groups, fine sort challenge envelopes as identified in item (e.) The system is designed to identify if the ballot envelope height, length, and thickness matches the expected parameters for a specific election being sorted. Along with the barcode that contains the election number, which indicates if the correct number of ballot pages and return envelope matches the election being run.

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM E – AUTOMATED BALLOT ENVELOPE SCANNING AND SIGNATURE VERIFICATION				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Mail Ballot Envelope Processing	E-2	Be capable of generating an output file, with voter ID and voter's envelope signature, to be matched with SCORE voter registration data and used in the Automated Signature Verification process.	1	The proposed Relia-Vote Incoming sorting system will download the elections data from the SCORE system to the PB server creating a file for updating during ballot sorting operations. The system will scan the face of each envelope, to be able to read the barcode for the lookup verification process in the elections database, update the record, crop the signature, add the signature image to the record, and will look for any other items required such as a checkbox or signature detection. The system will update the status for every ballot envelope being processed which will be added to the output file. The system will then also do the signature verification, and update the file. At the end of each session, the file would then be uploaded back to the SCORE system. We are currently do all of the above this today at Jefferson County.
Mail Ballot Envelope Processing	E-3	Be capable of updating the mail ballot envelope output file with status values (e.g. received, accepted, rejected) so that the SCORE system can use the output file to update voter registration records. **Note:** Please provide a list of code values your system assigns for ballot envelope processing status.	1	Our Relia-Vote sorting system will update the mail ballot output file with the status of each ballot envelope received. It will date and time stamp each piece and record this as well as other information as it is scanned and sorted. File updates include received, accepted, no-signature, challenge, check box, and other required information read from the scanned mail ballot package. The Pitney Bowes Ballot Envelope sorting system doesn't actually update the original file. We collect the status information as the ballot envelope packages are being processed prior to sending all the updates in the output file to the county. 0 = Good or Valid 2= No Signature. The Pitney Bowes solution gives flexibility to counties that allows them to define all other challenges
Mail Ballot Envelope Processing	E-4	Allow an authorized user the ability to update the disposition code for an envelope (e.g. from "challenged" to "good").	1	Updates are allowed through approved PB interfaces that include the county manual or auto signature interfaces.

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM E – AUTOMATED BALLOT ENVELOPE SCANNING AND SIGNATURE VERIFICATION				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Mail Ballot Envelope Processing	E-5	Be configurable for ballot envelope size and design.	1	The proposed Relia-Vote sorting system complies.
Mail Ballot Envelope Processing	E-6	Be configurable for thickness detection.	1	All of our Relia-Vote sorting systems are configurable to detect the height, length, and thickness to insure that the voter is returning the matching envelope and election as well as the required number of ballots to be included.
Mail Ballot Envelope Processing	E-7	Automatically separate envelopes when voter ID required into a separate stack or identify them electronically for easy separation.	1	Mail Ballot Envelopes can be sorted by user defined parameters.
Mail Ballot Envelope Processing	E-8	Have an option for sort/pass with the ability to customize sorting definition (e.g. style, precinct, district, unaccepted envelope, signature discrepancy and no signature). **Note:** Please explain the sort options available in your system.	1	The proposed Pitney Bowes Relia-Vote sorting systems are configurable to allow operators to configure sort schemes as required. You can sort based on information collected during the sorting process. You can sort by precincts or groups of precincts. You can sort by specific challenges or groups of challenges. Additional fine sorts on groups can be done if required as well. An example might be to sort the “no signature” mail ballots to a separate pocket for immediate handling, and group the “check box”, out of envelope specifications, miss-read, ect. into a grouped sort bin for fine sorting at a later time.

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM E – AUTOMATED BALLOT ENVELOPE SCANNING AND SIGNATURE VERIFICATION				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Mail Ballot Envelope Processing	E-9	Provide a high-volume solution for counties with a large voter population. **Note 1:** Please specify the throughput capacity on your high-volume envelope processor. **Note 2:** County size by registered voter population is as follows: Large = Over 25,000 voters Medium = 10,000 – 25,000 voters Small = Fewer than 10,000 voters	1	Note 1: This is based on the percentage of returned vote-by-mail and county sorting requirements. Our high or medium size sorting systems can meet and exceed the identified volumes. • Relia-Vote Vantage Sorting System: 45,000/hour for Large Counties • Relia-Vote Reliant Sorting System: 18,000/hour for either the Large or Medium Counties • Relia-Vote Reliant Sorting System: 18,00/hour for Small Counties Note 2: We have modified the county volume size below to match our proposed solution configurations for Counties with volumes between 10,000 to above 150,000 voters. We believe that the below volume breakdown is more in-line with justifiable sizes for automation. • High: over 150,000 voters • Medium: 50,001 to 150,000 voters • Low: 10,000 to 50,000 voters We understand that the smaller Counties identified in the provided "County Polling Location Minimum Counts" which consists of the lowest volumes of 613 voters and up to 9,999 voters could be in rural areas and might not be able to justify the cost to automate and might not be able to obtain the necessary space for an Automated Ballot Envelope Scanning and Signature Verification solution. So we are suggesting that any Counties which are larger than 10,000 voters should consider an automated solution.
Mail Ballot Envelope Processing	E-10	Provide a low-volume solution for counties with a small or medium voter population (see E-9 requirement Note 2). **Note:** Please specify the throughput capacity on your low-volume envelope processor.	1	We have modified the volume bands to match our proposed Relia-Vote sorting systems (see above E-9). There are several options based on the percentage of returned vote by mail and county sorting requirements. • Relia-Vote Reliant: 18K/hour • Relia-Vote Vantage: 45K/hour • Number of sort pockets, 4 to a section

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM E – AUTOMATED BALLOT ENVELOPE SCANNING AND SIGNATURE VERIFICATION				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Mail Ballot Envelope Processing	E-11	Provide configurable reports for tray id, tray count and pieces status.	1	(See section 4.0 Sample Reports)
Automated Signature Verification	E-12	Provide tested/proven Automated Signature Verification (ASV) software, which can automatically compare a voter's ballot envelope signature with the SCORE voter registration signature based on a customer selected confidence determination. **Note:** Please provide any information about your system that might be an alternative to manual removal of the signature security tab on mail ballot envelopes.	1	The Pitney Bowes Relia-Vote signature verification software consists of a stable and proven application module which international banks have been using for many years to match check and secure document signature identification. This automated verification software is designed like no other. The software runs multiple algorithms to identify similarities at multiple points within each matching signature. The software will return a pass/fail based on the tight identification analysis which is part of the process. Our Relia-Vote sorting system does not allow threshold manipulation from the user. The software will only allow an operator to change the algorithms used to analyze the signatures only. We can provide an off-line signature strip removal system to automatically remove the signature strips that are incorporated into the envelope flap which runs the width of the envelope. We believe that an off-line solution would better support the needs of the various Large, Medium and Small Counties.

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM E – AUTOMATED BALLOT ENVELOPE SCANNING AND SIGNATURE VERIFICATION				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Automated Signature Verification	E-13	Be configurable to meet or exceed a state established acceptance threshold for signature acceptance.	1	Our Relia-Vote signature verification software uses a stable and proven package which banks have been using for many years to match check and secure document signature identification. It runs multiple algorithms to identify similarities at multiple points within each matching signature. The software will return a pass/fail based on this identification analysis. The Relia-Vote sorting system software does not allow threshold manipulation from the user. You are allowed to change the algorithms used to analyze the signatures only. The Relia-Vote™ Signature Verification Solution captures images of the voter's signature to validate the legitimacy of the Vote by Mail ballot. With our flexible platform this can be done through: • Integration with your present signature verification process • Our Relia-Vote™ Automatic Signature Verification module Utilizing our Relia-Vote™ Manual Signature Client in which both the envelope signature and the Voter Registration signature is placed side-by-side on a computer screen for verification by the election worker
Automated Signature Verification	E-14	Provide user activity log records that include full description of all human intervention during the ASV process.	1	Prior to manual verification, no human intervention is required for the ASV process.
Automated Signature Verification	E-15	Provide an audit function to verify the accuracy of machine accepted signatures.	1	This information is stored in the Relia-Vote database and can be extracted.
Automated Signature Verification	E-16	Extract returned ballot envelopes for manual review when the signature does not meet the acceptance threshold level, is unreadable, or is missing.	1	The Relia-Vote system will reject mail ballot envelopes if there is a “failed condition” returned from the ASV software. The tracking file will be updated to indicate the status of each mail ballot. Cropped signature images of the remaining ballot envelopes will be sent to the manual verification systems for review. These types of identified ballot envelopes would be sent to an identified sort bin

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM E – AUTOMATED BALLOT ENVELOPE SCANNING AND SIGNATURE VERIFICATION				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Automated Signature Verification	E-17	Create a record when the signature does not meet the acceptance threshold level. This record will be used to generate a letter when the signature cannot be manually verified. **Note:** Please explain your process for creating and using these records.	1	The tracking file will be updated if manual signature verification fails. The mail ballot will be rejected for manual handling. The tracking file that includes the current status of signature verification on individual mail ballot envelopes received can be uploaded to the county to be used for generating a letter when the signature cannot be verified.

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM F – MAIL BALLOT TRACKING				
Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Mail Ballot Tracking	F-1	Track a mail ballot envelope from the time it is prepared for the voter in an elections office or by a vendor, through every stage of the U.S. Postal Service mail delivery system.	1	As Pitney Bowes Mail Ballot sorter does not create the ballot package sent to the voter, or the mail.dat files for each individual ballot package, and does not sort the outbound ballots, we would have no visibility to the mailpiece as it progresses through the USPS.
Mail Ballot Tracking	F-2	Track a mail ballot through stages of the ballot acceptance process after return to the County by the voter. **Note:** Explain which processes within the Elections Office can be tracked by your system after the ballot envelope is received in that office.	1	As soon as the mail ballots are received in the office, it will be presented to the Relia-Vote sorting system. The system will date and time stamp each mail ballot envelope, scan the barcode, and update the Relia-Vote tracking file. As the mail ballot envelopes continues through the process, it is tracked via the status updates provided by the Relia-Vote sorting system.
Mail Ballot Tracking	F-3	Provide sufficient report capability for the election officials to ascertain the status of any and all mail ballots in each stage of the mail ballot process tracked by the system.	1	(see sample reports) The reports generated from the Relia-Vote system will allow you to find any mail ballot envelope accepted by the system. We track each mail ballot envelope to the sort bin or tray it is placed in. A useful example might be to use the reports to easily indicate which trays need to be re-run if a recount is requested. Another example may be to find the mail ballot envelope of a specific voter/application ID. The reports will indicate what tray it is in and where in the tray it is located.
Mail Ballot Tracking	F-4	Provide a system whereby voters can “opt in” to receive messages about their ballot’s status in the process.	2	We can provide this system utilizing our Secure Digital Communications Interface. Additional input from the state will be required to define the details regarding data, processes and forms for this application.
Mail Ballot Tracking	F-5	Provide a system whereby voters who have chosen to “opt in” to receive messages about their ballot’s status in the process can choose to “opt out”.	2	We can provide this system utilizing our Secure Digital Communications Interface. Additional input from the state will be required to define the details regarding data, processes and forms for this application.

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM F – MAIL BALLOT TRACKING				
Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Mail Ballot Tracking	F-6	Provide a messaging system that delivers messages via a website to voters who have requested notification about their ballot's status.	2	We can provide this system utilizing our Secure Digital Communications Interface. Additional input from the state will be required to define the details regarding data, processes and forms for this application.
Mail Ballot Tracking	F-7	Provide a messaging system that delivers messages via email to voters who have requested notification about their ballot's status.	2	We can provide this system utilizing our Secure Digital Communications Interface. Additional input from the state will be required to define the details regarding data, processes and forms for this application.
Mail Ballot Tracking	F-8	Provide a messaging system that delivers messages via text messaging to voters who have requested notification about their ballot's status.	2	We can provide this system utilizing our Secure Digital Communications Interface. Additional input from the state will be required to define the details regarding data, processes and forms for this application.
Mail Ballot Tracking	F-9	Have sufficient capacity to provide the same level of service to as few as one or as many as 64 counties at the same time. (Estimate up to 4 million records if all counties are participating.)	1	We can provide this system utilizing our Secure Digital Communications Interface. Additional input from the state will be required to define the details regarding data, processes and forms for this application.
Mail Ballot Tracking	F-10	Be able to utilize all email and text messaging vendor systems in use in Colorado.	2	We can provide this system utilizing our Secure Digital Communications Interface. Additional input from the state will be required to define the details regarding data, processes and forms for this application.
Mail Ballot Tracking	F-11	Provide each individual county the ability to personalize messages to its voters based on its elections setup, processes, etc.	2	We can provide this system utilizing our Secure Digital Communications Interface. Additional input from the state will be required to define the details regarding data, processes and forms for this application.

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM G – VENDOR TRAINING & SUPPORT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Hardware & Software Support	G-1	Include availability of vendor support personnel to assist in hardware and software installation and setup onsite.	1	Standard hardware support provided during normal business hours: 8:00AM to 5:00 PM, Monday through Friday
Hardware & Software Support	G-2	Include availability of vendor support personnel to assist in hardware and software installation and setup from a remote help desk.	1	Standard hardware support provided during normal business hours: 8:00AM to 5:00 PM, Monday through Friday Software support provided 24 hours and day, 7 days a week via help desk
Training	G-3	Include availability of vendor supported onsite training personnel to train CDOS and County users.	1	Standard support provided during normal business hours: 8:00AM to 5:00 PM, Monday through Friday
Training	G-4	Include availability of self-study user training via the Internet or electronic media.	1	We can provide electronic media for user training.
Voting Period Support	G-5	Provide 24-hour available technical support for all system components beginning sixty days prior to an election and continuing until the completion of the official canvass (generally twenty days after an election). **Note:** Please describe your capability to provide extended support, beyond twenty days after and election, for circumstances such as a recount.	1	Standard hardware support provided during normal business hours: 8:00AM to 5:00 PM, Monday through Friday 24 by 7 on-site services can be provided upon request before and after an election, based on a county request. Additional cost for this service outside of the stand SLA agreement.

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM G – VENDOR TRAINING & SUPPORT				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Hardware Parts and Supplies	G-6	Include hardware solutions for the UVS that are supported by a supply chain contingency plan. **Note:** Please provide an explanation of your supply chain contingency planning. The intent of this requirement is to assess the risk to Colorado of one or more of your suppliers not being able to provide needed components. Identify the depth of your supply chain (e.g. one, two, or more suppliers deep).	1	All Pitney Bowes cost centers, departments, and divisions must develop, implement, exercise, and maintain Business Continuity Plans (BCP) and, where applicable, Disaster Recovery Plans (DRP) for their respective critical business functions, processes, and resource needs to minimize the impact of a realized risk event on the organization to an acceptable level and facilitate recovery of information assets. The level of service required to maintain mission critical status is a vital evaluation process that each participant must include in his or her plan. In addition, the level of detail provided must (a) be proportional to the complexity of the function, (b) acknowledge alternate strategies, (c) not depend on the actions of others to sustain the business function, and (d) comply with regulatory, statutory, contractual and business requirements and be consistent with industry standards. The goal is to develop a plan that is capable of maintaining critical business and support functions quickly as practicable. All normal business activities and support functions will be resumed within the shortest possible timeframe.
Hardware Parts and Supplies	G-7	Make equipment parts and supplies available through December 31, 2020.	1	All parts and services will be available through December 31, 2020.
Hardware Parts and Supplies	G-8	Not require royalty fees, user fees, or other charges or limitations on the printing of ballots designed or printed on vendor devices. Similarly, no fee or limitation shall be placed on any electronic file, report or representation of the vote produced by vendor devices or software.	1	Pitney Bowes Envelope Ballot Sorter has no ballot printing capabilities.

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM H – MISCELLANEOUS REQUIREMENTS				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Auditing	H-1	Store sufficient data in an unalterable system audit log file to allow the auditing of all operations related to election setup, ballot creation, ballot tabulation, results consolidation and report generation. The audit log file shall contain: a. An identification of the program and version being run. b. An identification of the election file being used. c. A record of all options entered by the operator, including operator ID. d. A record of all actions performed by a subsystem of the system. e. A record of all tabulation and consolidation input. f. Audit log records that are created and maintained in the sequence in which operations were performed, with date/time stamps. **Note 1:** Please explain what audit trail techniques and audit reports are incorporated in your proposed system. **Note 2:** Please provide a list of all audit log files, the file location within the voting system, and the procedures to navigate to and retrieve them from the voting system. **Note 3:** Please describe steps needed to protect the audit logs from possible unintentional or intentional erasure or alteration. **Note 4**: Please provide a sample set of audit reports (system logs, etc.) from an election in a county with 200,000 or more registered voters (not necessarily in Colorado).		This section is not part of our response as we do not offer a solution for this item.
Auditing	H-2	Accommodate random audits on electronic voting and tabulation devices.		This section is not part of our response as we do not offer a solution for this item
Auditing	H-3	Accommodate random audits on paper vote capture and tabulation devices.		This section is not part of our response as we do not offer a solution for this item

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM H – MISCELLANEOUS REQUIREMENTS				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Auditing	H-4	Log all activity on voting equipment including: when turned on/off, any errors, power failure, power restoration, when an error occurred and when an error was resolved.		The Pitney Bowes Ballot envelope sorter is not a voting equipment system.
Auditing	H-5	Run real time reports, when needed.		Reports generally are produced after a designated run of envelopes, but current status reports and views are available on the system user interface during processing.
Auditing	H-6	Run post-election diagnostics on all auditable equipment in a manner that does not endanger the integrity of the election record. **Note:** Please explain your system's post-election diagnostic capabilities.	1	Complete general maintenance on the system after each election. All hardware systems have an error log that can be viewed for troubleshooting purposes. We run a daily scheduled Sequel database backup on the ballot sorting equipment related to the Relia-Vote application.
Auditing	H-7	Provide for adequate information to facilitate a recount under Colorado law.		This section is not part of our response as we do not offer a solution for this item
Auditing	H-8	Have a permanent paper record of each vote for audit purposes.		This section is not part of our response as we do not offer a solution for this item
Auditing	H-9	Support a Risk Limiting Audit, as defined in section 1-7-515(5)(b), C.R.S. sufficient to audit the functionality of electronic and paper vote capture as well as vote tabulation devices. **Note 1:** Please describe how your proposed system supports the execution of a Risk Limiting Audit. **Note 2:** Does your solution place unique identifying numbers on ballots as they are scanned? **Note 3:** Section 1-7-515, C.R.S. stated that Colorado must begin risk-limiting audits in 2014, but was revised in the 2013 session to extend the start of the requirement to 2017.		This section is not part of our response as we do not offer a solution for this item
Auditing	H-10	Incorporate a real time clock as part of the system hardware and all audit log record entries shall include a date/time stamp.	1	Real time information is in an event table and can be displayed with application review history.

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM H – MISCELLANEOUS REQUIREMENTS				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Auditing	H-11	Use a real time clock that will continue to run during a power loss.	1	Real time clock on the Relia-Vote ballot sorting system will be from the Site Server's internal clock.
Auditing	H-12	Print audit reports on the standard system hardcopy output device when the following conditions are met: a. The generation of an audit trail report does not interfere with the production of other output reports. b. The entries can be identified so as to facilitate their recognition, segregation and retention. c. The physical security of the audit record entries can be ensured.		Report generation may impact ballot envelope production, testing will need to be performed. A. Comply – Audit reports do not run on the Envelope Ballot Sorter when producing other reports. B. Audit reports can be printed showing their tray, routing and time of when the report was generated. C. Audit record cannot be accessed.
Auditing	H-13	Create audit records during the election definition and ballot preparation phases showing completion of the baseline ballot layouts and any modifications to them, a description of the modifications and a date/time stamp.		This section is not part of our response as we do not offer a solution for this item
Auditing	H-14	Create audit records during the pre-election phase that include electronic and manual data entered and maintained by election personnel, election definitions, instances of all final ballot layouts and the ballot preparation edit event log.		This section is not part of our response as we do not offer a solution for this item
Auditing	H-15	Create audit records prior to the initiation of ballot counting to verify hardware and software status. These particular audit records shall include the identification of the software release, the identification of the election to be processed and the results of hardware and software diagnostic tests.		This section is not part of our response as we do not offer a solution for this item

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM H – MISCELLANEOUS REQUIREMENTS				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Auditing	H-16	Create in-process audit records containing data documenting system operation during diagnostic routines and any machine generated error and exception messages. Examples of these audit records include: a. System startup diagnostic and status messages. b. Checks that pre-count reports show zeroes. c. The source and disposition of system interrupts resulting in entry into exception handling routines. d. All messages generated by exception handlers. e. The identification code and number of occurrences for each hardware and software error or failure. f. All operator actions. g. Notification of system login or access errors, file access errors and physical violations of security. h. Other exception events such as power failures, failure of critical hardware components, data transmission errors, and other types of operating anomalies.		This section is not part of our response as we do not offer a solution for this item
Auditing	H-17	Provide an in-process audit report, for post-election use, consisting of data containing a record when each vote is initiated and each ballot is cast.		This section is not part of our response as we do not offer a solution for this item
Auditing	H-18	Print reports necessary to assist election officials in performing a manual count as required by Colorado election law and rules. **Note 1:** Please explain how your proposed system can create the reports necessary to allow election officials to perform and validate a manual count. **Note 2:** Please explain how, in the case of a recount, the election can be reconstructed ballot by ballot, while still maintaining voter privacy.		This section is not part of our response as we do not offer a solution for this item
Auditing	H-19	Record audit log entries onto durable non-volatile storage.		This section is not part of our response as we do not offer a solution for this item

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM H – MISCELLANEOUS REQUIREMENTS				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Auditing	H-20	Export audit logs in formats suitable for use by elections officials and the public including common electronic formats (PDF, Excel, CSV, TXT, EML).		This section is not part of our response as we do not offer a solution for this item
Certification	H-21	Be certified or certifiable by the EAC, another state, or Colorado. **Note 1:** If not certified, please explain. **Note 2:** See section 1-5-601.5, C.R.S. for Colorado voting system certification compliance with federal regulations. RFP section 5.3.11 has a question on certification status of vendor proposed solutions.		This section is not part of our response as we are not an EMS or Balloting System by definition of Colorado Election Rule 1.1.33(c).
Testing	H-22	Be configurable so as to be capable of performing the following functions on all system hardware/software, in compliance with current Colorado statutes and rules: a. Hardware test b. Logic and Accuracy Test c. Post-Election Audit d. Pre-Recount Logic and Accuracy Test e. And capable of performing the Colorado Risk Limiting Audit commencing no later than 2017.		This section is not part of our response as we are not an EMS or Balloting System by definition of Colorado Election Rule 1.1.33(c).
Testing	H-23	Allow authorized user creation of scripted simulation Logic and Accuracy tests with various patterns (e.g. 1,2,3 or 1,1,1 or 1,2,3,4,5…). **Note:** Please explain how your system allows for pre-determined simulation for creating test ballots and electronic voting equipment test input.		This section is not part of our response as we do not offer a solution for this item
Testing	H-24	Have the capability to test ballot layouts to verify the allowable number of votes for a contest or question and the combinations of voting patterns permitted or required by the using jurisdiction.		This section is not part of our response as we do not offer a solution for this item
Testing	H-25	Provide capability to permit diagnostic testing of all the major components within each electronic vote capture device.		This section is not part of our response as we do not offer a solution for this item

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM H – MISCELLANEOUS REQUIREMENTS				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Testing	H-26	Ensure non-contamination of voting data through tests of all data paths and memory locations to be used in actual vote recording.		This section is not part of our response as we do not offer a solution for this item
Testing	H-27	Provide evidence in an audit record that test data has been expunged.		All test data would be manually purged from the Relia-Vote database before any election is ran. The Relia-Vote ballot sorting system interface, PBMC, log will confirm deletion of election data has occurred and by whom.
Testing	H-28	Allow the ability to load and test audio ballots in electronic vote capture equipment.		This requirement is not part of our response as we do not offer a solution for this item.
Testing	H-29	Provide the ability to print all necessary reports for proofing the results of logic and accuracy testing.		This requirement is not part of our response as we do not offer a solution for this item.
Security	H-30	Provide an environment whereby all databases and data are maintained with provisions for operational security, access control and auditability. **Note 1:** Please describe the authentication protocols for access to the EMS database and your system's processes for providing operational security and auditability. **Note 2:** System security must not obstruct authorized access to event or audit logs, and printing or exporting of reports.		The Pitney Bowes Ballot Envelope Sorter doesn't access EMS database directly. We receive mailpiece data files from the County prior to an election from a shared folder from the customers Election System. We in turn send scan images and records to a shared file on the server for them to retrieve and to start the verification process.
Security	H-31	Require two factor authentication for access to the EMS and all tabulation equipment. This means an authorized user will need a physical device (e.g. token, card) and something memorized (e.g. password) to access the software or equipment.		Pitney Bowes Relia-Vote system does not access the EMS system.

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM H – MISCELLANEOUS REQUIREMENTS				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Security	H-32	Allow tamper evident seals to be placed on all equipment doors, openings, and data access points such that unauthorized access is either prevented or clearly indicated by the damage to or destruction of a seal. **Note:** Please describe the security offered by your proposed system relating to tamper evident seal placements.		This requirement is not part of our response as we do not offer a solution for this item.
Security	H-33	Allow all access points to equipment to be visible and subject to oversight of seals, unless the access point is behind doors or a cover. Access points that are not visible should also accommodate tamper evident seals.		This requirement is not part of our response as we do not offer a solution for this item.
Security	H-34	Report unauthorized modifications to audit data or audit logs. **Note:** Please explain your system's capabilities to restrict user authorizations and access rights for creating, reading, modifying, and deleting audit data or logs.		Login and functions can be given for access to view and or create reports. No one has the access to create or modify audit data.
Security	H-35	Allow for installation and auditing of a Trusted Build per Colorado Election Rules.		The Relia-Vote ballot sorting system is not considered a Voting System by Colorado Election rule definition.
Documentation	H-36	Include a clear set of documented instructions for election judges to set up voting equipment. These instructions should be modifiable by county personnel.		This section is not part of our response as we do not offer a solution for this item
Documentation	H-37	Include documented instructions for troubleshooting any voting equipment issues that may arise.		Relia-Vote system is not considered voting equipment.
Documentation	H-38	Include a complete set of User and Technical documentation.		We typically do not provide the technical documentation unless the person signs a NDA and participates in a training class in one of our training center. As mentioned above we can provide the operator documentation if selected as the vendor.

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM H – MISCELLANEOUS REQUIREMENTS				
Requirement Sub-Category	**Req. ID**	**UVS Requirement (The System will …)**	**Response Code**	**Vendor Response**
Documentation	H-39	Include current certification documentation and VSTL and/or state test reports.		We are not an EMS so we do not fall into the certification domain.

13 – APPENDIX

A) Service Options
B) Relia-Vote Warranty
C) Relia-Vote Service Escalation Process 2013
D) DMT Service Works Solutions Agreement Form
E) Software License Maintenance Agreement Form
F) Franklin County Board of Elections Project Timeline
G) Santa Clara County Elections Project Timeline
H) San Mateo County Project Timeline
I) Jefferson County Project Timeline
J) Pitney Bowes Patents

Appendix A: Service Options

We are offering 2 optional support coverage plans. Option 1 provides on-call coverage and parts for a minimum of 2 elections per year with provisions for additional elections (see details below). Option 2 provides full year on-call coverage and parts (see details below). Custom options are available based on customer requirements. Custom maintenance programs range from self-service to onsite maintenance.

Option 1 – Per Election Option 1st shift Service Support solution

- Unlimited On-Call Priority Service coverage for first shift, 8:30am – 5:00pm M-F during the election cycle (scheduled by The County) Includes two (2) Election cycles per year.
- Prior to the Election date, Pitney Bowes Service will perform a Readiness inspection and test the Relia-Vote™ Sorter to ensure readiness for election ballot processing.
- At the end of each election Pitney Bowes will conduct an inspection of all mechanical components to ensure election readiness. We will also prepare the Relia-Vote™ Sorter for storage.
- All non-consumable replacement parts required to maintain the equipment during the term of the agreement.
- All parts are shipped out via next day delivery (Depending on the urgency, next flight out is also an available)
- 7x24 access to our dedicated Pitney Bowes Sorter Helpdesk in order to answer questions and if necessary remotely connect to the system to resolve issues
- Routine Remote Health Checks performed by our dedicated Pitney Bowes Relia-Vote™ Service Engineers
- Phone Home™ Technology is a part of our continuing efforts to move to a more proactive support model
- All computer systems protected by our Patented PADRE™ Disaster Recovery Solution
- Phone response by a Pitney Bowes Customer Service Technician within 30 minutes of a service call to establish an onsite ETA.
- 4 hour on-site response time by a Pitney Bowes Service Technician.
- Discounted service rates for calls outside of regular business hours.

Option 2 – Annual Support Option 1st shift Service Support solution

Recommended for municipalities that run 5 or more elections per year
Recommended for municipalities that run high vote by mail ballot returns per election (500K or more)

- On-Call Priority Service coverage for first shift, 8:30am – 5:00pm M-F during the full contract term including unlimited remedial calls

- Bi-Monthly Preventive Maintenance Inspections.
- All non-consumable replacement parts required to maintain the equipment during the term of the agreement.
- All parts are shipped out via next day delivery (Depending on the urgency, next flight out is also an available)
- 7x24 access to our dedicated Pitney Bowes Sorter Helpdesk in order to answer questions and if necessary remotely connect to the system to resolve issues
- Routine Remote Health Checks performed by our dedicated Pitney Bowes Relia-Vote™ Service Engineers
- Phone Home ™ Technology is a part of our continuing efforts to move to a more proactive support model
- All computer systems protected by our Patented PADRE™ Disaster Recovery Solution
- Phone response by a Pitney Bowes Customer Service Technician within 30 minutes of a service call to establish an onsite ETA.
- 4 hour on-site response time by a Pitney Bowes Service Technician.
- Discounted service rates for calls outside of regular business hours.

Appendix B: Pitney Bowes Document Messaging Technologies division: Relia-Vote WARRANTY

For hardware provided pursuant to this Agreement, Seller warrants to the Customer that Seller's product ordered hereunder (the "Product") will be free from manufacturing defects in material and workmanship and that it will perform according to Seller's published specifications for one (1) year, or for Sorting Systems, until the Product reaches manufacturer's published usage limits for the applicable systems, whichever occurs first, commencing immediately upon the date of delivery (or, if installation is performed by Seller, then completion date of on-site assembly and testing by Seller, or fifteen (15) days after delivery, whichever occurs first) (the "Hardware Warranty Period"). If the Customer has any material problems with the Product involving a manufacturing defect in material or workmanship during the Hardware Warranty Period, Seller will repair or, at our option, replace the Product having such problems. During the Hardware Warranty Period, Seller will be responsible for the cost of parts and service labor necessary to repair or replace the Product or, at its option, replacing the Product. Seller does not assume a warranty obligation for consumable parts or supplies such as print heads and ink, or for parts worn out due to extraordinary use of the Equipment or use inconsistent with manufacturer's published specifications.

This warranty excludes: (a) preventive maintenance, routine service and normal wear; (b) Product serviced, repaired, refurbished or otherwise dissembled/reassembled by persons not certified by Seller to perform such service and repair; (c) damage to the Product caused by use of spare parts or supplies not supplied by Seller; (d) damage to Product caused by failure to use Seller's authorized procedures and processes; (e) the effects or outcome of integrating or connecting Seller's Product with products or processing equipment of companies other than Seller's or its wholly-owned subsidiaries. Seller will assume the obligations stated in this Agreement only if Customer operates the Product in accordance with manufacturer's published specifications for such Product including, without limitation, under suitable temperature, humidity, line voltage, and any other manufacturer specified environmental conditions and only if Customer uses reasonable care in handling, operating, and maintaining the Product; and only if Customer uses the Product only for the ordinary purpose for which it is designed.

THE ABOVE-STATED WARRANTIES ARE THE ONLY WARRANTIES APPLICABLE TO THE HARDWARE PRODUCTS PROVIDED AND ARE MADE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY. REPAIR OR REPLACEMENT OF THE PRODUCT IS CUSTOMER'S SOLE REMEDY FOR BREACH OF WARRANTY.

For software provided hereunder, Seller warrants that for a period of one (1) year from the date of delivery ("Software Warranty Period"), Seller's Software will conform to all substantial operational functions of Seller's Software described in any documentation provided if installed and used in the operating environment specified therein. If Seller's Software does not so conform during the Software Warranty Period, Seller shall, at their option repair or replace Seller's Software.

Relia-Vote™ Escalation Support Process - Active Elections

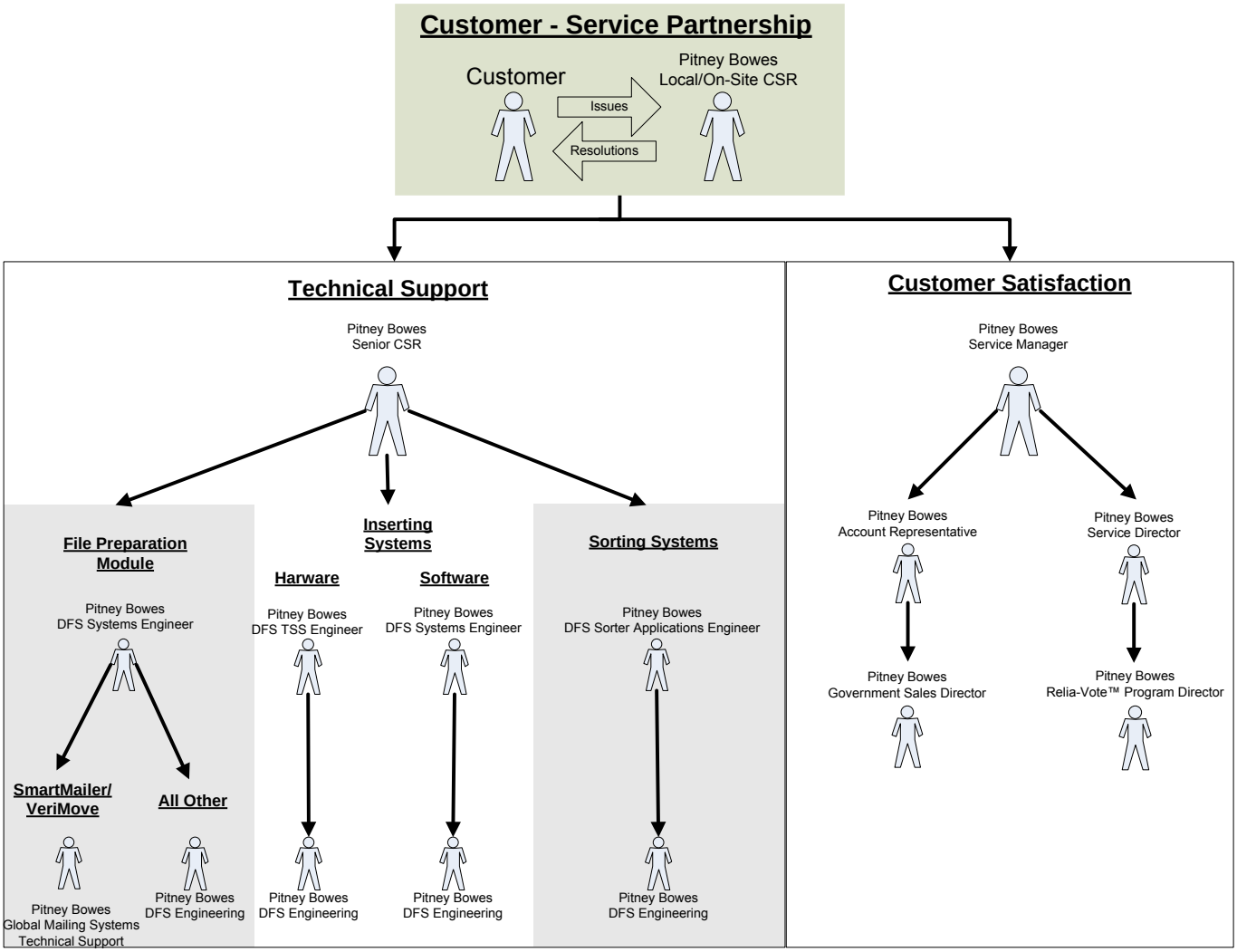
1. Overview

1.1 Summary

This document describes the service escalation process for the Pitney Bowes Relia-Vote™ Solution. The service contact is the Pitney Bowes Customer Service Representative (CSR). When the Customer has contracted for Election Support Service the Election Support Representative (ESR) fills the role of primary service contact.

The time frames listed in the escalation procedures are for an "Active Election" Cycle. When the Customer is not in an "Active Election" Cycle target time frames will be established by agreement between the Customer and Pitney Bowes CSR.

1.2 Relia-Vote™ Solution Escalation Map



Relia-Vote™ Escalation Support Process - Active Elections

2. Relia-Vote™ Technical Support Escalation Processes

2.1 Relia-Vote™ Inserter Hardware Escalation Procedure

A CSR will respond via phone within 30 minutes. If necessary, CSR on site within 4 hours. Initially the **CSR** will attempt to diagnose problem for up to 120 minutes.

Customer Notifies the PB Service

2 Hours

After no more than 120 **minutes** if the **CSR** has not diagnosed the problem, he will escalate via phone to the **Senior CSR**, and notify the **Customer**.

CSR Notifies Senior CSR, and provides a status update to the Customer

The **CSR** and the **Senior CSR** will attempt to diagnose the problem for up to and additional 120 minutes.

4 Hours

After no more than the initial 240 **minutes** if the problem has not been diagnosed, the **Senior CSR** will escalate to the **SSE/TSS**, and notify the **Customer** and **Service Manager.**

Senior CSR Notifies the Service Manager, SSE/TSS, and provides a status update to the Customer. Service Manager notifies

The **SSE** will attempt to diagnose the problem through telephone support, for up to an additional 120 minutes.

6 Hours

After no more than the initial 360 **minutes** the **SSE** will make arrangements to travel to the site.
The **CSR** will notify the **Customer** and **Service Manager**

Service Manager Notifies: Division Service Director Project Manager, Program Director, and DFS Engineering

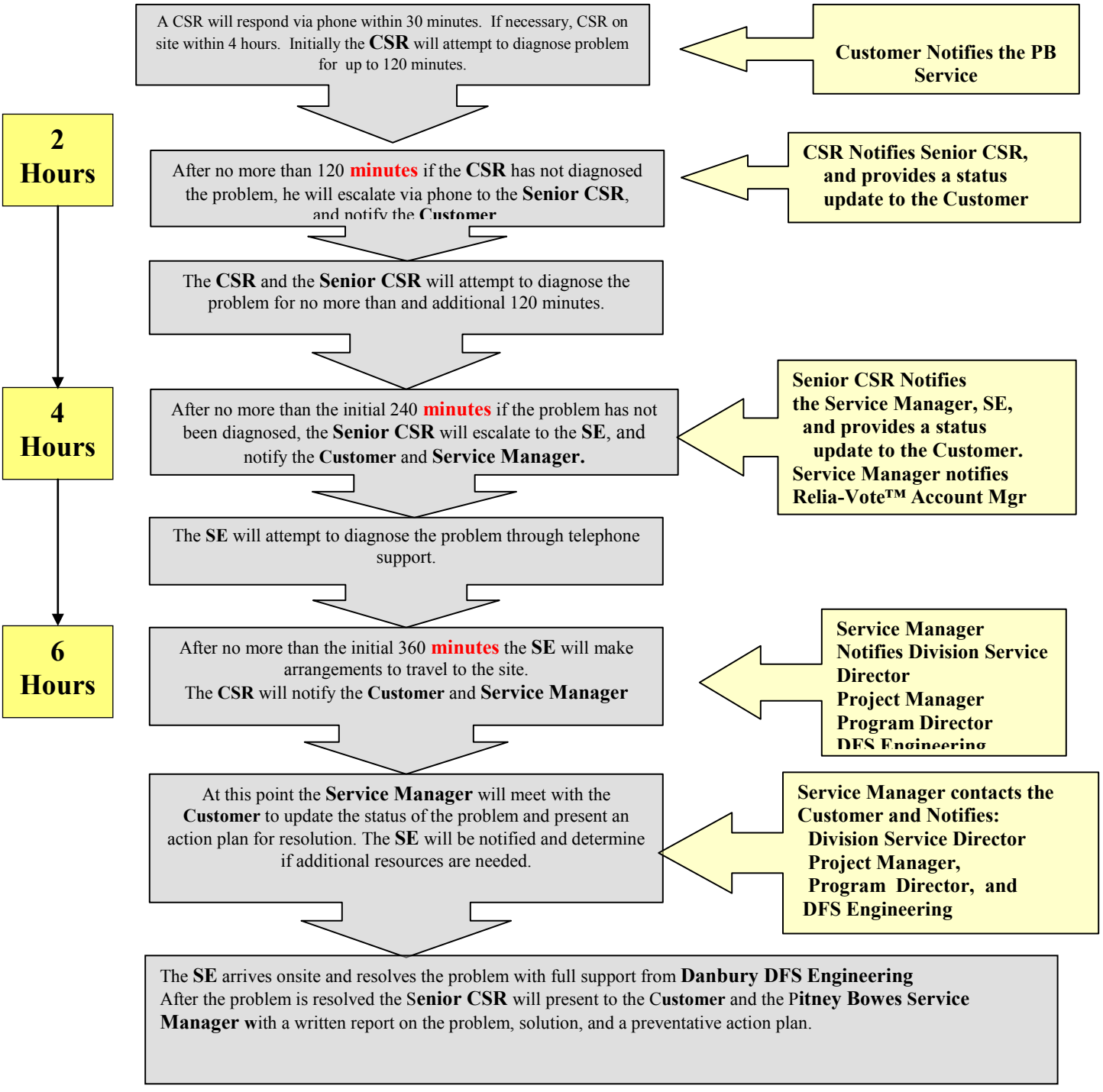
At this point the **Service Manager** will meet with the **Customer** to update the status of the problem and present an action plan for resolution. The **SSE** will be notified and determine if additional resources are needed.

Service Manager contacts the Customer and Notifies: Division Service Director Project Manager, Program Director, and DFS Engineering

The **SSE** arrives onsite and resolves the problem with the full support from **Danbury Technical Support (TSS),** and **DFS Engineering.**
After the problem is resolved the **Senior CSR** will present to the **Customer** and the **Pitney Bowes Service Manager** with a written report on the problem, solution, and preventative action plan.

Relia-Vote™ Escalation Support Process - Active Elections

2.2 Relia-Vote™ Inserter Software Escalation Procedure



Relia-Vote™ Escalation Support Process - Active Elections

2.3 Relia-Vote™ Sorter System Escalation Procedure

A CSR will respond via phone within 30 minutes. If necessary, CSR on site within 4 hours. Initially the **CSR** will attempt to diagnose problem for up to 120 minutes.

Customer Notifies PB Service

2 Hours

After no more than 120 **minutes** if the **CSR** has not diagnosed the problem, he will escalate via phone to the **Senior CSR**, and notify the **Customer**.

CSR Notifies Senior CSR, and provides a status update to the Customer

The **CSR** and the **Senior CSR** will attempt to diagnose the problem for up to 120 minutes.

4 Hours

After no more than the initial 240 **minutes** if the problem has not been diagnosed, the **Senior CSR** will escalate to the **Sorter AE,** and notify the **Customer** and **Service Manager.**

Senior CSR Notifies the Service Manager, Sorter AE, and provides a status update to the Customer. Service Manager notifies Relia-Vote™ Account Mgr

The **SSE** will attempt to diagnose the problem through telephone support.

6 Hours

After no more than the initial 360 **minutes** the **Sorter AE** will make arrangements to travel to the site.

Service Manager Notifies Division Service Director Project Manager Program Director DFS Engineering

At this point the **Service Manager** will meet with the **Customer** to update the status of the problem and present an action plan for resolution. The **Sorter AE** will be notified and determine if additional resources are needed.

Service Manager contacts the Customer and Notifies: Division Service Director Project Manager, Program Director, and DFS Engineering

The **Sorter AE** arrives onsite and resolves the problem with full support from **Danbury DFS Engineering** After the problem is resolved the **Senior CSR** will present to the **Customer** and the **Pitney Bowes Service Manager** with a written report on the problem, solution, and a preventative action plan.

3. KEY CONTACTS

{CUSTOMER Site}

CONTACT TYPE	NAME	PHONE
(Customer) – List as needed		
Customer		
Customer		
Customer		
Customer		
Local CSR		
Local CSR		
Senior CSR		
Senior CSR		
Service Manager		
Service Director		
Operations Supervisor		
Relia-Vote™ Account Mgr		
SSE		
Project Manager		
Program Director		

Pitney Bowes Appendix D

ServiceWorks™ Solutions Agreement

Pitney Bowes Inc., through its Document Messaging Technologies Division

Date Prepared (m/d/y):

BILL TO	**INSTALL *(if different)***
Firm Name:	**Firm Name:**
Address:	**Address:**
City, State, Zip:	**City, State, Zip:**
Customer Acct #:	**Customer Acct #:**
Phone #:	**Phone #:**
Contact Name:	**Contact Name:**

HOURS	ITEM	SERVICE HOURS*	HOURLY RATE	NET PRICE
	Select PCN	Service Hours	Select Hourly Rate	
	Select PCN	Service Hours	Select Hourly Rate	
	Select PCN	Service Hours	Select Hourly Rate	
Tax Exempt: ☐ State ☐ County ☐ City			**Net Subtotal:**	
Special Billing Requirements:			**Total*:** **Plus applicable taxes*	

** Service Hours may include one or more of the tasks described on Page 2, paragraph 3.*

AGREEMENT TERM	
Agreement term / (mm/yy) through / (mm/yy) *. **Not to exceed 12 month period.*	**Effective Date:** / (mm/yy)
Purchase Order #:	**Amount Paid:**

APPROVAL

ADDITIONAL TERMS AND CONDITIONS APPLICABLE TO THIS ORDER APPEAR ON PAGE 2 HEREOF AND TAKE PRECEDENCE OVER ANY TERMS AND CONDITIONS APPEARING ON BUYER'S PURCHASE ORDER ("PO") OR OTHER BUYER FORM (S), including, but not limited to, Customer's PO number dated .

CUSTOMER APPROVAL

Signed By: _____ **Date:**

Print Signer's Name:

Print Signer's Title:

Signer's Email:

PITNEY BOWES APPROVAL

Signed By: _____ **Date:**

Print Signer's Name:

Print Signer's Title:

PITNEY BOWES USE

SYSTEM COVERAGE

Model:	**S/N:**	**Install Date (m/d/y):**	**Model:**	**S/N:**	**Install Date (m/d/y):**
1.			4.		
2.			5.		
3.			6.		

ACCOUNT MANAGEMENT

Service Rep Name:	**Rep #:**	**District #:**	**Service Manager Name:**	**Rep #:**	**District #:**

This agreement ("Agreement") is dated as of the date of the Customer's signature on the cover page of this Agreement ("Order") and is between the entity set forth on the Order ("Customer") and Pitney Bowes Inc., through its Document Messaging Technologies Division ("PBI"). This Agreement sets forth the terms and conditions for the purchase of services from PBI as further described below.

1. SCOPE, TERM AND NATURE OF AGREEMENT

a. This Agreement is for maintenance and technical support as further described below ("Services") for those Customers who do not have an existing Equipment Maintenance Agreement with PBI for the products described in the Order. The Order shall be binding on the date the Customer signs the Order and no Services will be performed before this Agreement is executed by both parties.

b. The term of this Agreement ("Term") shall be as specified in the Order, but shall not exceed twelve months. Hours not used before the end of the Term will be forfeited. Notwithstanding anything contained herein to the contrary, PBI may terminate this Agreement upon one (1) business day's written notice to Customer if Customer breaches the payment provision of this Agreement, and such payment breach is not cured within ten (10) business days after receipt of written notice of such breach from PBI. If a material breach by either party of any of its obligations or responsibilities under this Agreement is not cured within thirty (30) days after the other party notifies the breaching party thereof, the non-breaching party may by notice to the breaching party terminate this Agreement.

d. Notwithstanding anything in this Agreement to the contrary, PBI will not be responsible: (i) for maintaining any equipment that Customer has failed to operate under suitable temperature, humidity, line voltage, or any specified environmental conditions; (ii) if reasonable care is not used in handling, operating, and maintaining the equipment; (iii) if the equipment is not used in accordance with the agreed applications and for the ordinary purpose for which it is designed; (iv) if the inability of any equipment to perform is due to any act or failure to act on the part of Customer, including without limitation, any alteration of or adding components to any equipment; (v) unqualified operators' use of the equipment; (vi) use of the equipment in a manner not intended; (vii) use of the equipment to process applications not previously approved in writing by PBI; or (viii) use of damaged materials, such as paper or envelopes. PBI will not be required to maintain equipment that has become obsolete, either due to age, discontinuance of equipment's manufacture or irreparability.

2. Fees

a. Fees. Customer will pay the fees specified in this Agreement within thirty (30) days of receipt of PBI's invoice and prior to the time any Services are performed. In the event Customer elects to terminate this Agreement without cause prior to the expiration of the Term, no pro-rata refund will be provided, even if any prepaid hours of Service have not yet been performed by PBI. None of the Services are transferable to another entity.

b. Taxes. The fees do not include, and Customer is responsible for paying, all charges and taxes which may be imposed or levied upon the sale, purchase, or use of the Services, excluding taxes on or measured by PBI's net income, unless Customer provides PBI with a valid tax exemption, direct pay or resale certificate.

c. Late Fees. If Customer payment is not made in full on or before its due date, Customer will pay PBI a late payment administrative fee on the delinquent payments in the amount of 1.5% per month (or the maximum rate allowed by law) until paid in full. For each dishonored or returned payment, Customer will pay PBI the applicable returned item fee. To the extent PBI is required to enforce its rights under this Agreement, it may recover all expenses, including reasonable attorneys' fees and interest to the maximum extent permitted by law.

d. Suspension of Services. PBI reserves the right to suspend any services during any period in which the Customer's account under this or any other agreement with PBI (including any other division or affiliate of PBI) is more than thirty (30) days past due.

3. Services To Be Performed. One or more of the Services described below will be performed as part of this Agreement. Services will be scheduled at times acceptable to both parties at a minimum of seventy-two (72) hours prior to the performance of such Services. Unscheduled Services are available at the then current PBI published hourly rates.

a. Preventative Maintenance: Scheduled preventative maintenance, equipment inspection, parts usage evaluation, and/or maintenance recommendations. Consumable and replacement parts not included.
b. Equipment Inspection: On-site visit from a Customer Service Representative ("CSR") who will perform an equipment inspection, parts usage evaluation, and provide maintenance recommendations.
c. Operator and/or Technical Coaching: Coaching for Customer's operators and/or technicians who have already attended a PBI training session.
d. Peak Production Support: On-site technicians for periods of high production demand.
e. Operational Moves: Supervising the moving of equipment. Breakdown of equipment, re-installation and re-assembly and post-move testing. PBI CSR will not physically move equipment.

4. Warranties

a. Customer Warranties. Customer represents and warrants that: (i) it is financially solvent and is able to pay for the Services contemplated by this Agreement; and (ii) it is using the equipment for business and commercial purposes and not for personal, family or household use.
b. PBI Warranty. PBI warrants that any services provided pursuant to this Agreement shall be performed in a professional and workmanlike manner.
c. Disclaimer. EXCEPT AS EXPRESSLY SET FORTH HEREIN, PBI DISCLAIMS ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

5. Limitation of Liability

a. PBI'S TOTAL LIABILITY RELATING TO THIS AGREEMENT FOR ANY CLAIM OF ANY KIND IS LIMITED TO THE FEES PAID BY CUSTOMER TO PBI UNDER THIS ORDER; HOWEVER, PBI SHALL HAVE NO LIABILITY FOR ANY DAMAGE CUSTOMER MAY INCUR THROUGH ITS NEGLIGENT ACTS OR OMISSIONS OR ITS MISUSE OF THE EQUIPMENT.

b. PBI SHALL NOT IN ANY EVENT BE LIABLE FOR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL, EXEMPLARY, SPECIAL OR PUNITIVE DAMAGES OF ANY KIND RELATED TO THIS AGREEMENT, EVEN IF PBI HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

6. Independent Contractor Relationship. Services by PBI employees, or persons under contract to PBI, shall be performed hereunder as independent contractors of Customer, and no such employees or persons doing such work or subcontractors shall be considered employees of Customer.

7. Force Majeure. Neither party shall be held responsible or incur any liability for any delay or failure to perform any part of the this Agreement if such delay or failure results from causes beyond its control, including, but not limited to, fire, flood, explosion, acts of terrorism, war, labor disputes, embargo, civil or military authority, natural disaster, judicial or governmental action or requirement, or acts of God.

8. Assignment and Successors. Neither party may assign this Agreement or Order, including by operation of law, without the prior written consent of the other party, which consent will not be unreasonably withheld or delayed. Any attempted assignment without consent, including by operation of law, shall be without force and effect. This Agreement shall inure to the benefit of and be binding upon the successors and permitted assigns of the parties hereof.

9. Entire Agreement. This Agreement, including the Order, is the sole and complete agreement between the parties hereto on the subject matter hereof, and shall not be modified or amended except by a writing signed by all parties. PBI does not accept and shall not be subject to any terms and conditions in Customer's purchase order, acknowledgement, or any other form, and any such provisions shall be deemed rejected.

10. Waiver; Severability; Survival; Governing Law. No waiver of any breach of any provision of this Agreement by any party or the failure of any party to insist on exact performance shall constitute a waiver of any other breach of performance of the same or any other provision hereof. If any provision of this Agreement shall be or become invalid or unenforceable, such invalidity or unenforceability shall not invalidate or render unenforceable the remaining provisions of this Agreement. The provisions of this Agreement which by their meaning and effect are meant to survive the termination or expiration of this Agreement, shall so survive. This Agreement shall be governed by, construed and interpreted in accordance with, the laws of the State of Connecticut without regard to its conflicts of laws principles.

11. Notices. Any notices or other communications given pursuant to this Agreement by either party shall be communicated in writing, shall be effective upon receipt and shall be personally delivered or sent via U.S. registered or certified mail, first class postage prepaid. Any notices or communications shall be sent to the parties at their addresses set forth in this Agreement unless a party otherwise notifies the other party.

Appendix E

EXHIBIT A
TO PURCHASE ORDER NO. _____, DATED _____

SOFTWARE LICENSE AND MAINTENANCE AGREEMENT
for
Software Imbedded in a Sorter purchased from Pitney Bowes ("Operating Software") and/or any Software Licensee May Elect to License in connection with such Sorter ("Application Software"). Application Software includes, but is not limited to, Fast Forward, Clear Scan, OCR, AddressScript, and UMove

THIS SOFTWARE LICENSE AND MAINTENANCE AGREEMENT is between Pitney Bowes Inc., through its Document Messaging Technologies Division, a Delaware corporation, with offices at 37 Executive Drive, Danbury, Connecticut 06810, ("**Pitney Bowes**") and the City and County of Honolulu, the customer ("**Licensee**") named in the Purchase Agreement or Purchase Order (the "**Purchase Agreement**") or sorter lease agreement (which agreement may include financing provisions) ("**Lease Agreement**") with Pitney Bowes or one of its affiliates relating to one or more of the imbedded sorter software products named above (whichever of the Purchase Agreement or the Lease Agreement is applicable is referred to herein as the "**Purchase/Lease Agreement**"). The terms of this Agreement are in addition to, and do not supersede, the terms of the Purchase/Lease Agreement, except that, with respect to the Pitney Bowes Software (as defined in Section 1.1 below), this Agreement does supersede those portions of the Purchase/Lease Agreement that refer expressly to software (other than those portions that relate to financing with respect to the Licensed Software). In the event of a conflict between the terms of this Agreement and the Purchase/Lease Agreement with respect to the Pitney Bowes Software, the terms of this Agreement shall control. LICENSEE'S SIGNATURE BELOW, OR USE OR CONTINUED USE OF THE PITNEY BOWES SOFTWARE, CONSTITUTES LICENSEE'S AGREEMENT TO THIS SOFTWARE LICENSE AGREEMENT.

1 LICENSE

1.1 License Grant and Term: Pitney Bowes grants to Licensee, pursuant to, and subject to Licensee's compliance with, the terms and conditions set forth in this Agreement and subject to payment of all applicable license fees relating to the Operating and Application Software (collectively "Pitney Bowes Software"), and Licensee accepts a non-exclusive, non-transferable license to use the Pitney Bowes Software for the Term (the "**License**"). **Term**: Unless terminated as provided herein, the term of the License for the Software shall commence on the equipment delivery date and shall continue for a period of one (1) year. Thereafter, this agreement shall be renewed automatically for additional one (1) year periods unless either party gives written notice of its intention not to renew no less than ninety (90) days prior to the anniversary date. In the event Licensee elects to terminate this Agreement without cause prior to the expiration of the then-current one (1) year term, no pro-rata refund will be provided.

Application Software provided hereunder requires Licensee to provide testing materials to the United States Postal Service ("USPS") for purposes of ensuring MERLIN compliance. Pitney Bowes assumes no liability for Licensee's failure to obtain USPS approval.

1.2 Software Use: Licensee is authorized to use the Pitney Bowes Software solely for its own internal operations on the sorter indicated in the Purchase/Lease Agreement, this Agreement or any applicable Statement of Work or similar agreement between Pitney Bowes and Licensee with respect to the Pitney Bowes Software.

1.3 Backup Copies: Licensee shall have the right to make no more than one copy of the Pitney Bowes Software solely for backup and archival purposes and exclusively for Licensee's internal use provided that such copies include all original copyright and other proprietary notices.

1.4 Fees: Commencing on the equipment delivery date, Licensee shall pay to Pitney Bowes the license and maintenance charges described in the Purchase/Lease Agreement or if applicable, Exhibit C attached hereto. For any Software Maintenance provided after the first year, pricing will be reviewed on an annual basis. In the event Software Maintenance is terminated by Licensee, Licensee's license rights hereunder shall also terminate.

Pitney Bowes will invoice Licensee for annual license and maintenance charges (or for any *pro rata* portion thereof) on the delivery date and on each subsequent anniversary thereof. Any invoice not paid within thirty (30) days of such timeframe shall carry a late charge at the rate of 1.5% per month from the date such payment is due until paid in full. If Licensee upgrades to a new release, *i.e.,* major enhancements and/or new functionality of the programs licensed by

Pitney Bowes, the software maintenance services provided hereunder may be transferred to the new release at the then current subscription fee for the new release less credit for fees previously paid hereunder.

If AddressScript™ software is licensed hereunder; advance purchase of blocks of clicks (11-digit finalized answers) is required. Licensee's initial purchase of clicks shall be set forth in Purchase/Lease Agreement. Licensee agrees to purchase all such clicks from Pitney Bowes. Licensee further understands that if it purchases or otherwise acquires clicks from any other source, Licensee's license will be terminated and Pitney Bowes may seek remedies hereunder.

If ASV™ software is licensed hereunder, annual purchase of blocks of clicks is required in advance. Licensee's initial purchase of clicks shall be set forth the in the Master/Lease Agreement and are in force for a 12 month period. Licensee agrees to purchase all such clicks from Pitney Bowes. If Licensee exceeds the volume of clicks purchased, then Licensee agrees to promptly notify Pitney Bowes, and purchase an additional block of clicks to pay for the click overage use. Licensee will be required to purchase such clicks in pre-packaged blocks of clicks, and not in fractions of a pre-packaged block of clicks. For the avoidance of doubt, if Licensee uses 47,500 clicks, but has only purchased 40,000 clicks, Licensee must purchase a new block of 10,000 clicks (the smallest block of clicks available) to pay for the 7,500 click overage.

2 WARRANTY

2.1 Warranty: Pitney Bowes warrants during the Warranty Period that the Pitney Bowes Software will conform to all substantial operational functions of the Pitney Bowes Software described in any documentation provided if installed and used in the operating environment specified therein. The "**Warranty Period**" for the Pitney Bowes Software is one (1) year from the date of delivery. If the Pitney Bowes Software does not so conform during the Warranty Period, Pitney Bowes shall, at its option, (i) repair the Pitney Bowes Software or (ii) replace the Pitney Bowes Software. This warranty is void if the Pitney Bowes Software fails to perform as a result of accident, misuse, or due to use with hardware, software programs or non-qualifying databases of any party other than Pitney Bowes. To the extent that the Pitney Bowes Software requires current data to operate in accordance with the documentation, if Licensee does not obtain and install any necessary current data, this warranty is void.

2.2 Warranty Limitation: EXCEPT AS HEREIN SPECIFICALLY PROVIDED, THE PITNEY BOWES SOFTWARE IS PROVIDED WITHOUT ANY WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. PITNEY BOWES DOES NOT WARRANT THAT THE FUNCTION CONTAINED IN THE PITNEY BOWES SOFTWARE WILL MEET LICENSEE'S REQUIREMENTS, OR THAT THE OPERATION OF THE PITNEY BOWES SOFTWARE OR ANY DATABASE SUPPLED WILL BE UNINTERUPTED OR ERROR FREE.

3 PROPRIETARY RIGHTS

3.1 Ownership of Pitney Bowes Software. The Pitney Bowes Software and Materials, and all materials relating thereto (collectively, the "**Pitney Bowes Materials**") are proprietary to Pitney Bowes and/or its licensors and suppliers and shall remain the sole and exclusive property of Pitney Bowes and/or its licensors and suppliers. The Pitney Bowes Software and Materials are protected by United States copyright and international treaty provisions. Licensee shall not sell, transfer, publish, disclose, distribute, display, copy, use or otherwise make available the Pitney Bowes Materials or copies thereof to others except as expressly permitted in this Agreement. Licensee shall not remove, disfigure or alter any of the proprietary notices or trademarks incorporated into the Pitney Bowes Materials.

3.2 Security. Licensee shall not sell, transfer, publish, disclose, display, or otherwise make available any Pitney Bowes Software or copies thereof to others. Licensee acknowledges that the Pitney Bowes Software is a trade secret of Pitney Bowes or of the third parties under whose license Pitney Bowes provides the Pitney Bowes Software. Licensee agrees to secure and protect the Pitney Bowes Software and copies thereof in a manner consistent with maintenance of Pitney Bowes' rights therein and to take appropriate action by instruction or agreement with its employees to satisfy its obligations hereunder.

3.3 No Decompiling. Licensee agrees not to: (a) disassemble, decompile or otherwise reverse engineer the Pitney Bowes Software or otherwise attempt to learn the source code, structure, algorithms or ideas underlying the Pitney Bowes Software; (b) alter or modify the Pitney Bowes Software or Materials or create derivative works therefrom; or

(c) allow or assist others to do any of the foregoing. All rights in derivative works created by Licensee will be deemed to be the property of and owned by Pitney Bowes or the Third Party provider who provided such content.

4 SOFTWARE MAINTENANCE

4.1 Software Maintenance: Software Maintenance for the Operating Software shall be provided as part of your equipment warranty and/or equipment maintenance. Software Maintenance (as defined in Exhibit A) for Application Software is available at an additional charge for as long as Pitney Bowes makes such Software Maintenance generally available to its licensees of the Pitney Bowes Software.

5 LIABILITY

5.1 Limitation of Liability: PITNEY BOWES' ENTIRE LIABILITY AND LICENSEE'S EXCLUSIVE REMEDY SHALL BE THE REPLACEMENT OF ANY PITNEY BOWES SOFTWARE. IF PITNEY BOWES IS UNABLE TO DELIVER SUCH A REPLACEMENT, LICENSEE MAY TERMINATE THIS AGREEMENT BY RETURNING THE PITNEY BOWES SOFTWARE, AND THE LICENSE FEE FOR ANY UNUSED PERIOD WILL BE REFUNDED. LICENSEE AGREES THAT PITNEY BOWES' LIABILITY FOR USE OF THE PITNEY BOWES SOFTWARE BY LICENSEE OR ANY THIRD PARTY ARISING OUT OF CONTRACT, NEGLIGENCE, STRICT LIABILITY IN TORT OF WARRANTY, OR OTHERWSE, SHALL NOT EXCEED AMOUNTS PAID BY LICENSEE FOR THE PARTICULAR PITNEY BOWES SOFTWARE.

5.2 Excluded Damages: IN NO EVENT WILL PITNEY BOWES BE LIABLE FOR ANY INCIDENTIAL OR CONSEQUENTIAL DAMAGES, INCLUDING ANY LOST PROFITS, ARISING OUT OF THE USE OR PERFORMANCE OF SUCH PITNEY BOWES SOFTWARE, EVEN IF PITNEY BOWES HAS BEEN ADVISED OF THE POSSIBIILITY OF SUCH DAMAGES.

6 TERMINATION

6.1 Termination: This Agreement will terminate automatically if any term of this Agreement is violated by Licensee. Termination of the license shall be in addition to, and not in lieu of any other legal or equitable remedy available to Pitney Bowes.

6.2 Injunctive Relief: Licensee acknowledges that any breach of its obligations under this Agreement with respect to Pitney Bowes' or a third party's proprietary rights or confidential information will cause Pitney Bowes and/or such third party irreparable injury for which there exists no adequate remedies at law, and therefore Pitney Bowes shall be entitled to injunctive relief, without the posting of any bond, in addition to all other remedies provided by this Agreement or available at law.

6.3 Survival: The following shall survive termination of this Agreement: Sections 1.4, 2.2, 3, 5, 6.2, 6.3, 7 and 8.

7 MISCELLANEOUS

7.1 Governing Law: This Agreement and the rights and duties set forth herein, shall be governed by the laws of the State of Connecticut.

7.2 Severability: If any provision of this Agreement is declared by a court of competent jurisdiction to be invalid, illegal or unenforceable, such provision shall be severed from this Agreement and the other provisions shall remain in full force and effect.

7.3 Modifications: This Agreement may not be modified or amended in any way except in writing signed by duly authorized representatives of Pitney Bowes and Licensee or as otherwise expressly provided herein. In no event shall terms contained in any Licensee purchase order be made a part of or supersede this Agreement.

7.4 Non-waiver: A waiver of any breach or default under this Agreement shall not constitute a waiver of any other or subsequent breach or default. Failure or delay by either party to enforce compliance with any term or condition of this Agreement shall not constitute a waiver of such term or condition.

7.5 Binding Effect; Assignment: This Agreement shall be binding on and inure to the benefit of parties hereto and their respective successors and permitted assigns. Licensee may not assign this Agreement or assign, sublicense or transfer any of its rights hereunder without the prior written consent of Pitney Bowes. In addition, for certain Application Software, the Third Party Content Provider may have to consent to the assignment of any licenses provided hereunder and an additional fee may apply.

7.6 Third Party Content: Various third party software and other documentation ("**Third Party Content**") may have been incorporated into the Pitney Bowes Software and/or the Materials by Pitney Bowes under permission from Pitney Bowes' licensors and suppliers. Certain Third Party Content provided hereunder requires Licensee be certified by the United States Postal Services. Licensee's failure to obtain such certification shall not impact Licensee's obligation to pay to Pitney Bowes fees due hereunder. In addition, certain Third Party Content requires Licensee to agree to additional terms of use set forth on Exhibit B hereto. If Pitney Bowes' license to any Third Party Content terminates, Licensee agrees: (a) that the Purchase/Lease Agreement and all other agreements related thereto (e.g. equipment or software maintenance agreements) shall remain in full force and effect in accordance with their terms; (b) to discontinue and/or return the terminated Third Party Content upon notice from Pitney Bowes; and (c) that Pitney Bowes shall have no further obligation with respect to such Third Party Content.

7.7 Export and Other Laws: Licensee agrees that, unless it has obtained prior written authorization from the United States Department of Commerce or is otherwise permitted by the United States Department of Commerce Export Administration Regulations and, in either case, has the prior written consent of Pitney Bowes, it will not export or otherwise disclose, directly or indirectly, any technology or software received from Pitney Bowes nor allow the direct product thereof to be shipped or to be disclosed, either directly or indirectly, to any destination that is prohibited by the United States Government or to a foreign national that is prohibited by the United States Government. Without limiting the foregoing, Licensee and Pitney Bowes shall comply with all applicable laws and regulations relating to the Pitney Bowes Software and its use. In addition, certain United States Postal Service regulations and/or rules prohibit the transfer of certain software outside of the United States.

8 ENTIRE AGREEMENT: This Agreement, the Purchase/Lease Agreement, any related statement of work, application design agreement or similar document signed by both Pitney Bowes and Licensee, and any other agreement between Pitney Bowes and Licensee expressly referred to herein contain the entire agreement of the parties with respect to the subject matter hereof and shall supersede any and all prior agreements, understandings, promises, representations or warranties made by one party to the other, whether oral or in writing, concerning the subject matter contained herein or the terms or conditions applicable hereto.

LICENSEE HAS READ THIS AGREEMENT AND UNDERSTANDS AND AGREES TO ABIDE BY ITS TERMS.

EXHIBIT A

SOFTWARE MAINTENANCE

Software maintenance terms

If Licensee has elected to purchase maintenance from or has included maintenance in its lease payments to Pitney Bowes for the software licensed hereunder, the following additional terms and conditions shall apply:

1. Services Provided. Pitney Bowes shall provide the following support services:
   (a) Error Correction. Pitney Bowes shall attempt to correct documented errors in the Software. Errors must be reported to Pitney Bowes within a reasonable time and must be repeatable by Pitney Bowes. Pitney Bowes shall, as expeditiously as possible, use its best efforts to correct such errors, or to provide a software patch or bypass around such error. No warranty is made that all errors can or will be corrected. Licensee shall provide Pitney Bowes with reasonable direct and/or remote access to Licensee's equipment, the Software and all relevant documentation and records, and shall provide such reasonable assistance as Pitney Bowes may request, including, but not limited to, providing sample output and other diagnostic information.
   (b) Updates. Pitney Bowes shall provide Licensee, at no additional cost, error corrections, modification or minor enhancements (herein called "Updates") for the Software when such Updates are developed or published by Pitney Bowes and made generally available to other licensees of the Software. All Updates shall become part of the Software and shall be subject to the terms of this Agreement. Any new products developed or published by Pitney Bowes will be offered to Licensee at Pitney Bowes's then current rates. Determination of whether specific software programs are Updates or new products shall be made solely and exclusively by Pitney Bowes.
   (c) USPS Address Data Directory. Pitney Bowes shall provide Data Directory updates to be installed by you on a bi-monthly basis to satisfy USPS requirements.
   (d) Sorting Software. Pitney Bowes shall provide Sorting updates to Licensee as required by the USPS, including all postal rates and classification changes
   (e) Telephone Support Service. Pitney Bowes will provide twenty-four (24) hours a day, seven (7) days a week, to discuss technical and operational issues pertaining to Software.

2. Licensee Responsibilities.
   (a) Operation. Licensee is responsible for properly managing and operating the Software.
   (b) Modifications by Licensee. In no event shall Pitney Bowes be responsible to correct any errors or damages resulting from Licensee's unauthorized changes or modifications of the Software.
   (c) Uninstalled Updates. Support services shall only be offered with the most current version of the Software. Pitney Bowes shall not be responsible for correcting any alleged error if the Licensee has failed to incorporate any Update, which has been made available by Pitney Bowes.

3. Charges for Maintenance and Support.

(a) Commencing on the equipment delivery date, Licensee shall pay to Pitney Bowes the maintenance charges described in the Agreement to which this is an exhibit. Pricing will be reviewed on an annual basis.

(b) In the event maintenance is not included in Licensee's lease payment to Pitney Bowes, Pitney Bowes will invoice Licensee for annual maintenance charges (or for any *pro rata* portion thereof) on the delivery date and on each subsequent anniversary thereof. Any invoice not paid within thirty (30) days of such timeframe shall carry a late charge at the rate of 1.5% per month from the date such payment is due until paid in full.

(c) If Licensee upgrades to a new release, *i.e.,* major enhancements and/or new functionality of the programs licensed by Pitney Bowes, the software maintenance services provided hereunder may be transferred to the new release at the then current subscription fee for the new release less credit for fees previously paid hereunder.

EXHIBIT B

The following terms apply if Licensee licenses certain third party Application Software hereunder

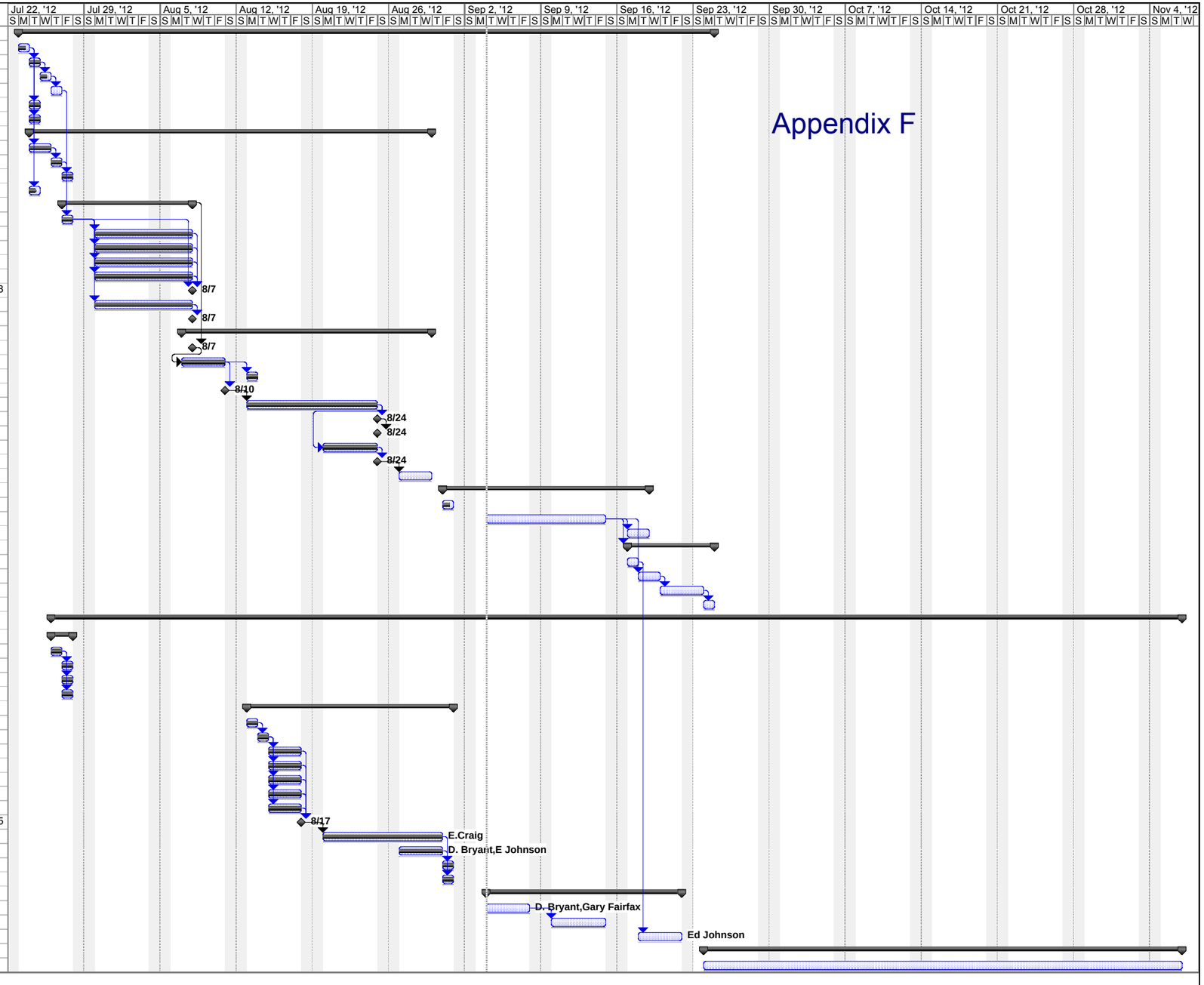
Software provided by Firstlogic, Inc. and/or its successors and assigns is subject to the following additional terms and conditions.

Directories. Due to United States Postal Service regulations, Licensee, depending on which Licensed Product is being used, must use a current Zip+4 directory ("Directory") to operate the Licensed Software within the mail transport product. The Licensed Software will not operate without a current Directory which is compatible with the Licensed Software. Pitney Bowes, on behalf of Firstlogic and/or its successors and assigns, supplies updated Directories on an annual basis to Licensees for whom such service is subscribed and for whom the annual software maintenance fee set forth in the Sale/Lease Agreement is timely paid. In order to continue receiving the Directory updates, the software maintenance must be renewed each year and another annual software maintenance fee paid to Pitney Bowes. During the term of this Agreement, Pitney Bowes will supply Directory updates to each Licensee for such periods for which the applicable Annual Subscription Fees are received by Pitney Bowes. PAYMENT OF THE APPLICABLE ANNUAL SUBSCRIPTION FEES FOR EACH LICENSSE IS REQUIRED TO OPERATE THE LICENSED SOFTWARE WITHIN THE LICENSEE APPLICATION.

Software provided by Computech Corporation and/or its successors and assigns is subject to the following additional terms and conditions.

Dongles. Computech Corporation reserves the right to include a deactivation device ("dongle") in each copy of the CARS II Software. If included, the dongle will prevent the use of such CAR II Software until Computech furnishes the key which will activate the CARS II Software. Dongles are the property of Computech Corporation and are used to prevent unauthorized copying or use of the CARS II Software. Dongles may not be transferred between Licensee unless the corresponding software is transferred under the terms of this Agreement. Dongles remain the property of Computech and must be returned by Integrator to Computech upon expiration/termination of each Licensee account.

ID	Task Name	Duration	Start	Finish	Predecessors
1	**Franklin County Reliavote MSE schedule/Plan**	**47 days?**	**Mon 7/23/12**	**Mon 9/24/12**	
2	SOW Complete	1 day	Mon 7/23/12	Mon 7/23/12	
3	PO Recvd (ZDA Approved)	1 day	Tue 7/24/12	Tue 7/24/12	2
4	Work order complete	1 day	Wed 7/25/12	Wed 7/25/12	3
5	System booked	1 day	Thu 7/26/12	Thu 7/26/12	4
6	Site Survey Complete	1 day?	Tue 7/24/12	Tue 7/24/12	2
7	Service Plan	1 day?	Tue 7/24/12	Tue 7/24/12	2
8	**DMT Manufacturing and Integration**	**27 days?**	**Tue 7/24/12**	**Wed 8/29/12**	
9	Test material	2 days	Tue 7/24/12	Wed 7/25/12	2
10	Ship Bulks to Danbury	1 day?	Thu 7/26/12	Thu 7/26/12	9
11	Bulks reviewed, tested, accepted	1 day?	Fri 7/27/12	Fri 7/27/12	10
12	MRDF Recvd if file based	1 day?	Tue 7/24/12	Tue 7/24/12	2
13	**Module Plan and dates**	**8 days?**	**Fri 7/27/12**	**Tue 8/7/12**	
14	SI&T Build schedule complete	1 day?	Fri 7/27/12	Fri 7/27/12	5
15	Weigh on the fly Module	7 days	Mon 7/30/12	Tue 8/7/12	14
16	Y250 Servo Sheet feeder	7 days	Mon 7/30/12	Tue 8/7/12	14
17	MCS 4" printer	7 days	Mon 7/30/12	Tue 8/7/12	14
18	Cognex Camera	7 days	Mon 7/30/12	Tue 8/7/12	14
19	Std Input and MOS Modules Complete	0 days	Tue 8/7/12	Tue 8/7/12	14,15,16,17,18
20	Custom Components	7 days	Mon 7/30/12	Tue 8/7/12	14
21	Custom Components Complete	0 days	Tue 8/7/12	Tue 8/7/12	20
22	**Integration, Assembly & CSR Check out**	**17 days**	**Tue 8/7/12**	**Wed 8/29/12**	
23	Integration (Tech) Start	0 days	Tue 8/7/12	Tue 8/7/12	13
24	Chassis, Input, MOS Integration complete	4 days	Tue 8/7/12	Fri 8/10/12	23FS-1 day
25	Engineering time for Custom Components (Y250 Servo	1 day	Mon 8/13/12	Mon 8/13/12	24
26	CTOP complete (Tech end)	0 days	Fri 8/10/12	Fri 8/10/12	24
27	Filebase Processing setup complete	10 days	Mon 8/13/12	Fri 8/24/12	26
28	Application setup and test complete	0 days	Fri 8/24/12	Fri 8/24/12	27
29	Manufacturing & Integration Complete	0 days	Fri 8/24/12	Fri 8/24/12	28
30	CSR Check out of MSE	5 days	Mon 8/20/12	Fri 8/24/12	27FS-5 days
31	Customer Acceptance/Check out	0 days	Fri 8/24/12	Fri 8/24/12	30
32	Ship System to Franklin County BOE	3 days	Mon 8/27/12	Wed 8/29/12	31
33	**Install at Franklin BOE**	**13 days**	**Fri 8/31/12**	**Tue 9/18/12**	
34	Install MSE	1 day	Fri 8/31/12	Fri 8/31/12	
35	Reliavote Solution integration and test	9 days	Tue 9/4/12	Fri 9/14/12	
36	Customer Acceptance	2 days	Mon 9/17/12	Tue 9/18/12	35
37	**GO - NO GO MSE**	**7 days?**	**Mon 9/17/12**	**Mon 9/24/12**	**35**
38	Customer Training (If Go)	1 day	Mon 9/17/12	Mon 9/17/12	
39	No GO - Remove MSE /	2 days?	Tue 9/18/12	Wed 9/19/12	35
40	Re-Install FPS	3 days	Thu 9/20/12	Sun 9/23/12	39
41	Mock Test for FPS.	1 day?	Mon 9/24/12	Mon 9/24/12	40
42	**Franklin County Reliavote Vantage schedule/Plan**	**75 days?**	**Thu 7/26/12**	**Tue 11/6/12**	
43	**Vantage Module Plan and dates**	**2 days?**	**Thu 7/26/12**	**Fri 7/27/12**	
44	SI&T Build Schedule complete	1 day?	Thu 7/26/12	Thu 7/26/12	
45	Base Transport, Short	1 day?	Fri 7/27/12	Fri 7/27/12	44
46	Select Opener, Universal	1 day?	Fri 7/27/12	Fri 7/27/12	44
47	ReliaVote Software	1 day?	Fri 7/27/12	Fri 7/27/12	44
48	**Integration, Assembly & PSE / CSR Checkout**	**15 days?**	**Mon 8/13/12**	**Fri 8/31/12**	
49	Integration (Tech) Start	1 day?	Mon 8/13/12	Mon 8/13/12	
50	Base Transport, Short	1 day?	Tue 8/14/12	Tue 8/14/12	49
51	Printer, BLACK CIJ, Front	3 days?	Wed 8/15/12	Fri 8/17/12	50
52	Select Opener, Universal	3 days?	Wed 8/15/12	Fri 8/17/12	50
53	ST 8 Sort Pocket Cluster (x 4)	3 days?	Wed 8/15/12	Fri 8/17/12	50
54	One SET (2) Tray Tag Print	3 days?	Wed 8/15/12	Fri 8/17/12	50
55	Software ReliaVote	3 days?	Wed 8/15/12	Fri 8/17/12	50
56	Manufacturing and Intergration Complete	0 days	Fri 8/17/12	Fri 8/17/12	51,52,53,54,55
57	PSE Testing / Checkout of Vantage	9 days?	Mon 8/20/12	Thu 8/30/12	56
58	CSR & Customer Trainer Training / Checkout	4 days?	Mon 8/27/12	Thu 8/30/12	
59	Break Down / Cover	1 day	Fri 8/31/12	Fri 8/31/12	58
60	Ship System to Franklin County BOE	1 day?	Fri 8/31/12	Fri 8/31/12	57
61	**Install at Franklin**	**14 days?**	**Tue 9/4/12**	**Fri 9/21/12**	
62	Install Vantage	4 days?	Tue 9/4/12	Fri 9/7/12	
63	ReliaVote Solution Integration and Test	5 days?	Mon 9/10/12	Fri 9/14/12	62
64	Customer Training	4 days?	Tue 9/18/12	Fri 9/21/12	38
65	**Go Live Support**	**32 days?**	**Mon 9/24/12**	**Tue 11/6/12**	
66	On Site	32 days?	Mon 9/24/12	Tue 11/6/12	

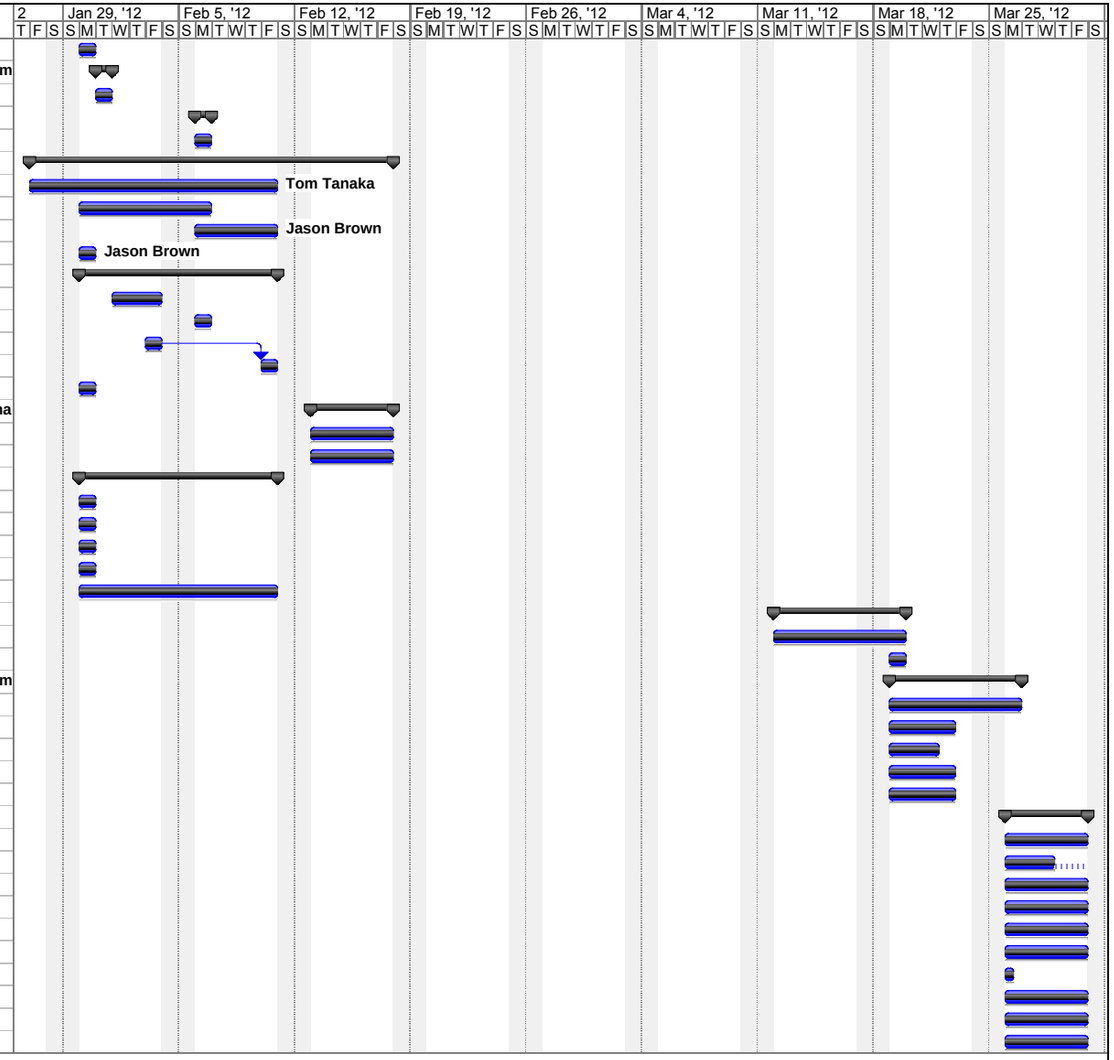


Project: Franklin Reliavote MSE 07.30
Date: Tue 9/4/12

Task | Progress | Summary | External Tasks | Split
Split | Milestone | Project Summary | External MileTask

Appendix G

ID	% Complete	Task Name	Duration	Start	Finish	Predeces	Resource Names
1	100%	Santa Clara, Ca ReliaVote Installation	1 day	Mon 1/30/12	Mon 1/30/12		
2	**100%**	**Schedule Internal Team Call**	**1 day**	**Tue 1/31/12**	**Tue 1/31/12**		**Alex Coulter,Danilo Som**
3	100%	Kick Off / Plan Review with PB Team	1 day	Tue 1/31/12	Tue 1/31/12		
4	**100%**	**Schdeule Customer and PB team Calls**	**1 day**	**Mon 2/6/12**	**Mon 2/6/12**		
5	100%	Kick Off / Plan Review with Customer	1 day	Mon 2/6/12	Mon 2/6/12		
6	**100%**	**Pre-Ship Tasks- Pitney Bowes**	**16 days**	**Fri 1/27/12**	**Fri 2/17/12**		
7	100%	Contracts Signed / Order Booked	11 days	Fri 1/27/12	Fri 2/10/12		Tom Tanaka
8	100%	Schedule Travel to Danbury	6 days	Mon 1/30/12	Mon 2/6/12		
9	100%	Ship Scheduled	5 days	Mon 2/6/12	Fri 2/10/12		Jason Brown
10	100%	Pre-Checkout Prep	1 day	Mon 1/30/12	Mon 1/30/12		Jason Brown
11	**100%**	**Bulks Requirements**	**10 days**	**Mon 1/30/12**	**Fri 2/10/12**		
12	100%	Outer Return Ballot Envelopes	3 days	Wed 2/1/12	Fri 2/3/12		
13	100%	Data	1 day	Mon 2/6/12	Mon 2/6/12		
14	100%	Bulks Shipped	1 day	Fri 2/3/12	Fri 2/3/12		
15	100%	Bulks Received	1 day	Fri 2/10/12	Fri 2/10/12	14	
16	100%	Bulks Approved	1 day	Mon 1/30/12	Mon 1/30/12		
17	**100%**	**CSR Checkout**	**5 days**	**Mon 2/13/12**	**Fri 2/17/12**		**Eddy Craig,Danilo Soma**
18	100%	Full ReliVote Testing	5 days	Mon 2/13/12	Fri 2/17/12		
19	100%	Other Testing -	5 days	Mon 2/13/12	Fri 2/17/12		
20	**100%**	**Pre-Ship Site Preparation - Santa Clara County**	**10 days**	**Mon 1/30/12**	**Fri 2/10/12**		**Santa Clara Team**
21	100%	Site Preparation	1 day	Mon 1/30/12	Mon 1/30/12		
22	100%	Electrical	1 day	Mon 1/30/12	Mon 1/30/12		
23	100%	Network	1 day	Mon 1/30/12	Mon 1/30/12		
24	100%	Space Available	1 day	Mon 1/30/12	Mon 1/30/12		
25	100%	Rigger Preparation	10 days	Mon 1/30/12	Fri 2/10/12		
26	**100%**	**System Ship - Arrive**	**6 days**	**Mon 3/12/12**	**Mon 3/19/12**		
27	100%	System Ships to Santa Clara	6 days	Mon 3/12/12	Mon 3/19/12		
28	100%	Riggers on Site to Move RV system and spot	1 day	Mon 3/19/12	Mon 3/19/12		
29	**100%**	**Integration Start Phase 1**	**6 days**	**Mon 3/19/12**	**Mon 3/26/12**		**Alex Coulter,Danilo Som**
30	100%	Mechanical	6 days	Mon 3/19/12	Mon 3/26/12		
31	100%	Electrical	4 days	Mon 3/19/12	Thu 3/22/12		
32	100%	Network	3 days	Mon 3/19/12	Wed 3/21/12		
33	100%	Test Transport	4 days	Mon 3/19/12	Thu 3/22/12		
34	100%	Test InkJet	4 days	Mon 3/19/12	Thu 3/22/12		
35	**100%**	**Integration Phase 2**	**5 days**	**Mon 3/26/12**	**Fri 3/30/12**		**Eddy Craig**
36	100%	Integrate ReliaVote to existing RV System	5 days	Mon 3/26/12	Fri 3/30/12		
37	100%	System Integration RV Setup OLY II	3 days	Mon 3/26/12	Fri 3/30/12		
38	100%	Signature Client	5 days	Mon 3/26/12	Fri 3/30/12		
39	100%	ASV	5 days	Mon 3/26/12	Fri 3/30/12		
40	100%	Pre-Acceptance Test Validations	5 days	Mon 3/26/12	Fri 3/30/12		
41	100%	Test Material returned from Factory Checkout	5 days	Mon 3/26/12	Fri 3/30/12		
42	100%	Acceptance Testing	0.5 days	Mon 3/26/12	Mon 3/26/12		
43	100%	Mock Election	5 days	Mon 3/26/12	Fri 3/30/12		
44	100%	Training	5 days	Mon 3/26/12	Fri 3/30/12		
45	100%	Acceptance Sign Off	5 days	Mon 3/26/12	Fri 3/30/12		



Project: RV 2- Santa Clara Project Fina
Date: Mon 11/25/13

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

Appendix H

San Mateo County Project Timeline

Task Name	Start	Finish	Responsible	Complete
Sorter				
Application Testing	09/17/07	09/17/07	This is the file export from ES&S. If we can have it sooner we will take it. We just need a small file to ensure we can import it correctly.	12-Sep
Build Sorter	09/10/07	09/21/07	Pitney Bowes Production	12-Sep
Test Sorter	09/24/07	09/28/07	Eddy Craig/CSR from Western Division	
Facitlity Ready at County Location	09/24/07	09/24/07	County	
Ship Sorter	09/28/07	10/08/07		
Receive Sorter at County Location	10/08/07	10/08/07	CSR from Western Division	
Build Sorter at County Location	10/08/07	10/12/07	Eddy Craig/CSR from Western Division	
Test Sorter at County Location	10/15/07	10/19/07	Eddy Craig/CSR from Western Division	
Training				
Sorter Operator Training	10/22/07	11/02/07		

Appendix I
Jefferson County Project Timeline

Task Name	Start	Finish	Responsible
Administrative			
SOW	03/03/10	04/30/10	Pitney Bowes and Jefferson County
Contracts	03/03/10	04/30/10	Pitney Bowes and Jefferson County
Machine build and installation			
Application Testing/Mailpiece approval	03/15/10	04/19/10	Pitney Bowes and Jefferson County
Build sorter	04/19/10	05/07/10	Pitney Bowes
Test Sorter	05/10/10	05/21/10	Pitney Bowes
Facility Ready at County Location Power/Network	03/03/10	05/21/10	Jefferson County
Ship Sorter	05/24/10	06/07/10	Pitney Bowes
Receive Sorter at County Location	06/07/10	06/07/10	Pitney Bowes and Jefferson County
Integrate Sorter County Location	06/07/10	06/18/10	Pitney Bowes
Test Sorter at County Location	06/21/10	07/02/10	Pitney Bowes and Jefferson County
Signature Verification Interface			
Define signature comparison application with SCOREII	03/03/10	04/30/10	Pitney Bowes and Jefferson County and SCOREII
Development of signature comparison interface	05/07/10	06/28/10	Pitney Bowes
Install and testing of signature comparison interface	06/28/10	07/09/10	Pitney Bowes and Jefferson County and SCOREII
Training			
Operator Training	06/28/10	07/09/10	Pitney Bowes and Jefferson County
System Training	06/28/10	07/09/10	Pitney Bowes and Jefferson County
Mock Election	06/28/10	07/09/10	Pitney Bowes and Jefferson County

Appendix J

METHOD AND SYSTEM FOR VALIDATING VOTES

FIELD OF THE INVENTION

The invention disclosed herein relates generally to voting systems, and more particularly to a method and system to authenticate and verify ballots.

BACKGROUND OF THE INVENTION

In democratic countries, governmental officials are chosen by the citizens in an election. Voting for candidates for public office in the United States is typically performed utilizing mechanical voting machines at predetermined polling places. When potential voters enter the predetermined polling place, voting personnel verify that each voter is properly registered in that voting district and that they have not already voted in that election. Thus, for a voter to cast his vote, he must go to the polling place at which he is registered, typically based on the voter's residence. If an individual is unable to go to the polling place at which he is registered, an absentee ballot can be utilized to allow the individual to cast his vote. There are numerous reasons a person may be unable to attend his registered polling place on an election day, including, for example, business or pleasure travel, attending school in a different location, or military service in a remote location. Typically, the user of an absentee ballot selects his choices on a ballot and returns the ballot to the election officials by mail.

While the use of absentee ballots allows all citizens to participate in the democratic process even if they are unable to attend their specific polling place on the day of the election, there are problems with the use of absentee ballots. A very important criteria of any voting system is the accuracy and security of the ballots to ensure that all ballots comply with applicable election laws. Any ballots that are not in compliance should not be counted, while all ballots that are in compliance should be counted. For example, for absentee ballots to be valid, the ballot must have been created, i.e., completed by the voter, in a timely manner and submitted for return to the election officials. For example, an absentee ballot that is created and/or mailed subsequent to the election day should not be counted.

The current method for ensuring timely completion and submission of absentee ballots relies either on a manually applied stamp indicating the date of completion and/or the United States Post Office (USPS) cancellation mark on the mail piece containing the absentee ballot indicating the date of submission. Neither of these methods, however, is completely verifiable or accurate, and tampering can easily be accomplished. The inability to verify and/or inaccuracy of these conventional methods typically results in numerous absentee ballots being declared invalid, and thus not counting. The adage "every vote counts" was made clear in the last presidential election, in which the voting was very close, and numerous absentee ballots, including ballots from overseas military personnel, were declared invalid due to questions about timely completion and submission. In some cases, it is possible that absentee ballots that were properly created and submitted can still be declared invalid if any questions arise, since as noted above, there is no method for ensuring the timely creation and submission of absentee ballots that is completely verifiable or accurate. If an election is very close, it is especially important that all properly created and submitted votes be counted, including any absentee ballots.

Thus, there exists a need for a method and system that can accurately verify the creation and submission of an absentee ballot.

SUMMARY OF THE INVENTION

The present invention alleviates the problems associated with the prior art and provides a method and system for validating the creation and submission of absentee ballots.

In accordance with the present invention, a vote validation system is provided in which an authentication/validation mark is generated and printed on an absentee ballot and/or the envelope that contains the absentee ballot. The validation system includes one or more vote validator devices that generate and print the authentication/validation marks. The authentication/validation marks include information such as, for example, the date and time of printing, an identification and location of the vote validator that generated and printed the mark, a unique identifier of the mark, and a digital signature of the authentication/validation data. The vote validation system can further include a database that stores records related to each of the vote validators in the system, and can optionally maintain audit reports of all authentication/validation marks printed. The vote validation system further includes a verification system for use by election officials. Upon receipt of the absentee ballot by election officials, the authentication/validation marks printed on the absentee ballot and/or envelope containing the ballot can be verified by authenticating the digital signature and verifying the validity of the data in the mark such as, for example, by comparing the data contained in the mark with the data stored in the database maintained by the vote validation system. If the mark is verified, the authenticity and creation/submission dates of the absentee ballot are guaranteed and the absentee ballot can be accepted as a valid absentee ballot for election purposes. The vote validation system of the present invention can significantly reduce the number of absentee ballots declared invalid due to questions about the creation and submission of an absentee ballot.

Therefore, it should now be apparent that the invention substantially achieves all the above aspects and advantages. Additional aspects and advantages of the invention will be set forth in the description that follows, and in part will be obvious from the description, or may be learned by practice of the invention. Moreover, the aspects and advantages of the invention may be realized and obtained by means of the instrumentalities and combinations particularly pointed out in the appended claims.

DESCRIPTION OF THE DRAWINGS

The accompanying drawings illustrate presently preferred embodiments of the invention, and together with the general description given above and the detailed description given below, serve to explain the principles of the invention. As shown throughout the drawings, like reference numerals designate like or corresponding parts.

FIG. **1** illustrates in block diagram form a vote validation system according to the present invention;

FIG. **2** illustrates an example of a voting ballot that can be used with the vote validation system according to the present invention;

FIG. **3** illustrates an example of a voting ballot envelope that can be used with the vote validation system according to the present invention;

FIG. **4** illustrates in flow diagram form the processing of an absentee ballot, including the generation of one or more authentication/validation marks, according to the present invention; and

FIG. **5** illustrates in flow diagram form the verification of an envelope and/or absentee ballot having an authentication/validation mark according to the present invention.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

In describing the present invention, reference is made to the drawings, wherein there is seen in FIG. **1** a vote validation system **10** according to the present invention. System **10** includes one or more vote validators **12***a*, **12***b*. While two vote validators **12***a*, **12***b* are illustrated in FIG. **1**, it should be understood that any number of vote validators may be provided. The construction and operation of each of the vote validators **12***a*, **12***b* is substantially identical, therefore, for conciseness, the remaining description will refer to only a single vote validator **12***a*, with it being understood that the operation as described with respect to vote validator **12***a* is also applicable to any other vote validators, such as, for example, vote validator **12***b*, included in the system **10**. Vote validator **12***a* is preferably a portable device that can be utilized by election authorities in remote, overseas or other absentee ballot environments. Vote validator **12***a* is preferably assigned to a local election authority for a specific region for a specific election period. Thus, for example, a vote validator **12***a* could be located at overseas embassies or military bases, or any other area where there is substantial use of absentee ballots. A vote validator **12***a* could also be located at major polling locations such that any voter wishing to submit an absentee ballot to another local election authority could have their absentee ballot verified. Thus, for example, if a person is registered to vote in the state of Connecticut, but will be in the state of Virginia on election day, he could obtain an absentee ballot from his local jurisdiction in Connecticut, complete the form in Virginia, and bring it to a polling location that has a vote validator **12***a* in Virginia. The absentee ballot can be processed, as described below, by the vote validator **12***a* in Virginia and returned to Connecticut. The processing of the ballot by vote validator **12***a* will ensure that the creation and submission of the ballot is verifiable and the ballot will not be declared invalid. The number of vote validators **12***a*, **12***b* included in the system **10**, therefore, is dependent upon the number of locations from which election officials desire to verify absentee ballots.

Vote validator **12***a* preferably includes a memory **20**, a printer **22**, an encryption engine **24**, a vote accounting system **26**, a central processing unit (CPU) **28**, an input/output device **30**, and a communication system **32**. Vote validator **12***a* can also include a secure real-time date/time clock **34**, which provides the date and optionally the time to processor **28**. Alternatively, vote validator **12***a* could communicate with an external clock, such as, for example, via a network, to receive the date and time. Each of the above components communicate via a bus **36**. The operation and function of the vote validator **12***a* is controlled by CPU **28**. Memory **20** is preferably a non-volatile memory that stores information utilized by the vote validator **12***a*, including, for example, identification information, state information, and audit data as described below. Memory **20** further stores a private cryptographic key that can be utilized in the generation of a digital signature. The corresponding public key, utilized to verify the signature generated using the private key, can be obtained in a traceable, verifiable manner to ensure the integrity of the key pair. This can be achieved using any type of well known key management methods, including, for example, standard Public Key Infrastructure (PKI) methods. Printer **22** is preferably a secure printing system that is utilized to print an authentication/validation mark (described below), generated by vote validator **12***a*, on an absentee ballot and/or an envelope that contains an absentee ballot. Optionally, printer **22** can also print a postage indicium that evidences payment of postage on an envelope. Alternatively, printer **22** could print the authentication/validation mark, and postage indicium, if provided, on a tape or label that is affixed to the absentee ballot and/or envelope containing an absentee ballot. Encryption engine **24** generates a digital signature, using a cryptographic key stored in memory **20**, for signing the data contained in the authentication/validation mark. Vote accounting system **26** creates a unique identifier for each authentication/validation mark generated by the vote validator **12***a*. Preferably, the portions of bus **36** that couple the printer **22**, encryption engine **24**, and vote accounting system **26** are secure physical links to prevent any tampering with the printing, signing or accounting for authentication/validation marks generated by the vote validator **12***a*. Alternatively, the links may be secured cryptographically using a secure cryptographic protocol such as, for example, Secure Socket Layer (SSL). Input/output device **30** may be, for example, a keyboard and/or display device that can be utilized by an operator to input information into or retrieve information from the vote validator **12***a*. Communication system **32** can be any type of conventional communication system, such as, for example, a modem for connection to a telephone system, or other type of network connection, such as, for example, an Internet connection. Communication system **32** allows the vote validator **12***a* to communicate data to other parts of the system **10** as described below. Preferably, the communications from communication system **32** are encrypted and/or signed to protect the content of the communications.

Optionally, vote validator **12***a* may include a postage meter **38** for generating postage indicia that evidences payment of postage for the envelope in which an absentee ballot is returned.

Vote validator **12***a* generates a unique authentication/validation mark (hereinafter referred to as the mark or validation mark) for each absentee ballot and/or envelope processed. A mark is provided on the respective absentee ballot and/or on an envelope in which the absentee ballot will be returned. The mark is printed evidence of authenticity of the ballot. The mark contains information in a machine readable format, and is preferably cryptographically protected. The mark may be formatted as a two dimensional barcode, such as, for example, the well known PDF **417** format from Symbol Technologies Corporation, or any other suitable, sufficiently dense, printed, scanable form of data representation, such as, for example, DataMatrix. The encoded information in the mark preferably includes error correction and/or detection codes.

The information provided in the mark can include, for example, graphics that identify the mark as a vote authentication/validation mark and an identification of the vote validator **12***a* used to print the mark. This information can be stored, for example, in memory **20** of vote validator **12***a*. The information included in the mark can further include the unique identifier of the mark generated by the vote accounting system **26**. Preferably, the unique identifier is a pseudo-random number that is guaranteed not to repeat. Thus, every mark will be identifiable and no two marks will be exactly

the same. Furthermore, the identifier is preferably not based on, or should not disclose, the order in which the ballot was processed, such that it is difficult to determine the identity of the voter based on the order of the processing. In this manner, the secrecy of the ballot can be further protected. The information in the mark preferably further includes the date and optionally the time of processing, as provided by the clock **34**, and a digital signature, generated by encryption engine **24**, of the data included in the mark. The time of processing, if provided, should be precise enough to guarantee that the ballot was completed as created and/or submitted in a timely manner, but not so precise that it gives the exact order of the processing of the ballot and/or envelope. The information in the mark can also include an identification of the authorized location of the vote validator **12***a*, or an identification of the local election authority to which the vote validator **12***a* is assigned. Optionally, the mark may be provide with graphic security properties to make duplication or replication of the mark difficult. Such security properties could include, for example, the use of special inks, watermarks and steganography as described in U.S. Pat. Nos. 6,284,027, 6,70,213, 6,039,257 and 5,693,693, which are hereby incorporated by reference.

Vote validator **12***a* can also generate audit records or reports for use in evaluating and verifying the proper use of the vote validator **12***a*. The audit report could include, for example, the identification of the vote validator **12***a*, the date and time the last audit report was prepared and historical data related to previous audit reports, the date and time of the current report, and state information of the vote validator **12***a*. Such state information could include, for example, the date of a last physical inspection of the vote validator **12***a*, authorization information for the vote validator **12***a*, i.e., the local election authority to which the vote validator **12***a* is assigned, tamper indication, i.e., if any of the components of the vote validator **12***a*, especially those coupled by secure links, have been tampered with or attempted to be tampered with, and any previous checks or resets performed on clock **34**. The audit report further includes information related to each authentication/validation mark generated during the current reporting period, such as, for example, the unique identification of each of the marks generated. Preferably, the audit reports are signed with a digital signature generated utilizing the private key stored in the memory **20** of vote validator **12***a*. The audit reports can be transmitted in either a printed form or electronically for use in verifying the operation of the vote validator **12***a* as described further below.

Referring again to FIG. **1**, system **10** further preferably includes a database **14**. Vote validator **12***a* communicates with the database **14** via the communication system **32**, and provides data to the database **14**. As noted above, the communication between the database **14** and vote validator **12***a* could be via a telephone system or network connection. Other types of communications could also be utilized, including, for example, wireless communications. Optionally, if no electronic communication systems are available, vote validator **12***a* could also produce printed reports that can be mailed to database **14** and the data input locally at database **14**.

Database **14** maintains a record **50** for each vote validator based on the data received from each vote validator, such as vote validator **12***a*, included in the system **10**. Each record **50** includes information related to the vote validator. Thus, the record **50** for vote validator **12***a* may include, for example, an identification of the vote validator **12***a*, which may be a serial number or the like, the corresponding verification keys used to verify the signature created by the encryption engine **24** of the vote validator **12***a*, the location of the vote validator **12***a*, an archive of all the marks previously generated by vote validator **12***a* that have already been verified (as described below), and an archive of all audit records and reports generated by vote validator **12***a*.

System **10** further includes a verification system **16**. Verification system **16** includes a communication system **62** that allows verification system **16** to communicate with database **14** and obtain information from the database **14**. Optionally, verification system **16** may also communicate directly with each vote validator **12***a*, **12***b* in the system **10**. The communications may be conducted, for example, via a telephone or other data network, and may be wireless. Verification system **16** further includes a scanner **64**, a central processing unit (CPU) **66**, a management system **68**, and a cryptographic verifier **70**. Each of the above components communicate via a bus **72**. The operation and function of the verification system **16** is controlled by CPU **66**. Scanner **64** is utilized to read the mark generated by vote validator **12***a* that is printed on an absentee ballot and/or envelope containing an absentee ballot. Generally, scanner **64** can be any type of conventional scanner, whether based on laser, CCD or some other technology. Cryptographic verifier **70** authenticates the digital signature, utilizing the corresponding public key to the private key used to generate the signature, of the mark generated by the encryption engine **24** of the vote validator **12***a*. CPU **66** is further utilized to verify the validity of the data contained within the mark as described below.

Management system **68** provides management functions related to each of the vote validators **12***a*, **12***b* within the system **10** and verification of the audit reports, previously described, generated by the vote validators **12***a*, **12***b*. For example, when an audit report from vote validator **12***a* is received by verification system **16**, either in printed form or electronically, the verification system **16** obtains the corresponding vote validator record, e.g., record **50**, from the database **14**. Optionally, error correction can be applied to the audit report to assist in the recovery of information contained therein if necessary. The verification system **16** then verifies the digital signature of the audit report, utilizing the cryptographic verifier **70** as described above, and if the signature is verified, management system **68** will then check the information contained within the audit report against the information contained in the vote validator record **50**. In this manner, the operation of the each of the vote validators with the system **10** can be verified to ensure that tampering is not occurring. Such audit reports can be performed at any periodic time intervals desired, such as, for example, daily, weekly or monthly.

Referring now to FIG. **2**, there is illustrated an example of a voting ballot **90** that can be utilized with the vote validation system **10** according to the present invention. Ballot **90** includes an area **92** that lists the candidates from which the voter utilizing the ballot **90** may select, along with a place to mark his vote adjacent to each candidate. Ballot **90** further includes an area **94** to print the authentication/validation mark, described above, that is generated by the vote validator **12***a*. The mark printed on the ballot **90** authenticates the date and location of completion: of the ballot **90**. Preferably, to ensure the privacy and secrecy of the ballot **90**, the ballot **90** can be folded in such a way that the voter's selections are not visible, yet the ballot can still be processed by vote validator **12***a* as described below. Thus, for example, ballot **90** could be folded along line **96** such that the selection area **92** is concealed but the area **94** for the mark

is still visible. Alternatively, of course, the ballot **90** could be folded in half and the mark printed on the outside of the ballot **90**, or any other appropriate method of concealing the voter's selections could be utilized.

Referring now to FIG. **3**, there is illustrated an example of an envelope **100** that can be utilized with the vote validation system **10** of the present invention. Envelope **100** is intended to contain an absentee ballot, such as, for example the ballot **90** of FIG. **2**. Envelope **100** includes an area **102** for the destination address, i.e., the election authority to which the envelope **100** will be returned. Envelope **100** also includes an area **104** for the origin address, i.e., the location from which the envelope **100** is being sent. Envelope **100** may also include an area **106** for the signature of the voter returning the envelope **100**. Envelope **100** further includes an area **108** to print an authentication/validation mark, described above, that is generated by the vote validator **12***a*. The same mark can be printed on both the envelope **100** and the ballot **90**, or alternatively a different mark could be generated for each of the ballot **90** and envelope **100**. Optionally, if it is not desired to verify the date and location of completion of the ballot **90**, but only to verify the date and location of submission of the envelope **100**, only a single mark need be generated by the vote validator **12***a* and printed on the sealed envelope **100** containing the ballot **90**. If vote validator **12***a* includes the optional postage meter **38**, the area **108** could also be utilized to print the postage indicium for the envelope **100** to evidence payment of postage for the envelope **100**. The postage indicium and authentication/validation mark are preferably printed simultaneously as the envelope **100** is processed by the vote validator **12***a*. Alternatively, instead of having two separate marks, i.e., an authentication/validation mark and a postage indicium, these marks could be integrated into a single mark such that the authentication/validation mark could concurrently serve as the postage indicium. It should be noted that if separate marks are provided, they could be printed in different areas of the envelope **100** instead of both marks being printed in area **108**. For example, the marks could be printed on opposite sides of the envelope **100**. Additionally, the authentication/validation mark could be printed across the sealed flap of the envelope **100**, thereby providing an indication of tampering.

Referring now to FIG. **4**, there is illustrated in flow chart form the processing of an individual absentee ballot, such as, for example, ballot **90**, including the generation of an authentication/validation mark according to the present invention. In step **140**, the voter completes the ballot **90** by making one or more selections for the candidate(s) of his choice. The voter can preferably conceal his selections by folding the ballot **90** as previously described or by some other appropriate concealment method. Optionally, if it is desired to verify the date and location of completion of the ballot **90**, then in step **142** the ballot **90** is processed by the vote validator **12***a*. Such processing includes the generation of an authentication/validation mark as previously described and printing of the mark on the ballot **90** or on a label that is affixed to ballot **90**. The mark on the ballot **90** authenticates the date and location of completion of the voter's ballot **90**. As noted above, the mark includes a unique identifier that can identify the ballot **90**, but cannot be used to identify the voter to maintain the secrecy of the voter's selections. In step **144**, the ballot **90** is sealed in an envelope, such as, for example, envelope **100**, and optionally the voter signs the envelope **100** in the signature area **106**. In step **146**, the envelope **100** is processed by the vote validator **12***a*, including the generation and printing of a vote validation mark and optionally a postage indicium mark in the area **108** of envelope **100** or on a label affixed to envelope **100** in the area **108**. As noted above, the mark generated for the envelope **100** may be the same as the mark generated for the ballot **90** or may be a different mark. The mark on the envelope **100** authenticates the date and location that the sealed envelope **100** was submitted for return to the election authority. In step **148**, the envelope **100** is returned to the election authority, such as, for example, by mail.

Referring now to FIG. **5**, there is illustrated in flow diagram form the verification of an envelope **100** and/or absentee ballot **90** having an authentication/validation mark according to the present invention. The processing as described in FIG. **5** can be performed on each of the envelope **100** and the ballot **90** if both are provided with a mark. For conciseness, the description of FIG. **5** will be based on only a single mark, with it being understood that the processing can be repeated for each mark separately. Upon receipt by the local election authority, in step **170** the mark is scanned and the data contained within the mark is retrieved. If the data in the mark is encrypted, then the retrieval of the data also includes decrypting the data. In addition, data retrieval could also include the application of error correction and detection codes to remove any errors. Once the mark has successfully been read and the data retrieved, then in step **172** the verification system **16**, utilizing the data contained within the mark, obtains the corresponding vote validator record **50** from data base **14**. This is performed, for example, based on the identification of the vote validator **12***a* included in the mark. Alternatively, if the verification system **16** communicates directly with the vote validator **12***a*, information can be obtained directly from the vote validator **12***a*.

Once the corresponding vote validator record **50** has been obtained by the verification system **16**, then in step **174** the cryptographic verifier **70** will verify the signature of the mark. Verification of the signature provides assurance that the mark was properly generated by vote validator **12***a* and is not a counterfeit mark. If the signature is not verified, then in step **178** the ballot will be declared invalid, or alternatively the ballot can be set aside for further inspection. If in step **176** the signature is verified, then in step **180** the data retrieved from the mark is verified by comparing it with the data obtained from the vote validator record **50**. Such comparison can be performed, for example by CPU **66**. Specifically, the data is compared to determine if the scanned mark is a duplicate mark of one already verified. This is performed, for example, based on the unique identifier generated by the vote accounting system **26** that is included in each mark. Thus, the unique identifier of the scanned mark can be compared against the archive of all marks previously generated by vote validator **12***a* that have already been verified that is included in the vote validator record **50**. Optionally, the unique identifier of the scanned mark can be compared against the audit record from vote validator **12***a* to ensure that the vote validator **12***a* previously created the mark.

If in step **182** it is determined that the mark is a duplicate mark or was not properly generated by the vote validator **12***a*, then in step **184** the ballot will be declared invalid, or alternatively the ballot can be set aside for further inspection. If in step **182** it is determined that the mark is not a duplicate mark and that the mark was properly generated by vote validator **12***a*, then in step **186** the ballot/envelope is validated, i.e., the date and location of creation and/or submission of the ballot/envelope is verifiable. Accordingly, it can be accurately and indisputably determined, based on

the validation of the ballot/envelope, whether or not the creation and/or submission of the ballot/envelope was timely and in compliance with applicable vote creation/submission regulations. In step **188** the vote validator record **50** is updated to include the just verified mark in the archive of all marks previously generated by vote validator **12***a* that have already been verified.

Thus, according to the present invention, a method and system for validating the creation and submission of absentee ballots is provided. A vote validation system is provided in which an authentication/validation mark is generated and printed on an absentee ballot and/or the envelope that contains the absentee ballot. Upon receipt of the absentee ballot by election officials, the authentication/validation marks printed on the absentee ballot and/or envelope containing the ballot can be verified to ensure the authenticity and creation/submission dates of the absentee ballot. Those skilled in the art will also recognize that various modifications can be made without departing from the spirit of the present invention. For example, envelope **100** could be a window envelope such that the mark on the ballot **90** is visible through the window in the envelope **100**. In this manner, only a single mark needs to be generated and placed on the ballot **90**. The voter could thus submit the absentee ballot **90** to the remote location in which the vote validator **12***a* is located. The voting personnel at that location could process the ballot through the vote validator **12***a*, seal the envelope, have the voter sign the envelope, and then submit the envelope for return to the voter's local election authority. Thus, the single mark provided on the ballot **90** authenticates the date and location of creation and submission of the ballot **90**. Of course, this scenario relies on the voting personnel at the remote location to seal and submit the envelope when the ballot **90** was actually completed, and as such is not as secure as if the envelope is processed after being sealed and a mark is provided for the envelope.

While preferred embodiments of the invention have been described and illustrated above, it should be understood that these are exemplary of the invention and are not to be considered as limiting. Additions, deletions, substitutions, and other modifications can be made without departing from the spirit or scope of the present invention. Accordingly, the invention is not to be considered as limited by the foregoing description but is only limited by the scope of the appended claims.

What is claimed is:

1. A method for validating an absentee ballot comprising:

generating a validation mark with a vote validator device, the validation mark including data associated with the validation mark and an identification of the vote validator device;

signing the validation mark with a digital signature;

applying the validation mark to at least one of the absentee ballot or an envelope containing the absentee ballot;

receiving the absentee ballot or the envelope containing the absentee ballot at a verification system;

scanning, at the verification system, the validation mark applied to the absentee ballot or the envelope containing the absentee ballot;

verifying the digital signature of the validation mark; and

if the digital signature is verified, verifying at least a portion of the data included in the validation mark,

wherein if the at least a portion of the data included in the mark is verified, the absentee ballot is validated.

2. The method of claim **1**, wherein generating a validation mark further comprises:

generating a unique identifier for the validation mark,

wherein the data associated with validation mark includes the unique identifier.

3. The method of claim **2**, wherein the data associated with the validation mark further includes a date the validation mark was generated.

4. The method of claim **1**, wherein generating the validation mark further comprises:

encrypting the data included in the validation mark.

5. The method of claim **4**, wherein scanning further comprises:

decrypting the data included in the validation mark.

6. The method of claim **1**, wherein signing the validation mark further comprises:

signing the validation mark utilizing a private key.

7. The method of claim **6**, wherein verifying the digital signature further comprises:

verifying the digital signature utilizing a public key that corresponds to the private key.

8. The method of claim **1**, wherein applying the validation mark further comprises:

printing the validation mark on at least one of the absentee ballot or the envelope containing the absentee ballot.

9. The method of claim **8**, wherein printing the validation mark on the envelope containing the absentee ballot further comprises:

printing the validation mark across a sealed flap of the envelope.

10. The method of claim **8**, wherein the printed validation mark is provided with a graphical security property.

11. The method of claim **1**, wherein applying the validation mark further comprises:

printing the validation mark on a label for affixing to at least one of the absentee ballot or the envelope containing the absentee ballot.

12. The method of claim **1**, wherein verifying at least a portion of the data further comprises:

obtaining an information record based on the data associated with the validation mark; and

comparing the at least of portion of the data included in the validation mark with data included in the information record.

13. The method of claim **12**, wherein if the at least a portion of the data included in the validation mark is a duplicate of data included in the information record, the at least a portion of data included in the validation mark is not verified.

14. The method of claim **1**, wherein generating a validation mark further comprises:

generating a combination validation mark/postage indicium,

wherein the combination validation mark/postage indicium is applied to an envelope containing the absentee ballot.

15. The method of claim **1**, wherein a first validation mark is applied to the absentee ballot and a second validation mark is applied to the envelope containing the absentee ballot.

16. The method of claim **15**, wherein the first and second validation marks are identical.

17. A method for verifying a date associated with an absentee ballot comprising:

generating a validation mark with a vote validator device, the validation mark including an identification of the vote validator device and a date on which the validation mark was generated;

signing the validation mark with a digital signature;

applying the validation mark to at least one of the absentee ballot or an envelope containing the absentee ballot;

receiving the envelope containing the absentee ballot at a verification system;

scanning the validation mark;

obtaining an information record associated with the vote validator device based on the identification of the vote validator device in the scanned validation mark;

verifying the digital signature of the scanned validation mark; and

if the digital signature is verified, verifying data from the scanned validation mark with data from the information record,

wherein if the data from the scanned validation mark is verified, the date included in the scanned validation mark is verified.

18. The method of claim **17**, wherein the validation mark further includes a unique identifier and the information record includes validation marks previously generated by the vote validator device that have already been verified, and wherein verifying the scanned validation mark further comprises:

comparing the unique identifier of the scanned validation mark with unique identifiers of validation marks previously generated by the vote validator device that have already been verified to determine if the unique identifier is a duplicate,

wherein if the unique identifier is not a duplicate, the date included in the scanned validation mark is verified.

19. The method of claim **17**, wherein the information record includes all validation marks generated by the vote validator device, and verifying the scanned validation mark further comprises:

determining if the scanned validation mark was previously generated by the vote validator device,

wherein if the scanned validation mark was previously generated by the vote validator device, the date included in the scanned validation mark is verified.

20. The method of claim **17**, wherein generating a validation mark further comprises:

generating a combination validation mark/postage indicium.

21. The method of claim **17**, wherein the validation mark is applied to the absentee ballot, and the date signifies the date of completion of the absentee ballot.

22. The method of claim **17**, wherein the validation mark is applied to the envelope containing the absentee ballot, and the date signifies the date the envelope containing the absentee ballot was submitted for return.

23. The method of claim **17**, wherein obtaining an information record further comprises:

obtaining an information record from a data base.

24. The method of claim **17**, wherein obtaining an information record further comprises:

obtaining an information record from the vote validator device.

25. A method for an election authority to process and validate a received absentee ballot comprising:

scanning a validation mark associated with the absentee ballot, the validation mark including data associated with the validation mark and a digital signature;

obtaining an information record associated with a vote validator device that generated the scanned validation mark;

verifying the digital signature of the scanned validation mark; and

if the digital signature is verified, verifying data from the scanned validation mark with data from the information record,

wherein if the data from the scanned validation mark is verified, the absentee ballot is validated.

26. The method of claim **25**, wherein the validation mark is provided on the absentee ballot.

27. The method of claim **25**, wherein the validation mark is provided on an envelope that contains the absentee ballot.

28. The method of claim **25**, wherein the data associated with the validation mark includes a unique identifier and the information record includes validation marks previously generated by the vote validator device that have already been verified, and verifying the data from the scanned validation mark further comprises:

comparing the unique identifier of the scanned validation mark with unique identifiers of validation marks previously generated by the vote validator device that have already been verified to determine if the unique identifier of the scanned validation mark is a duplicate,

wherein if the unique identifier of the scanned validation mark is not a duplicate, the data from the scanned validation mark is verified.

29. The method of claim **25**, wherein the information record includes information associated with all validation marks generated by the vote validator device, and verifying the data from the scanned validation mark further comprises:

determining if the scanned validation mark was previously generated by the vote validator device,

wherein if the scanned validation mark was previously generated by the vote validator device, the data from the scanned validation mark is verified.

30. A method of processing an absentee ballot for return to an election authority comprising:

generating a validation mark with a vote validator device, the validation mark authenticating a date of processing of the absentee ballot for return to the election authority;

signing the validation mark with a digital signature; and

applying the validation mark to at least one of the absentee ballot or an envelope containing the absentee ballot.

31. The method of claim **30**, wherein applying the validation mark further comprises:

printing the validation mark on at least one of the absentee ballot or the envelope containing the absentee ballot.

32. The method of claim **31**, wherein the printed validation mark is provided with a graphical security property.

33. The method of claim **31**, wherein printing the validation mark on the envelope containing the absentee ballot further comprises:

printing the validation mark across a sealed flap of the envelope.

34. The method of claim **30**, wherein applying the validation mark further comprises:

printing the validation mark on a label for affixing to at least one of the absentee ballot or the envelope containing the absentee ballot.

35. The method of claim **30**, wherein applying the validation mark further comprises:

applying a first validation mark to the absentee ballot; and

applying a second validation mark to the envelope containing the absentee ballot.

36. The method of claim **35**, wherein the first and second validation marks are identical.

37. The method of claim **30**, wherein the validation mark includes an identification of the vote validator device, a

unique identification number, and a date on which the validation mark was generated.

38. A vote validation system comprising:

a vote validator device to generate a validation mark associated with an absentee ballot, the validation mark including an identification of the vote validator device, a unique identification number, a date the validation mark was generated, and a digital signature, the vote validator device providing the validation mark on the absentee ballot or an envelope containing the absentee ballot, the validation mark authenticating a date of processing of the absentee ballot or the envelope containing the absentee ballot; and

a verification system to verify the validation mark by scanning the validation mark, verifying the digital signature of the validation mark, and verifying at least a portion of data included in the validation mark,

wherein if the at least a portion of the data included in the validation mark is verified, the absentee ballot is validated.

39. The vote validation system of claim **38**, further comprising:

a data base to store at least one record associated with the vote validator device, the record including information associated with the vote validator device,

wherein the verification system communicates with the data base to obtain the at least one record associated with the vote validator device to verify the validation mark.

40. The vote validation system of claim **39**, wherein the verification system further comprises:

a management system to compare data included in an audit report generated by the vote validator device with data included in the at least one record associated with the vote validator device that is stored in the data base.

41. A vote validator device for processing an absentee ballot comprising:

a processing unit to generate a validation mark associated with the absentee ballot,

an accounting system coupled to the processing unit, the accounting system generating a unique identification number for the validation mark, the unique identification number being included in the validation mark;

a memory device coupled to the processing unit, the memory device storing information related to the vote validator device and a cryptographic key;

an encryption device coupled to the processing unit, the encryption device generating a digital signature for the validation mark utilizing the cryptographic key, the digital signature being included in the validation mark;

a clock to provide a date when the validation mark was generated, the date being included in the validation mark; and

a printer coupled to the processor to print the validation mark on the absentee ballot or an envelope containing the absentee ballot,

wherein the validation mark authenticates the date of processing the absentee ballot or the envelope containing the absentee ballot.

42. The vote validator device of claim **41**, further comprising:

a communication system coupling the vote validator device with a data base, the data base storing at least one record associated with the vote validator device.

43. The vote validator device of claim **41**, further comprising:

a postage meter coupled to the printer,

wherein the postage meter generates a postage indicium that is printed by the printer on the envelope containing the absentee ballot.

44. The vote validator device of claim **43**, wherein the validation mark is combined with the postage indicium.

45. The vote validator device of claim **41**, wherein the printer is coupled to the processor via a secure link.

46. The vote validator device of claim **41**, wherein the clock is external to the vote validator device.

47. A system for an election authority to process and validate a received absentee ballot comprising:

means for scanning a validation mark associated with the absentee ballot, the validation mark including data associated with the validation mark and a digital signature;

means for obtaining an information record associated with a vote validator device that generated the scanned validation mark;

means for verifying the digital signature of the scanned validation mark; and

if the digital signature is verified, means for verifying data from the scanned validation mark with data from the information record,

wherein if the data from the scanned validation mark is verified, the absentee ballot is validated.

48. The system of claim **47**, wherein the validation mark is provided on the absentee ballot.

49. The system of claim **47**, wherein the validation mark is provided on an envelope that contains the absentee ballot.

50. The system of claim **47**, wherein the data associated with the validation mark includes a unique identifier and the information record includes validation marks previously generated by the vote validator device that have already been verified, and the means for verifying the data from the scanned validation mark further comprises:

means for comparing the unique identifier of the scanned validation mark with unique identifiers of validation marks previously generated by the vote validator device that have already been verified to determine if the unique identifier of the scanned validation mark is a duplicate,

wherein if the unique identifier of the scanned validation mark is not a duplicate, the data from the scanned validation mark is verified.

51. The system of claim **47**, wherein the information record includes all validation marks generated by the vote validator device, and the means for verifying the data from the scanned validation mark further comprises:

means for determining if the scanned validation mark was previously generated by the vote validator device,

wherein if the scanned validation mark was previously generated by the vote validator device, the data from the scanned validation mark is verified.

* * * * *

US007516892B2

(12) **United States Patent**
Haas et al.

(10) **Patent No.: US 7,516,892 B2**
(45) **Date of Patent: Apr. 14, 2009**

(54) **ELECTRONIC VOTING SYSTEM AND METHOD HAVING CONFIRMATION TO DETECT MODIFICATION OF VOTE COUNT**

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(73) Assignee: **Pitney Bowes Inc.**, Stamford, CT (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 8 days.

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(65) **Prior Publication Data**

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G06K 17/00 (2006.01)
G07C 13/00 (2006.01)

(52) **U.S. Cl.** **235/386**; 235/51; 705/12

(58) **Field of Classification Search** 235/51, 235/386; 705/12
See application file for complete search history.

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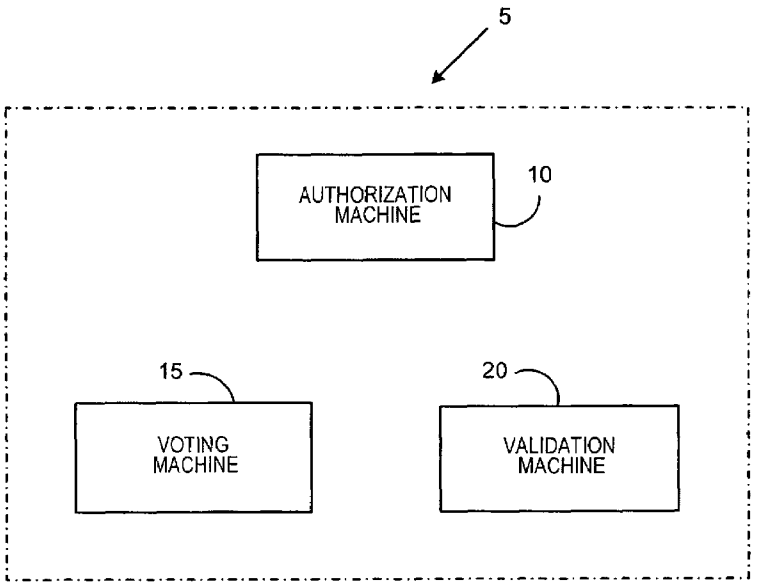
Assistant Examiner—Ali Sharifzada
(74) *Attorney, Agent, or Firm*—Brian A. Lemm; Angelo N. Chaclas

(57) **ABSTRACT**

A voting system includes one or more voting machines provided at a specific location, wherein for each authorized voter one of the voting machines is adapted to record a first set of voting selections, and one or more validation machines provided at the specific location, wherein for each authorized voter one of the validation machines is adapted to present the first set of voting selections to the authorized voter and record a second set of voting selections only if the first set of voting selections is confirmed. A first vote tally is determined from the first set of voting selections of each authorized voter, and a second vote tally is determined from the second set of voting selections of each authorized voter. The first vote tally is then compared to the second vote tally, wherein a vote modification may have occurred if the tallies do not match.

6 Claims, 4 Drawing Sheets



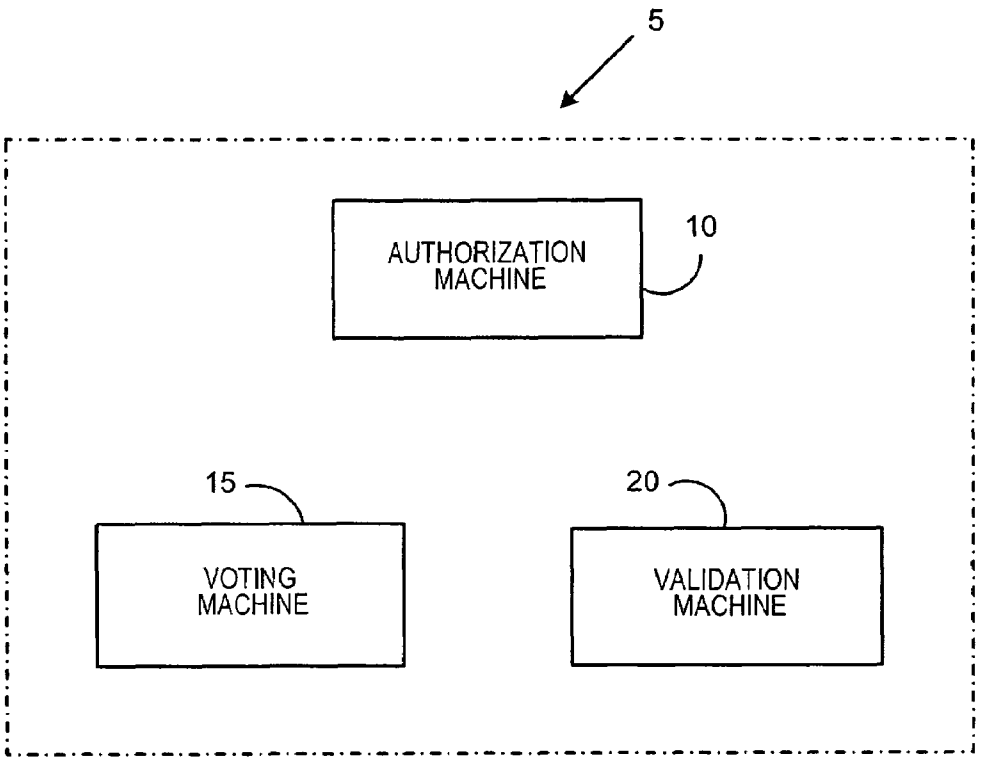

5
AUTHORIZATION MACHINE
10
15
VOTING MACHINE
20
VALIDATION MACHINE

FIG. 1

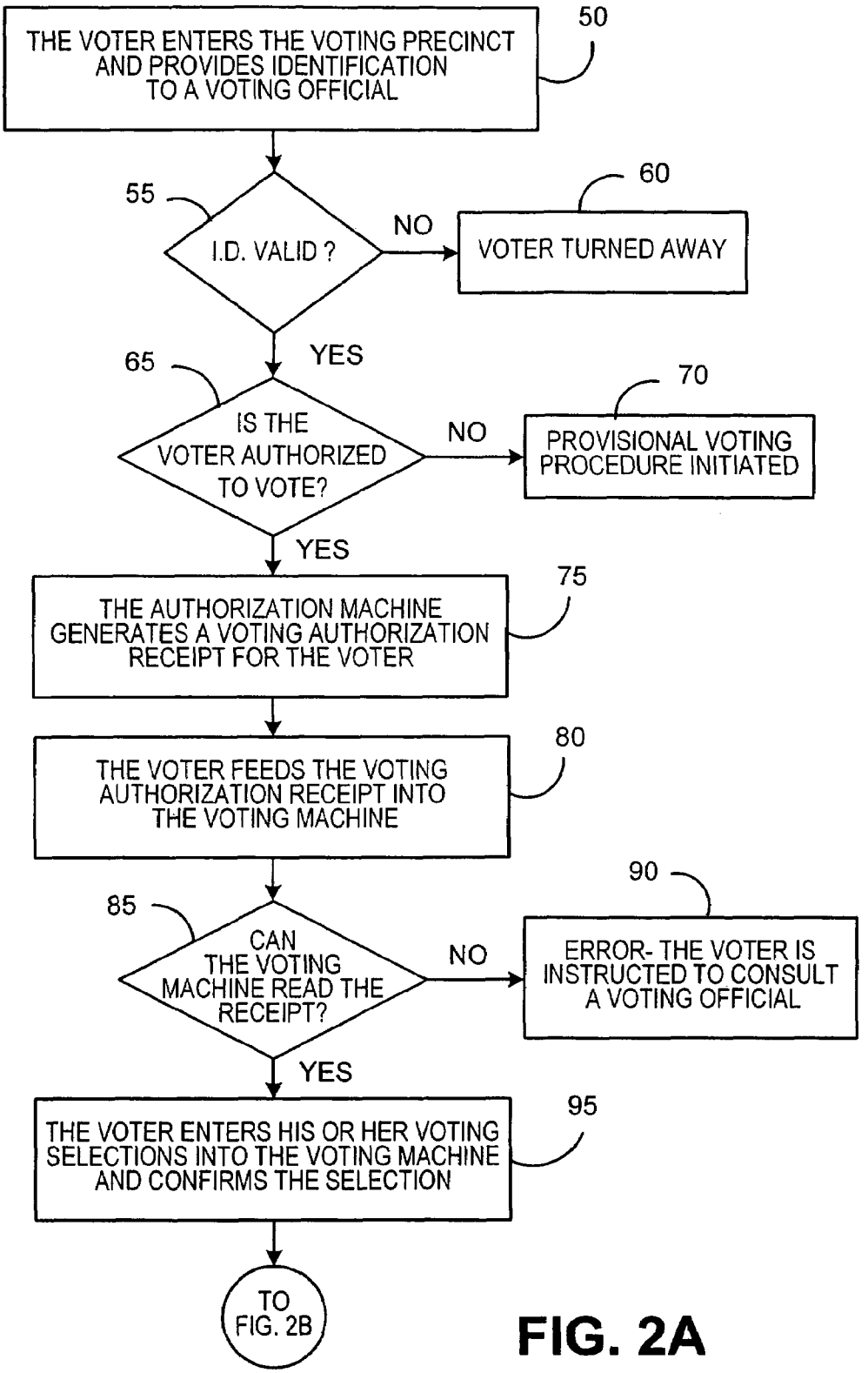

THE VOTER ENTERS THE VOTING PRECINCT AND PROVIDES IDENTIFICATION TO A VOTING OFFICIAL
50
55
I.D. VALID ?
NO
60
VOTER TURNED AWAY
YES
65
IS THE VOTER AUTHORIZED TO VOTE?
NO
70
PROVISIONAL VOTING PROCEDURE INITIATED
YES
THE AUTHORIZATION MACHINE GENERATES A VOTING AUTHORIZATION RECEIPT FOR THE VOTER
75
THE VOTER FEEDS THE VOTING AUTHORIZATION RECEIPT INTO THE VOTING MACHINE
80
85
CAN THE VOTING MACHINE READ THE RECEIPT?
NO
90
ERROR- THE VOTER IS INSTRUCTED TO CONSULT A VOTING OFFICIAL
YES
THE VOTER ENTERS HIS OR HER VOTING SELECTIONS INTO THE VOTING MACHINE AND CONFIRMS THE SELECTION
95
TO FIG. 2B

FIG. 2A

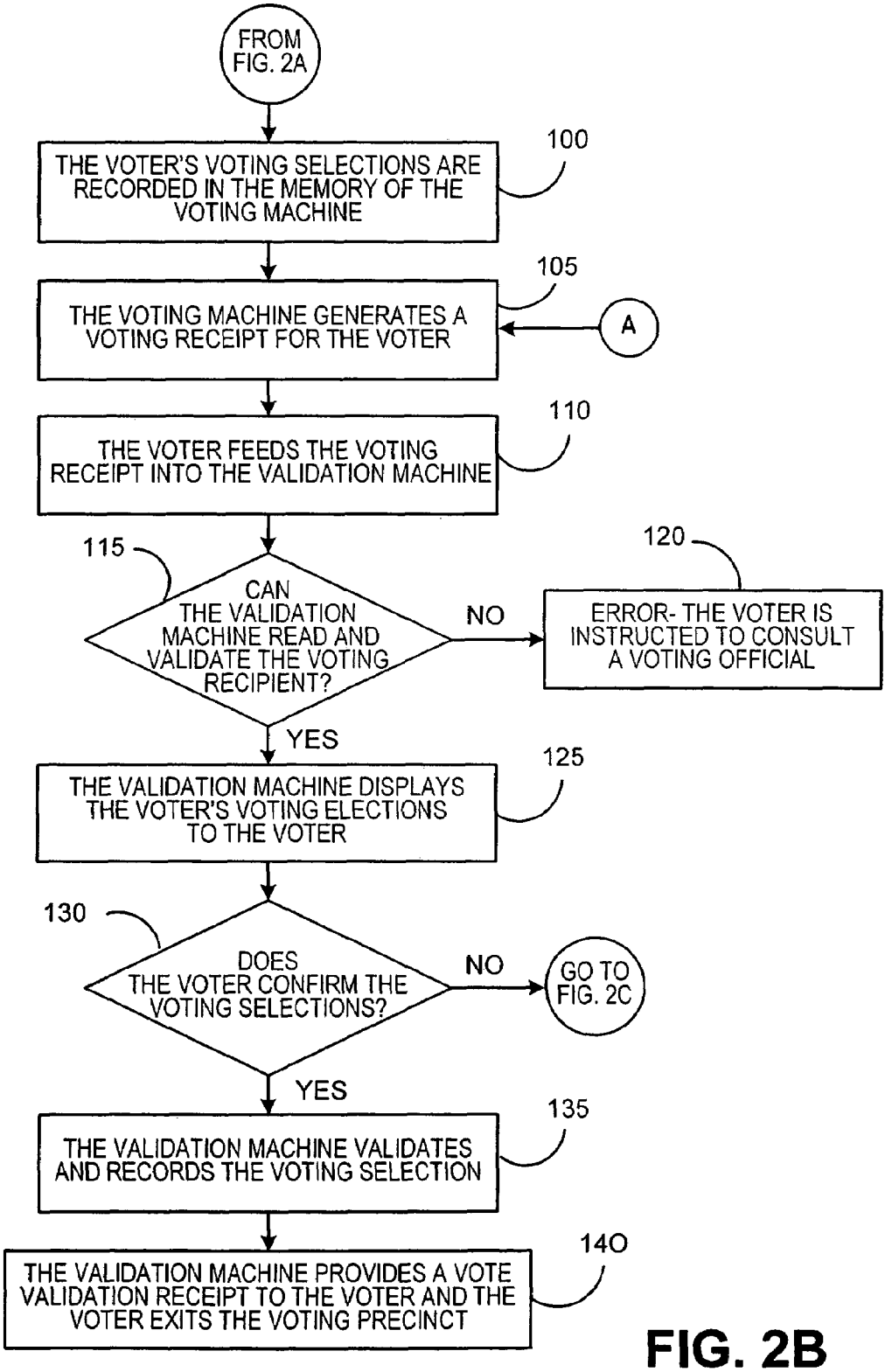

FROM FIG. 2A
THE VOTER'S VOTING SELECTIONS ARE RECORDED IN THE MEMORY OF THE VOTING MACHINE
100
THE VOTING MACHINE GENERATES A VOTING RECEIPT FOR THE VOTER
105
A
THE VOTER FEEDS THE VOTING RECEIPT INTO THE VALIDATION MACHINE
110
CAN THE VALIDATION MACHINE READ AND VALIDATE THE VOTING RECIPIENT?
115
NO
ERROR- THE VOTER IS INSTRUCTED TO CONSULT A VOTING OFFICIAL
120
YES
THE VALIDATION MACHINE DISPLAYS THE VOTER'S VOTING ELECTIONS TO THE VOTER
125
DOES THE VOTER CONFIRM THE VOTING SELECTIONS?
130
NO
GO TO FIG. 2C
YES
THE VALIDATION MACHINE VALIDATES AND RECORDS THE VOTING SELECTION
135
THE VALIDATION MACHINE PROVIDES A VOTE VALIDATION RECEIPT TO THE VOTER AND THE VOTER EXITS THE VOTING PRECINCT
140

FIG. 2B

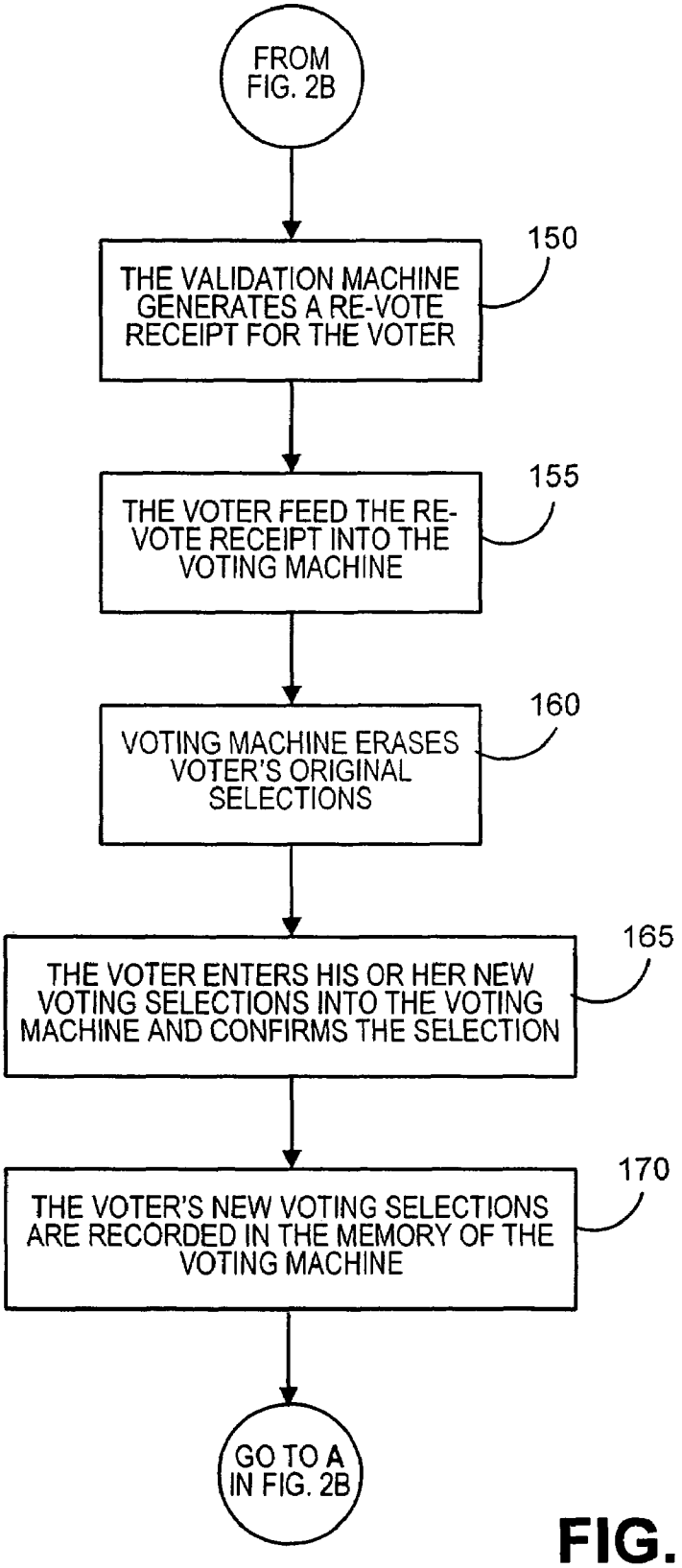

FROM FIG. 2B
150
THE VALIDATION MACHINE GENERATES A RE-VOTE RECEIPT FOR THE VOTER
155
THE VOTER FEED THE RE-VOTE RECEIPT INTO THE VOTING MACHINE
160
VOTING MACHINE ERASES VOTER'S ORIGINAL SELECTIONS
165
THE VOTER ENTERS HIS OR HER NEW VOTING SELECTIONS INTO THE VOTING MACHINE AND CONFIRMS THE SELECTION
170
THE VOTER'S NEW VOTING SELECTIONS ARE RECORDED IN THE MEMORY OF THE VOTING MACHINE
GO TO A IN FIG. 2B

FIG. 2C

ELECTRONIC VOTING SYSTEM AND METHOD HAVING CONFIRMATION TO DETECT MODIFICATION OF VOTE COUNT

FIELD OF THE INVENTION

The present invention relates to voting systems, and in particular to an electronic voting system that reduces the potential that voter counts can be modified without being detected.

BACKGROUND OF THE INVENTION

Most conventional voting systems in place around the world utilize either paper ballots or mechanical voting booths having mechanical switches and levers that, when actuated, increment a plurality of mechanical counters. These conventional systems present a number of problems for election processes. For example, paper ballots can become physically damaged or altered between the time the voter makes his or her selection and the time a ballot-counting machine eventually reads the voter's selection on the ballot. In addition, with paper ballots, voters can inadvertently cast a vote for the wrong candidate by, for example, punching a hole or placing a mark next to a different candidate than was intended. Mechanical voting booths, while solving some of the problems presented by paper ballots, present problems of their own. For instance, voting booths are fairly expensive, have many mechanical parts which require routine maintenance and repair, and are typically heavy and cumbersome to move and set up.

More recently, electronic voting systems have been developed with an eye toward solving the problems presented by systems that employ paper ballots and/or mechanical voting booths. However, none of the electronic voting systems developed to date has proven to be secure and efficient enough to result in the widespread use thereof (in place of existing paper ballot and/or mechanical voting booth systems). One main concern with electronic voting systems is that a company providing the electronic voting machines may illegally modify the vote counts in a manner that is difficult to notice and/or detect. Thus, there is a need for an electronic voting system that reduces the potential that voter counts can be modified without being detected.

SUMMARY OF THE INVENTION

In one embodiment, the present invention provides a voting method that includes first determining whether each of a plurality of potential voters is authorized to vote at a specific location, wherein each of the potential voters determined to be authorized to vote at the specific location is an authorized voter. The method further includes for each authorized voter: (i) recording a first set of voting selections in a voting step, and (ii) separately recording a second set of voting selections in a validation step wherein the authorized voter is presented with the first set of voting selections of the authorized voter and asked to confirm the first set of voting selections and wherein the second set of voting selections are recorded only if the authorized voter confirms the first set of voting selections. The method also includes determining from the first set of voting selections of each authorized voter a first vote tally for the specific location, determining from the second set of voting selections of each authorized voter a second vote tally for the specific location, comparing the first vote tally to the second vote tally, and determining that a vote modification may have occurred if the first vote tally and the second vote tally do not match. The step of determining whether each of a plurality of potential voters is authorized to vote at a specific location may include checking an identification of each of the potential voters and checking whether each of the potential voters is on a list of voters authorized to vote at the specific location.

The voting step in the method may further include for each authorized voter providing the authorized voter with a voting receipt including a listing of the first set of voting selections for the authorized voter. The listing of the first set of voting selections for the authorized voter may be machine readable and encrypted, wherein for each authorized voter the validation step further comprises determining whether the listing can be read and validated, and wherein the authorized voter is presented with the first set of voting selections and asked to confirm the first set of voting selections only if it is determined that the listing can be read and validated.

In one particular embodiment, the method further includes counting each authorized voter to determine a number of authorized voters, counting each first set of voting selections to determine a number of first sets of voting selections, counting each second set of voting selections to determine a number of second sets of voting selections, and determining that a vote modification may have occurred if either or both of the number of first sets of voting selections or the number of second sets of voting selections exceeds the number of authorized voters.

In another embodiment, the invention provides a voting system wherein a determination is made as to whether each of a plurality of potential voters is authorized to vote at a specific location, and wherein each of the potential voters determined to be authorized to vote at the specific location is an authorized voter. The voting system includes one or more voting machines and one or more validation machines provided at the specific location, wherein for each authorized voter one of the one or more voting machines is adapted to record a first set of voting selections, and one of the one or more validation machines is adapted to present the first set of voting selections of the authorized voter to the authorized voter and record a second set of voting selections only if the authorized voter confirms the first set of voting selections. A first vote tally for the specific location is determined from the first set of voting selections of each authorized voter, and a second vote tally for the specific location is determined from the second set of voting selections of each authorized voter. The first vote tally is then compared to the second vote tally, and it is determined that a vote modification may have occurred if the first vote tally and the second vote tally do not match.

Therefore, it should now be apparent that the invention substantially achieves all the above aspects and advantages. Additional aspects and advantages of the invention will be set forth in the description that follows, and in part will be obvious from the description, or may be learned by practice of the invention. Moreover, the aspects and advantages of the invention may be realized and obtained by means of the instrumentalities and combinations particularly pointed out in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings illustrate presently preferred embodiments of the invention, and together with the general description given above and the detailed description given below, serve to explain the principles of the invention. As shown throughout the drawings, like reference numerals designate like or corresponding parts.

FIG. **1** is a schematic representation of a voting precinct in which an electronic voting system in accordance with an embodiment of the present invention may be implemented; and

FIGS. **2**A-**2**C are flowcharts that illustrate a method of electronic voting according to an embodiment of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. **1** is a schematic representation of a voting precinct **5**, which may be, for example, a building or a room or rooms within a building, in which an electronic voting system in accordance with an embodiment of the present invention may be implemented. The electronic voting system of the present invention reduces the potential that voter counts can be modified without being detected by providing the following three processes: (i) an identification and authentication process, (ii) a voting process, and (iii) a validation process that is separate from the voting process. As described in more detail elsewhere herein, the separate voting and validation processes allow for a comparison of votes to be made to ensure that there has not been any unauthorized modification of the vote count.

As seen in FIG. **1**, the voting precinct **5** includes an optional authorization machine **10**, a voting machine **15**, and a validation machine **20** for implementing the three processes of the present invention. While a single authorization machine **10**, voting machine **15** and validation machine **20** are shown in FIG. **1** for ease of illustration, it should be understood that more than one of each such machine may be provided at the voting precinct **5** for providing the functionality described herein without departing from the scope of the present invention. The authorization machine **10**, the voting machine **15** and the validation machine **20** each include a suitable computing device, such as a PC or other embedded computer, that includes a suitable processor and memory for providing the functionality described herein. For example, the authorization machine **10**, the voting machine **15** and/or the validation machine **20** are provided with the functional ability and components to generate, print, read and/or validate one or more types of receipts that are described elsewhere herein. The voting machine **10** and validation machine **15** are preferably designed and constructed independently such that knowledge of or hacking of one machine would not compromise the system of the two machines. Preferably, the voting machines **10** and validation machines **15** are manufactured and maintained by separate, different parties, thereby providing a system of checks and balances to prevent one party from illegally modifying the vote counts without being detected by the other party.

FIGS. **2**A, **2**B and **2**C are flowcharts that illustrate a method of electronic voting according to an embodiment of the present invention that may be implemented in the voting precinct **5** shown in FIG. **1** and that preferably employs the three processes, namely identification/authorization, voting and validation, described elsewhere herein. The method begins at step **50**, wherein a voter enters the voting precinct **5** and provides some form of identification, such as a driver's license, to a voting official working at the voting precinct **5**. At step **55**, a determination is made as to whether the identification is valid, i.e., is it a proper form of identification and can it be used to positively identify the voter. If the answer at step **55** is no, then, at step **60**, the voter is turned away. If, however, the answer at step **55** is yes, then, at step **65**, a determination is made as to whether the voter is authorized to vote at the voting precinct **5**. This is preferably done by checking whether the voter is listed on a list of registered voters eligible to vote at the voting precinct **5**. Step **65** may be performed manually by the voting official. Alternatively, and in the preferred embodiment, the voter's identification information may be entered into the authorization machine **10** (if provided) at the voting precinct **5** (e.g., manually through a keyboard or by being read from a barcode or magnetic strip provided on the voter's identification), which in turn determines whether the voter is listed on a list of registered voters eligible to vote at the voting precinct **5**. If the answer at step **65** is no, then the voter may be directed to the proper voting precinct for that voter, or, alternatively, as shown in step **70**, steps may be taken to allow the voter to cast a provisional vote at the voting precinct **5**.

If, however, the answer at step **65** is yes, meaning that the voter is authorized to vote at the voting precinct **5**, then, at step **75**, the authorization machine **10** generates and prints a voting authorization receipt for the voter. Preferably, the voting authorization receipt includes the voter's identification information, e.g., name and address, in a machine readable form. The voting authorization receipt may also be encrypted utilizing, for example, a hash of the voter's identification information that is generated using a secret seed such that the information looks random and it is difficult to generate without knowledge of the secret seed. This can help prevent fraudulent generation of voting authorization receipts and prevent voter's from attempting to vote more than once without being detected. Next, at step **80**, the voter approaches the voting machine **15** provided at the voting precinct **5** (or one of the voting machines **15** if more than one is provided) and feeds the voting authorization receipt into the voting machine **15**. At step **85**, a determination is made as to whether the voting machine **15** can read the voting authorization receipt. If the answer at step **85** is no, then in step **90** an error condition is identified and the voter is instructed to consult a voting official at the voting precinct **5** to obtain assistance in completing the voting process. If, however, the answer at step **85** is yes, then in step **95** the voter enters his or her voting selections into the voting machine **15** (e.g., using a keyboard, touch screen or some other suitable I/O device provided as part of the voting machine **15**) and confirms the selections. It should be understood that if the authorization machine **10** is not provided as part of the system **5**, than steps **75**, **80** and **85** will not be performed, and instead if it is determined that the voter is authorized to vote in step **65**, then the process will proceed to step **95** where the voter will be given access to the voting machine **15** to enter his or her voting selections into the voting machine **15** as described above.

Next, at step **100** (FIG. **2**B), the voter's voting selections are recorded in the memory of the voting machine **15**. Preferably, the voting machine **15** is provided in a private booth or the like so that the voter may cast his or her vote in privacy. At step **105**, the voting machine **15** then generates and prints a voting receipt for the voter. In the preferred embodiment, the voting receipt includes in a machine readable form (e.g., 2-D barcode) an encrypted listing of the voter's confirmed voting selections. The listing may be encrypted by, for example and without limitation, a secret key stored by the voting machine **15** (and, as described below, also stored by the validation machine **20**).

Next, at step **110**, the voter approaches the validation machine **20** that is provided at the voting precinct **5** (or one of the validation machines **20** if more than one is provided) and feeds the voting receipt into the validation machine **20**. For privacy reasons, the validation machine **20** is preferably provided in a private booth or the like. At step **115**, a determination is made as whether the validation machine can read and

validate the voting receipt. Preferably, to successfully read and validate the voting receipt, the voting machine **20** must be able to read the machine readable information, successfully decrypt the encrypted voting selections (using the stored secret key), and verify any digital signatures or other authentication codes (e.g., a MAC) provided on the voting receipt. If the answer at step **115** is no, then, at step **120**, an error condition is identified and the voter is instructed to consult a voting official at the voting precinct **5** to obtain assistance in completing the voting process. If the answer at step **115** is yes, then, at step **125**, the validation machine **20** displays the voter's voting selections to the voter, preferably on a screen provided as part of the validation machine **20**. Next, at step **130**, the voter is asked to confirm his or her previously made voting selections. If the voter confirms his or her voting selections at step **130**, then, at step **135**, the validation machine **20** validates and records in memory the confirmed voting selections. Then, at step **140**, the validation machine **20** provides a vote validation receipt to the voter, that indicates, for example, that the voter has successfully voted and validated his or her vote, and the voter exits the voting precinct **5**.

If, however, the voter does not confirm the prior selections in step **130**, then an error condition can be indicated and the voter can be instructed to consult a voting official for assistance in completing the voting process or, optionally, the voter may be allowed to change his voting selections utilizing the process as illustrated in FIG. **2**C. At step **150**, the validation machine **20** will generate a re-vote receipt for the voter. The re-vote receipt would be tied to the original selections made by the voter, thereby allowing the voter's original selections to be erased from the memory of the voting machine. In step **155**, the voter feeds the re-vote receipt into the voting machine **15**, which in step **160** reads the re-vote receipt and erases the original selections made by the voter that are stored in memory. In step **165**, the voter enters his or her new voting selections into the voting machine **15** similarly as described above. In step **170**, the voter's new voting selections are recorded in the memory of the voting machine **15**. The process then returns to step **105** of FIG. **2**B, where the voting machine generates a new voting receipt for the voter and the voter can validate and confirm his or her new vote selections.

At the end of the voting period (e.g., when the polls close at the end of the day), the number of voters authorized to vote in the voting precinct **5** can be determined from the authorization machine **10** (or machines **10** if more than one is utilized) or from the physical records of the voting officials if authorization machines **10** are not provided, and the number of votes recorded in each of the voting machine **15** (or machines **15** if more than one is utilized) and the validation machine **20** (or machines **20** if more than one is utilized) can be determined. The number of votes recorded in each of the voting machine (or machines) **15** and the validation machine (or machines) **20** should not be more than the number of voters admitted to vote as recorded in the authorization machine (or machines) **10** (or voting official records), and the vote tallies (i.e., the number of votes for each candidate) in the voting machine (or machines) **15** and the validation machine (or machines **20**) should be identical. A discrepancy in either of the numbers is an indication to the voting officials that a modification in the voting numbers may have occurred, and appropriate action may then be initiated. Thus, by employing the three processes described herein (identification/authorization, voting and validation), the present invention provides an electronic voting system that reduces the potential that voter counts can be modified without being detected.

While preferred embodiments of the invention have been described and illustrated above, it should be understood that these are exemplary of the invention and are not to be considered as limiting. Additions, deletions, substitutions, and other modifications can be made without departing from the spirit or scope of the present invention. Accordingly, the invention is not to be considered as limited by the foregoing description but is only limited by the scope of the appended claims.

What is claimed is:

1. A voting method, comprising:

recording in a voting machine a first set of voting selections in a voting step for a voter;

printing, with the voting machine, a voting receipt including an encrypted listing of the first set of voting selections for the voter and providing the voting receipt to the voter;

receiving the voting receipt in a validation machine separate from the voting machine;

decrypting the encrypted listing of the first set of voting selections for the voter included in the voting receipt in the validation machine;

displaying the decrypted listing of the first set of voting selections for the voter, using a display of the validation machine, to the voter;

receiving from the voter, at the validation machine, a confirmation of the first set of voting selections for the voter;

upon receiving said confirmation, recording a second set of voting selections for said voter in said validation machine, wherein said second set of voting selections are recorded only if the voter confirms said first set of voting selections;

determining from said first set of voting selections of all voters a first vote tally;

determining from said second set of voting selections of all voters a second vote tally;

comparing said first vote tally to said second vote tally; and

determining that a vote modification may have occurred if said first vote tally and said second vote tally do not match.

2. The method according to claim **1**, further comprising counting each voter to determine a number of voters, counting each first set of voting selections to determine a number of first sets of voting selections, counting each second set of voting selections to determine a number of second sets of voting selections, and determining that a vote modification may have occurred if either or both of said number of first sets of voting selections or said number of second sets of voting selections exceeds said number of voters.

3. The method according to claim **1**, wherein before recording a first set of voting selections is performed, the method further comprises:

determining whether each of a plurality of potential voters is authorized to vote at a specific location, wherein each of said potential voters determined to be authorized to vote at said specific location is a voter.

4. The method according to claim **3**, wherein said step of determining whether each of a plurality of potential voters is authorized to vote at a specific location comprises checking an identification of each of said potential voters and checking whether each of said potential voters is on a list of voters authorized to vote at said specific location.

5. A voting system wherein a plurality of voters are authorized to vote at a specific location, the voting system comprising:

one or more voting machines provided at said specific location, wherein for each voter of said plurality of vot-

ers, one of said one or more voting machines is adapted to record a first set of voting selections and provide said voter with a voting receipt including an encrypted listing of the first set of voting selections for the respective voter; and

one or more validation machines, separate from said voting machines, provided at said specific location, wherein for each said voter one of said one or more validation machines is adapted to receive the encrypted listing of the first set of voting selections for said voter, decrypt the encrypted listing, present said decrypted first set of voting selections of said voter to said voter using a display of the validation machine, request the voter to confirm said first set of voting selections displayed on said display, and record a second set of voting selections in said validation machine only if the voter confirms said first set of voting selections of said voter;

wherein a first vote tally for said specific location can be determined from said first set of voting selections of said plurality of voters, a second vote tally for said specific location can be determined from said second set of voting selections of said plurality of voters, and said first vote tally can be compared to said second vote tally to determine if a vote modification may have occurred if said first vote tally and said second vote tally do not match.

6. The voting system according to claim **5**, further comprising one or more authorization machines at said specific location, wherein each of said one or more authorization machines is adapted to determine whether a potential voter is authorized to vote at said specific location by checking whether the potential voter is on a list of voters authorized to vote at said specific location maintained by said one or more authorization machines.

* * * * *

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(12) **United States Patent**
Haas

(10) **Patent No.: US 7,621,450 B2**
(45) **Date of Patent: Nov. 24, 2009**

(54) **VOTE BY MAIL SYSTEM THAT ALLOWS VOTERS TO VERIFY THEIR VOTES**

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(73) Assignee: **Pitney Bowes Inc.**, Stamford, CT (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 82 days.

(21) Appl. No.: **11/961,116**

(22) Filed: **Dec. 20, 2007**

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(51) **Int. Cl.**
G06K 17/00 (2006.01)
G07C 13/00 (2006.01)
G06F 11/00 (2006.01)

(52) **U.S. Cl.** **235/386**; 705/12

(58) **Field of Classification Search** ..... None
See application file for complete search history.

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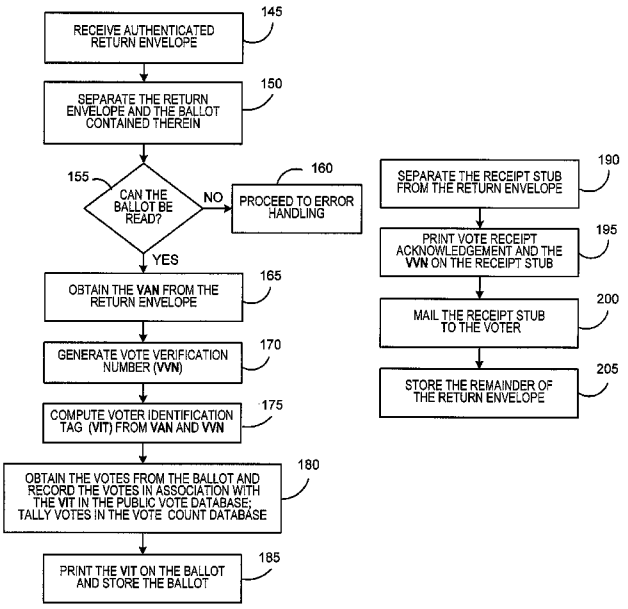
Primary Examiner—Michael G Lee
Assistant Examiner—Suezu Ellis
(74) *Attorney, Agent, or Firm*—Brian A. Lemm; Angelo N. Chaclas

(57) **ABSTRACT**

A method of enabling a voter to verify that a ballot has been received and counted as intended in a vote by mail election that includes receiving the ballot from the voter in the mail, generating a vote verification mechanism for the voter, obtaining the voter's votes from the ballot and counting the votes in the election. The method further includes storing voter vote information including the voter's votes that were counted in the election, providing to the voter the vote verification mechanism and an acknowledgment that the ballot has been received and counted, and, after the election has been closed, receiving the vote verification mechanism from the voter, obtaining the voter vote information from storage using the vote verification mechanism, and displaying the voter vote information for the voter so that the voter can verify that his or her votes have in fact been counted as intended.

16 Claims, 9 Drawing Sheets



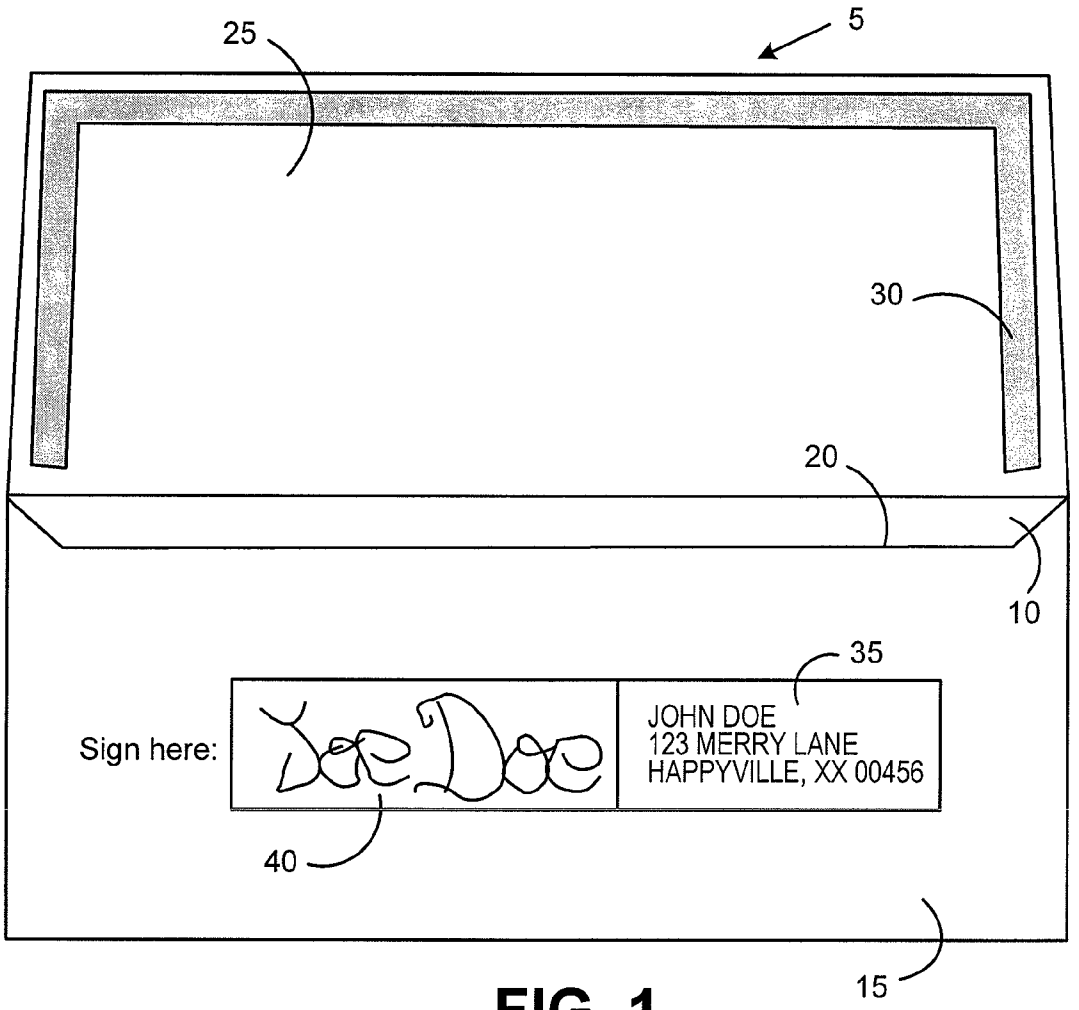

25
5
30
20
10
35
Sign here:
JOHN DOE
123 MERRY LANE
HAPPYVILLE, XX 00456
40
15

FIG. 1

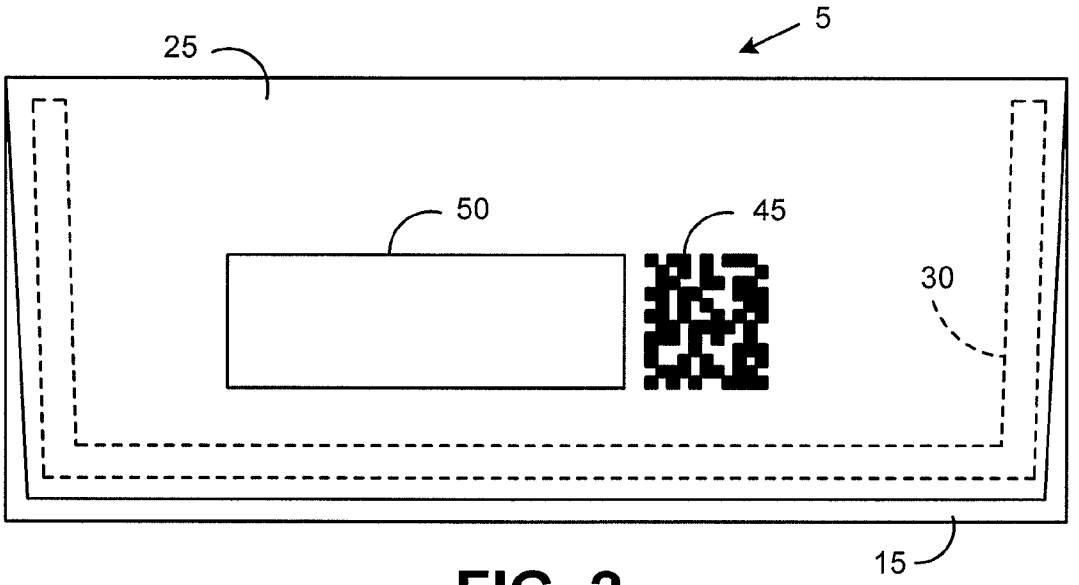

25
5
50
45
30
15

FIG. 2

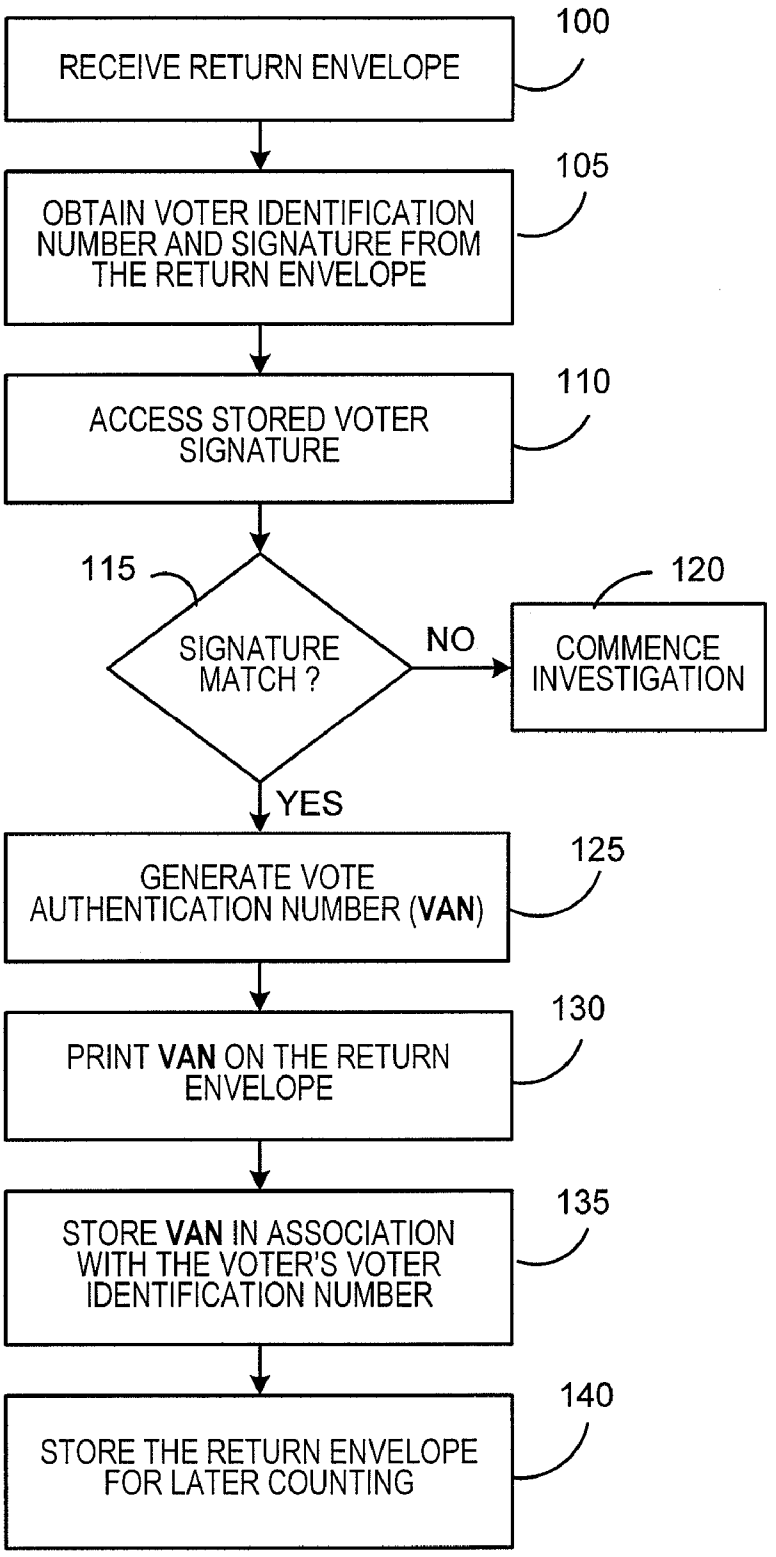

RECEIVE RETURN ENVELOPE
100
OBTAIN VOTER IDENTIFICATION NUMBER AND SIGNATURE FROM THE RETURN ENVELOPE
105
ACCESS STORED VOTER SIGNATURE
110
115
SIGNATURE MATCH ?
NO
120
COMMENCE INVESTIGATION
YES
GENERATE VOTE AUTHENTICATION NUMBER (VAN)
125
PRINT VAN ON THE RETURN ENVELOPE
130
STORE VAN IN ASSOCIATION WITH THE VOTER'S VOTER IDENTIFICATION NUMBER
135
STORE THE RETURN ENVELOPE FOR LATER COUNTING
140

FIG. 3

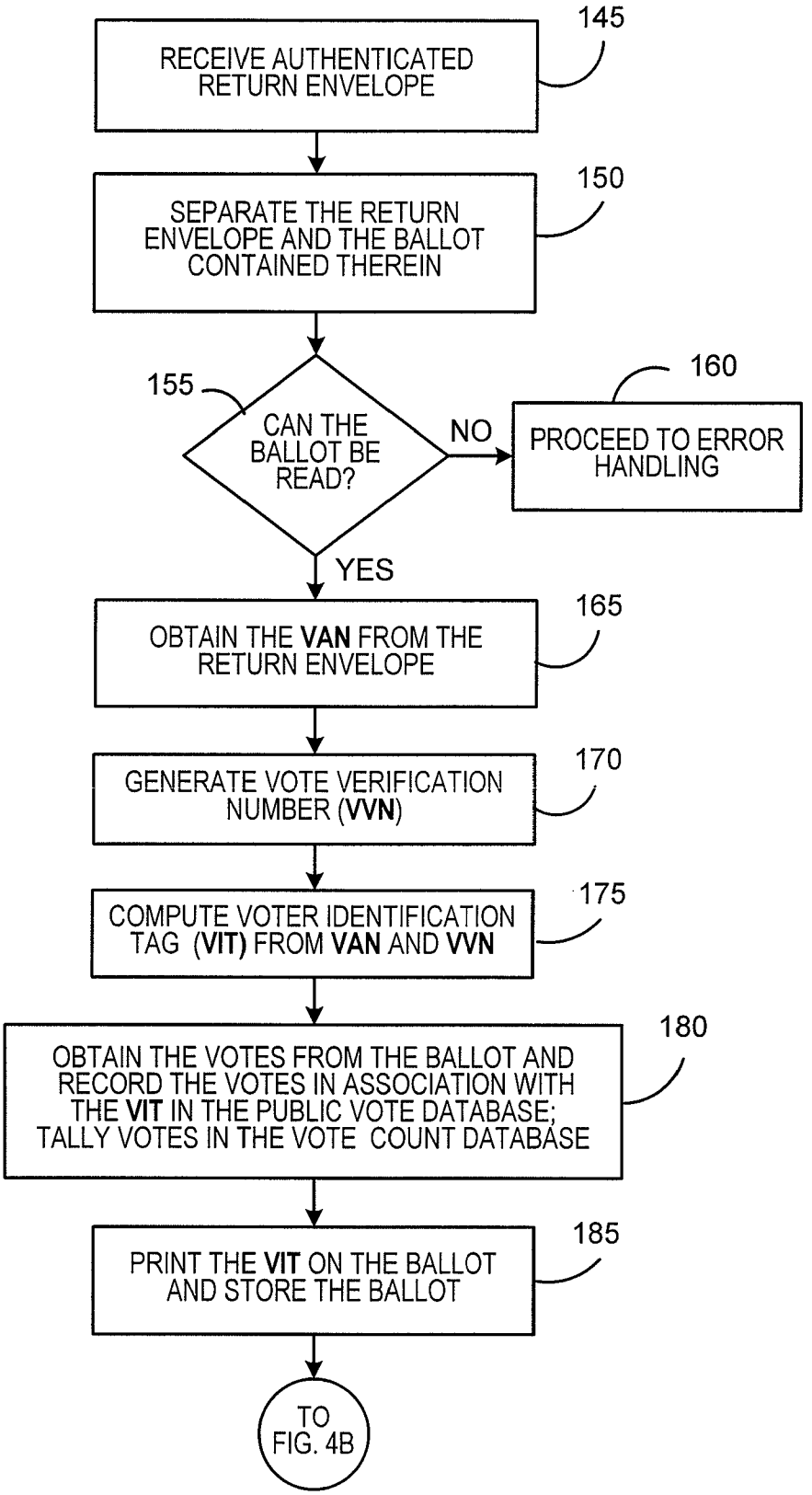

145
RECEIVE AUTHENTICATED RETURN ENVELOPE
150
SEPARATE THE RETURN ENVELOPE AND THE BALLOT CONTAINED THEREIN
155
CAN THE BALLOT BE READ?
NO
160
PROCEED TO ERROR HANDLING
YES
165
OBTAIN THE VAN FROM THE RETURN ENVELOPE
170
GENERATE VOTE VERIFICATION NUMBER (VVN)
175
COMPUTE VOTER IDENTIFICATION TAG (VIT) FROM VAN AND VVN
180
OBTAIN THE VOTES FROM THE BALLOT AND RECORD THE VOTES IN ASSOCIATION WITH THE VIT IN THE PUBLIC VOTE DATABASE; TALLY VOTES IN THE VOTE COUNT DATABASE
185
PRINT THE VIT ON THE BALLOT AND STORE THE BALLOT
TO FIG. 4B

FIG. 4A

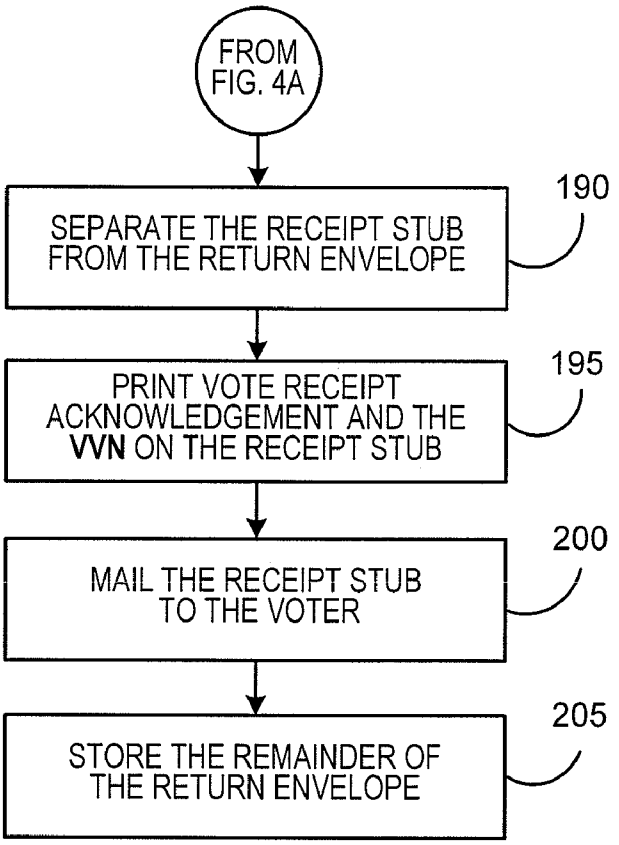

FROM FIG. 4A
SEPARATE THE RECEIPT STUB FROM THE RETURN ENVELOPE
190
PRINT VOTE RECEIPT ACKNOWLEDGEMENT AND THE VVN ON THE RECEIPT STUB
195
MAIL THE RECEIPT STUB TO THE VOTER
200
STORE THE REMAINDER OF THE RETURN ENVELOPE
205

FIG. 4B

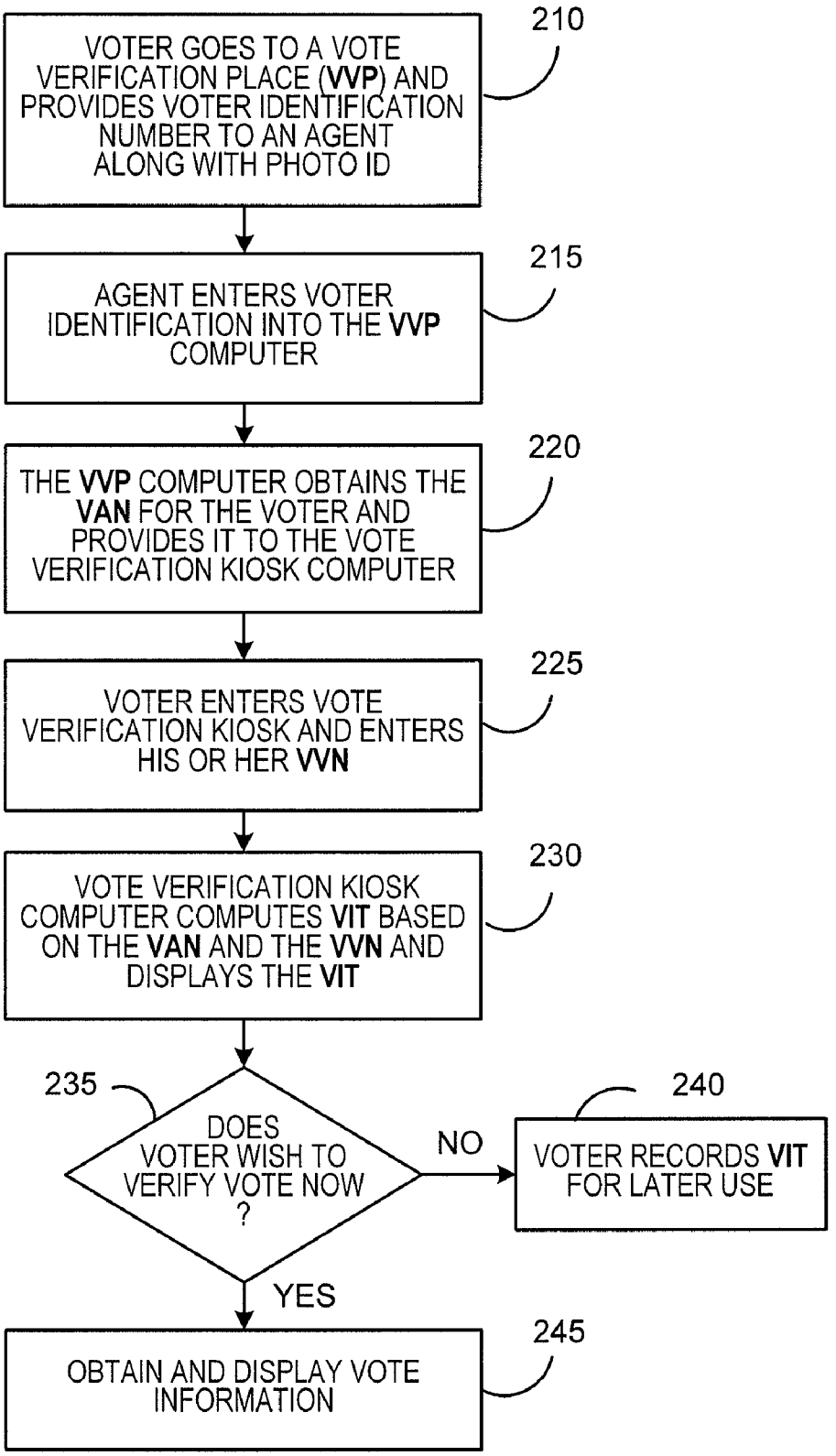

210
VOTER GOES TO A VOTE VERIFICATION PLACE (VVP) AND PROVIDES VOTER IDENTIFICATION NUMBER TO AN AGENT ALONG WITH PHOTO ID
215
AGENT ENTERS VOTER IDENTIFICATION INTO THE VVP COMPUTER
220
THE VVP COMPUTER OBTAINS THE VAN FOR THE VOTER AND PROVIDES IT TO THE VOTE VERIFICATION KIOSK COMPUTER
225
VOTER ENTERS VOTE VERIFICATION KIOSK AND ENTERS HIS OR HER VVN
230
VOTE VERIFICATION KIOSK COMPUTER COMPUTES VIT BASED ON THE VAN AND THE VVN AND DISPLAYS THE VIT
235
DOES VOTER WISH TO VERIFY VOTE NOW ?
NO
240
VOTER RECORDS VIT FOR LATER USE
YES
245
OBTAIN AND DISPLAY VOTE INFORMATION

FIG. 5

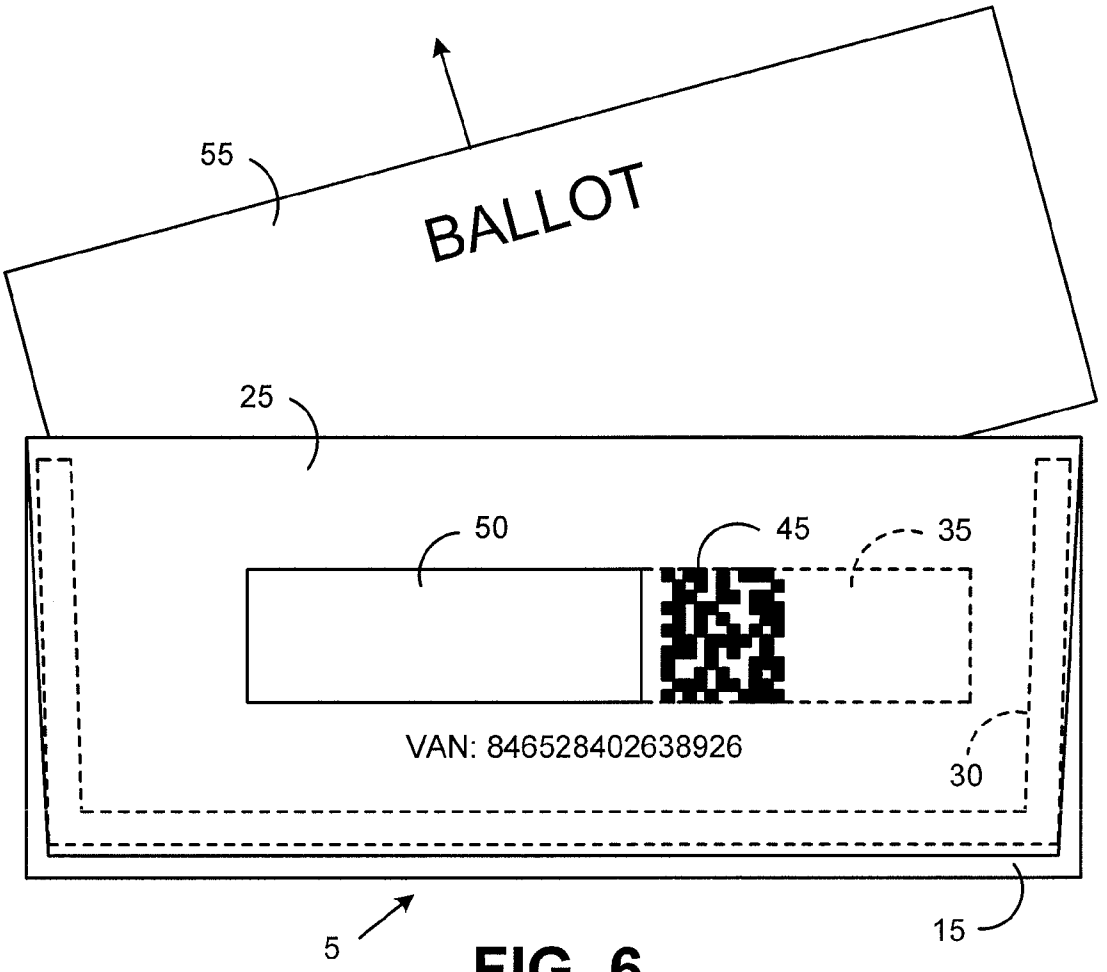

55
BALLOT
25
50
45
35
VAN: 846528402638926
30
5
15

FIG. 6

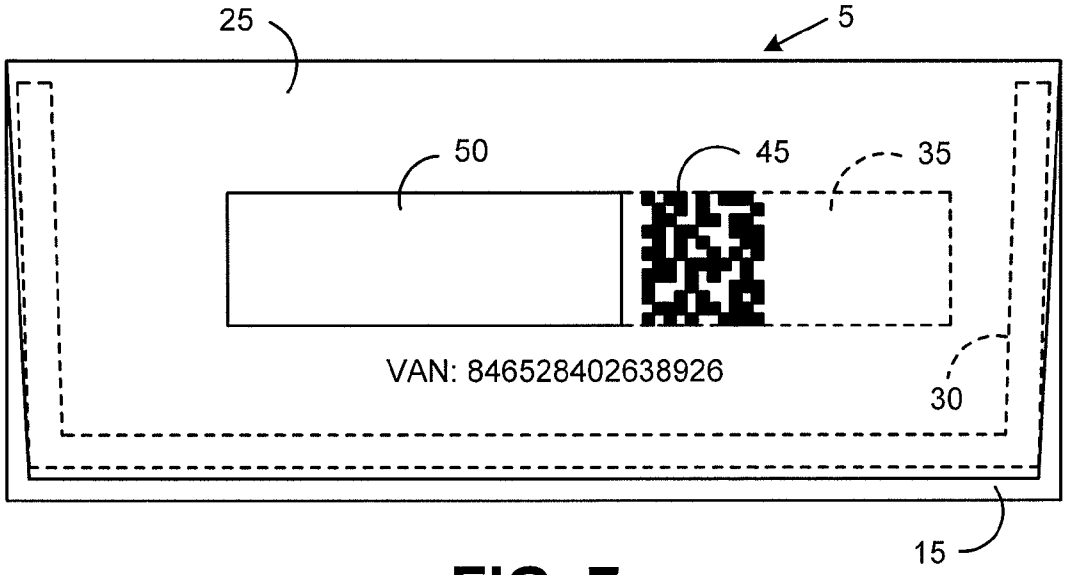

25
5
50
45
35
VAN: 846528402638926
30
15

FIG. 7

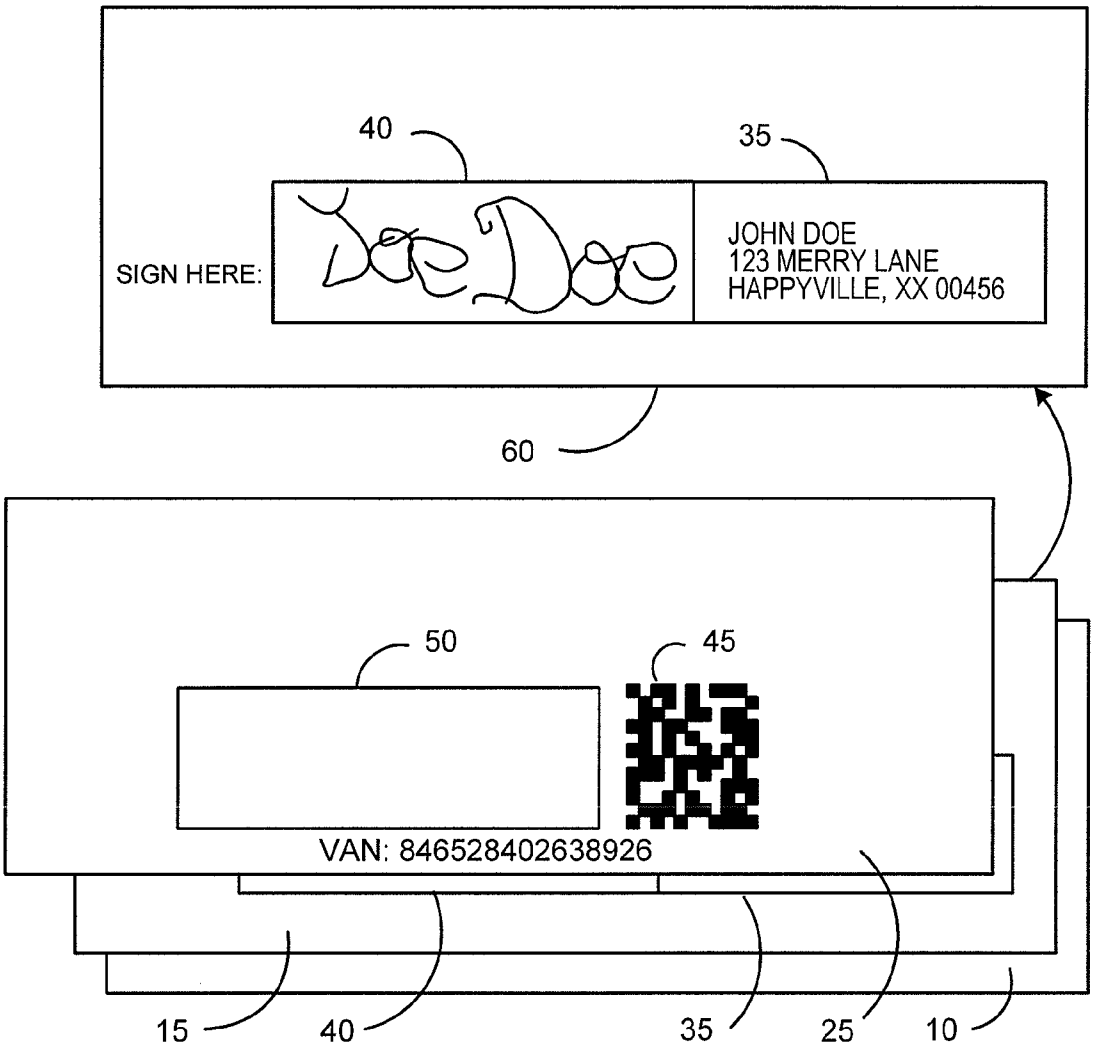

40
35
SIGN HERE:
JOHN DOE
123 MERRY LANE
HAPPYVILLE, XX 00456
60
50
45
VAN: 846528402638926
15
40
35
25
10

FIG. 8

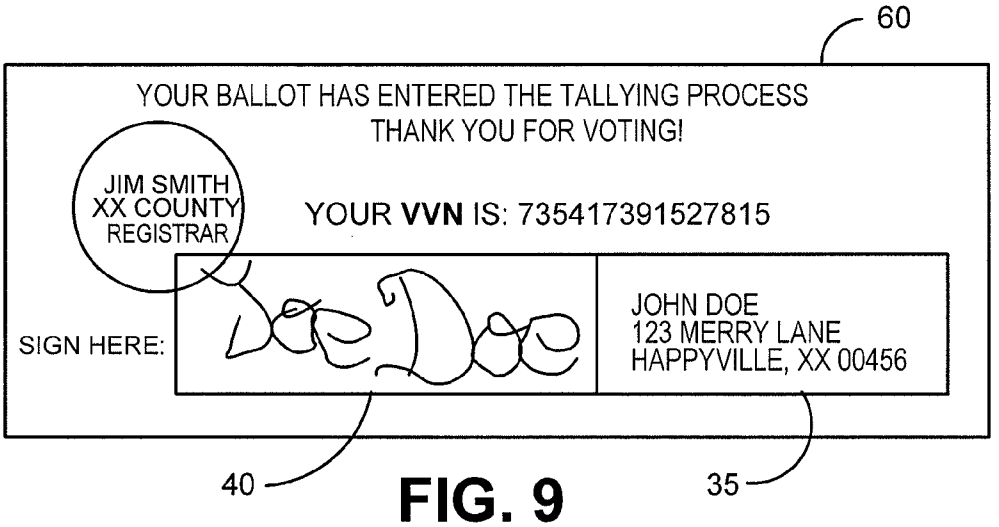

60
YOUR BALLOT HAS ENTERED THE TALLYING PROCESS
THANK YOU FOR VOTING!
JIM SMITH
XX COUNTY
REGISTRAR
YOUR VVN IS: 735417391527815
SIGN HERE:
JOHN DOE
123 MERRY LANE
HAPPYVILLE, XX 00456
40
35

FIG. 9

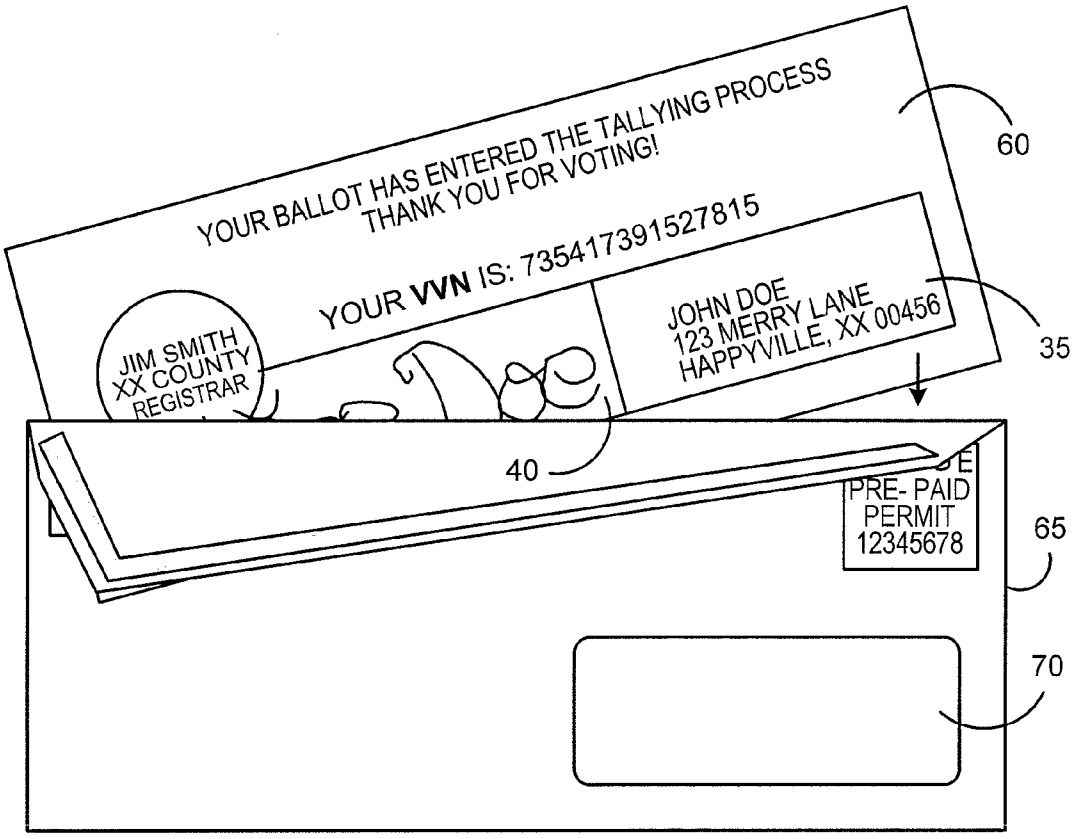

YOUR BALLOT HAS ENTERED THE TALLYING PROCESS
THANK YOU FOR VOTING!
YOUR VVN IS: 735417391527815
JIM SMITH
XX COUNTY
REGISTRAR
JOHN DOE
123 MERRY LANE
HAPPYVILLE, XX 00456
PRE- PAID
PERMIT
12345678
60
35
40
65
70

FIG. 10

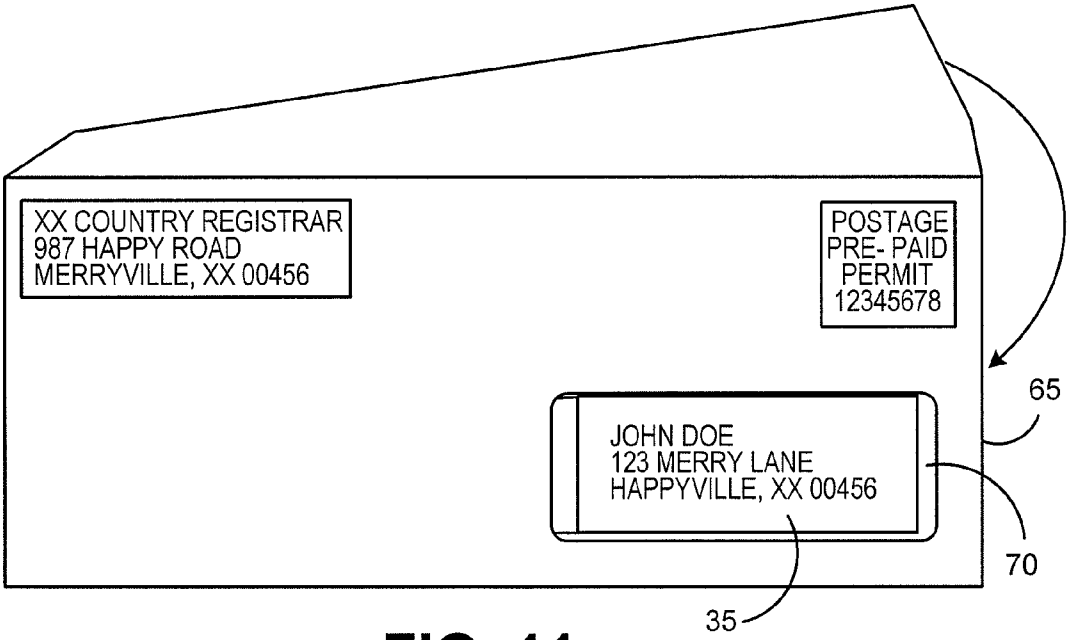

XX COUNTRY REGISTRAR
987 HAPPY ROAD
MERRYVILLE, XX 00456
POSTAGE
PRE- PAID
PERMIT
12345678
JOHN DOE
123 MERRY LANE
HAPPYVILLE, XX 00456
65
70
35

FIG. 11

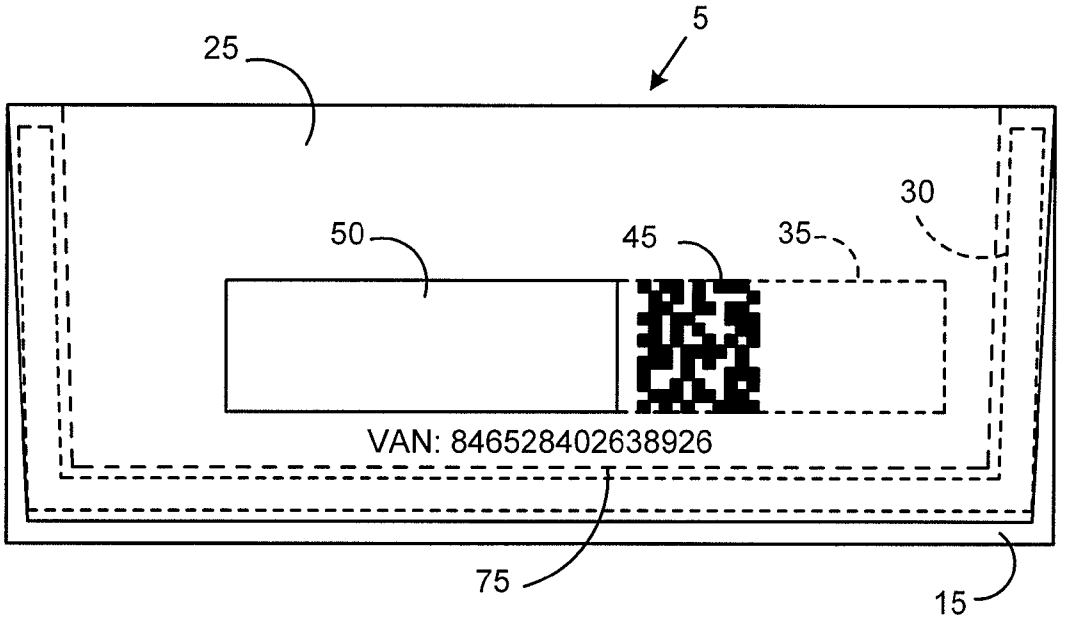

5
25
30
50
45
35
VAN: 846528402638926
75
15

FIG. 12

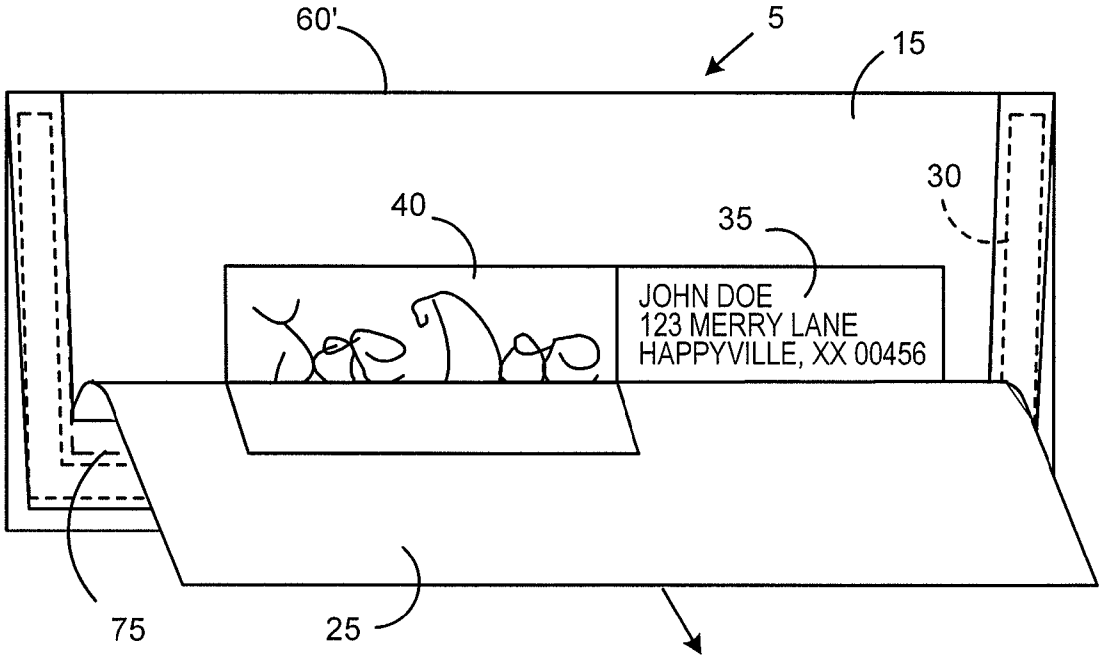

60'
5
15
30
40
35
JOHN DOE
123 MERRY LANE
HAPPYVILLE, XX 00456
75
25

FIG. 13

VOTE BY MAIL SYSTEM THAT ALLOWS VOTERS TO VERIFY THEIR VOTES

FIELD OF THE INVENTION

The present invention relates to voting systems, and in particular to a vote by mail system that that enables voters to verify that their ballots have been received and that their votes have been counted as intended.

BACKGROUND OF THE INVENTION

In democratic countries, governmental officials are chosen by the citizens in an election. Conducting an election and voting for candidates for public office can be performed in several different ways. One such way utilizes mechanical voting machines at predetermined polling places. When potential voters enter the predetermined polling place, voting personnel verify that each voter is properly registered in that voting district and that they have not already voted in that election. Thus, for a voter to cast his vote, he or she must go to the polling place at which he or she is registered, based on the voter's residence. Another method for conducting an election and voting utilizes paper ballots that are mailed to the voter who marks the ballot and returns the ballot to the voting authority running the election through the mail. In the usual vote by mail process, the voter marks the ballot to cast his/her vote and then inserts the ballot in a return envelope which is typically pre-addressed to the voter registrar office in the corresponding county, town or locality in which the voter is registered. The voter typically appends his/her signature on the back of the envelope adjacent his/her human or machine readable identification.

In a typical vote by mail system, the envelopes that are returned to the registrar's office which include completed ballots undergo two separate processes. The first process is an authentication process in which the signature of the voter provided on the return envelope is verified against his or her registration signature. If the signatures match, the return envelope including the completed ballot is stored for later counting. If the signatures don't match, or if the signature is missing from the return envelope, an investigation is commenced during which the registrar normally contacts the voter. Typically, the signatures provided on the back of the return envelopes are verified without revealing the ballot inside. The second process occurs at the closing of the election and consists of the counting of the votes from all of the ballots that have been received in return envelopes that have been authenticated as just described. Typically, the authenticated return envelopes are loaded onto a machine that opens the envelopes, extracts the ballots, reads the ballots, tallies the votes, and outputs the emptied envelopes and the ballots into two separate bins (the ballots then may be further divided into two sub-bins, one for the ballots successfully read and one for the ones that fail to be read properly).

In current vote by mail systems, the voter has no way to know whether his or her returned ballot actually reached the registrar's office, was counted, and was in fact counted as intended. In some recent elections, there have been reports of absentee ballots that have been lost or forgotten behind at the registrar's office, for one reason or another, and, as a result, have not been counted. In order to gain more confidence from voters, there is a need for a system which gives the voters assurances that their votes have not been lost and have entered the vote tallying process and been counted as intended. This is especially true as voting by mail becomes more prevalent (apart from the usual absentee voting). In fact, in some jurisdictions, entire elections are being conducted exclusively by mail. Thus, their exists a need for a vote by mail system that allows voters to verify that their votes as indicated on a returned ballot have been received and counted as intended.

SUMMARY OF THE INVENTION

The present invention provides a method of enabling a voter to verify that the voter's ballot has been received and counted as intended by the voter in a vote by mail election. The method, in one embodiment, includes receiving the ballot from the voter in the mail, generating a vote verification mechanism for the voter, obtaining the voter's one or more votes from the ballot and counting the voter's one or more votes in the election. The method further includes storing voter vote information including the voter's one or more votes that were counted in the election, providing to the voter the vote verification mechanism and an acknowledgment that the ballot has been received and counted in the election, and, after the election has been closed, receiving the vote verification mechanism from the voter, obtaining the voter vote information from storage using the vote verification mechanism, and displaying the voter vote information for the voter so that the voter can verify that his or her votes have in fact been counted as intended.

In the preferred embodiment, the vote verification mechanism is a vote verification number that is generated by, for example, a pseudo random number generator. In that embodiment, the method further includes generating and storing a vote authentication number for the voter, and computing a vote identification tag for the voter based on the vote authentication number and the vote verification number, wherein the step of storing the voter vote information comprises storing the voter vote information in association with the vote identification tag, and wherein the step of obtaining the voter vote information from storage comprises (i) obtaining the vote authentication number from storage based on the identity of the voter, (ii) using the received vote verification number and the obtained vote authentication number to generate the vote identification tag, and (iii) using the generated vote identification tag to obtain the voter vote information from storage. Further, the step of computing the vote identification tag for the voter based on the vote authentication number and the vote verification number may include computing the vote identification tag using a hash function by using the vote authentication number as a first argument in the hash function and the vote verification number as a second argument in the hash function.

The step of receiving the ballot from the voter in the mail may include receiving the ballot in a return envelope, wherein the remaining steps of the method are performed only if the return envelope is able to be authenticated, preferably by using a signature provided on the return envelope.

In addition, the step of providing to the voter the vote verification mechanism and an acknowledgment that the ballot has been received and counted in the election preferably includes mailing a mailpiece to the voter that includes the vote verification mechanism and the acknowledgment. The mailpiece may be created from the return envelope received form the voter. In one particular embodiment, the return envelop includes a portion having a mailing address of the voter provided thereon, and the mailpiece is created from that portion. Furthermore, the return envelope may comprise a flap, a front and a back, wherein the back is the portion having the mailing address of the voter provided thereon, and wherein the mailpiece is created by separating at least part of the back from the front and the flap and printing the vote

verification mechanism and the acknowledgment on part of the back. In another particular embodiment, the return envelope includes a flap having a perforation, a front and a back, wherein the back is the portion having the mailing address of the voter provided thereon, and wherein the mailpiece is created by removing a part of the flap from the return envelope by separating, along the perforation, that part of the flap from the remaining portion of the flap that is adhered to the back of the envelope, thereby exposing the mailing address of the voter, and printing the vote verification mechanism and the acknowledgment on the back of the envelope.

In an alternative embodiment, the step of providing to the voter the vote verification mechanism and an acknowledgment that the ballot has been received and counted in the election comprises providing the vote verification mechanism and the acknowledgment through one of a phone call placed to the voter, an email sent to the voter and a posting provided on a website accessible by the voter.

The method may also further include separating the ballot from the return envelope, printing the vote identification tag on the ballot and storing the ballot.

In another particular embodiment, the method includes providing a kiosk for enabling the voter to privately provide the vote verification mechanism for use in the method.

Therefore, it should now be apparent that the invention substantially achieves all the above aspects and advantages. Additional aspects and advantages of the invention will be set forth in the description that follows, and in part will be obvious from the description, or may be learned by practice of the invention. Moreover, the aspects and advantages of the invention may be realized and obtained by means of the instrumentalities and combinations particularly pointed out in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings illustrate presently preferred embodiments of the invention, and together with the general description given above and the detailed description given below, serve to explain the principles of the invention. As shown throughout the drawings, like reference numerals designate like or corresponding parts.

FIGS. **1** and **2** are schematic illustrations of an embodiment of a return envelope that may be employed in the vote by mail system of the present invention;

FIG. **3** is a flowchart which illustrates the steps that are performed according to an embodiment of the present invention for authenticating a return envelope when it is received at the registrar's office;

FIGS. **4**A and **4**B are a flowchart illustrating the steps performed during the process of counting the votes cast on received ballots according to an embodiment of the present invention;

FIG. **5** is a flowchart showing the process by which a voter is able to verify that his or her vote has been counted as intended according to an embodiment of the present invention;

FIG. **6** is a schematic illustration of a ballot being removed from the return envelope of FIGS. **1** and **2**;

FIGS. **7** and **8** are schematic illustrations of one method of creating a receipt stub from the return envelope of FIGS. **1** and **2**;

FIG. **9** is schematic illustration of a receipt stub according to an embodiment of the present invention;

FIGS. **10** and **11** are schematic illustrations showing the receipt stub of FIG. **9** being mailed to a voter; and

FIGS. **12** and **13** are schematic illustrations of an alternative method of creating a receipt stub from the return envelope of FIGS. **1** and **2**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention provides a vote by mail system which gives confidence to a voter that his or her vote was received by the registrar's office and was in fact counted as intended. As described in greater detail below, the present invention employs a voting receipt (which may take a number of different forms) which is returned to the voter which assures the voter that his or her ballot was in fact received by the registrar's office. The present invention also employs a vote identification tag (VIT) which enables the voter to securely verify that his or her vote was counted in the election as the voter intended (i.e., as the voter indicated on his or her ballot that was returned).

FIGS. **1** and **2** are schematic illustrations of an embodiment of a return envelope **5** that may be employed in the vote by mail system of the present invention. The return envelope **5** includes a front **10**, a back **15**, and an interior **20** defined by the front **10** and the back **15**. The return envelope **5** also includes a flap **25** that is provided with an adhesive material **30** for enabling the return envelope **5** to be closed and sealed as shown in FIG. **2**. As seen in FIG. **1**, the back **15** of the return envelope **5** includes a voter address section **35** that is printed with the voter's name and mailing address by the registrar's office. As will be appreciated, the name and mailing address that are printed in the voter address section **35** will be the name and address that is provided by the voter at the time of registration. The back **15** also includes a signature pad **40** provided adjacent to the voter address section **35**. When voting, the voter will complete the ballot for the election, insert it into the interior **20** of the return envelope **5**, sign his or her name on the signature pad **40**, and close the flap **25**.

As seen in FIG. **2**, the flap **25** includes the voter identification number of the voter which is assigned to the voter by the registrar at the time of registration and which uniquely identifies the voter to the registrar. In the preferred embodiment shown in FIG. **2**, the voter identification number is provided in the form of a two-dimensional bar code **45** in order to facilitate the reading of the voter identification number by the registrar when the return envelope **5** is returned to the registrar. The flap **25** further includes a window **50** that is structured to cover the signature pad **40** when the return envelope **5** is closed. Preferably, the window **50** is made of a material which is opaque under normal conditions to thereby hide the signature provided on the signature pad **40** when, for example, the return envelope **5** is being returned in the mail, and is transparent under other conditions (such as ultraviolet light) in order to allow the signature provided on the signature pad **40** to be selectively read through the window **50** as described in, for example, co-pending application Ser. No. 11/641,207, assigned to the Assignee hereof.

As discussed above, a voter is able to cast his or her vote by completing the ballot provided to him or her along with the return envelope **5**, inserting the ballot into the interior **20** of the return envelope **5**, providing his or her signature on the signature pad **40**, closing the flap **25** and sealing the flap against the back **15** using adhesive **30**, and mailing the return envelope **5** to the registrar's office (for this purpose, the registrar's address will preferably be pre-printed on the front **10** of the return envelope **5**). As described elsewhere herein, the first process that the return envelope **5** must undergo when it is received by the registrar's office is an authentication pro-

cess. FIG. **3** is a flowchart which illustrates the steps that are performed according to an embodiment of the present invention for authenticating a return envelope **5** when it is received at the registrar's office. While FIG. **3** describes the steps performed for one such return envelope **5**, it will be appreciated that those steps will be performed for each return envelope **5** that is received from a voter.

Referring to FIG. **3**, the process begins at step **100**, wherein the return envelope **5** is received in the mail at the registrar's office. Next, at step **105**, the voter identification number **45** and the signature from the signature pad **40** are obtained from the back **15** of the return envelope **5**. Preferably, step **105** is performed automatically using, for example, a barcode reader for reading the voter identification number **45** and a scanner for creating an image of the signature provided on the signature pad **40**. Next, at step **110**, the voter's stored registration signature is obtained from, for example, a database maintained by the registrar (or a voting authority of which the registrar is a part). Preferably, the stored registration signature is accessed using the voter identification number **45** obtained in step **105**. Then, at step **115**, a determination is made as to whether the signature obtained from the return envelope **5** in step **105** matches the voter's registration signature accessed in step **110**. Again, this is preferably performed automatically using image comparison software. If the answer at step **115** is no, meaning that the signatures do not match, then the process proceeds to step **120**, wherein an investigation is commenced. Such an investigation will likely include contacting the voter associated with the voter identification number **45**.

If, however, the answer at step **115** is yes, meaning that the signatures do match, then that means that the return envelope **5** has been authenticated. In such a case, the process proceeds to step **125**, wherein a vote authentication number (VAN) is generated for the voter and the received return envelope **5** by the registrar using, for example, a pseudo random number generator. Next, in step **130**, the VAN is printed on the return envelope **5**, preferably on the flap **25** thereof adjacent to the window **50** and the voter identification number **45**. In one particular embodiment (see FIGS. **6-8**), the VAN is printed in the form of a series of digits that may later be read using optical character recognition (OCR) software. Alternatively, the VAN may be printed in the form of a barcode, such as a one or two-dimensional barcode, that may be later read using barcode reading software. At step **135**, the VAN is then stored in association with the voter's voter identification number **45** in, for example, a database maintained by the registrar (or a voting authority of which the registrar is a part). Then, at step **140**, the return envelope **5** is stored for later counting (FIGS. **4**A and **4**B).

FIGS. **4**A and **4**B are flowcharts illustrating the steps performed by the voting authority during the process of counting the votes cast on each authenticated ballot. In particular, FIGS. **4**A and **4**B illustrate the steps that are performed in connection with a single return envelope **5**, but it will be appreciated that those steps will be performed for each return envelope **5** that is able to be authenticated in the manner shown in FIG. **3**. The process begins at step **145**, wherein the authenticated return envelope **5** is received for counting purposes (i.e., received from the store of such authenticated return envelopes **5** resulting from step **140** of FIG. **3**). Next, at step **150**, the return envelope **5** is opened and the ballot **55** contained therein is removed from and separated from the return envelope **5** as shown in FIG. **6**. Then, at step **155**, a determination is made as to whether the ballot **55** can be read using, for example, OCR software. If the answer at step **155** is no, then the ballot proceeds to step **160** for error handling, which may include a manual reading of the ballot and/or contacting the voter.

If, however, the answer at step **155** is yes, meaning that the ballot **55** can be successfully read, then, at step **165**, the VAN is obtained from the return envelope **5** using, for example, OCR software, optical scan, and/or barcode reading software as appropriate depending in the format of the VAN. Next, at step **170**, a vote verification number (VVN) is generated by the voting authority (i.e., the portion thereof responsible for vote counting) using, for example, a pseudo random number generator. Then, at step **175**, a voter identification tag (VIT) is computed from the VAN obtained in step **165** and the VVN generated in step **170**. In the preferred embodiment, the VIT is computed by inputting the VAN as a first argument into a hash function and the VVN as a second argument into the hash function (i.e., VIT=hash(VAN, VVN)).

At step **180**, the actual votes cast are obtained from the ballot **55** using, for example, OCR software, optical scan or other reading software, and such votes are recorded in association with the VIT in a public vote database maintained by the voting authority, the significance of which is described elsewhere herein. In addition, the votes that are obtained are tallied in a vote count database that is maintained by the voting authority. The VIT is then printed on the ballot **55** and the ballot is stored in step **185**. Next, in step **190** (FIG. **4**B), a receipt stub **60** is created from the back **15** of the return envelope **5**. Specifically, in one particular embodiment, as shown in FIGS. **7** and **8**, the receipt stub **60** is generated by cutting the return envelope **5** along the arrows shown in FIG. **7**. As a result, as seen in FIG. **8**, separate portions of the flap **25**, the front **10**, and the back **15** of the return envelope are created, with the portion of the back **15** that is created being the receipt stub **60**.

Next, in step **195**, a vote receipt acknowledgement, preferably including a seal of the registrar, is printed on the receipt stub **60** along with the VVN that was generated in step **170** as seen in FIG. **9**. The VVN may be printed in the form of a sequence of digits, which may later be read using OCR software, or in the form of a barcode, such as a two-dimensional or one-dimensional barcode, which may be later read using barcode reading software. At step **200**, the receipt stub **60** is then inserted into an envelope **65** and is mailed to the voter using the address provided in the voter address section **35** as shown in FIGS. **10** and **11**. The voter address section **35** is able to be seen through a window **70** provided as a part of the envelope **65**. Finally, at step **205**, the remainder of the return envelope **5**, i.e., the portions of the flap **25** and the front **10** shown in FIG. **8**, are stored for possible later forensic use by the voting authority.

FIGS. **12** and **13** show a manner in which an alternative receipt stub **60'** may be created. In particular, as seen in FIG. **12**, the return envelope **5** in this embodiment is provided with a perforation **75** around the outer edge of the flap **25** that will enable a portion of the flap **25** to be removed as shown in FIG. **13**. As a result, the front **10**, the back **15**, and a portion of the flap **25** that includes the adhesive **30** will remain and may be used as the receipt stub **60'**, onto which an acknowledgement and the VVN may be printed in the manner shown in FIG. **9**.

In a further alternative, rather than generating a receipt stub **60** or **60'** as described above, a separate mailpiece, such as a postcard, may be utilized as a receipt. In this embodiment, in step **195**, the vote receipt acknowledgement and the VVN would be printed on the separate mailpiece, which in turn would be mailed to the voter at the appropriate address that is stored by the registrar. In this embodiment, the name and address of the voter may be obtained for use on the mailpiece

in a number of ways. For example, that information can be obtained using OCR software from the return envelope **5** and reprinted on the mailpiece, or can be scanned in the form of an image from the return envelope **5** and reprinted on the mailpiece. Alternatively, the voter's voter identification number **45** may be obtained from the return envelope **5** and used to access the voter's name and address from a database maintained by the voting authority and then be printed on the mailpiece.

In still a further embodiment, a voter may be provided with a vote receipt acknowledgement and his or her VVN through an alternate form other than physical mail, such as by being informed of such information by a phone call, by an e-mail and/or by a posting on a dedicated webpage on the Internet. The posting or e-mail may include an image of the emptied return envelope **5** that was mailed by the voter. The voter may then take the VVN obtained in this manner and use it to verify his or her vote in the manner described in connection with FIG. **5** below.

FIG. **5** is a flowchart showing the process by which the voter is able to verify that his or her vote has been counted as intended according to an embodiment of the present invention. The process shown in FIG. **5** contemplates that the registrar will maintain one or more vote verification places (VVPs) for enabling voters to verify their votes as described herein. Such VVPs will preferably include one or more computer enabled kiosks which may be used to access the public vote database, described elsewhere herein, that is maintained by the voting authority. For reasons described below, the VVPs will also include a VVP computer that is connected to the vote verification kiosk computers and that has access to the voting authority's computer systems, in particular to the database that stores the VANs of the voters that were generated during the election.

At step **210**, a voter wishing to verify his votes goes to a VVP and provides his or her voter identification number to an agent at the VVP along with a photo identification. If the agent is able to positively ID the voter through the photo identification, the agent enters the voter's voter identification number into the VVP computer at step **215**. Next, at step **220**, the VVP computer obtains the VAN for the voter in question and provides it to the VVP computer. At step **225**, the voter enters a vote verification kiosk and inputs his or her VVN (that was provided on the receipt stub **60** or **60'** that was received by the voter) into the computer terminal of the voter verification kiosk. The voter may do this manually, or, alternatively, the voter verification kiosk may be provided with scanning equipment which is able to read characters and/or barcodes depending upon the format of the VVN. Then, at step **230**, the vote verification kiosk computer computes and displays the VIT based on the VAN that was obtained in step **220** (and provided to the vote verification kiosk computer by the VVP computer) and the VVN that was entered at step **225**. At step **235**, a determination is made as to whether the voter wishes to verify his or her vote at that time. If the answer is no, then at step **240** the voter may record the VIT (displayed in step **230**) and/or may obtain a printout of the VIT for later use in verifying his or her vote.

If, however, the answer at step **235** is yes, then the vote verification kiosk computer obtains from the public vote database that is maintained by the voting authority the vote information that was stored in connection with step **180** of FIG. **4**A for the voter and displays that vote information to the voter in step **245**. Such vote information will include the identity of each of the candidates and/or choices that were made by the voter and tallied in the election during step **180** of FIG. **4**A. Following step **245**, the voter will either determine that the vote information that is displayed matches his or her recollection, in which case the voter will be satisfied that his or her votes were counted as intended, or, alternatively, the voter will determine that there is a discrepancy between the vote information and what the voter believes he or she intended. In the case of the latter, the voter may then contact the voting authority in order to request that an investigation into the apparent discrepancy be commenced.

Moreover, in order to make sure that the election has not been rigged by vote stuffing, a list of all of the voters along with an indication of whether they have voted or not (i.e., whether they have a stored VAN or not) can be disclosed to an independent auditing organization who can conduct a survey and check that people who are recorded to have voted have actually done so, and people who are not recorded to have voted did not in fact vote. In addition, the auditing organization can determine whether the number of votes cast is equal to the number of people having voted (i.e., the number of people with a VAN). In addition, voters who have not voted may be able to verify that no vote has been recorded under their name. Specifically, a voter may be able to access his or her own voter database entry and verify that there is no VAN recorded (without being able to actually see the VAN, which should be kept secret).

Furthermore, if a voting system that allows vote verification is not carefully designed, it may allow for vote buying/selling and/or vote intimidation. Specifically, if a voter can verify his or her vote, it might be easy for someone else to verify that person's vote as well. As a result, a buyer can give a reward to a voter if he or she voted for the buyer's favorite candidate or candidates. The design of the vote by mail system of the present invention does not allow this to happen because of the following factors: (i) a buyer cannot find the VIT associated with a voter using only the voters VVN, (ii) a buyer would not be permitted to enter a vote verification kiosk without a photo ID indicating that the buyer is the voter, (iii) the buyer will not have access to the voters VAN (which is kept secret from everyone by the voting authority), and (iv) if the voter is let into a vote verification kiosk, the voter is not openly given his or her VAN, but instead the VAN is provided to the hash function by the public vote database computer as a hidden argument, so even in the vote verification kiosk, the voter cannot get to know his VAN and therefore cannot copy it and give it to a buyer.

While preferred embodiments of the invention have been described and illustrated above, it should be understood that these are exemplary of the invention and are not to be considered as limiting. Additions, deletions, substitutions, and other modifications can be made without departing from the spirit or scope of the present invention. Accordingly, the invention is not to be considered as limited by the foregoing description but is only limited by the scope of the appended claims.

What is claimed is:

1. A method of enabling a voter to verify that the voter's ballot has been received and counted as intended by the voter in a vote by mail election comprising:

receiving the ballot from said voter in the mail;

generating a vote verification number for said voter;

generating and storing a vote authentication number for said voter;

computing a vote identification tag for said voter using a hash function by using said vote authentication number as a first argument in said hash function and said vote verification number as a second argument in said hash function;

obtaining the voter's one or more votes from the ballot and counting the voter's one or more votes in said election;

storing voter vote information, said voter vote information including the voter's one or more votes that were counted in said election;

providing to said voter said vote verification number, and an acknowledgment that said ballot has been received and counted in said election; and

after said ejection has been closed, receiving said vote verification number from said voter, obtaining said voter vote information from storage using said vote verification number and displaying said voter vote information for said voter.

2. The method according to claim **1**, wherein storing said voter vote information comprises storing said voter vote information in association with said vote identification tag, and wherein obtaining said voter vote information from storage further comprises:

obtaining said vote authentication number from storage based on the identity of said voter;

using said received vote verification number and said obtained vote authentication number to generate said vote identification tag; and

using said generated vote identification tag to obtain said voter vote information from storage.

3. The method according to claim **1**, wherein receiving the ballot from said voter in the mail comprises receiving said ballot in a return envelope, and said method further comprises:

authenticating said return envelope using a signature provided on said return envelope.

4. The method according to claim **1**, wherein providing to said voter said vote verification number and an acknowledgment that said ballot has been received and counted in said election further comprises:

mailing a mail piece to said voter that includes said vote verification number and said acknowledgment.

5. The method according to claim **4**, wherein receiving the ballot from said voter in the mail comprises receiving said ballot in a return envelope, and wherein said mailpiece is created from said return envelope.

6. The method according to claim **5**, wherein said return envelope includes a portion having a mailing address of said voter provided thereon, and wherein said mailpiece is created from said portion.

7. The method according to claim **6**, wherein said portion further includes a signature of said voter.

8. The method according to claim **6**, wherein said return envelope comprises a flap, a front and a back, wherein said back is said portion having said mailing address of said voter provided thereon, and wherein said mailpiece is created by separating at least part of said back from said front and said flap and printing said vote verification number and said acknowledgment on the at least part of said back.

9. The method according to claim **8**, further comprising storing one or both of said flap and said front.

10. The method according to claim **6**, wherein said return envelope comprises a flap, a front and a back, said flap having a perforation, wherein said back is said portion having said mailing address of said voter provided thereon, and wherein said mailpiece is created by removing a part of said flap from said return envelope by separating, along said perforation, said part of said flap from a remaining portion of said flap that is adhered to said back, thereby exposing said mailing address of said voter, and printing said vote verification number and said acknowledgment on said back.

11. The method according to claim **10**, further comprising storing said part of said flap removed from said return envelope.

12. The method according to claim **4**, wherein said vote verification number is provided on said mailpiece in a machine readable form.

13. The method according to claim **4**, wherein said vote verification number is provided on said mailpiece in a human readable form.

14. The method according to claim **1**, wherein receiving the ballot from said voter in the mail comprises receiving said ballot in a return envelope, the method further comprising:

printing said vote authentication number on said return envelope,

wherein computing said vote identification tag for said voter comprises obtaining said vote authentication number from said return envelope.

15. the method according to claim **1**, wherein receiving the ballot from said voter in the mail comprises receiving said ballot in a return envelope, and wherein obtaining the voter's one or more votes from the ballot comprises separating said ballot from said return envelope, the method further comprising printing the vote identification tag on said ballot and storing said ballot.

16. The method according to claim **1**, wherein providing to said voter said vote verification number and an acknowledgment that said ballot has been received and counted in said election further comprises:

providing said vote verification number and said acknowledgment through one of a phone call placed to said voter, an email sent to said voter and a posting provided on a website accessible by said voter.

* * * * *

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(12) **United States Patent**
Haas et al.

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(54) **VOTE BY MAIL ENVELOPE THAT PROTECTS INTEGRITY OF BALLOT DURING SIGNATURE VERIFICATION**

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See application file for complete search history.

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2007/0095908	A1 *	5/2007	Haas et al.	235/386
2008/0136162	A1	6/2008	Haas et al.	
2008/0156862	A1	7/2008	Haas et al.	

* cited by examiner

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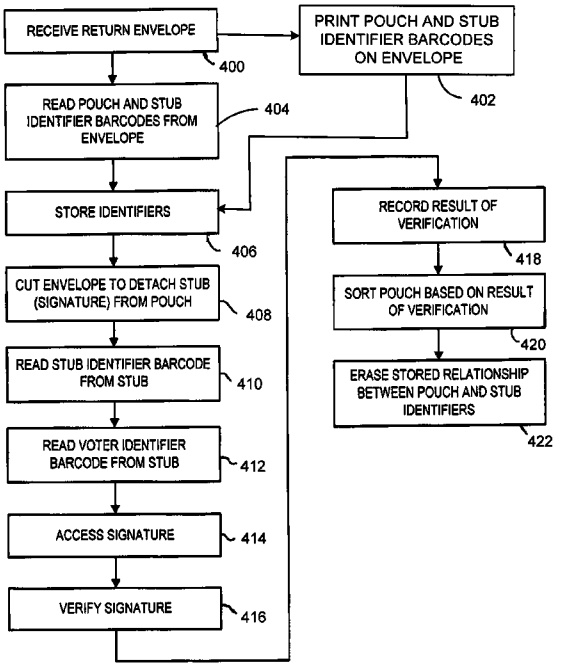
Assistant Examiner—Tabitha Chedekel
(74) *Attorney, Agent, or Firm*—Brian A. Lemm; Angelo N. Chaclas

(57) **ABSTRACT**

A vote-by-mail return envelope that includes a pouch portion for containing the ballot and a stub portion on which the voter applies his/her signature and method for processing are provided. Each portion of the envelope contains a respective barcode that identifies the respective portion. When the envelope is received at the vote-counting location, the stub is separated from the pouch, thereby separating the voter's signature, name, etc. from the ballot. The signature is then verified from the stub, and subsequent processing of the pouch uses the pouch barcode identifier as a link to the stub barcode identifier and/or to the result of the signature verification, to determine whether the ballot in the pouch is eligible for counting or whether some remedial procedure is necessary.

8 Claims, 7 Drawing Sheets



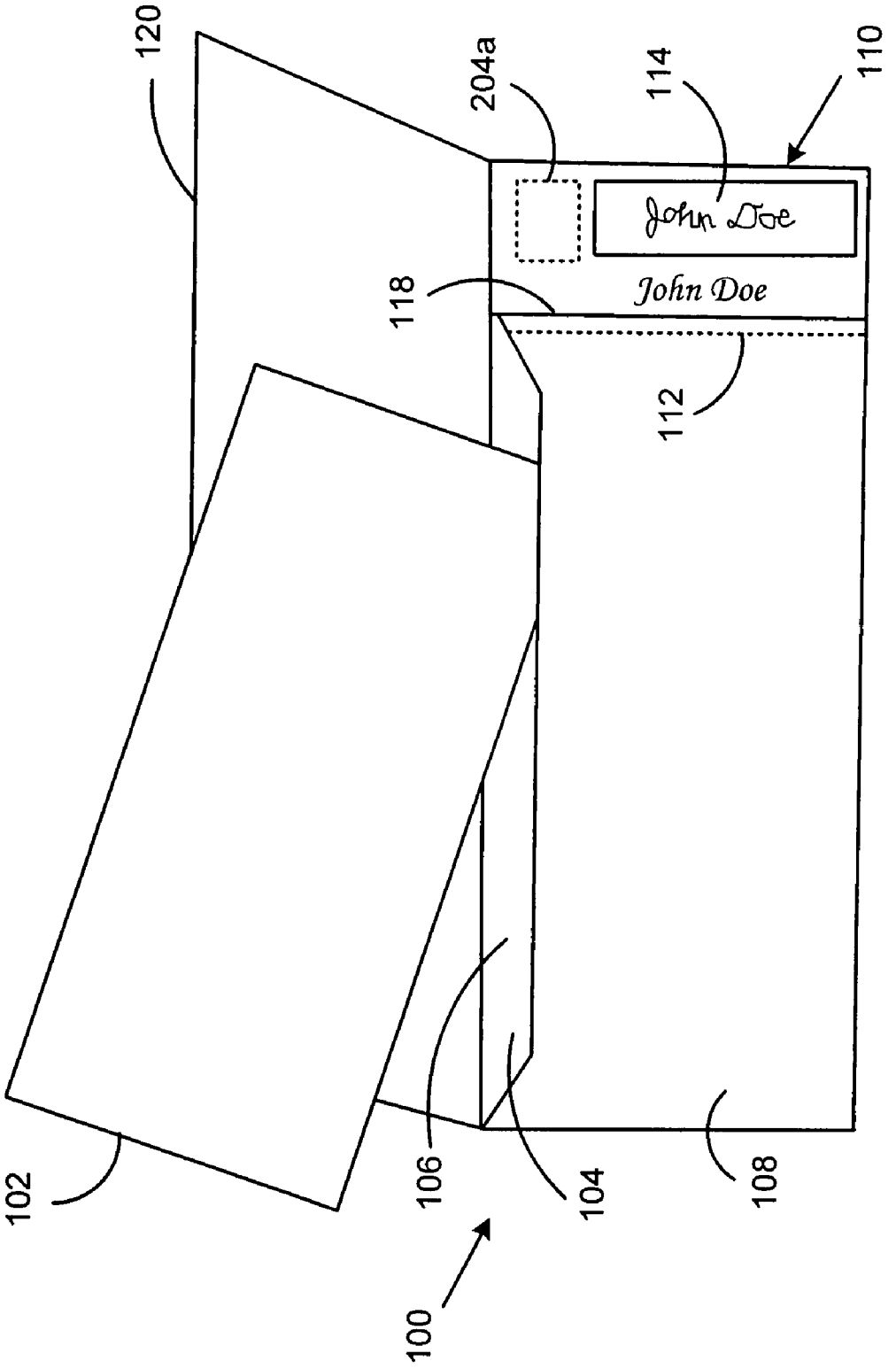


FIG. 1

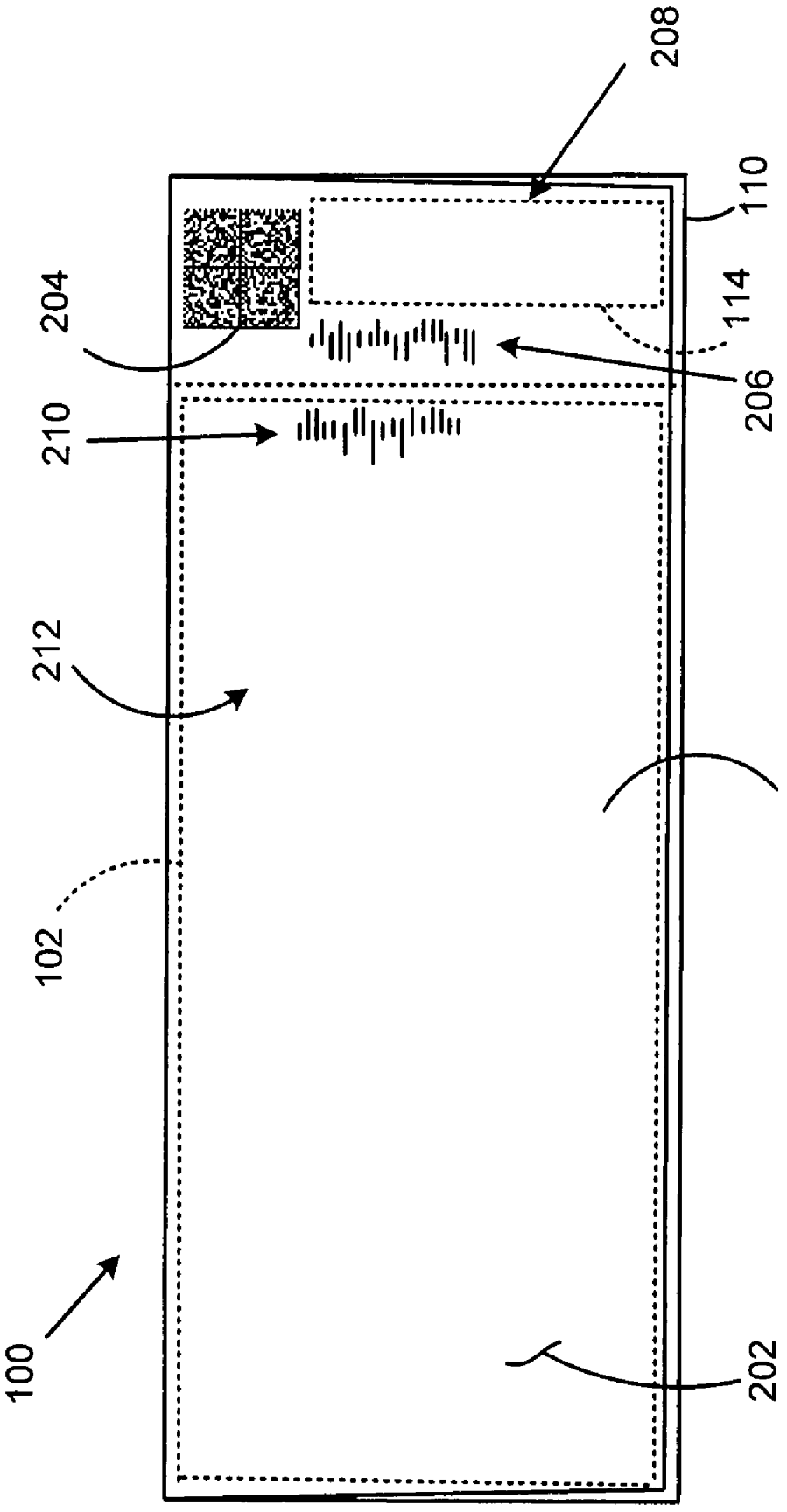


FIG. 2

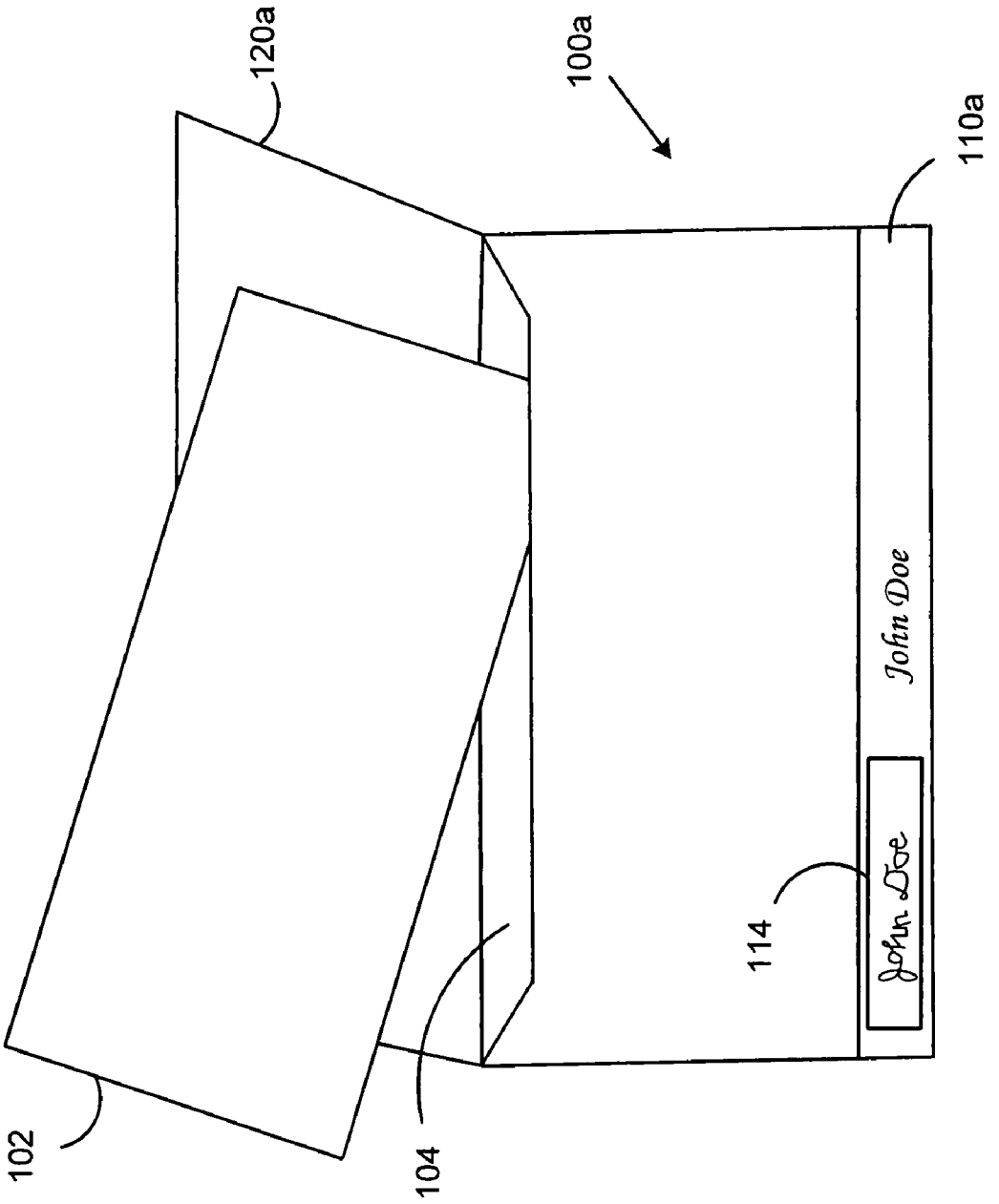


FIG. 3

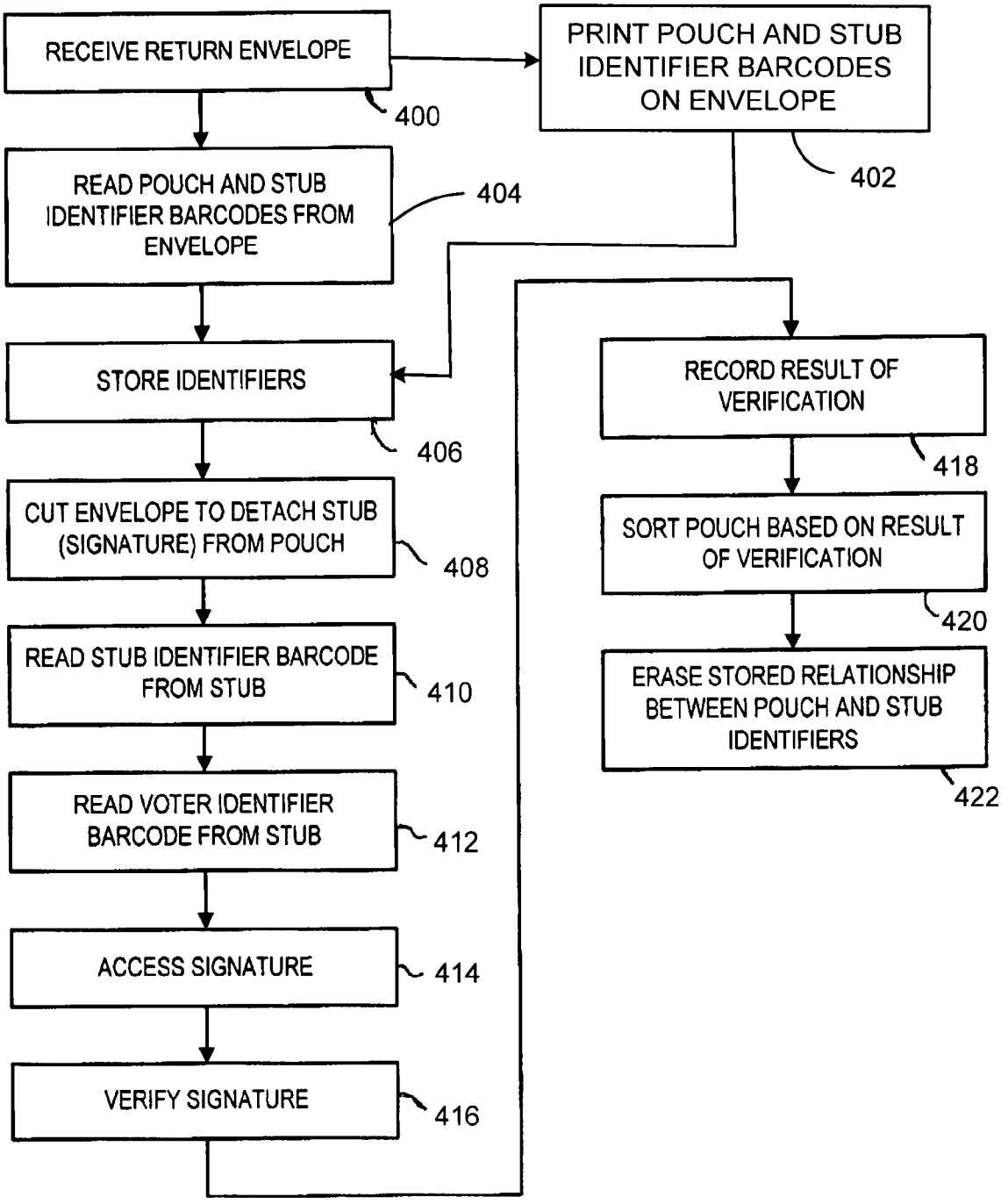

RECEIVE RETURN ENVELOPE
400
PRINT POUCH AND STUB IDENTIFIER BARCODES ON ENVELOPE
402
READ POUCH AND STUB IDENTIFIER BARCODES FROM ENVELOPE
404
STORE IDENTIFIERS
406
CUT ENVELOPE TO DETACH STUB (SIGNATURE) FROM POUCH
408
READ STUB IDENTIFIER BARCODE FROM STUB
410
READ VOTER IDENTIFIER BARCODE FROM STUB
412
ACCESS SIGNATURE
414
VERIFY SIGNATURE
416
RECORD RESULT OF VERIFICATION
418
SORT POUCH BASED ON RESULT OF VERIFICATION
420
ERASE STORED RELATIONSHIP BETWEEN POUCH AND STUB IDENTIFIERS
422

FIG. 4

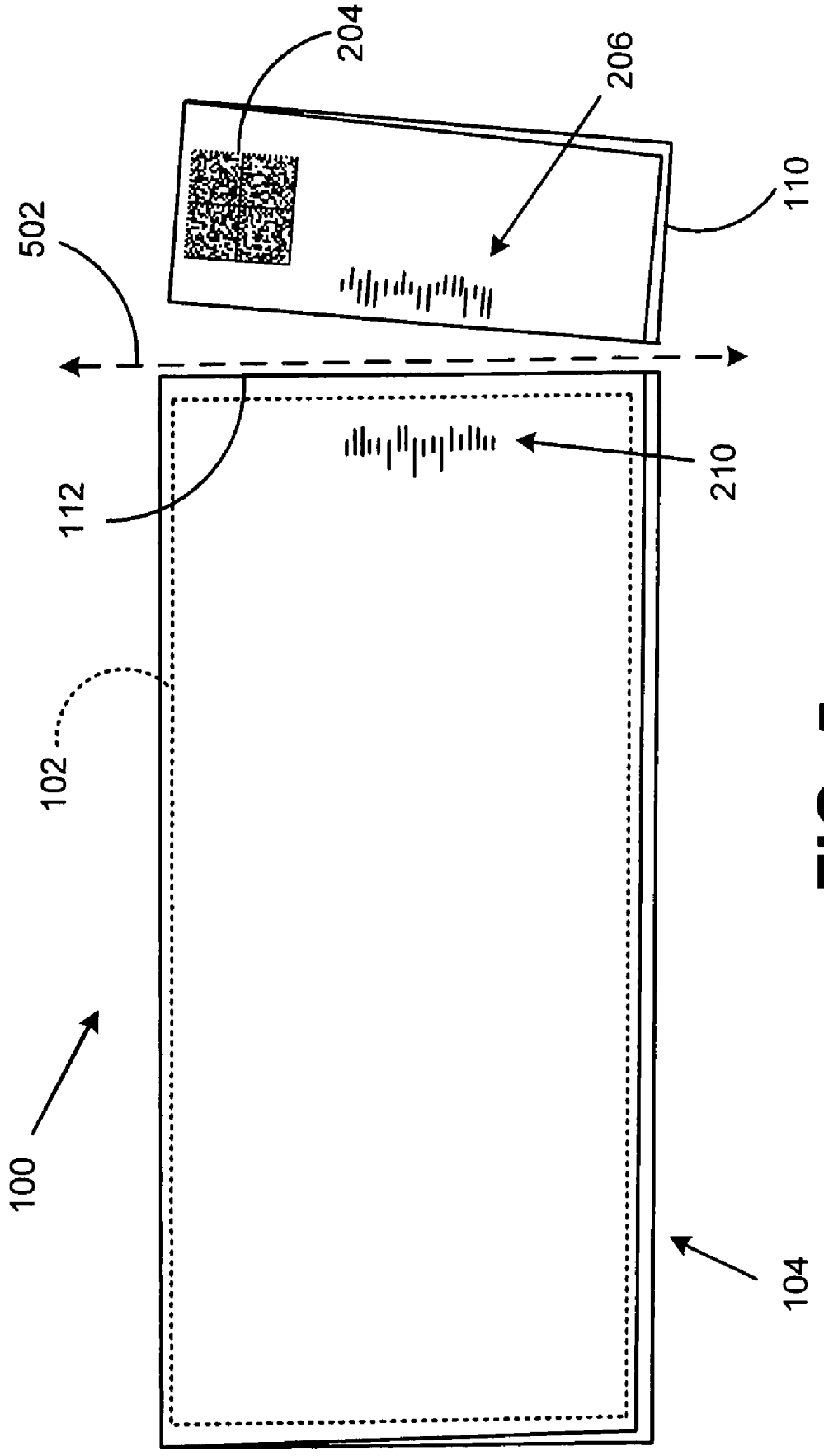


FIG. 5

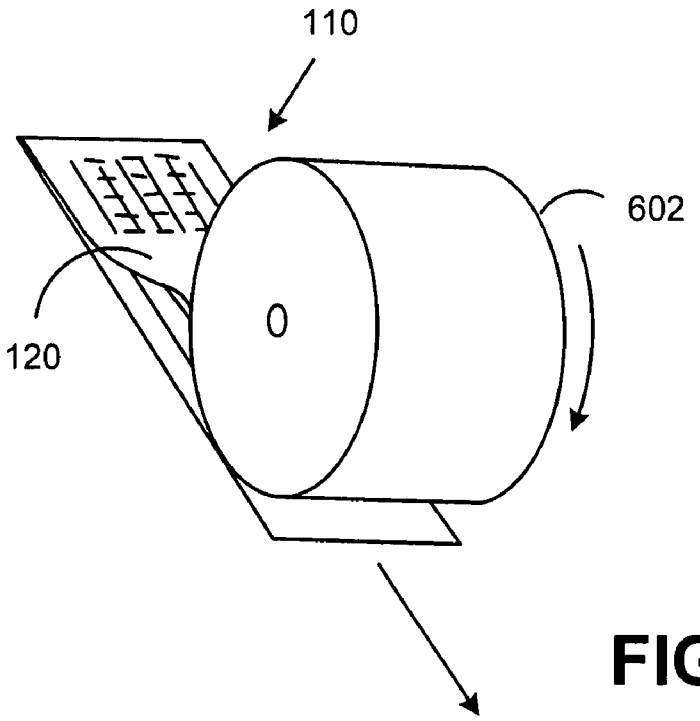


FIG. 6

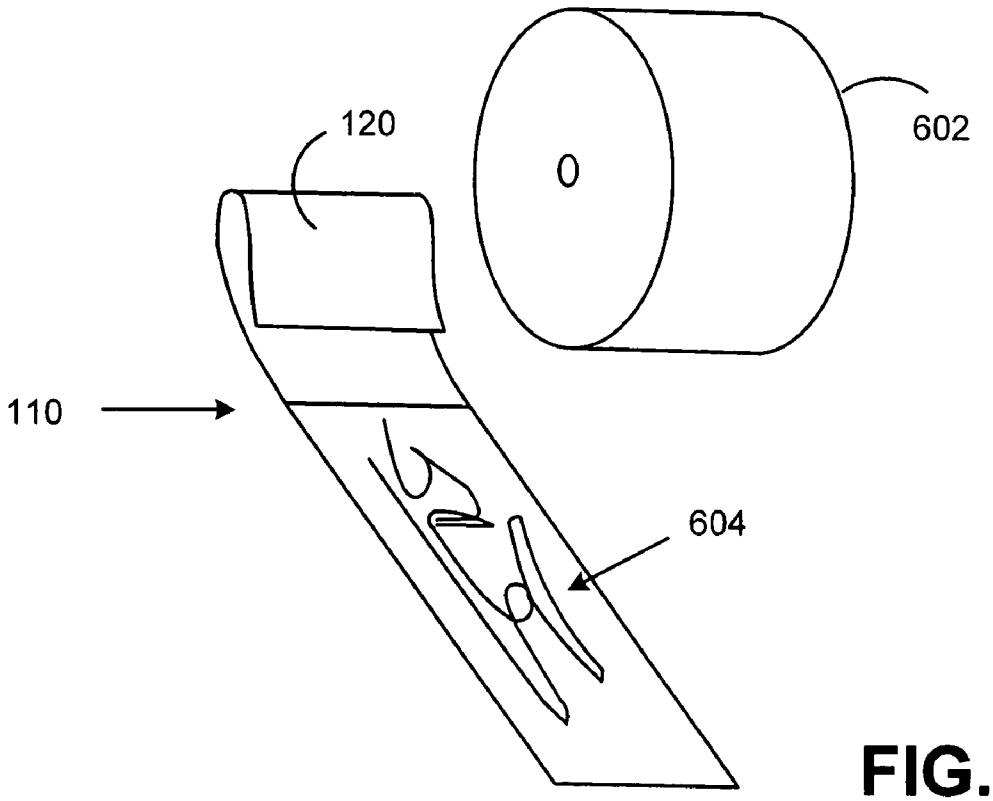


FIG. 7

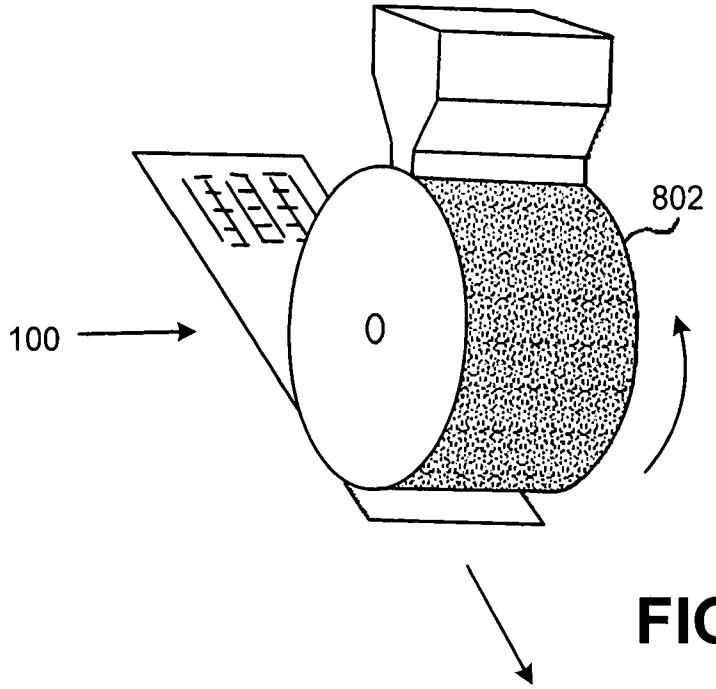


FIG. 8

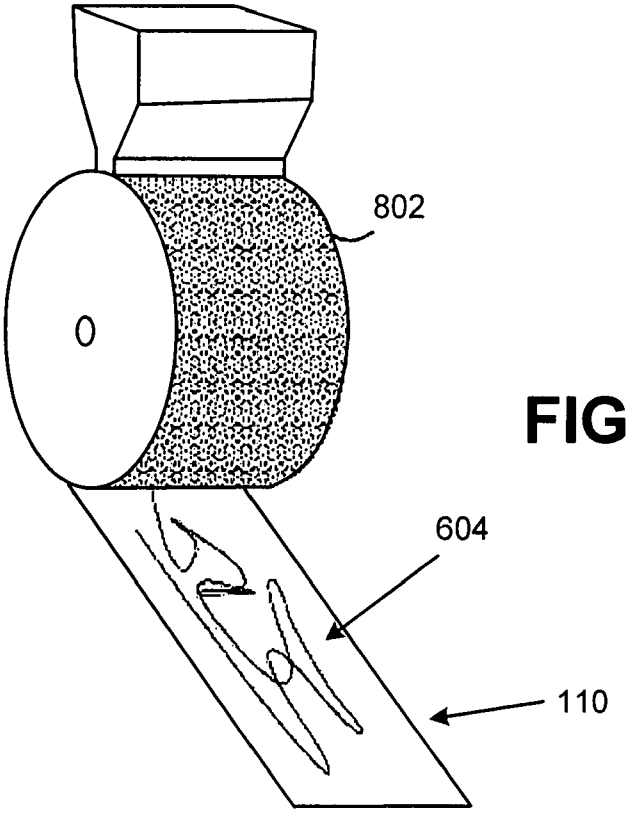


FIG. 9

VOTE BY MAIL ENVELOPE THAT PROTECTS INTEGRITY OF BALLOT DURING SIGNATURE VERIFICATION

FIELD OF THE INVENTION

The invention disclosed herein relates generally to vote by mail systems, and more particularly to an envelope that protects the integrity of ballots sent through the mail during the signature verification process.

BACKGROUND

In democratic countries, governmental officials are chosen by the citizens in an election. Conducting an election and voting for candidates for public office in the United States can be performed in several different ways. One such way utilizes mechanical voting machines at predetermined polling places. When potential voters enter the predetermined polling place, voting personnel verify that each voter is properly registered in that voting district and that they have not already voted in that election. Thus, for a voter to cast his vote, he must go to the polling place at which he is registered, based on the voter's residence. Another method for conducting an election and voting utilizes paper ballots that are mailed to the voter who marks the ballot and returns the ballot through the mail. Mailed ballots have been historically reserved for absentee voting. In the usual absentee voting process, the voter marks the ballot to cast his/her vote and then inserts the ballot in a return envelope which is typically pre-addressed to the voter registrar office in the corresponding county, town or locality in which the voter is registered. The voter typically appends his/her signature on the back of the envelope adjacent his/her human or machine readable identification.

When the return envelope is received at the registrar's office, a voting official compares the voter signature on the envelope with the voter signature retrieved from the registration file to make a determination as to whether or not the identification information and signature are authentic and valid, and therefore the vote included in the envelope should be counted. If the identification and signature are deemed to be authentic and valid, the identifying information and signature are separated from the sealed ballot before it is handed to the ballot counter for tabulation. In this manner, the privacy of the voter's selections is maintained and thus the ballot remains a "secret ballot".

One general problem with vote by mail envelopes is the signature is in the open and exposed for all to see throughout the process for determining whether or not the vote is authentic. This leads to potential privacy issues and concerns, e.g., fraudulent usage of a voter's signature. Some jurisdictions have required that such signatures be hidden from plain sight while the envelope is en route from the voter to the registrar's office. This will protect against easy imaging of the signature, such as, for example, with a hand scanner or digital camera, for later impersonation or other fraudulent purposes, e.g., identity theft. To comply with such requirements, envelopes have been proposed that hide the signature with a flap which is removed when the envelope is received at the registrar's office. These solutions, however, require some mechanical manipulation of the envelopes, which is both expensive and increases the risk of accidental tears of the envelope, potentially leading to damage to the ballots contained in the envelopes, exposing the marked ballot before the conclusion of the authentication process (which in some states require the ballot to be counted, regardless of the outcome of the authentication process), or the ability to link the voter with his/her ballot, thereby removing the secrecy of the ballot.

Voting by mail is becoming more prevalent, apart from the usual absentee voting, and in some jurisdictions, entire elections are being conducted exclusively by mail. As the voting by mail becomes more prevalent, the privacy concerns are also more prevalent. Thus, there exists a need for efficient methods and systems that can protect the privacy of signatures on ballots sent through the mail while also reducing the risk of damage to the ballots when the signatures are revealed.

SUMMARY

According to an aspect of the invention, a method of processing a vote-by-mail return envelope that includes a pouch portion for containing the ballot and a stub portion on which the voter applies his/her signature is provided. Each portion contains a respective barcode that identifies the respective portion or is provided with a respective barcode to identify the respective portion. The barcode on each portion may be identical, thus linking the two portions together, or alternatively the two barcodes on each envelope may be different and associated with each by some predetermined relationship, e.g., in a database, by a key, or the like, thereby linking the two portions together. The stub is then separated from the pouch, thereby separating the voter's signature, name, etc. from the ballot. The signature can then verified from the stub to determine whether the ballot in the pouch is eligible for counting or whether some remedial procedure is necessary. Since the signature stub has been removed from the pouch containing the ballot, the signature verification procedure can be performed using any suitable method, without requiring any special care to protect the ballot. The ballot contained in the pouch linked to the verified signature stub can then be identified based on the barcode identifiers, such that the ballot can be processed based on the result of the signature verification. After the pouch containing the ballot of a verified signature is properly sorted (to be tallied) and if no remedial procedure is needed, then any stored relationship between the pouch and stub barcode identifiers may be erased, thereby preserving anonymity of the ballot.

According to another aspect of the invention, a vote-by-mail envelope includes a pouch for receiving a ballot. The envelope further includes a stub that is offset from the pouch and includes a signature space for a voter's signature. The stub may be offset laterally or downwardly from the pouch. In addition, the envelope includes a flap for closing the pouch and covering the voter's signature. The flap includes a pouch-side region for overlying the pouch and a stub-side region for overlying the stub. The envelope also includes a first barcode printed on the flap and located on the pouch-side region of the flap, and a second barcode printed on the flap and located on the stub-side region of the flap.

Therefore, it should now be apparent that the invention substantially achieves all the above aspects and advantages. Additional aspects and advantages of the invention will be set forth in the description that follows, and in part will be obvious from the description, or may be learned by practice of the invention. Various features and embodiments are further described in the following figures, description and claims.

DESCRIPTION OF THE DRAWINGS

The accompanying drawings illustrate presently preferred embodiments of the invention, and together with the general description given above and the detailed description given below, serve to explain the principles of the invention. As

shown throughout the drawings, like reference numerals designate like or corresponding parts.

FIG. **1** schematically shows a rear view of a vote-by-mail return envelope provided according to an aspect of the present invention, with a ballot being inserted into a pouch that is part of the return envelope.

FIG. **2** is a schematic rear view of the vote-by-mail return envelope of FIG. **1**, showing the condition of the envelope when it is sealed for mailing, and also showing in phantom certain internal features of the sealed envelope.

FIG. **3** is a view similar to FIG. **1** of another embodiment of a vote-by-mail return envelope.

FIG. **4** is a flow chart that illustrates a process provided according to an aspect of the invention for processing a vote-by-mail return envelope after the envelope is received by the voting registrar from the voter.

FIG. **5** is a view similar to FIG. **2**, schematically illustrating a technique for detaching identifying information from the ballot contained within the return envelope.

FIGS. **6** and **7** are schematic isometric views that illustrate a technique for uncovering a voter's signature contained within an envelope stub shown in FIG. **5**.

FIGS. **8** and **9** are schematic isometric views that illustrate a technique for making visible a voter's signature contained within an envelope stub shown in FIG. **5**.

DETAILED DESCRIPTION

FIG. **1** schematically shows a rear view of a vote-by-mail return envelope **100** provided according to an aspect of the present invention, with a ballot **102** being inserted into a pouch **104** that is part of the return envelope **100**. As is often the case with an envelope pouch, the pouch **104** of the envelope **100** is formed from a front sheet **106** (of which, in some embodiments, only a small part of its rear side is visible) of the envelope **100** and a rear sheet **108** of the envelope **100**. However, the envelope **100** differs from a conventional envelope in part by having an extension portion or stub **110** that extends laterally beyond an end side boundary (indicated approximately by dashed line **112**) of the pouch **104**. As will be discussed further below, the rear surface of the extension portion **110** carries a signature space **114** to be signed by the voter. The end side boundary **112** of the pouch **104** is defined by an adhesion region (indicated approximately at **118**) at which the front sheet **106** is adhered to the rear sheet **108**. As seen from FIG. **1**, the adhesion region **118** separates the signature space **114** from the pouch **104**.

The extension portion **110** of the envelope **100** may be formed in a number of ways. For example, the front sheet **106** alone may extend laterally past the adhesion region **118**, or the rear sheet **108** alone may extend laterally past the adhesion region **118**, or both of the front and rear sheets may extend laterally past the adhesion region. In the first of these three possibilities, the signature space **114** may be carried on the rear surface of the front sheet **106**. In the latter two of these three possibilities, the signature space may be carried on the rear surface of the rear sheet **108**. (It may also be the case, even if both sheets extend laterally past the adhesion region **118**, that one of the sheets extends further than the other.) If both sheets extend past the adhesion region **118**, there may be another adhesion region, which is not separately indicated, to join the sheets together, for example, at the outer edge of the extension portion/stub **110**.

The envelope **100** further includes a flap **120** which is sized so as to substantially completely cover the rear surface of the envelope **100** (including the rear surface of the extension portion/stub **110**). The flap **120** is located so as to close the pouch **104** of the envelope **100** when the flap/envelope are sealed.

In some embodiments, the envelope **100** may be generally similar in construction to one or more of the vote-by-mail return envelopes disclosed in prior, co-pending U.S. patent application Ser. No. 11/646,146, filed Dec. 27, 2006, which is incorporated herein by reference. One possible difference between the envelope **100** disclosed herein and the envelopes disclosed in the prior application, is that the envelope **100** shown herein may, at least when the flap **120** is closed, be sufficiently opaque at the stub **110** to prevent the voter's signature from being viewed, even by shining a bright light through the stub **110**.

In using the return envelope **100** to vote by mail, the voter may simply mark his/her ballot **102**, place it in the pouch **104** of the envelope **100**, inscribe his/her signature in the signature space **114** and seal the envelope **100** by adhering the flap **120** to the rear surface of the envelope **100**.

FIG. **2** is a schematic rear view of the return envelope **100**, showing the condition of the envelope when it is sealed for mailing. As seen from FIG. **2**, the flap **120** is adhered to the rear surface of the envelope **100** to cover substantially all of the rear surface, including the signature space **114** (shown in phantom). Also shown in phantom is the ballot **102** which is contained in the pouch (not separately indicated) of the envelope **100**.

Three other features of the envelope **100** are visible in FIG. **2**, all printed on the outer surface **202** of the flap **120** (it will be recognized that when the flap **120** is sealed as shown in FIG. **2**, the outer surface **202** of the flap **120** forms substantially all of the rear surface of the envelope **100**). A first one of the three features referred to in the previous sentence is a barcode **204** (in the particular example shown, a two-dimensional barcode), which contains data to identify the voter whose ballot is contained in the envelope and who signed the stub **110**. A second one of the three features is a barcode **206**. The barcode **206** represents a unique identifier (numeric, alphanumeric or a string of letters or other characters) for the stub **110**. The barcode **206** is located on a region **208** of the flap **120** that overlies the stub **110**. The region **208** may be referred to as the stub-side region of the flap **120**. The third one of the three features is a barcode **210**. The barcode **210** represents a unique identifier (numeric, alphanumeric or a string of letters or other characters) for the pouch **104** (FIG. **1**). The barcode **210** is located on a region **212** of the flap **120** that overlies the pouch **104**. The region **212** may be referred to as the pouch-side region of the flap **120**. It should be noted that the barcodes **206**, **210** can be applied to the envelope **100** before the envelope **100** is sent to the voter, or can be printed on the regions **208**, **212**, respectively, after receipt of the envelope **100** back from the voter as described below.

In some embodiments, for example, the barcodes (as illustrated) may be implemented as four-state barcodes such as the four-state barcode specified for some postal applications by the U.S. Postal Service. The barcodes **206**, **210** may or may not be identical. In preferred embodiments of the invention, the identifier represented by stub barcode **206** has a different value from the identifier represented by pouch barcode **210**, i.e., the barcodes **206** and **210** are not the same, but instead are associated with one another as described elsewhere herein. In this manner, the matching of the barcode **206** to the barcode **210**, and thus the ballot contained in the pouch **104** to a specific voter, by simple visual inspection is prevented. The number of data bits supported by the barcodes **206**, **210** may be more or fewer than the number of bits indicated in the drawings.

In accordance with conventional practices a destination address for the return envelope (address of the voting registrar) may be printed on the front surface (not shown) of the vote-by-mail envelope. It will be appreciated that the front surface of the envelope is the opposite surface from the rear surface that is shown in FIG. **2**. Of course, virtually all of the rear surface of the envelope is formed by the outer surface of the flap **120**.

As an alternative to printing the two-dimensional barcode **204** on the flap **120**, as shown in FIG. **2**, the two-dimensional barcode may be printed adjacent the signature space **114**, as indicated in phantom at **204***a* in FIG. **1**.

FIG. **3** is a view similar to FIG. **1** of another embodiment of a vote-by-mail return envelope. The vote-by-mail return envelope shown in FIG. **3**, generally indicated by reference numeral **100***a*, differs from the vote-by-mail return envelope shown in FIGS. **1** and **2** principally in that the extension portion/stub **110***a* of the envelope **100***a* is offset downwardly relative to the pouch **104**, rather than laterally, as is the case with the stub **100** relative to the pouch **104** in the envelope **100** of FIGS. **1** and **2**. It should also be understood that the flap **120***a* of the envelope **100***a* of FIG. **3** may have printed thereon the same barcodes (not visible in FIG. **3**) **204**, **206**, **210** described above, with barcodes **204**, **206** located on a portion of the flap **120***a* that overlies stub **110***a* when the flap is sealed, and with barcode **210** located on a portion of the flap **120***a* that overlies the pouch **104** when the flap is sealed. The portion of the flap **120***a* that overlies stub **110***a* may again be referred to as the stub-side region of the flap **120***a*, and the portion of the flap **120***a* that overlies the pouch **104** may again be referred to as the pouch-side region of the flap **120***a*.

FIG. **4** is a flow chart that illustrates a process provided according to an aspect of the invention for processing a vote-by-mail return envelope **100** or **100***a* after the envelope is received by the voting registrar from the voter. (The terms "voting registrar" or "registrar" as used herein should be understood to refer to any organization that processes, verifies and/or counts ballots mailed in by voters.)

At **400** in FIG. **4**, a return envelope **100** (or **100***a*), presumably with a ballot **102** inside, is received at the registrar's office. If barcodes are not preprinted on the return envelope **100**, then in step **402** such barcodes are generated and a stub barcode **206** and pouch barcode **210** are printed on the envelope **100** in the respective areas. It should be understood, of course, that if the barcodes **26**, **210** are already provided, then the processing of step **402** need not occur. If the barcodes **206**, **210** are already provided on the envelope **100**, then in step **404** the stub barcode **206** and the pouch barcode **210** are scanned to obtain the identifiers represented by the two barcodes **206**, **210**. Regardless of whether the barcodes **206**, **210** are scanned or generated and printed, in step **406** the identifiers represented by the barcodes **206**, **210** are then preferably stored. For example, the two identifiers may be stored in respective fields of a particular entry in a database, so that the entry in question provides a link, association or relationship between the two identifiers. In other words, one of the identifiers may be looked up in the database by reference to the other identifier. In other embodiments, a suitable key or other data may provide the link or association between the two identifiers. For example, such a key might be represented by an exponent e in a Galois field GF_n. The barcode **206** could represent elements m_i of GF_n and the barcode **210** could represent elements $n_i=m_i^e$. Since there might be many voters, several exponents may be used, and the voters partitioned in groups $G_1, G_2, \ldots G_N$, with each group having its own key e_j.

In **408**, the voter's signature and identifying information are separated from the pouch and ballot, such as, for example, by cutting. FIG. **5** is a view similar to FIG. **2**, and schematically illustrates a technique for cutting the envelope in this manner. In particular, the stub **110** may be detached from the pouch **104** and the ballot **102**, by cutting the envelope vertically (as indicated schematically at **502**) just outside the boundary **112** of the pouch **104**. It will also be noted that the cutting takes place between the barcodes **206**, **210**. It should further be understood that the above-mentioned stub-side region of the flap **120**, at least after the operation **408** (as illustrated in FIG. **5**), should be considered part of the stub **110**, and the pouch-side region of the flap **120**, at least after the operation **408** (as illustrated in FIG. **5**), should be considered part of the pouch **104**. After the cutting operation, the barcode **210** remains on the pouch **104** to identify the pouch during further processing, the barcode **206** remains on the stub **110** to identify stub **110** during further processing, and data stored in a database provides a link between the stub identifier and the pouch identifier to allow processing of the stub to affect processing of the pouch.

Once the pouch and stub have been separated in **408**, the pouch and stub may be processed separately. For example, the stub may be collected with a batch of stubs from other vote-by-mail return envelopes sent by other voters, and the pouch may be collected with a batch of pouches from the other envelopes. At **410** in FIG. **4**, the stub identifier barcode **206** is read from the stub **110**. At **412** in FIG. **4**, the two-dimensional barcode **204** is read from the stub **110** to identify the voter whose signature is carried by the stub **110** and whose ballot is contained in the pouch that was separated from the stub.

At **414**, the stub **110** is physically processed to allow the voter's signature to become visible, and possibly to allow an image of the voter's signature to be captured. Prior to the physical processing of the stub at **414**, at two sides (bottom and right sides) of the stub the flap may be held to the stub by adhesive (not shown), the hinge of the flap may form a top side of the stub, and the flap may be unattached at the left side of the stub (where the stub was cut from the pouch). To allow the flap **120** to be peeled back, the bottom and right sides of the stub **110** may be cut off. Then the stub may be fed past a friction wheel **602**, as schematically indicated in FIGS. **6** and **7** (pinch roller below the stub is not shown), to peel back the flap so as to reveal the voter's signature **604**. (In the view of FIG. **7**, the friction wheel is shown in an offset position relative to its actual position, which is as shown in FIG. **6**. The offset presentation of the friction wheel in FIG. **7** is for the purpose of allowing into view the peeled back condition of the flap and the voter's signature uncovered by action of the friction wheel.)

In an alternative embodiment of step **414** (enabled by an alternative embodiment of the stub), cutting and peeling of the stub **110** are not performed. Instead, the flap may be formed of a type of paper or other material that becomes transparent when a suitable substance or solution (e.g., water) is applied to the flap. Materials that may be changed from opaque to transparent by application of a suitable chemical, and chemicals for so doing, are disclosed and/or discussed in U.S. Pat. Nos. 6,103,355; 6,143,120; and 6,692,819; and in co-pending, commonly assigned patent application Ser. No. 11/636,800, filed Dec. 11, 2006. The three patents and the patent application set forth in the previous sentence are all incorporated herein by reference. In the illustration of the alternative embodiment of step **414**, as seen from FIGS. **8** and **9**, the stub **110** is fed past an applicator wheel **802** (pinch roller again not shown) which applies the transparentizing chemical to the stub/flap to allow the signature **604** to become visible through the flap. In some embodiments the flap may have at least two layers (layers not separately shown), includ-

ing an outer, transparentizable opaque layer, and an inner, protective, transparent layer to keep the transparentizing chemical from the signature. The region of the flap that is transparentizable and/or with the two layers may be confined to the locus of the signature space.

Referring again to FIG. **4**, at **416**, the voter's signature is verified. This may entail, for example, retrieving a reference signature image from a database using the voter identification information read at **412** from the two-dimensional barcode. The signature verification may include comparing the retrieved reference signature with an image captured of the signature carried on the stub, or directly with the signature on the stub. The comparison of the signature on the stub with the reference signature may be performed by a human employee of the voting registrar or automatically by machine analysis of the reference signature and the signature on the stub.

At **418**, the result of the signature verification operation is recorded. For example, the result (e.g., signature verified, signature absent, signature does not match or symbols representing these results) may be stored in a database in association with either or both of the stub identifier for the stub read at **416** and the pouch identifier for the pouch that was separated at **408** from the stub read at **416**. Various arrangements of data may be used, such that the result of the signature verification operation may be accessed directly or indirectly by reference to the pouch identifier.

At **420**, the pouch that was separated from the stub read at **416** can be identified (using the associated identifiers) and sorted, perhaps as part of an operation in which a batch of pouches is sorted. The sorting may be based on the stub identifier, the pouch identifier and the result of the signature verification operation. The sorting should be understood to be based on the stub identifier, for example, if (a) the pouch identifier is read during the sorting, and is used to access the stub identifier, which in turn is used to access the result of the signature verification operation; or (b) the stub identifier is used to store the result of the signature operation in association with the pouch identifier, and the pouch identifier is read during the sorting and then used to access the result of the signature verification operation. For example, if the result of the signature verification operation indicates that the signature on the stub is valid, the sorting of the pouch may cause the pouch to be sorted into a pile of pouches that are to be opened for tabulation of the ballots inside. If the signature was found to be missing or invalid, the pouch may be sorted into one or more other piles, for remedial action. The remedial action may be in accordance with conventional practices.

At **422**, at least in the case of pouches to be opened for tabulation of ballots, the data, e.g., the key(s), database entry or the like, that associates the pouch identifier with the stub identifier may be erased or deleted, to preserve the anonymity of the ballot. This step may be performed prior to the opening of the pouch.

In some embodiments, in the case of pouches for which the voter's signature was invalid or missing, the stored data link between the stub and pouch identifiers may remain stored, and the pouch may be brought back together with the stub that was detached from it, to aid in investigation of possible voting fraud or other remedial action.

With the process illustrated in FIG. **4**, the risk of damage to the pouch and ballot is reduced, since the signature and stub are separated from the pouch before the flap is peeled back from the stub or transparentized.

As would be expected by those of ordinary skill, the data capture, data storage and data manipulation functionality described above may be implemented by suitable software programming of conventional computer equipment. As is well known, such computer equipment may include one or more microprocessors, program memory coupled to the processor(s) for storing the software instructions so that the instructions may be fetched and executed by the processor(s), mass storage, input/output devices, and other conventional features of computer equipment. Performance of the above described processes may also require operation of paper-handling and barcode scanning/image capture equipment, all of which may be of generally conventional construction. The paper-handling equipment may be controlled by the computer equipment, which may receive data inputs from the scanning equipment.

The method steps described herein need not be performed in the order set forth above. Rather, the steps may be performed in any order that is practicable. For example, the order of steps **410** and **412** may be interchanged, and the reference signature may be retrieved before peeling back or transparentizing the flap to allow the signature on the stub to be seen.

A number of embodiments of the present invention have been described. Nevertheless, it will be understood that various modifications may be made without departing from the spirit and scope of the invention. Other variations relating to implementation of the functions described herein can also be implemented. Accordingly, other embodiments are within the scope of the following claims.

What is claimed is:

1. A method of processing a vote-by-mail return envelope having a first portion including a pouch that contains a ballot for a voter and a second portion on which a signature of the voter is provided, the envelope further having a first barcode located on the first portion and a second barcode located on the second portion, the method comprising:

scanning the envelope to read the first and second barcodes from the envelope;

detaching the first portion of the envelope from the second portion of the envelope such that the pouch containing the ballot is separate from the voter's signature;

verifying the voter's signature provided on the second portion of the envelope;

identifying the first portion of the envelope based on an association of the first barcode with the second barcode; and

processing the ballot contained in the pouch of the first portion based on whether the voter's signature was verified or not.

2. The method of claim **1**, further comprising:

storing the first barcode in association with the second barcode in a database.

3. The method of claim **2**, further comprising:

deleting the stored first barcode and second barcode from the database.

4. The method of claim **1**, further comprising:

storing a result of verifying the voter's signature in association with at least one of the first and second barcodes.

5. The method according to claim **1**, wherein the first and second barcodes are identical.

6. A method of processing a vote-by-mail return envelope having a first portion including a pouch that contains a ballot for a voter and a second portion on which a signature of the voter is provided, the method comprising:

printing a first barcode on the first portion of the envelope and a second barcode on the second portion of the envelope, the first barcode being linked to the second barcode;

detaching the first portion of the envelope from the second portion of the envelope such that the pouch containing the ballot is separate from the voter's signature;

verifying the voter's signature provided on the second portion of the envelope;

identifying the first portion of the envelope based on the link of the first barcode with the second barcode; and

processing the ballot contained in the pouch of the first portion based on whether the voter's signature was verified or not.

7. The method according to claim **6**, further comprising:

deleting the link between the first barcode and the second barcode.

8. The method according to claim **6**, wherein the link between the first barcode and second barcode is formed using a key.

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