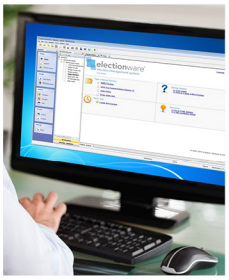
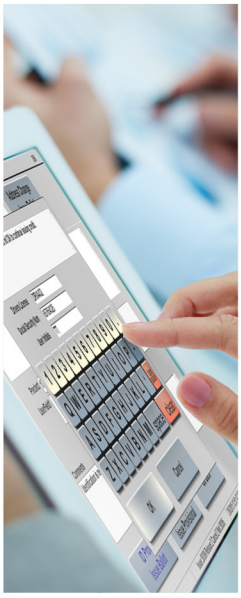
maintaining voter confidence





Responses to State of New Hampshire Questions

ORIGINAL

April 30, 2019

Joe Passarella, Regional Sales Manager

Election Systems & Software, LLC
11208 John Galt Boulevard
Omaha, NE 68137

enhancing the voter experience

Enhancing the State of New Hampshire Election Process

Responses to State of New Hampshire Questions

April 30, 2019

ORIGINAL

Election Systems & Software, LLC
11208 John Galt Boulevard
Omaha, NE 68137

Joe Passarella, Regional Sales Manager
[redacted]

TABLE OF CONTENTS

Cover Letter

Responses to State of New Hampshire Questions

Pricing

Attachments

Attachment A: Oval Positions

Attachment B: Proof of Certification

Attachment C: Project Management Narrative

ELECTION Systems & Software

April 30, 2019

David M. Scanlan, Deputy Secretary of State
New Hampshire Department of State
107 N. Main St.
State House Room 204
Concord, NH 03301
David.Scanlan@sos.nh.gov

RE: State of New Hampshire Department of State Questions

Dear Mr. Scanlan:

Election Systems & Software, LLC (ES&S) is pleased to respond to the State of New Hampshire's questions. Our solution provides a voter verified paper audit trail and an Election Management System that allows the state to become self-sufficient for all election tasks.

ES&S is pleased to describe our state-of-the-art VVSG-compliant fully-integrated voting system and elections management solution.

The state's transition to our leading-edge election technology will improve all aspects of the election process for local voters, election staff and poll workers. We look forward to working with the state to implement the most technically advanced paper-based election solution ever implemented in the State of New Hampshire.

KEY ASPECTS OF OUR SOLUTION FOR THE STATE OF NEW HAMPSHIRE

The election-proven system we are describing for the State of New Hampshire have been used in binding elections throughout the United States.

ES&S has included information on the following hardware and software as well as the accompanying training, maintenance, warranty, and election support to meet the objectives and goals detailed in the state's Request for Information.

We are presenting the state with the following option:

- The DS200® Precinct Tabulator

With this option, the remainder of our solution could optionally include:

- ExpressVote® Universal Voting System ballot marking device (BMD) for all voters or ADA voters only
- DS450® Central Scanner and Tabulator
- DS850® Central Scanner and Tabulator
- Electionware® software suite for reporting
- ExpressPoll® electronic pollbook

For more than 20 years, ES&S has had the same committed owners. With more than 500 election-focused associates, and ownership that provides solid financial strength, ES&S is well-positioned to continue its long-term commitment to its current and future client base and the entire industry.

At the core of our philosophy are values like hard work, trust, and honesty. Through the continual development and introduction of innovative election products, ES&S has emerged as the leading provider of end-to-end, fully integrated voting solutions.

Nearly 100 million registered voters tabulate with ES&S. Choosing ES&S as the state's vendor of voting equipment, software, and election services products positions the state to be in good company. Our statewide implementations include Alabama, Arkansas, Delaware, Georgia, Maine, Maryland, Montana, Nebraska, North Carolina, North Dakota, Rhode Island, South Carolina, South Dakota, Utah, and West Virginia. Our statewide voter registration implementations include Alabama, Arkansas, Kansas, Nebraska, Maryland, and the U.S. Virgin Islands.

CONCLUSION

Thank you for inviting us to answer your questions. We appreciate the opportunity to present our election-proven voting system State of New Hampshire and look forward to additional opportunities. Please feel free to contact me with any questions.

Only an elections company like ES&S brings our level of knowledge of the election process, election procedures, and election data and laws. We stand ready to move the state to a new era of voting systems that will meet the needs of election officials and voters for years to come.

Respectfully,

Joe Passarella
Regional Sales Manager
[redacted]

RESPONSES

PRECINCT COUNT DEVICE

1. Describe in outline form the workflow for conducting an election using your proposed vote counting device system, including all steps required from defining the election, ballot preparation, programming the device, testing the device in advance of the election, opening and closing the device on election day at the polls, election night tabulation, and reporting.

ES&S RESPONSE

CONFIDENTIAL

HIGH LEVEL OVERVIEW

[redacted]

[redacted]

2. Can your precinct device be programed to count each of the sample ballots provided with this set of questions without any redesign or change to the ballot?

ES&S RESPONSE

The contest, candidate, and additional content can be designed in the exact same way on the same size of paper. The ES&S precinct device can count the provided samples with a change to the code channel, which indicates the ballot style for the machine to properly tabulate.

3. What is the lightest weight paper that your precinct scanner will reliably count?

ES&S RESPONSE

The basis weight of our ballot stock is 80# text weight (36.2874kg).

The ExpressVote vote summary card uses thermal heat-sensitive paper with 134 Microns +/- 6 Microns (0.005275" +/- 0.00236") thickness.

4. What printing precision is required by your precinct scanner?

a. Can ballots be printed from a desktop computer with a Commercial Off the Shelf Printer?

b. Does your precinct scanner require ballots printed by a commercial printing service?

c. Can ballots be printed with a side or top margin? If yes, what limit is there on the size of the margin?

ES&S RESPONSE

ES&S recommends that New Hampshire use CountRight™ Digital Ballot Stock. Other non-proprietary stock may be used, but it must adhere to ES&S' ballot code stock specifications to ensure proper tabulation of the voter's ballot. ES&S recommends the use of ballot stock containing the same specifications found in our CountRight Digital Ballot Stock with our tabulators.

CountRight is available to the state in two ways. First, as the only authorized distributor of CountRight ballot stock, Veritiv, North America's largest paper distributor, offers CountRight parent sheets and rolls in a variety of sizes and formats. Second, ES&S stocks and markets CountRight Digital Ballot Stock in various sizes and formats. This pre-cut stock is blank with no pre-printing on it. ES&S offers ballot printing services, Ballot On Demand systems, and can provide specifications and guidance should the Sate wish to utilize other means to produce their ballots.

a.

Yes, and ES&S has models of COTS printers that we recommend due to their proven effectiveness.

b.

No. Ballots can be printed in house using COTS printers if desired.

c.

Margins are interpreted here as additional paper length beyond the ballot content for purposes of placing identifying information that typically is removed from the ballot itself before casting the ballot into the precinct tabulator (also referred to as "stubs"). The margins can be added to the top or bottom of the ballots by the ballot design software but cannot be placed on the side. There is no limit to the size of the margin.

SCANNED IMAGES OF BALLOTS

5. Does your device save electronic files which are an image of each cast ballot counted by the device?

a. If yes, can your software can turn this feature on and off.?

ES&S RESPONSE

Yes. The ES&S precinct tabulator has the option to capture an image of the ballot and that option can be turned off. Choosing to save images does not impact the speed of the DS200 scanner. There is an additional option to save the image of the write-in written by the voter alone if desired. During the election setup in Electionware, the user may decide to use the Capturing Image feature to save all ballot images, no ballot images, or only those ballot images with write-ins. If images are opted to be stored, they can be viewed from the results reporting software once the tabulation results are loaded in the software via the precinct counter's USB media device.

6. Does your device save an electronic file which is an image of a ballot if the device rejects the ballot (ballot from another election, ballot from wrong town/ward, or wet ballot, etc.)?

ES&S RESPONSE

If the device rejects the ballot, the device does not save an electronic file of the ballot image.

PRECINCT CONFIGURATION

7. Describe a typical precinct configuration.

ES&S RESPONSE

A typical precinct configuration includes the following:

- Voters sign in on the pollbook
- Voters receive their paper ballot and are instructed to go to a booth to complete the ballot
- After the voter makes their selections, they insert the ballot into the DS200

8. Describe the procedures poll workers will follow to open/start and close/produce report and shut down your device at the polls.

ES&S RESPONSE

DS200

DS200 POLL WORKER OPEN & CLOSE PROCEDURES

Deliver the DS200 to the polling place before polls open. To open the unit(s):

Plug the DS200 into an AC outlet.

Unlock and raise the lid of the DS200 to automatically initiate the boot-up process.

Press "Open Poll" and then "Go to Voting."

The unit is now prepared for voters.

To close the polls:

Close the DS200 lid and unplug the unit from the wall.

EXPRESSVOTE

EXPRESSVOTE POLL WORKER OPEN & CLOSE PROCEDURES

Deliver the ExpressVote to polling place before polls open. To open the unit(s):

Remove ExpressVote and peripherals from the soft-sided storage/transport case.

- Place the unit on the table and plug it into a standard three-prong AC outlet.
- Attach any peripherals (i.e. headphones, keypad).
- Turn the unit on.

Voters use the ExpressVote throughout Election Day to mark their ballots.

To close the ExpressVote, use the security key to open the security compartment and turn the power switch to "Off."

Lock the compartment door and remove the key.

Prepare for storage.

Pack the ExpressVote and peripherals in its soft-sided case.

Store the ExpressVote.

9. Describe precinct reporting features.

ES&S RESPONSE

Precinct reports can be generated at the precinct counting device as well as from Electionware, where the results are aggregated across the jurisdictions.

Once the polls are closed from the precinct tabulator, results reports can be printed to the onboard thermal printer. The jurisdiction can choose how many copies of the result reports print automatically and the results are delineated by precinct.

After equipment results are uploaded from the tabulation equipment into the software, a precinct-by-precinct report can be generated in Electionware.

The Electionware Reporting module offers many different formats for election night exports, including PDF, Excel, XML, CSV, and TXT. Plus, it provides the state with the ability to customize election night exports based on your needs. These exports can be created on an as-needed basis or set to be updated on a specified timed interval.

Our election management system (EMS) reporting software provides many options for reporting on an precinct level or based on the cumulative results. Results can display one or more reporting types such as absentee and/or Election Day results.

10. Describe the voter interface.

a. Describe how a voter is alerted to undervotes and overvotes.

b. Can the device be programmed to return the overvoted ballot to the voter?

c. Can a voter notification can be turned on and off?

d. If yes, describe how notification for a particular alert is turned on or off.

ES&S RESPONSE

a., b.

The DS200 tabulator can be programmed to allow the voter to vote for as many candidates for an office or answers to a question as the voter is lawfully entitled to vote for, but no more. The State of New Hampshire can determine the procedure for handling ballot exceptions (overvoted, undervoted, crossovers, blanks, and misread ballots) and those guidelines will be programmed into the election definition through the Electionware EMS.

The DS200 displays an easy-to-read screen message that describes the problem and allows the voter to either have the ballot returned to them for review and revision or have the ballot cast as-is and register the vote as a blank to prevent double voting.

The DS200 can be programmed to alert a voter to undervotes and provide the voter an opportunity to correct the ballot. When the unit detects an undervote, its touch screen is able to clearly list the contest(s) affected. The DS200 can then provide the voter step-by-step instructions for correcting the ballot.

c., d.

The voter notification can be turned off. The DS200 can be programmed in Electionware to query the voter for an overvote or undervote, or not query the voter.

11. Describe how a voter casts a ballot.

ES&S RESPONSE

When the "Welcome. Please Insert Your Ballot" screen is displayed, the voter simply places a marked ballot in the DS200 insert slot in any orientation. The ballot feed process is initiated when the voter places the ballot into the ballot transport path. A confirmation screen provides clear feedback to the voter that their ballot has been successfully tabulated.

12. Describe how a voter receives confirmation that his/her ballot has been cast and counted.

ES&S RESPONSE

The system alerts the voter that the ballot was cast and final after it is inserted into the DS200 tabulator. A confirmation screen appears on the DS200 after the ballot is tabulated that says, "Thank you for voting. Your ballot has been counted."

13. Describe the screen size for the screen the voter would view to receive device messages when casting a ballot.

ES&S RESPONSE

The DS200 features an interactive 12-inch LCD color touch screen – the largest on the market – and messages and prompts (both visual and auditory) to assist workers and voters.

During voting, situations that require voter or poll-worker interaction are displayed clearly in plain text on the DS200 unit's touch screen. All DS200 digital scanner messages are displayed in easily understood text and can be presented in multiple languages.

14. Describe the font sizes and options available for the messages a voter may receive from the device when casting a ballot.

ES&S RESPONSE

The DS200 features an interactive 12-inch LCD color touchscreen and messages and prompts (both visual and auditory) to assist workers and voters.

During voting, situations that require voter or election-worker interaction are displayed clearly in plain text on the DS200 digital scanner's touch screen. All messages are displayed in easily-understood text.

ES&S develops systems to the design requirements of the VVSG. Product designs consider additional human factors, beyond the scope of VVSG requirements. Design considerations include maximizing usability in the selection of screen color and fonts, using familiar Windows conventions for menus and user interfaces, providing WYSIWIG ballot editing tools, determining the shape and color of tangible system controls and designing logical work flows for end-to-end election processing.

15. Describe how messages a voter may receive from the device when casting a ballot are programmed into the machine and how they can be revised.

ES&S RESPONSE

Messages to the voter and poll workers are controlled through a prompt file. The file is a text file that can be edited with a standard text editor. The new file must be signed in Toolbox and the new file and signature file can be replaced in Electionware. Elections created after that will use the new prompts. If the desired text does not fit on the screen, ES&S will work with the state to determine a solution.

16. Can local election officials make changes to the messages?

a. If yes, what additional hardware or software is required and at what cost?

ES&S RESPONSE

Changes to the screen messages need to be made in Electionware. Users who have access to Electionware can make the changes. Electionware Toolbox is required to reassign the file for use in Electionware.

17. If only the vendor can change the messages, does this require an on-site service call?

a. Describe the process and provide the current cost to implement a revision.

ES&S RESPONSE

ES&S can come on site and make the requested changes and teach the local election officials how to make the changes. If desired, this training could be done during the installation process to avoid additional costs at a later date.

18. Describe your device's privacy protections related to the screen used to provide a voter with messages.

a. Can a voter in line behind the voter see the message?

b. Can the moderator standing beside the device see the message?

ES&S RESPONSE

When the voter inserts the ballot or vote summary card into the DS200, the tabulator does not display any information that may reveal the identity of the voter or contents of the voter's card/ballot while reading, verifying, and auditing cards/ballots.

For additional security, the voter may insert the vote summary card or ballot face down or upside down. The DS200 pulls the card rapidly inside and protects it from view before it is cast.

If additional security is required, DS200 optional privacy shields can be installed on the plastic ballot box to shield the DS200 display screen while the voter is processing his/her card or ballot at the scanner. In addition, ES&S sells ballot privacy sleeves that may be used to ensure card secrecy as the voter transports the vote summary card or ballot to the DS200 for tabulation.

BALLOT DESIGN AND PRINTING

19. What ballot lengths can be accommodated?

a. 11"?

b. 14"?

c. 18"?

d. 21"?

e. 22"?

ES&S RESPONSE

Electionware's Paper Ballot module gives the State of New Hampshire a flexible and innovative ballot layout system capable of grid-portrait, grid-landscape, or multi-column portrait ballot types.

ES&S tabulators support a variety of ballot sizes that include (in inches) 8.5 x 11, 8.5 x 14, 8.5 x 17, and 8.5 x 19 inches.

20. What is the required size, if any, of the ballot header?

ES&S RESPONSE

The ballot header is not required to be a specific size. Electionware offers a flexible ballot layout. The ballot header may be whatever size the state chooses.

21. What is the largest size ballot your machine can process?

ES&S RESPONSE

The largest ballot size our proposed equipment can process is 8.5 x 19 inches.

22. Can the State or a town/ city purchase ballot printing directly from your company?

ES&S RESPONSE

Yes. ES&S offers ballot printing services.

23. In your response provide an 8 ½ by 22 inch piece of paper that shows all the locations for ovals and their orientation for every oval that your device is capable of counting.

ES&S RESPONSE

The DS200, DS450, and DS850 are certified to tabulate 11", 14", 17", and 19" length ballots in widths of 8.5" and 4.25" (for ExpressVote thermal card stock/ballots). They are capable of accurately reading a landscape ballot with as many as 24 columns front and back.

The Electionware software supports both single- and double-sided ballots as well as multi-page ballots. Ballots can be formatted in either portrait or landscape orientation. Customization options for ballot layouts are extensive, and through the use of style sheets can be applied to all, or a subset of ballot styles. Once the ideal layout is achieved, templates can be saved for future use.

In our proposed system, Paper Ballot is very flexible. Ovals positions are preset to designated locations depending on which ballot size is selected. There are many options when designing the ballots: 8.5 x 11-inch ballots with 4 or 5 targets per inch; 8.5 x 14-inch ballots with 3, 4, or 5 targets per inch; 8.5 x 17-inch ballots with 3, 4, or 5 targets per inch; 8.5 x 19-inch ballots with 3, 4, or 5 targets per inch.

As ovals are drawn on the ballot, there is a protected area surrounding each one and the system will ensure that no text or graphic is too close to that area. Similarly, the system protects the space around the code channel, which is used to identify the ballot style to the tabulator. Contests and candidates may flow from the front side to the back side as needed. However, a single question may not flow from the front to the back. The software will ensure the entire question and its response are moved to the back side.

Long questions may wrap from one column to the next on the same side. The user may designate columns and different widths for each ballot side. For example, all ballot front sides may have three columns for contests, while the back sides are one-column wide for long questions. The user can dictate the column widths for each side in the election. This flexibility allows the user to design ballots in Electionware that include large numbers of races, candidates, and questions that are easily read by the DS200 tabulator.

Maximum number of races per ballot style: 500 or # of positions on ballot

Maximum number of contests per election: 10,000

Maximum number of candidates per contest: 10,000

Please see **Attachment A: Oval Positions** for a depiction of the possible oval positions.

DEVICE PROGRAMMING

24. Can the state or a town/ city contract with your company to program the ballot counting device?

a. Provide the current price, separately for each, to program your device to count the two attached PDFs of ballots.

i. Salem 2018 general is a typical state ballot.

ii. Londonderry 2019 is a typical town/ school ballot.

ES&S RESPONSE

Yes. Please see **Pricing**.

25. If the state or a municipal user wants to program the precinct counting device for a particular ballot without using your programming services, how is that done?

a. What software is required?

b. Can your system count a ballot designed and printed from other software, such as Microsoft Word or Adobe PDF products?

c. If your system requires proprietary software to program the ballot counting device to read a ballot, will towns, cities, and school districts using your precinct counting device for municipal elections have to adopt a uniform ballot style/layout?

i. If not, are there any limitations on the ballot design? If yes, describe.

d. If your system requires proprietary software to program the ballot counting device to read a ballot, provide general pricing information to obtain this service, per each different ballot.

ES&S RESPONSE

a.

Electionware software is required to program our proposed equipment.

Electionware is our election management system (EMS) software solution that provides complete election management. The State of New Hampshire will be able to use Electionware software to create the election information database, format ballots, program ballot scanning equipment, create voice files, count ballots, and generate results reports. Electionware is a fully integrated election management software application that will allow New Hampshire to complete election management tasks through a uniform user experience. It has a powerful and intuitive interface and a single, common relational database.

ELECTIONWARE: KEY FEATURES & BENEFITS

Ease of use. Electionware is an easy-to-use EMS software application that eliminates wasted effort on unnecessary tasks. This allows users to program elections and create and lay out ballots much faster.

Security. Electionware incorporates the very latest in election security, including heightened audit controls and change management processes that are built-in to make sure New Hampshire election data is safe and secure.

Single user interface. Electionware comprises several modules, each one representing a stage of the election creation process. Stepping through each module allows the user to systematically proceed with election creation free from worry that key steps have been overlooked.

Integrated help system. Electionware contains an interactive, comprehensive help system.

Multi-user support. Electionware's multiple user support allows election officials to simultaneously enter information and prepare data from several workstations. Each user is assigned their own login credentials and level of access while the system tracks all actions in its robust Events Log.

Election results reporting. The Electionware suite's election results reporting program can generate paper and electronic reports for election officials, candidates, and the media. Reporting features enable the user to read data from the tabulators, customize report formats, and accumulate accurate election results.

b.

No. Our system can only print ballots designed and printed from Electionware.

c., i.

No. Our proposed system has a maximum of 15,000 ballot styles per election. Towns, cities, and school districts can have different ballots.

The Electionware Paper Ballot module is a very flexible typesetting program. It allows for shading, colors, and graphics to be added to enhance the ballot appearance as needed. The state may even create customized colors as needed. Many different graphic file types are supported including .bmp, .jpeg, .png, .gif, .tif, and .ico. The thickness of lines or boxes is adjustable throughout the software. Kerning and font leading can be adjusted anywhere in the Electionware Paper Ballot layout. Different ballot elements (office titles, candidate names, party names, etc.) can be assigned different fonts and font attribute values. Electionware supports font sizes as small as 4 points and as large as 72.

Paper Ballot provides a true ballot typesetting system for ballot layout and changes. Every piece of information printed on the ballot can be modified to allow for manual adjustments.

While the software is flexible, it will also ensure that marks are not made which would cause issues when processing the ballots. For example, shading and lines will not print too closely to target ovals. This offers a diverse, yet safe, ballot layout process.

d.

Please see **Pricing**.

For a New Hampshire General Election, New Hampshire creates 320 different paper official ballots. At the least, the town/ward name is different on each ballot. With column rotation, ballots with all the same candidates on them require different versions for different polling places/precincts so that a given candidate is in a different column in different polling places. Typically we have had 3 columns, so in a region where voters are all voting for the same offices/ candidates, 1/3 will have a given candidate in the first column position, 1/3 will have that candidate in the second column position, etc.

New Hampshire has five Executive Council Districts, 24 State Senate Districts, and 400 State Representative seats, under the 2012 redistricting, distributed into 204 districts (some single member, some multi-member). There are 312 separate polling places or precincts. Currently 190 of these precincts use an electronic ballot counting device. These 190 precincts serve approximately 7/8ths of the voters in the state.

The ballots must be prepared in the following forms:

Election Day - Paper

Absentee - Paper

Absentee - PDF

Sample – Paper

Sample - PDF

Absentee ballots must be identical to election day ballots, but for having the word "Absentee" on the top of the ballot. Sample ballots must be identical to election day ballots, but for having the word "Sample" on the top of the ballot and omitting the Secretary of State's signature.

New Hampshire towns, at town elections, may have several different ballots being cast at the same election. Currently, voters cast two or more different ballots (ballot pages) in the same device.

Does your software or precinct counter hardware have any limits on the number of distinct pages of ballots it can be programmed for and count at one election?

ES&S RESPONSE

The maximum number of ballot styles for each election is 15,000.

i. Ballots may include:

1. Town election ballot

2. Grade School District election ballot

3. Middle School District election ballot

4. Regional High school District election ballot

5. Water District election ballot

6. Fire District election ballot

7. Other Village District Election ballots (one NH town currently has 8 different fire, water, and village districts which have some voters who vote in that town.)

Many New Hampshire municipalities use "official ballot" voting, known as SB2 voting after the bill number which adopted the system. Official paper ballots are used to vote on the budget and on all the warrant article questions before the voters. Currently, this can result in each "ballot" consisting of several pages of ballots listing the offices to be voted and then all the questions. These ballots are typically printed on two sides. While 2 to 5 pages (4 to 10 printed sides) of ballots are most common, some years some jurisdictions require more pages.

Town, School District, and Village District clerks are required to prepare and print all local election ballots.

26. How many different ballots (ballot pages) can your precinct scanner be programmed to count at one election?

ES&S RESPONSE

Our precinct scanners can be programmed to count up to 15,000 different ballot styles at one election.

27. How much of the election specific programming can be done by local election officials for local ballots that are to be counted by your device?

ES&S RESPONSE

With proper training, local election officials can do election specific programming.

Electionware is designed as five modules that are set up based upon a jurisdiction's needs. Electionware is easy to master because its features and actions are logically organized based upon election workflow and an integrated database.

Electionware's design accommodates the latest in election trends, such as early voting, super polls, and electronic ballot image management. Electionware's ability to use data from past elections, as well as built-in ballot templates, eliminates the need to re-enter data for each new election. These powerful capabilities enable ES&S to create error-free elections in less time. Security levels are configurable at the levels of security required by the jurisdiction. These powerful capabilities enable ES&S to create error-free elections in less time. Security levels are configurable at the levels of security required by the jurisdiction.

KEY FEATURES

Ease of use. Electionware is intuitive, easy-to-use software that streamlines workflow and removes repetition of tasks.

Simultaneous multi-user access. Multiuser Electionware functionality enables large jurisdictions to allow multiple authorized personnel to simultaneously create poll media devices. Additionally, the multi-user functionality in Electionware allows multiple teams of election officials to simultaneously work on different elections. The Track Media Report can be used to determine poll media creation, enabling large jurisdictions to enter data and create media rapidly with many users as events are recorded within the system.

Data security. Electionware incorporates the latest in election security, including heightened audit controls and change management processes that are built in to keep election data safe and secure.

Compliant with the stringent voting system standards. Electionware is certified by the U.S. Election Assistance Commission (EAC).

BENEFITS

Power. Manages thousands of ballot styles and precincts; incorporates many languages; manages and deploys multiple levels of security.

Intelligence. Real-time election data queries and reports; workflow management and error alerts; enforced data accuracy; user customization; tracking of election media; live status indicators for incoming results.

Productivity. Fast data import; re-use of election and ballot layout templates; simple translation and audio file management; multiple simultaneous users; ballot image filtering, viewing and printing.

Electionware and all voting machines contain a help system that can be accessed from a help menu.

The Electionware election management system (EMS) help menu can be accessed without having to close an application function.

Electionware features a dedicated Quick Help window that keeps the user consistently informed and a User Guide PDF that can be accessed from the help menu.

The system provides the ability to upload/enter/post results in multiple formats. ES&S' software has several export capabilities that will allow results to be posted on a website. The simplest method uses the ability to export almost any of the reports (election district, summary, or canvass/spreadsheet) in HTML format so that they can be directly posted on the website. Results data can also be exported in XML and ASCII formats.

There also is a web menu tab that allows state officials to format their own results displays and use the various menu selections to upload the initial election-specific data (election districts, contest, candidates, etc.) and then populate and update results as they are available.

Many jurisdictions utilize our Results XML which can be automatically generated and exported to a desired location.

We offer various reports which may be exported as HTML files and placed on website. Additional options for reports include sorting candidates by original order or by vote results.

The Electionware's Results Report offers parish results with graphic bar charts in HTML or XML format.

Our upcoming release offers even more updated reports, including bar graphs. These reports can be saved as HTML, PDF, CSV, and other formats. They may be organized by parish, by election district, or by split.

New Hampshire, for state elections must prepare a general election absentee ballot that must be available in paper form and PDF form to be sent to UOCAVA voters no later than 45 days before the election. New Hampshire will hold its State Primary election on the 8th of September and its general election on November 3rd in 2020. 45 days before the general election is September 19th. While the candidates for most races will be known by September 10th those which will be recounted may not be known until the Ballot Law Commission decides any contests arising from recounts on September 17th. The Ballot Law Commission must also decide on outstanding issues regarding candidate eligibility and any challenges regarding replacement of candidates on the ballot.

28. If programming your precinct counter requires that the ballot be created in your system software and if this service would be purchased from you, please discuss whether you have the capacity to guarantee accurate general election ballots with at most 9 calendar days to prepare the ballots and in some cases as few as 2 days to finalize ballots.

ES&S RESPONSE

ES&S collaborates with our customers to set timeframe expectations based on final candidate data being available for the election. Typically, ballot templates are created in advance of the candidate certification in order to approve the overall look and feel of the ballot artwork. Contests can be created in advance in order to facilitate a swift process to input the finalized candidates when they are available. ES&S has the capacity to meet this timeframe to create the ballot artwork and obtain approval from the customer.

29. Describe whether you have been subject to similar deadlines in other jurisdictions and identify them.

ES&S RESPONSE

On average, the majority of our customers have approximately a two-week timeframe from candidate certification to ballot approval. ES&S has handled multiple scenarios with shorter timeframes than that. Examples include the State of Mississippi – where final candidate data and delivery of completed artwork has been 2 days in some instances. The State of Wyoming has a timeframe of approximately 10 days. There are also several instances where ES&S has been able to turnaround swift timeframes in states where court cases can hold up finalized ballot content, such as Illinois and Pennsylvania, where final ballot artwork may have to be turned around in as little as 24 hours. In addition, in rare cases where a candidate has to be replaced on a ballot, we have executed statewide revisions in a single business day.

30. Would your pricing change given these constraints?

a. If yes, describe pricing for ballot preparation under these time constraints.

ES&S RESPONSE

Generally, ES&S does not assess any fees due to timeframe constraints related to the certification of final ballot data, or uncontrollable issues such as a deceased candidate or a court objection. ES&S has a mechanism for assessing expedited fees, only assessed in the event that milestones for submission of data are not met, when extenuating circumstances referenced prior are not in play.

New Hampshire has traditionally used a separate vendor or in-house resources to prepare our accessible voting system. New Hampshire has developed election management software that is capable of exporting ballot data for use in programming our accessible voting system.

31. If a ballot is created with your ballot creation software, is your system capable of exporting the ballot data in XML format for use by our accessible voting system?

ES&S RESPONSE

Yes. All data (voting districts, contests, candidates, etc.) is exportable in XML format which can be defined using an XLST file for further customizations of the data format.

32. Describe how your system is compatible with other vendor's systems. If another vendor's accessible voting system marks a pre-printed ballot can it be counted by your ballot counting device?

ES&S RESPONSE

Yes, if the accessible voting device is marking a paper ballot with a recognizable code channel inherent to the ES&S tabulator. To tabulate a marked ballot (whether hand marked, or machine marked), the ballot would need to contain a code channel recognized by the precinct tabulator. We would be grateful for the opportunity to discuss how to work with other systems to achieve this integration. Working with other vendor's accessible voting system is something we have successfully done before.

33. Describe whether your system is compatible with other vendor's systems so that a ballot from an accessible system that prints a ballot on demand could be counted by your ballot counting device.

ES&S RESPONSE

Yes, if the accessible voting device is printing a paper ballot with a recognizable code channel inherent to the ES&S tabulator. To tabulate a marked ballot (whether hand marked, or machine marked), the ballot would need to contain a code channel recognized by the precinct tabulator. We would be grateful for the opportunity to discuss how to work with other systems to achieve this integration. Working with other vendor's accessible voting system is something we have successfully done before.

34. If your proposed ballot counting device is approved in New Hampshire, will your vote counting device be able to count a ballot designed to be counted by the Accuvote ballot counting device?

ES&S RESPONSE

No. The ballot design would need to conform to ES&S layout standards, most importantly, including the code channel that the precinct counter utilizes to identify the ballot style.

35. If a ballot is created with your ballot creation software, is your system capable of exporting the XY coordinates of each oval on the ballot associated with a candidate or question Yes/No choice?

ES&S RESPONSE

Yes. The ballot layout can be exported in a grid format to clearly identify the X, Y coordinates.

36. If your precinct scanner is programmed to count a ballot created outside your system, once programmed to count that ballot is your system capable of exporting the ballot data in XML format for use by our accessible voting system?

ES&S RESPONSE

Our precinct scanner is programmed to only count a ballot created inside our system.

37. If your precinct scanner is programmed to count a ballot created outside your system, once programmed to count that ballot, is your system capable of exporting the XY coordinates of each oval on the ballot associated with a candidate or question Yes/No choice?

ES&S RESPONSE

Our precinct scanner is programmed to only create a ballot inside our system.

38. If your answer to these questions on exporting XML or X/Y coordinate data is yes, do your licensing terms allow the export of the referenced data?

ES&S RESPONSE

To the extent ES&S is able to export XML or X/Y coordinate data from its voting system software, ES&S will work with the State in order to allow the State to use such XML or X/Y data in accordance with license terms as may be mutually agreed upon by the parties.

39. If yes, is there any additional cost to export that data?

ES&S RESPONSE

Please see **Pricing**.

40. If we must use your system to create a ballot to be able to program the precinct device to count that ballot:

a. Can your system accept an upload of XML data as an alternative to keying in the data on the offices, candidates, and questions?

b. Can your system "scrape" or otherwise extract from a PDF the data necessary to program your precinct device to count that ballot?

c. If your system can scrape ballot PDFs, does it need additional data, e.g. XML candidate filing/rotation data from the State's election management system, to create ballots?

ES&S RESPONSE

a.

No. The ES&S voting system election management product, Electionware, supports the import of industry standard, comma separated values (CSV) files to load election Ballot Definition Data. ES&S has worked with many states and jurisdictions to create import files for a standardized election definition.

We are happy to assist the state in creating uniform import files for Electionware. These files are very simple TXT files, which include field identifiers in each file to eliminate any guesswork in how the data is organized. Users can import all or only a part of the election with our simple 1-click election definition Import Wizard.

b., c.

Electionware allows for both manual data entry and import of properly formatted election files. The election data accepted by Electionware includes Languages, Parties, Election districts, Offices/Contests, Candidates, Referendum, Poll Places, Registered Voters, Election district/Poll associations, Election district associations, and translations.

All the attributes associated with this data, including alternate IDs, candidate full name, candidate sequence, ballot text, and vote-for phrase can be included in the import or is automatically generated by Electionware if needed based on the data imported. Electionware provides exports of data in XLSX and CSV formats in the robust Table View feature. This powerful option allows the user to dictate which fields they desire to export, creating custom reports for proofing purposes.

41. Describe the removable data storage device(s) used in your system:

a. What is its storage capacity in GB?

b. Is it proprietary or commercial off the shelf?

c. How many separate storage devices are required per election?

d. Is there any circumstance where the memory device will become full during an election (high number of voters casting multipage ballots)? Provide the data and calculation supporting your answer.

ES&S RESPONSE

a. b.

The DS200 comes with a Delkin USB Industrial Single-Level Cell (SLC) commercial grade flash drives. These drives are COTS and non-proprietary (custom VID/PID embedded by manufacturer for security purposes; manufacturer requires ES&S approval to sell). These USB's are available in the following capacities – 1, 2, 4 and 8 GB.

c.

ES&S offers various capacities of USB flash drives, for different use profiles ES&S recommends using the test data provided in part d. to size the drive for expected pages. Election day is typically around 1,500 ballots, but early voting sites can be much more.

d.

Data sizes will vary based on the size of the ballot and ballot content. ES&S has done extensive testing to approximate data sizes. Please see approximate data sizes below.

The DS200 stores all cast vote records, ballot images (front and back sides), election definition files, and audit data to a removable USB flash drive that has a standard storage capacity of 4 GB (8 GB available, if necessary). On average, a 4GB USB flash drive will hold approximately 12,000 ballot images.

42. Does your precinct count device store any records of the ballots scanned on internal storage in the device?

a. If yes, describe the capacity?

b. If yes, describe how the memory is cleared to use the device at a subsequent election?

ES&S RESPONSE

a.

The internal memory of the DS200 is 2 GB RAM. However, all ballot images are stored on the Delkin USB Industrial Single-Level Cell (SLC) commercial grade flash drives. The DS200 stores all cast vote records, ballot images (front and back sides), election definition files, and audit data to a removable USB flash drive

that has a standard storage capacity of 4 GB (8 GB available, if necessary). On average, a 4GB USB flash drive will hold approximately 12,000 ballot images.

b.

Each scanner can be cleared of all vote totals by loading the election qualification code (EQC) stick and entering the corresponding password. The EQC process clears all previous tabulation results.

43. Many New Hampshire towns and cities currently use an Accuvote optical scanner to count ballots and the GEMS election management system software. If your proposed ballot counting device is approved in New Hampshire, is your device compatible, can it be programmed using the output of the GEMS election management system?

ES&S RESPONSE

Our election management system, Electionware, features a robust import wizard. Electionware's import file structure differs from GEMS, meaning that GEMS import files cannot be directly imported into Electionware. ES&S offers a utility as part of the certified configuration which is called "Toolbox". Toolbox is included with any Electionware purchase. This utility converts GEMS import files into Electionware import files, simplifying the transition to the EVS system.

MANAGEMENT OF WRITE-IN VOTES

If your device is capable of printing an image of write-in votes, or marks made in the write in space on the ballot, on a separate election night polling place results tape produced by the precinct counting device:

44. If the name is written in for an office where the voter also filled in an oval associated with a candidate whose name is printed on the ballot:

a. Does the image get printed in the same place on the report as a write-in vote for an office where no oval was filled in?

b. Does the vote tally treat this as an overvote for that office?

c. Using your system, once the name written in is identified as the name of a candidate whose name is printed on the ballot how do election officials at the polling place on election night determine which write-in votes for an office are a belt and suspenders vote, i.e. the voter both filled in the oval for a candidate and wrote his/her name in the write-in line? If your software/hardware for central counting/human adjudication is not part of your precinct count system, assume that software/hardware is not available.

i. Is it necessary for the officials counting ballots to find the ballot that was the source of the mark/ name in the write-in space and then if a change in the vote totals is required, to make that change manually?

ES&S RESPONSE

a.

Yes, the DS200 can be configured to print write in with un marked ovals on the same report as write in with the ovals filled in.

The DS200 tracks and reports the number of ballots with write-ins cast.

When the polls are closed, the DS200 results report will show the number of write-ins entered by voters for each contest on the ballot.

In addition, the DS200 can be set to print a DS200 write-in review report that lists images of all the write-ins by contest, which further facilitates review of write-in votes at the polling place or during canvass operations. Write-in images can also be reviewed on the DS200 touch screen.

After the reports are printed and the DS200 is shut down, the polling place official will transport the DS200 USB flash drives (one for each DS200) from the polling place to Election Central where they can be read by Election Reporting Manager (ERM). Election officials can then view, display, and print unofficial results, including write-in totals, from the ERM database.

In addition, Electionware enables you to filter ballot records by marked or unmarked write-ins. You can also export Cast Vote Records with all results by contest, including a graphical picture displaying how each write-in was hand-written on the paper ballot.

b.

Yes, the vote tally for an office with a candidate selected and written in for the same candidate is tallied as an overvote.

c.

The DS200 offers a feature after the polls are closed to review any ballot image that has a marked or unmarked write-in. This feature displays write-in even if the contest is overvoted. If a voter uses belt and suspenders, the poll worker could adjudicate this at the polling the place using the write-in review image feature on the DS200 display.

i.

No, in the Electionware adjudication module, all ballots with overvotes can be filtered for image review. If an overvote is caused by a voter selecting a candidate and then writing in the same candidate, the overvote can be removed electronically and the CVR corrected with the click of a mouse.

45. If a name is written in for an office where the voter did not fill in any ovals for that office is the name of a candidate whose name is printed on the ballot, how does your system aid officials in reducing the total number of write-ins by one vote and adding one vote to the total for the candidate whose name is on the ballot?

ES&S RESPONSE

Electionware features robust write-in review capabilities. Write-ins can be filtered by contests, precincts, polls, batches, machines, and ballot style. After applying the applicable filter(s), the election official could determine whether there were any write-in votes for a candidate already listed on the ballot. If one of the write-in candidates was already listed on the ballot, the election official could use the Electionware software to attribute those write-in votes to the candidate who was already on the ballot. Ballots without the oval for write-in filled but with text in the write-in area (i.e. the voter writes the name within the write-in area but does

NOT fill in the oval) can also be reviewed if desired. These unmarked write-ins can be reviewed and assigned per local procedures, or they can be ignored if an unmarked write-in does not count by local procedures.

46. Can multiple copies of the printed report showing images of write-ins be printed from the precinct count device?

ES&S RESPONSE

Yes. Multiple copies can be printed.

47. Can copies of the report of write in votes be printed from the removable memory device by a desktop or laptop computer connected to a standard printer?

a. Is proprietary software needed?

b. What format, i.e. PDF or proprietary, are the precinct count device reports in (results and write-ins)?

ES&S RESPONSE

Write-in reports can be printed in Electionware after the election results are loaded from the removable memory device into Electionware. Yes, proprietary Electionware software is needed. Reports can be exported in PDF, RTF, HTML, XLSX, or CSF format.

ELECTION RESULTS REPORTING

48. Can election results data be downloaded to an Excel spreadsheet?

ES&S RESPONSE

Yes. Electionware can export results in XLSX or CSV format.

49. How long does the election results tape (on thermal paper) remain readable before it fades into obscurity?

ES&S RESPONSE

ES&S tests our thermal paper stock to comply with the federal standard of 22 months.

50. Is there a back-up memory card?

ES&S RESPONSE

If desired, the state could purchase back-up USB memory devices.

51. Describe how it would be possible, relying on the proposed system, to conduct a risk limiting audit (RLA) in the event RI.As are subsequently required in New Hampshire?

ES&S RESPONSE

ES&S is committed to supporting modern post-election audit procedures, including risk limiting audits (RLA). We have implemented a number of RLA features with even more support coming in future releases.

If a paper-based RLA is desired, the DS450/DS850 central scanner is capable of printing a serial number on each ballot. The serial number is small and printed near the corner of the ballot, but most importantly it is printed after the ballot has been scanned and processed. This allows for a pristine image capture of the ballot as it was marked by the voter. As results data is transferred from the DS450/DS850 to the Electionware software, Electionware maintains a database of all ballot serial numbers, corresponding ballot images, and corresponding cast vote records (CVR).

Since the ballot, image, and CVR are now linked, any ballot that is randomly selected for audit can now easily be located and reviewed. For example, if ballot number 123456789 is randomly selected for audit, the user is able to:

(A) Locate the ballot because the number is printed on the ballot,

(B) Locate the ballot image in Electionware by simply entering the ballot number, and

(C) View the CVR for the ballot in Electionware. The CVR provides details on the ballot's tabulation

ES&S believes these features are tremendously helpful for any jurisdiction that is seeking to perform a risk limiting audit. In the future, we will be adding similar serialization functionality to the DS200 and ExpressVote.

Finally, some jurisdictions have chosen to forgo the review of physical ballots and perform RLA using only ballot images and the corresponding cast vote records. ES&S' software supports this. If a list of ballot numbers is randomly selected for audit, their images and CVRs can quickly be located within Electionware. This type of audit is conducted today in Utah with tremendous success. One county informed ES&S they were able to conduct their audit of 600 independently and randomly selected ballot numbers in 25 minutes. The audit produced 100 percent accuracy.

SECURITY, AND CYBERSECURITY

52. Describe the physical security features of your proposed vote counting device system.

ES&S RESPONSE

ELECTION MANAGEMENT SYSTEM

In addition to conformance to the federal 2005 Voluntary Voting System Guidelines (VVSG) for integrity, availability, and security of data, the ES&S system employs security in depth, meaning multiple layers of complementing measures. Security measures include integrated warning and alerts, user roles, data encryption, digital signatures, and physical security. No voter information is stored to the voting system software, ensuring voter privacy and security.

Electionware incorporates the very latest in election security, including heightened audit controls and change management processes that are built in to make sure your election data is safe and secure. Electionware requires users to enter a valid username and password prior to gaining access to the application. The passwords are stored as MD5 hashes so that they are unreadable. The system requires that Electionware passwords be strong.

The system administrator creates unique user IDs for each user allowed to log onto election management system (EMS) workstations. Election personnel that are allowed access to the shared folder on the server receive a second unique shared user ID and password. Users are assigned to roles, including: Election administrators, election personnel responsible for coding the elections, election personnel responsible for election results processing, election personnel allowed to access the shared folder on the server, and election administrators allowed to shut down the system.

Depending on a user's access rights, Electionware limits selections. Unavailable selections do not appear in the application interface. Electionware saves a record of all user actions with a username to the system audit log. System security for Electionware limits casual access to system files, but security also depends on sound practices at the election office. Officials should implement a strong physical and procedural security plan that limits access to Electionware to authorized personnel only.

A complete security hardening process is provided for the computer platform of the EMS as a security measure. This process hardens the basic input/output system (BIOS), the operating system, and the User Access Controls so data cannot be modified outside the intended flow of the application or by a malicious hacker. Additionally, unauthorized applications cannot be executed on the EMS workstations. Electionware does not offer any data entry feature that can be used to alter programming.

Furthermore, the EMS system is closed (air-gapped) and therefore has no connection to the internet.

ELECTIONWARE DATABASE SERVER

Data directories on the Electionware database server are protected from regular users. The database server accesses data through a service account, protecting data files from direct access.

DATA FROM EMS

Electionware creates access codes and SFTP (Secure File Transfer Protocol) user passwords with an election-specific encryption using Advanced Encryption Standards (AES) methodology. Both the access codes and SFTP passwords are transmitted as unreadable SHA-256 hashes for protection. The election definition is protected both with public/private key digital signing and encryption to U.S. Federal Information Processing Standards (FIPS) standards.

DATA TO EMS

ES&S not only digitally signs results data from the tabulators to the EMS as required by the Election Assistance Commission (EAC) to ensure no tampering has occurred, but we also go a step further. ES&S encrypts the results data to FIPS 140-2 standards. Before results are read into the reporting software, they are signature-verified to ensure authenticity and then decrypted for results accumulation.

VOTING MACHINE SECURITY

Security access codes. Each precinct voting machine requires the user to enter a role-based security access code unique to each election that the Electionware EMS creates. These security access codes limit or detect access to critical system components. They guard against loss of system integrity, availability, confidentiality, and accountability.

The Electionware election management system (EMS) provides the ability to program new access codes for each election. Furthermore, there are additional options for choosing whether access code challenges are required at certain steps. This enables jurisdictions to choose whether to control access using physical controls such as locks and seals, access codes in the user interface, or both.

Controlled and evaluated code execution. Voting machine functions are only executable in the manner and order intended, and only under the intended conditions. The machines continuously evaluate whether the hardware and firmware are executing only in the authorized fashion. Any deviations from this execution due to tampering or system issues are immediately logged and reported to the user via the touch-screen interface and the machine audit log.

Secure hardware design. The hardware is designed to protect against tampering during system repair or interventions in system operations. Security safeguards cannot be bypassed or deactivated during system installation or operation. System access during equipment preparation, testing, and during use by voters is limited by physical locks and access codes. Tamper-evident seals can be added for further protection.

Auditing. The election district tabulator's audit log report lists all events that can occur on the system (errors, alarm conditions, ballot handling exceptions, and user-initiated functions) with a date and time stamp. The log reports from all internal components that can produce an audit log entry, including the power management board, scanner hardware board, and election processing firmware. The election district tabulator audit logs also can be viewed and printed from the election management system (EMS) database.

The accessible ballot marking device records errors and major events with the date and time each occurred based on the unit's real-time clock. Audit logs are constantly updated in the system background and saved to the inserted ES&S USB flash drive in a circular buffer. Each log entry is numbered and includes event details to facilitate recognition, segregation, and retention.

All events and errors are recorded and tagged with the date and time in the machine audit log. Machine audit logs can be viewed or printed for immediate identification and resolution of error conditions. Logs can be transferred via USB memory devices to secondary secured central storage not within the system whose logs are being recorded. Audit logs are digitally signed when they are exported. Results data from the tabulators is both digitally signed and encrypted.

Flash drives with custom VID/PID. The USB flash drives used to transport election information to the voting machines and to transport results back to the EMS contain a custom VID/PID embedded by the manufacturer for security purposes.

Digital signing and encryption. ES&S software digitally signs every cast vote record and its corresponding image files when they are created. The EMS validates the signatures when reading the vote data to ensure no tampering has occurred.

Additionally, ES&S application software exceeds Election Assistance Commission (EAC) VVSG (Voluntary Voting System Guidelines) requirements by encrypting all vote data sent from the tabulators to the election

management system (EMS) computer that hosts the software that aggregates results. Data is encrypted using strong Federal Information Processing Systems (FIPS)-compliant Advanced Encryption Standard (AES) encryption. The results remain encrypted until imported into the EMS for results accumulation.

VOTING SYSTEM SECURITY

Data from the EMS and going back to the EMS is protected with the same type of digital signing and encryption used for the voting machines.

The DS200/DS450/DS850 central tabulator used to count absentee ballots can require an access code on startup and has varying levels of access code challenges depending on the features being accessed. This includes the administrative lockout for results-related features.

The DS200/DS450/DS850 keeps a detailed, time-and-date stamped audit log with access code attempts and all user actions, whether successful or failed. Audit logs can be printed in real time on the audit log printer or manually printed from the unit's menus. Audit logs are digitally signed when they are exported to a USB memory device for review on the EMS.

All ports are behind lockable, sealable clear plastic doors to control access and allow election officials to easily detect unauthorized access.

Cast Vote Records (CVRs) can be written to election media for backup purposes without aggregating vote data for reporting purposes. This prevents the data from being read into the EMS system for reporting before it should be. The aggregation of data is access-code controlled and can be locked out until re-enabled by an administrator. The EMS software also can be password-controlled to limit access to results generation and reporting functions.

The USB flash drive can store images of each ballot cast. To ensure security and protect voter anonymity, the ballot images are stored with random names assigned to each ballot image file.

53. Describe the cyber security features of your proposed vote counting device solution.

ES&S RESPONSE

Customer data inputs and outputs for election and ballot coding are handled through a Secure File Transfer (SFT) site.

ES&S products use encryption and digital signing for all data-in-transit using cryptographic modules that meet the Federal Information Processing Standard 140-2 (FIPS 140-2). All security access codes for the tabulators and ballot marking devices are stored using AES (Advanced Encryption Standard) encryption using an election-specific AES key.

The security access codes set up in Electionware are sent to the tabulators and ballot marking devices on a Qualification Media in the form of SHA-256 hashes. During election creation, a unique FIPS RNG-generated AES key and an election-specific public/private key pair are generated. The election definition sent to the devices on the election media is encrypted using a system-generated, password-based derived key of the Election Access Code and signed by the election-specific private key.

The election-specific AES key sent to the tabulators and ballot marking devices on the Qualification Media is used to encrypt data from the tabulators to the EMS. In addition to encryption, all encrypted data is further signed using a machine-specific private key generated during the qualification process on the tabulator. The

incoming election media containing results are first sign-verified to ensure authenticity and then decrypted for results accumulation.

A complete security hardening process is provided for the computer platform of the EMS as a security measure. This process hardens the basic input/output system (BIOS), the operating system, and the User Access Controls so data cannot be modified outside the intended flow of the application or by a malicious hacker. Using system hardening scripts, the Postgres data directories are protected from users and are accessed only by the non-administrative Postgres service user account. The final access permissions for a shared resource are determined by considering both the NTFS permissions and the sharing protocol permissions, and then applying the more restrictive permissions.

The development life cycle leveraged by ES&S continually evolves with industry best practices. Our team regularly evaluates new tools and methodologies that will help us ensure quality, productivity, and a high-level of security, including the latest in security encryption. ES&S maintains a System Development Program which describes, in detail, the policies, processes, and tools leveraged within the development life cycle.

ES&S takes multiple measures to ensure development staff are constantly trained and educated in the ever-evolving security field so that they can implement new security measures as they become available in our ongoing system releases. ES&S has established internal committees to create forums focused on aspects of the Development Life Cycle. Examples of such committees include the Process & Tools Committee and the Cyber Vulnerability Assessment Committee. The committees meet on a regular basis to collaborate, vet new ideas, and establish action plans.

The State of New Hampshire can be assured that as guidelines and standards evolve, ES&S will continue to upgrade our security encryption.

54. Describe what steps your company has taken to ensure that your system cannot be hacked.

ES&S RESPONSE

The proposed system operates in a standalone state utilizing an isolated network infrastructure. The tabulators are standalone, and the EMS computers are "hardened," which means they are set up to be separated from any interaction with any other network. This complete security process hardens the basic input/output system (BIOS), the operating system, and the user access controls so data cannot be modified outside the intended flow of the application or by a malicious hacker. The EMS system is password-protected both via Microsoft Windows and the Electionware/ERM software applications themselves.

55. How would anyone know if your system had been hacked?

ES&S RESPONSE

The tabulators log all user activity, including menu accesses, configuration changes, and voting session events. New log entries are timestamped and appended to the end of the log. These logs are human-readable and are protected with digital signatures. The data contained in the logs can be used to analyze and monitor tabulator operation during the election process.

56. What intrusion detection capabilities does your system have?

ES&S RESPONSE

In addition to conformance to the federal 2005 Voluntary Voting System Guidelines (VVSG) for integrity, availability, and security of data, the ES&S system employs security in depth, meaning multiple layers of complementing measures. Security measures include integrated warning and alerts, user roles, data encryption, digital signatures, and physical security. No voter information is hosted, stored, or utilized by the system in anyway.

ES&S equipment has several equipment protections in place to prevent intrusion, tampering, and viruses.

Symantec Endpoint Protection is installed on all election management system (EMS) server and client configurations and provides intrusion detection support via its "Network and Host Exploit Mitigation" component, in addition to the basic anti-virus protection. All DataComm Servers have Cerberus FTP Server and Kiwi Syslog installed to monitor network traffic. Cerberus FTP Server is configured to utilize NIST (National Institute of Standards and Technology)-approved FIPS (Federal Information Processing Standard) 140-2 cryptographic algorithms and is configured for automatic IP blocking when malicious activity such as DoS (denial-of-service) attacks is detected. For added security, election-specific user credentials are created and applied to Cerberus FTP Server for incoming modeming and can utilize IP address whitelisting/blacklisting for additional security.

Note that EMS computers are "hardened," which means they are set up to be separated from any outside interaction. This complete security process hardens the basic input/output system (BIOS), the operating system, and the user access controls so data cannot be modified outside the intended flow of the application or by a malicious hacker. The EMS system is password-protected both via Microsoft Windows and the Electionware/ERM software applications themselves.

57. What log of activity is available for the device?

ES&S RESPONSE

EXPRESSVOTE MARKER

The Operations Log report provides an audit log of every action taken on or by the ExpressVote marker. It can be exported and printed from a PC. All ES&S audit logs are stored in an easily searchable format and are available for electronic download and printing. Audit logs are cleared as part of the procedure to load a new election onto the unit. This clearing process does not affect the protected voter count.

DS200

The Event Log report provides an audit log of every action taken on or by the DS200 tabulator. It can be printed from the DS200 unit's internal thermal printer. All ES&S audit logs are stored in an easily searchable format and are available for electronic download and printing. Audit logs are cleared as part of the procedure to load a new election onto the unit. This clearing process does not affect the protected voter count.

DS450/DS850

The DS450/DS850 provides access codes that allow access for operator and administrative roles. Access code protection is configurable to protect all operations of the applications. Passcodes are required to access

all critical functions, including Election Administration, Processing Modes, System and Hardware Maintenance, and Results functions. Supervisor functions are limited to the controls provided in the system menus.

All ES&S tabulator audit logs record all actions performed. All audit logs are stored in an easily searchable format and are available for download and printing.

The DS450/DS850 records errors and major events and tags these incidents with the date and time the incident occurred based on the unit's real-time clock settings.

The DS450/DS850 prints the contents of the audit log in real time to the attached dot matrix printer. Audit log information can be exported to a USB flash drive inserted into a USB port on the DS850. Audit logs for the DS850 can also be viewed in the Electionware EMS.

ELECTIONWARE

Electionware maintains an Election Audit Events log for every action the user performs within the application, including system prompts to the user and the user's response to these prompts. Each event tracks the timestamp of the event and the user who performed the action. Additionally, an Admin Audit Events log is maintained. This log stores all the events that are generated when an election is not currently open (e.g., user creation, user login/logout, etc.). This log also contains the timestamp and the name of the user who performed the action. Both logs can be filtered by date and event type and printed in a variety of file formats including .pdf, .rtf, .html, .xls, and .csv. The audit logs can be saved to a memory device as needed.

58. What data is recorded in the activity log?

ES&S RESPONSE

The logs record every action taken by the user within the system.

59. What type of security features do you have for testing the device before an election, starting up an election, and closing the election?

a. If usernames and passwords are required, describe the requirements and levels of authority.

ES&S RESPONSE

Before a jurisdiction receives an ES&S voting system, it has undergone extensive unit and system testing both internally (internal system build, quality assurance and ES&S pre-certification lab testing) and through an Election Assistance Commission (EAC) certified VSTL (Voting System Test Laboratory).

At a customer site, the system needs to undergo:

Acceptance testing upon delivery to ensure the voting equipment is working and meets state expectations

Logic & Accuracy (L&A) testing before each election to ensure the accuracy of results for that specific election.

ES&S will assist the State of New Hampshire in conducting acceptance testing as-needed and preparing for L&A testing, which includes configuration, testing, and checking the accuracy of voting equipment and

software used in an election. The ES&S system provides for a Logic & Accuracy test environment. Once testing has been completed, results have been cleared, and equipment locked and sealed, the system is in production mode - ready for an election.

ES&S' Electionware comes with automatic test deck creation software, which simplifies the process of L&A testing.

Logic and Accuracy tests for the tabulators are performed using a pre-marked test deck that is properly representative of the election. The Electionware EMS provides an easy means of generating a test deck marked with the jurisdiction's required ballots and voting patterns.

The Electionware Toolbox allows the user to create pre-printed test decks with a 1 to x pattern, then to optionally include undervoted and overvoted ballots. Overvoted ballots can either have all ovals marked, or one oval more than the vote for marked. The test deck function in Toolbox also creates a results report based on the marking algorithm selected. This report can be compared to the results report from the tabulators that scans the marked test deck.

Additionally, Electionware Toolbox is able to create automated logic and accuracy test scripts that can be run on the ExpressVote tabulator. These automated scripts can also be supplemented with manual logic and accuracy testing if desired. Once testing is complete, the system requires that all test data – automated, manual, or a combination – is cleared from the system in order to prepare for Election Day.

a.

Our ballot layout and election configuration data are secured to prevent unauthorized modification or copying of the data. Electionware incorporates the very latest in election security, including heightened audit controls and change management processes that are built in to make sure your election data is safe and secure.

Electionware requires users to enter a valid username and password prior to gaining access to the application. The username and passwords are stored as MD5 hashes, making them unreadable. Strong password methodology is used that requires the password to be at least eight (8) characters long and include at least one number, one uppercase letter, one lowercase letter, and no spaces.

The database data directory is only accessible by the operating system administrator group and not by the regular Electionware user role.

The database server accesses data through a password-protected service account, protecting all Electionware database files from direct access.

Electionware saves a record of all user actions with username to the system audit log.

System security for Electionware limits casual access to system files but security also depends on sound practices at the election office. Officials are required to implement a strong physical and procedural security plan that limits access to Electionware to authorized personnel only. Election officials should also make sure that the PCs running Electionware remain secure before and after each election.

ES&S voting equipment requires an administrative password for executing administrative functions such as loading election definitions and system maintenance. The equipment can also be configured to require a password for poll workers.

60. Has there been any code review that comprehensively sought to detect Trojans in the software of your proposed vote counting device or its corresponding election management software? If so, please describe that review and provide reports.

61. Is there a mechanism to determine whether there are any back doors in the software of the vote counting device? Has this mechanism been exercised on the hardware and software of this proposed device? Can it be demonstrated?

ES&S RESPONSE

As standard procedure, our internal security team conducts thorough and pervasive penetration testing of our hardware and software using the same modern security tools that hackers might use to make sure our equipment is secure before it ever reaches the customer. After the 2016 election, to complement our own testing, we submitted our current hardware to third-party security research firms to independently verify the security of our devices. In addition, ES&S recently submitted its full end-to-end voting configuration of software and hardware for testing by the Idaho National Laboratory (INL), the nation's leading center for research and development in energy, national security, science and environment, to perform third-party independent testing of both our hardware and software to ensure the resilience and security of our voting systems. As standard practice, each hardware and software release undergo thousands of hours of performance testing and runs millions of test ballots along with extensive security testing after which ES&S provides a complete set of software components to the voting systems testing labs (VSTL) for review.

62. What type of audit data is produced by your vote counting device?

ES&S RESPONSE

EXPRESSVOTE MARKER

The Operations Log report provides an audit log of every action taken on or by the ExpressVote marker. It can be exported and printed from a PC. All ES&S audit logs are stored in an easily searchable format and are available for electronic download and printing. Audit logs are cleared as part of the procedure to load a new election onto the unit. This clearing process does not affect the protected voter count.

DS200

The Event Log report provides an audit log of every action taken on or by the DS200 tabulator. It can be printed from the DS200 unit's internal thermal printer. All ES&S audit logs are stored in an easily searchable format and are available for electronic download and printing. Audit logs are cleared as part of the procedure to load a new election onto the unit. This clearing process does not affect the protected voter count.

DS450/DS850

The DS450/DS850 provides access codes that allow access for operator and administrative roles. Access code protection is configurable to protect all operations of the applications. Passcodes are required to access all critical functions, including Election Administration, Processing Modes, System and Hardware Maintenance, and Results functions. Supervisor functions are limited to the controls provided in the system menus.

All ES&S tabulator audit logs record all actions performed. All audit logs are stored in an easily searchable format and are available for download and printing.

The DS450/DS850 records errors and major events and tags these incidents with the date and time the incident occurred based on the unit's real-time clock settings.

The DS450/DS850 prints the contents of the audit log in real time to the attached dot matrix printer. Audit log information can be exported to a USB flash drive inserted into a USB port on the DS850. Audit logs for the DS850 can also be viewed in the Electionware EMS.

63. Provide a copy of the independent testing laboratory certification report on the proposed vote counting device.

ES&S RESPONSE

Please see **Attachment B: Proof of Certification**.

64. Identify what states have provided certification to enable sales of the proposed vote counting devices within their state.

ES&S RESPONSE

States who have certified:

EVS 6000

Kansas
Michigan
Mississippi
New Jersey
Ohio
Oregon
Texas
Utah
Washington

EVS 6020

Delaware
Kansas
Missouri
Mississippi
New Jersey
Ohio
South Carolina
Texas

65. Does your system meet the Voluntary Voting Systems Guidelines 1.1 approved by the U. S. Elections Assistance Commission Standards Board?

ES&S RESPONSE

The jurisdictions we serve have been requesting systems focused on security improvements and robust support for election audits that are above and beyond the VVSG 1.1. These requests, combined with our recognition that the elections ecosystem must stay ahead of security threats, have resulted in stronger security and auditing advancements. Consequently, ES&S has shifted its focus to compliance with the newer VVSG 2.0 to allow ES&S systems to advance to the higher standards of increased security and auditing.

66. How will your system meet the proposed new Voluntary Voting System Principles and Guidelines 2.0 published in the Federal Register on February 15, 2019?

ES&S RESPONSE

ES&S looks forward to the approval of the VVSG 2.0, so that we can work to ensure our solutions meet or exceed these guidelines. ES&S has been an active participant in the working groups focused on developing these guidelines. We are eager to see the underlying test requirements and associated test assertions that will accompany these guidelines as it is these test requirements and assertions that will provide the specific information needed to fully guide our efforts to comply with VVSG 2.0. As an example, VVSG 2.0 guideline 9.4 states that "The voting system shall support efficient audits." ES&S systems currently support audits, and we are actively enhancing these systems to enable even more robust audit support. We are keen to understand the test requirements, assertions, and details related to "efficient audits" so we can ensure our solutions comply with these new standards. We will continue to be active participants in the VVSG 2.0 working groups and look forward to the availability of the test requirements and assertions that will guide our systems development efforts.

67. If your vote counting device is unable to meet the Voluntary Voting System Principles and Guidelines 2.0 and its subsequent Requirements and Test Assertions, predict the costs and effort required to satisfy these new expectations?

a. Identify which principles/ guidelines in 2.0 your device does not meet.

ES&S RESPONSE

As stated above, ES&S looks forward to the approval of the VVSG 2.0, so that we can work to ensure our solutions meet or exceed these guidelines. ES&S has been an active participant in the working groups focused on developing these guidelines. We are eager to see the underlying test requirements and associated test assertions that will accompany these guidelines as it is these test requirements and assertions that will provide the specific information needed to fully guide our efforts to comply with VVSG 2.0. As an example, VVSG 2.0 guideline 9.4 states that "The voting system shall support efficient audits." ES&S systems currently support audits, and we are actively enhancing these systems to enable even more robust audit support. We are keen to understand the test requirements, assertions, and details related to "efficient audits" so we can ensure our solutions comply with these new standards. We will continue to be active participants in the VVSG 2.0

working groups and look forward to the availability of the test requirements and assertions that will guide our systems development efforts.

68. What elements of the vote counting device hardware and software are proprietary and what elements are off-the-shelf?

ES&S RESPONSE

The vast majority of the vote counting device hardware and software is proprietary. However, there are some "off-the-shelf" components used as part of the overall systems. These include off-the-shelf report and log printers for the central tabulators. We also leverage Microsoft Windows operating system for the EMS, as well as Symantec Endpoint Protection. The EMS network, depending on configuration, may also leverage a Cisco firewall, switch, and Dell computers. The EMS also leverages Adobe software for PDF generation, viewing, and printing.

69. Describe the software platform on which your vote counting device is built.

ES&S RESPONSE

The DS200/DS450/DS850 all run on ES&S-spun Linux distributions.

70. Describe how Logic and Accuracy (L&A) Testing is performed.

a. Include a description of the procedure and time required to prepare and test the device prior to the election? (New Hampshire requires a pre-test during the week before the election.) RSA 656:42

b. Is the pre-election test process run on the device in election mode or is it run in a "test" mode? Explain.

ES&S RESPONSE

a.

The Electionware EMS helps accommodate and make efficient the development and execution of Logic and Accuracy (L&A) validation to ensure the ballots have been successfully programmed on each voting device.

L&A testing is an end-to-end testing of the entire voting system. L&A testing typically involves scanning a larger stack of marked paper ballots and/or ExpressVote summary cards. The paper ballots and cards are marked so that expected vote totals can be calculated. These expected results are then compared to the result from tabulating the stack of ballots and cards. Ballots can be hand marked, or the state can utilize Electionware's Test Deck Creation software to generate a test deck of pre-marked ballots with expected results. ES&S recommends that every ballot style and every voting target on every ballot style is tested. ES&S has a great amount of experience helping our customers develop their L&A procedures and would be happy to assist the State of New Hampshire as needed.

Electionware includes reports that can help review the programming options before the USB election media is created for machine testing. These include ballot assignment charts that show the election districts assigned to each office and Office reports that show the Vote For, Term length, and other Office designations. These

and other reports can be used to review all programming configuration before spending time and effort on testing.

All components of the system allow for an end-to-end operation of the election in live production. The removal or "zeroing out" of L&A testing data is made simple and verifiable. All these functions, from producing ballots, exercising L&A testing on the machines, and accumulating results into the EMS can be performed using the system as designed for the live election event, as opposed to a test mode which may exercise separate system logic. This will provide the state confidence that the test is an accurate representation of how the systems will perform in live voting.

b.

The pre-election test process is run on the device in election mode. After L&A testing is complete, the vote totals are cleared.

TRANSPARENCY

71. Please describe the features of your system that help achieve transparency for voters and election officials.

ES&S RESPONSE

From concept to construction, ES&S adheres to industry-leading standards that safeguard the misuse of information systems and protect their transparency, confidentiality, integrity and availability. Designed to meet the rigorous security standards of the U.S. Election Assistance Commission (EAC) 2005 Voluntary Voting System Guidelines, the equipment operating systems control, limit and detect unauthorized access to all critical data. The system also implements state-of-the-art safeguards against losses of system integrity, availability, confidentiality and accountability.

The ES&S system provides voter verified paper audit trails, including, depending on the system configuration a jurisdiction chooses:

1) The traditional paper ballot, which is tabulated on the precinct and central tabulators.

2) A combination of the traditional paper ballot and the vote marking device's vote summary card. Both are tabulated on the precinct and central tabulators.

3) For system configurations where all voters use the vote marking/accessible device to vote, the vote summary card, which is tabulated on the precinct and central tabulators.

72. Is the source code available to anyone participating in a public penetration test if one signs up for the test and agrees to (a) the terms to see the code and the technical documents outline the architecture and protocols, and (b) a disclaimer that says no information contained in them can be made public?

ES&S RESPONSE

ES&S does not make its voting system source code available to the public. ES&S' source code is the intellectual property of ES&S and constitutes a trade secret. As such, ES&S takes every precaution to protect its source code and cannot otherwise agree to its release for a public penetration test.

73. Can the general public readily obtain information about the testing process?
74. Can the general public perform testing on the components and systems?

ES&S RESPONSE

Yes. ES&S provides consultation on the most thorough means for testing while meeting local standards. ES&S can provide documentation and other testing materials to accommodate these tests and facilitating a public administered testing process.

STAGE OF PRODUCT LIFECYCLE

75. Identify the dates and upgrades made in each version upgrade of your proposed vote counting device.

ES&S RESPONSE

EVS 6000 and EVS 6020 are federally certified, and our next release, EVS 6100, is scheduled to be completed later this calendar year.

EVS 6020 provides enhancements to EVS 6000 to improve performance of the Electionware Reporting module for loading and managing results for large elections.

Speed improvements also have been made for managing large numbers of write-in votes and generating large Summary and Custom Table reports in Electionware.

Precinct Summary Report statistics have been improved when selecting only contests that are not in all precincts.

EVS 6020 also enhances the handling of write-in picture snippets from ExpressVote and ExpressVote XL vote summary card images that are slightly skewed or tilted.

76. Describe what hardware and software can be considered upgradable as new hardware and software becomes available?

ES&S RESPONSE

During the warranty period and thereafter so long as the state continues to subscribe to and pay for the post-warranty software license, maintenance and support services from ES&S, ES&S will provide upgrades, new releases and maintenance patches to ES&S' proprietary software, along with appropriate documentation, on a schedule defined by ES&S without additional charge. Additional fees may apply for assistance with EMS network installations and upgrades. When ES&S determines that an update is needed for a customer, ES&S will notify the customer through email.

Upon a request to ES&S to receive the new release files, the new software release will be delivered to the customer via DVD media. If there is a desire to upgrade to the new software release, your ES&S Account Manager will work with you to coordinate a time to perform the upgrade. To ensure a certified, hardened, and secure configuration of the Election Management System (EMS), it is highly recommended to engage ES&S Technical Services to perform all EMS installations and upgrades. Installation services can occur either on-site at the customer location or through an off-site installation with the EMS equipment being shipped to the ES&S Technical Services lab for configuration. An ES&S technician will build the EMS systems and ensure that they are built in the configuration that meets State and Federal certification guidelines for the

specific release, as well as do full end-to-end testing to ensure functionality. ES&S Technical Services provides post-installation documentation that includes installation checklists, information regarding system specific configurations, and network diagrams when appropriate.

New versions of voting system firmware will also be delivered to the customer. Upgrading voting systems consists of inserting the new firmware into the equipment, via a USB device, while the equipment is powered down. Once the device is inserted and the unit is powered on, the firmware will load on the equipment.

If an upgrade requires advanced operations, an ES&S field service technician will arrange with each customer to go on-site or to a central location and install the upgrades. Advanced upgrades are usually performed during a preventative maintenance event and are covered under annual license agreements.

77. Describe where your proposed vote counting device is in its useful product lifecycle?

ES&S RESPONSE

Our proposed vote counting device will be new and the expected useful life is a minimum of 10-15 years.

78. Provide the expected useful life of your proposed vote counting device.

ES&S RESPONSE

ES&S has more experienced field service techs located across the country than any other vendor. Their skills, combined with our design and manufacturing process, ensure your system will be in operation the next 10 years and beyond.

ES&S designs and manufactures its voting equipment to withstand normal use without deterioration and without excessive maintenance cost for a minimum lifecycle of 10-15 years. This is exemplified by the fact that existing ES&S voting equipment product lines far exceed the normal lifecycle of 10 years.

For example, the ES&S Model 100 precinct tabulator has been in service for more than 17 years; the ES&S Optech Eagle has been in service for over 25 years; and the Model 650 Central Count scanner has been in service for over 14 years.

To ensure the sustainability of our voting system products, ES&S engineers them with an eye on durability, ease of maintenance, and availability of parts and supplies. The ES&S supply chain is the most extensive in the election industry. We choose long life-industrial grade components and hardware to ensure we meet and exceed parts availability. We continually monitor our component inventory supply, customer demand, and supplier availability.

79. Describe the company's commitment to supporting the equipment and software of the proposed vote counting device, and keeping it supplied with spare parts.

ES&S RESPONSE

ES&S stocks over $800,000 of available repair inventory (spare parts and subassembly inventory) in our Omaha warehouse to support the product line in our proposal.

Our commitment to maintaining high inventory levels is supported through solid supply chain and inventory parts management systems. These include minimum buy commitments and lead time management policies.

Our field technicians carry more than $100,000 in available repair inventory for the product line in our proposal.

Our perpetual inventory system coupled with an ongoing supply chain assessment with our key manufacturers and suppliers provides our customers and field technicians with immediate access to our certified spare parts inventory. This is the primary reason that we suggest the <<state>> maintain an ES&S warranty service contract as maintenance of a service and support contract guarantees availability of service staff and a certified spare parts inventory.

ES&S tracks parts usage to maintain our perpetual inventory of parts.

80. Describe any plans for future enhancements to your proposed vote counting device.

ES&S RESPONSE

The ExpressVote will offer a layout manager called Touch Screen Ballot, which will allow on-screen ballot content to be displayed to the voter in up to four (4) columns, greatly reducing the number of screens the voter must go though. This is in EVS 6.1.0.0 release that is scheduled to be federally certified in October of 2019.

ES&S is constantly updating our vote counting devices to keep them modern and up to date. The operating system (OS) will be brought to the newest Yocto 64-bit OS. New displays and touch screen are constantly being evaluated. In addition, self-encrypting memory devices will be added to all ES&S memory devices.

HARDWARE- TECHNICAL

81. Describe how the voter's hand marked ballot is read by the scanner.

ES&S RESPONSE

For this proposal, ES&S offers the DS200 digital scan vote tabulator.

The DS200 poll-based ballot scanner and vote tabulator is equipped with the latest in ES&S' patented technology to make your job easier. Fully certified and compliant with the 2005 Voluntary Voting Systems Guidelines, the DS200 enhances the voting experience for voters and officials alike.

Intelligent, integrated, digital, patented, flexible, easy to use, reliable, secure, certified, and accessible; the DS200 is the answer to your poll-level election needs.

The DS200's interactive 12-inch color touch screen and easy-to-use interface makes setup incredibly easy. On-screen instructions aid workers in opening and closing the polls and in collecting and reporting election totals.

For voters, the DS200 makes casting a ballot a breeze. Simply place a marked ballot in the DS200 insert slot in any orientation. The DS200 quickly scans both sides of each ballot and confirms that the vote has been counted.

You can set the DS200 to query voters and provide the option to review the ballot before resubmission. Instant voter verification safeguards voter intent dramatically reduces the number of invalid ballots, and eliminates the need for time spent in adjudication after the polls close.

PROCESS

ES&S' patented Intelligent Mark Recognition (IMR®) and Positive Target Recognition & Alignment Compensation (PTRAC™) technologies ensure that ballots are read accurately and consistently protecting voter intent and reducing adjudication time without the need for altering captured official ballot images.

During scanning, the DS200 captures both sides of each ballot as a high-quality digital image file for archive and recount purposes. To preserve voter privacy, each image is assigned a random identifier which is tracked and assigned to a Cast Vote Record (CVR). The Cast Vote Record is a verification file which shows the DS200's interpretation of the votes recorded for each ballot.

Our use of this digitally linked Cast Vote Record file enables a verified audit trail without the need of watermarking or adjusting an officially captured ballot image. We've learned over the years that altering these official images with watermarks or other adjustments negates the benefits of capturing ballot images. With the ES&S solution each ballot image is kept official and unaltered, thus uncontested.

Once the ballot is scanned and the image is captured, PTRAC corrects for variations in ballot alignment and printing, allowing the DS200 to zero in on the marking area. IMR then digitally subtracts the outline of the voting target to read only the voter's mark. Our competitors' optical scanners require you to set an arbitrary pixel threshold to determine what counts as a mark. This technique has proven to be primitive and much less accurate in identifying voter intent.

Tolerance adjustment only systems do not take into account the individual variations in each voting machine. As voting machines are utilized over the course of an event, they inevitably get dirty – whether it be user error or paper ballot waste. As a result, tolerance adjustments in one voting device may react differently in another – skewing voter results. The ES&S system has surpassed this form of mark adjudication.

The DS200 does the work for you. To determine which marks were intentional, sophisticated algorithms analyze not only the mark's darkness (pixel density) but also its directionality. Unlike less-sophisticated scanners, the DS200 is not fooled by erasures or other stray marks and is not confused by lighter or thinner marks that would be missed by a simple threshold adjustment. IMR means faster results for you and assurance for voters that their votes were counted as they intended.

KEY FEATURES AND BENEFITS

Speed. Completely processes both sides of a ballot in four seconds.

Instant voter verification. The DS200 can query voters about overvotes, undervotes, blanks, and mismarked ballots and allow voters to review and resubmit their ballots.

Safeguards voter intent. IMR's sophisticated algorithms enable the DS200 to recognize voter intent based on pixel density and directionality of a mark. This technology is so sensitive and accurate that you can rely on IMR during the voting process, avoiding potentially inconsistent human adjudication after the close of polls.

Ensures accurate results. The DS200 protects voter intent by reading marks more intelligently than anyone else's scanner can and ensures consistency in recounts.

Flexible. Accepts ballots of multiple sizes (11, 14, 17, and 19 inches), formatted in portrait or landscape orientation, and inserted in any direction. Supports a variety of voting targets, including ovals, boxes, and arrows. Supports multiple ballot languages. Grants you control over target placement, ballot layout, and fonts.

Reliable. Purpose-built hardware made to last. Built-in battery backup and integrated thermal printer means you never have to worry about power outages or running out of printer ink.

Lightweight design. Lightweight, compact, and easy to set up. The DS200 weighs only 23 pounds (with internal battery installed) and is easy for one person to carry.

User-friendly features. Interactive 12-inch color touch screen and messages and prompts (both visual and auditory) assist workers and voters. Can be configured for use with multiple languages. Designed with easy access for maintenance and setup.

82. Can your precinct count device count a preprinted ballot marked using a printer and New Hampshire's Accessible Voting System, one4all? We can provide a sample if necessary.

ES&S RESPONSE

No. Any ballots produced by New Hampshire's Accessible Voting System, one4all, would need to be duplicated on the ExpressVote in order to work on our DS200 precinct counter.

The ExpressVote ballot marking device combines paper-based voting with touch-screen technology. Voters use the ExpressVote Universal Voting System as a Marker to mark their ballots, which the voter then carries to and inserts in the DS200 tabulator to be counted.

83. Describe whether or not the voter's ballot from your company's accessible voting system could be read by the ballot counting device. Does your accessible voting system produce a marked paper ballot this can be counted by your precinct ballot counting device?

ES&S RESPONSE

The award winning ExpressVote Universal Voting System as a Marker combines paper-based voting with touch-screen technology. Voters use the ExpressVote Universal Voting System as a Marker to mark their ballots, which the voter then carries to and inserts in the DS200 tabulator to be counted. The ExpressVote BMD has a 15-inch color screen, and voters can easily page through separate screens to vote each election contest.

Paired with the DS200, the ExpressVote Universal Voting System as a Marker has created a breakthrough in voting solutions on Election Day in precincts. It produces a paper-based record for subsequent tabulation. While the ExpressVote provides the best solution to meet the needs for people with disabilities, the ExpressVote was designed for use by all voters. The simplicity and ease of use provide a very intuitive voting session for any voter, but especially those with disabilities. During disability testing campaigns and in live elections nationally, the ExpressVote continues to dominate the competitor's systems, earning high praise and appreciation. The ExpressVote is the election industry's number 1 selling early and Election Day precinct solution.

84. Does your machine read any type of mark on the ballot, whether pencil, black pen, red pen, marker, etc..? Describe any colors or types of marks that your device will not consistently count.

ES&S RESPONSE

The ballot can be filled in with almost any writing utensil, though not all pencil marks will be read by the scanner/tabulators. While blue and black ink can be read by the tabulator, the BIC Grip Roller Ball Black pen with a 0.7mm tip is the recommended marking device. The BIC Round Stick, black, medium point may be used as an alternate marking device. Other marking devices are not recommended because fast drying ink pens can bleed through and slow drying pens can smear on the ballot.

The scanners are equipped with visible Green Light Sensors. The most prominent color read is black, but other colors (except yellow and green) may be read depending on the darkness of the markings.

Uncommon green pigment or any fluorescent gel pens will not be read reliably by the DS200 scanner read heads. In addition, certain pencils with low carbon content are not reliable marking devices.

85. Can your device be programmed to count ballots where ranked-choice voting is in use?

ES&S RESPONSE

Yes. The ExpressRunoff software can be used with Electionware to enhance ranked-choice voting elections. The state can set up each choice as a different contest during the ballot setup in Electionware. After the election, the Cast Vote Record (CVR) spreadsheet is exported from Electionware and used in the ExpressRunoff software to calculate the winner based on common algorithms used in RCV elections. ExpressRunoff creates easy-to-read reports showing round by round results and how the ballot choices are allocated to the next round. The software can support a large number of candidates (up to 22) and can force the algorithm to a two-candidate final display. ES&S can provide different configurations of ExpressRunoff for different states.

86. Can your device be programmed to properly count races where the voter has the right to vote for multiple candidates? For example a six seat state representative district where voters are instructed to vote for no more than 6.

ES&S RESPONSE

Yes. The ES&S system can accommodate multi-member contests where multiple votes are cast for more than one candidate in a race. Each race in the system would have a defined number of allowable votes. Electionware has an intuitive and easy method to specify the number of allowed votes in each contest.

It will even allow a unique number of write-ins allowed in a race. This information is set up on a contest-by-contest basis and may be entered manually or imported.

87. Can your device print a ballot on demand?

ES&S RESPONSE

EXPRESSVOTE

The ExpressVote provides ballot on demand functionality. The voting session for both the ExpressVote is initiated via an activation card that can be pre-printed with a ballot style indicator before Election Day or printed on-demand in the poll site. ES&S is proposing the ExpressLink software and the ExpressVote Activation Card Printer that are used together to print ballot style indicators on the activation cards on-demand for each voter. This innovative solution allows the voter to activate their vote session with the appropriate ballot style without poll worker assistance. When the voter has made selections, they are printed on that same card, which becomes the voter's paper vote record.

OPTION

If a mail-out on-demand paper ballot solution is needed, we also offer the Balotar System, a ballot on demand printer (not included in pricing).

88. How much does the ballot counting device weigh?
89. How much does the base for the ballot counting device weigh?
90. If there is a separate storage container, how much does the separate storage container weigh? How much does the container with the device and any accessories that are to be stored in the container, weigh?

ES&S RESPONSE

The proposed DS200 scanner/tabulator ***with a built-in battery backup*** measures 14" W x 16" D x 5" H and weighs 23 pounds. The built-in battery backup ensures that poll workers do not need to struggle in the dark to plug in an external battery in the event of a power outage.

	Width, Depth, Height	Weight
DS200 Carrying Case	27" x 24" x 8"	29 lbs.
DS200 Ballot Box w/ Steel Doors & Base Plate	35.5" x 24" x 26"	45 lbs.
DS200 Optional Tote Bin	13.25" x 23.25" x 15"	14.5 lbs.
DS200 Unit (screen extended) DS200 Unit (closed for storage)	14" x 16" x 13.5" 14" x 16" x 5.5"	23 lbs. (incl. battery)

91. If your system includes a collapsible ballot box, how many ballots can it hold?

ES&S RESPONSE

The collapsible ballot box holds 1,500 ballots in the main compartment and 100 ballots in the auxiliary compartment.

ARCHITECTURE

92. Please describe the software architecture of your vote counting device.

ES&S RESPONSE

Electionware is our election management system (EMS) software solution that provides complete election management. The State of New Hampshire will be able to use Electionware software to create the election information database, format ballots, program ballot scanning equipment, create voice files, count ballots, and generate results reports. Electionware is a fully integrated election management software application that will allow the State of New Hampshire to complete election management tasks through a uniform user experience. It has a powerful and intuitive interface and a single, common relational database.

ELECTIONWARE: KEY FEATURES & BENEFITS

Ease of use. Electionware is an easy-to-use EMS software application that eliminates wasted effort on unnecessary tasks. This allows users to program elections and create and lay out ballots much faster.

Security. Electionware incorporates the very latest in election security, including heightened audit controls and change management processes that are built-in to make sure state election data is safe and secure.

Single user interface. Electionware comprises several modules, each one representing a stage of the election creation process. Stepping through each module allows the user to systematically proceed with election creation free from worry that key steps have been overlooked.

Integrated help system. Electionware contains an interactive, comprehensive help system.

Multi-user support. Electionware's multiple user support allows election officials to simultaneously enter information and prepare data from several workstations. Each user is assigned their own login credentials and level of access while the system tracks all actions in its robust Events Log.

Election results reporting. The Electionware suite's election results reporting program can generate paper and electronic reports for election officials, candidates, and the media. Reporting features enable the user to read data from the tabulators, customize report formats, and accumulate accurate election results.

93. Please describe the capability of your device and its software to be upgraded as advances in technology, software, and law require changes or make changes prudent.

ES&S RESPONSE

ES&S' system architecture allows for the implementation of variable state and federal level requirements as needed. This is standard practice for ES&S as we have common software and firmware in many states across the country, where different requirements have to be supported with a single system.

94. The US Department of Defense research agency, the Defense Advanced Research Projects Agency (DARPA), has announced that it has invested about 20 million dollars into re-engineering voting machine hardware, including such things as computer chips and circuits, to make many of the known techniques for penetrating and

manipulating the systems impossible. News accounts suggest that the project will be complete and recommendations issued to equipment vendors in about two years. New Hampshire's current ballot counting device is aging, but still working effectively. What, if any, reasons exist for New Hampshire towns and cities to buy new technology now versus waiting for the next generation that will incorporate DARPA's work?

ES&S RESPONSE

ES&S is well aware of the work being done on the DARPA project. The DARPA project needs to do multiple things to develop and add security to a voting system. ES&S is ahead of the DARPA curve because it has already done the large part and that is build a voting system with a great deal of security in a very modern system.

ES&S is working with the Department of Homeland Security to identify additional security items that will be rolled into our working system. Within the next two years, all ES&S memory devices will be self-locking with encrypted passwords and self-encrypting drives. ES&S is working on the final pieces to make a system that DARPA is only starting and may never finish. In addition, ES&S has already secured our supply chain with audits and controls.

BACKUP AND RECOVERY, BATTERY

95. Describe the backup/recovery features of your proposed vote counting device system.

ES&S RESPONSE

All the components of the system proposed will be deployed on the State of New Hampshire's systems. While the system was not certified with high-availability options configured, the election management system (EMS) server and database server can be set up for high availability by adding additional servers. Postgres supports options such as master-slave failover using synchronous/asynchronous streaming replication. Currently ES&S does not offer archival services for site loss recovery. ES&S recommends that the state take an image of servers and client machines after the system has been installed. It is also recommended that the election database be periodically backed up (the backup interval depends on election activity) and archived off site.

EXPRESSVOTE

The ExpressVote does not tabulate or record votes; therefore, there is no data to back up. All log information is saved on the removable media device. The media device can be moved to a backup unit if required.

DS200

Should the DS200 experience a unit failure, the USB memory device can safely be removed from a disabled machine without affecting the votes cast. Data checkpoints are taken at the end of every cast ballot so that a new device can be brought up and media from the original device can be placed into it, allowing voting to restart at the point of the last cast ballot's completion. The USB flash drive containing the vote and ballot image data can be removed and inserted into a spare DS200 and voting can continue seamlessly.

Should these devices experience a USB memory device failure, the election administrator would rescan the ballots.

On the DS200, an optional backup USB memory device can also be used in the rear access panel to create a redundant memory location. This backup media is created upon poll close and protects against damaged or lost memory devices.

DS450/DS850

During scanning, ballot data is collected in RAM and upon completion of the run, the ballot data is stored to a temporary folder on the internal hard disk drive. In the event of a shutdown event, the machine can be powered up and operation resumed from the point before the shutdown. When the operator chooses to save a batch, the ballot data is moved from the temporary location and stored in a saved folder where the data is marked as available for aggregation. The DS850 uses an uninterruptable power supply (UPS) to allow a run to complete and the unit to be shut down in a controlled manner by the user action or automatically before power is lost.

Vote data can be backed up to a USB memory device from which a results collection can be done in the case of a hardware failure.

ELECTIONWARE

Electionware has a true backup and recovery system built into the Home module. From the Navigator window, the user can right-click an election (unopened election) and backup the election to a location of their choosing. To restore the election, the user need only select it from a list of backed up elections and click Restore using the original backup code.

DISASTER RECOVERY

ES&S will work with the State of New Hampshire to determine the best methods for backing up the data, as well as tailoring a disaster recovery plan per industry best practices and state guidelines.

Backups of the election databases are recommended at intervals consistent with election data change activity. These databases are election-specific, making the task easier to manage. This method allows fallback to a known restart point should a failure of a PC or a media device cause a loss of recent data

Disaster recovery for the ES&S election setup and tabulation software applications should be consistent with the disaster recovery plan for the other mission-critical data applications used by the state's IT department. This should include off-site backup storage and the possible availability of off-site systems that contain the applications or can be quickly configured with the applications from previously prepared system images. The availability of high-speed data links would provide for electronic processes and eliminate the need for manual handling and control.

Should the DS200/DS450/DS850 experience a media failure, the election administrator would rescan the ballots. In the event of a device failure, data checkpoints are taken at the end of every cast ballot so that a new device can be brought up and media from the original device can be placed into it, allowing voting to restart at the point of the last cast ballot's completion.

96. Should the polling place loose power for longer than the device's battery capacity and the device shuts down, then power is restored, will the record of ballots cast up to the moment of power loss be available?

a. In this situation, can the device be put back into service and ballots cast into a ballot box be fed into the device for counting?

ES&S RESPONSE

All ES&S components are designed to use their respective backup power features to automatically respond to power issues without impacting the operation of the unit. This includes the seamless switchover to battery power when AC power is lost, as well as a controlled shutdown of the unit when battery power is exhausted.

In addition, data from completed voting sessions on precinct devices and from saved batches on central count units is saved to nonvolatile memory and is therefore preserved in the event of a sudden loss of the electrical connection or failure of the backup battery.

Significant work has been done to ensure that units can recover from significant failures. No system can account for every possible catastrophic hardware failure. But ES&S has spent years performing negative testing of such failures to make the system as robust and recoverable as possible.

The record of ballots cast before a loss of power will be available after power is restored.

a.

The device can be put back into service. Ballots cast in the auxiliary ballot bin can be fed into the DS200 (or a central scanner) for counting.

97. Does your precinct scanner have an integral battery backup that will keep the device in operation in the event of loss of power?

a. If yes, how long will the device run on battery?

ES&S RESPONSE

Yes. The DS200 contains an internal backup battery that maintains the system in the case of a power failure during the election process. The battery is a 21-volt, 10 cell lithium-ion battery that needs no special maintenance. The battery obtains its charge automatically from the system power supply any time the unit is plugged in – a separate charging device isn't required. It ensures complete protection from power failure and provides a minimum of three to four (3-4) hours of normal operation in the event of a power failure.

The battery is floating on the system, meaning the battery kicks in immediately without system impact. When the battery gets low, the system will have a graceful shutdown to ensure no ballots are being scanned or data is being written to the USB memory device when it loses power completely. When power returns, a recovery procedure allows voting to continue where it left off.

98. Can the battery be replaced if it has/will run out of power?

ES&S RESPONSE

The DS200 has an internal rechargeable lithium-ion backup battery. If it runs out of power, it will automatically recharge when plugged in.

99. Describe how a battery is replaced, including the time required.

ES&S RESPONSE

When needed, the DS200 backup battery can be replaced during a routine maintenance appointment by an ES&S technician.

100. Assume system failure at the voting site during the day. Which failures can be recovered from, and which failures require alternative procedures to capture prior votes that are now inaccessible? If the failure is catastrophic, the device cannot be restored, can the data in the memory device be read by a laptop or desktop computer?

a. If yes, what software will read the memory device?

b. If only proprietary software can read the memory device, what is the cost to purchase that software?

c. What format are the results or vote totals data stored in?

ES&S RESPONSE

In the event of AC power failure, an ExpressVote or DS200 device makes a seamless transition from AC to DC power without poll worker intervention. The battery is "floating" on the system, meaning the ExpressVote and DS200 transitions to battery operation immediately without system impact.

The internal battery supplies three to four (3-4) hours of continuous use.

When the battery gets low, the system deactivates gracefully to ensure no ballots are being scanned, or data is being written to the USB flash media when it loses power completely. When power returns, a recovery procedure allows voting to continue where it left off. The system's integrated ballot box includes an auxiliary ballot bin for temporary storage of voted ballots until power returns.

All DS200 votes and election configuration files are stored on an external USB flash drive (up to 8 GB capacity drives are available). So, if a critical terminal failure were to occur, poll workers simply transfer the flash drive to a spare DS200 unit and voting can continue uninterrupted. The DS200 backup memory and power supply ensure that no votes are ever lost because of power loss or equipment failure. In the event of a failure of the primary USB removable flash device, voter selections can be rebuilt from the ballots associated with this DS200.

Non-catastrophic failures include power outages, inadvertent shutdown, ballot jams, and procedural problems (poll worker errors).

a.

Electionware software will read the memory device.

b.

Please see Pricing.

c.

Results totals are stored in XML format, on the tabulators and into the Electionware. Electionware is capable a wide verity of results output formats.

BALLOT BOX CAPACITY /STORAGE

101. What is the capacity of the ballot box that is integral to the base your device sits on at an election?

ES&S RESPONSE

The ballot box is a secure stand for the DS200. Ballots are scanned through the DS200 and are immediately passed into the sealed ballot box. The DS200 plastic ballot box has a single main bin and can hold 2,500 ballots. The auxiliary ballot compartment holds approximately 150 to 200 ballots. The collapsible ballot box holds 1,500 ballots in the main compartment and 100 ballots in the auxiliary compartment.

102. Describe any available options, e.g. capacity with and without a removable lockable box inside.

ES&S RESPONSE

The ballot box capacity is the same whether or not a removable lockable box is inside.

103. Describe the size, setup and storage requirements for your proposed ballot counting device system.

ES&S RESPONSE

SIZE AND STORAGE

Between elections, different storage options are available for the DS200. The clamshell carrying case, which serves as the top of the ballot box during operation, can be closed, and the tabulator, carrying case, and ballot box base can be stored together. Alternatively, the tabulator and carrying case can be removed from the ballot box base, and up to five (5) ballot box bases can be stacked together. Power is not required for storage; however, if the storage period exceeds eight (8) months, it is recommended to plug the DS200s into standard outlets for 24 hours to recharge the battery prior to use.

The DS200 can easily be stored between elections using only 4.5 sq. ft. per unit:

14"W x 5" H x 16" D (Storage)

DS200: 14"W x 13"H x 16" D (Operation)

SETUP

On Election Day, setup tasks for the poll workers are minimal. The poll worker simply plugs the DS200 into an AC outlet and unlocks/unseals the top lid of the ballot box to gain access to the tabulator. The poll worker then unlocks the top lid of the DS200 and raises the lid to automatically initiate the boot-up process.

After the unit boots up, the poll worker will be required to enter the election code to continue the opening process. After successfully entering the code, the unit automatically prints the Configuration Report. The poll worker will then press the OPEN POLL button and the Zero Report will automatically print.

The DS200 is now ready to open and the poll worker simply presses the GO TO VOTING MODE button.

It only takes 90 seconds for the DS200 to boot.

104. Describe what equipment protection is integral to the included storage container and any external equipment protection that will be recommended.

ES&S RESPONSE

ES&S specifically designed, engineered and created all our voting equipment to be able to withstand the rigors that come with transporting, setting up, voting on, and tearing down of the equipment over and over. This equipment was built to last a minimum of 10-15 years while being the easiest, most voter friendly system in the industry today.

The DS200's internal components are assembled in a rugged, impact-resistant GE C6600 – Polycarbonate Acrylonitrile Butadiene Styrene (ABS) plastic housing. The terminal's outer coloring is integrated into the plastic to prevent chipping or scratching on the outside surface. The DS200 has been tested and has successfully met specific Voluntary Voting Systems Guidelines (VVSG) minimum performance standards that simulate exposure to physical shock and vibration associated with frequent handling (loading, unloading, stacking, and heavy use) and transportation by surface and air common carriers. The DS200 plastic ballot box includes a hard clamshell case with rollers and a telescoping handle to protect the DS200 in transport.

ES&S recommends the DS200 be stored and transported in its hard-shell carrying case whenever possible to further protect against dust, moisture, and vibration. The lockable carrying case for the DS200 is capable of withstanding real-world impacts, shocks, and vibrations that are experienced when transporting units to the poll site. The carrying case includes roller wheels and a telescoping handle to assist in the easy movement of the DS200 to and from the polling place.

The DS200 plastic ballot box is compact, portable, and easy to move around the warehouse or polling place. It includes handles and four heavy duty caster wheels and may be nested five (5) high for ease of storage and transportation. It is made of durable ABS (Acrylonitrile Butadiene Styrene) plastic material with steel-reinforced doors and can absorb shocks and impacts associated with all modes of surface transportation. All doors are lockable and sealable.

Convenient side handles are designed to enable election workers to pull, rather than push, the ballot box, which provides complete control. The ballot box also includes an anchor loop that would allow it to be tied or tethered during transport.

105. Describe the physical storage requirements for your proposed vote counting device.

ES&S RESPONSE

SIZE AND STORAGE

Between elections, different storage options are available for the DS200. The clamshell carrying case, which serves as the top of the ballot box during operation, can be closed, and the tabulator, carrying case, and ballot box base can be stored together. Alternatively, the tabulator and carrying case can be removed from the ballot box base, and up to five (5) ballot box bases can be stacked together. Power is not required for storage; however, if the storage period exceeds eight (8) months, it is recommended to plug the DS200s into standard outlets for 24 hours to recharge the battery prior to use.

The DS200 can easily be stored between elections using only 4.5 sq. ft. per unit:

14"W x 5" H x 16" D (Storage)

106. How many devices in their storage containers can be stacked in one pile?

ES&S RESPONSE

When the scanner and carrying case are removed from the ballot box, the plastic ballot boxes may be stacked five (5) high.

107. Is power required for storage?

ES&S RESPONSE

Power is not required for storage.

108. What storage temperature and humidity conditions are required?

ES&S RESPONSE

Product	Temperature	Relative Humidity
DS200	Operation +60 to +100 F Storage 0 to +120 F	Operation 10% to 50% Storage 10% to 85%

109. What other storage requirements are there?

ES&S RESPONSE

Between elections, different options are available.

The clamshell carrying case, which serves as the top of the ballot box during operation, can be closed and the tabulator, carrying case, and ballot box base can be stored together.

The tabulator and carrying case can be removed from the ballot box base, and up to five (5) ballot box bases can be stacked together.

110. Does your machine or its base have a slot (separate storage space) for ballots that will need to be hand counted? If yes, describe this storage, including its capacity.

ES&S RESPONSE

The plastic ballot box features a separate auxiliary compartment to secure and protect un-read ballots. However, those ballots can be counted by the DS200 or a central scanner. They do not have to be hand counted.

111. Is the slot to deposit a ballot to be hand counted open and directly accessible during the entire election? If not, what has to be done to put a hand count ballot in this storage area?

ES&S RESPONSE

Our proposed system does not require ballots to be hand counted. However, the DS200 features a separate auxiliary compartment to secure and protect un-read ballots. That compartment can be locked or unlocked, depending on the needs of the jurisdiction.

112. If you offer multiple models/sizes of ballot storage boxes, please provide dimensions, how many ballots each can hold, and the price for each?

ES&S RESPONSE

Plastic ballot box: 35 ½" x 24" x 26" – 45 lbs.

Collapsible ballot box: 28" x 33" x 20 ½" – 16 lbs.

The DS200 plastic ballot box has a single main bin and can hold 2,500 ballots. The auxiliary ballot compartment holds approximately 150 to 200 ballots. The collapsible ballot box holds 1,500 ballots in the main compartment and 100 ballots in the auxiliary compartment.

Please see **Pricing**.

COMPANY EXPERIENCE AND CAPABILITY

113. Describe your company's history with a detailed description of your election expertise and experience in performing the services required, number of employees, and office locations.

ES&S RESPONSE

ES&S is the largest elections-only company in the world with 40 years of experience supporting the elections of 4,500 customers worldwide. We have supported more than 100,000 elections in the last decade alone.

ES&S is a privately-owned limited liability company (LLC). Government Systems, Software, & Services, Inc., 11208 John Galt Boulevard, Omaha, NE, owns 100 percent of Election Systems & Software, LLC.

Our approximately 500 employees allow us to develop and support the most relevant, easy to use, and dependable equipment and software available to support the County's elections.

ES&S' founding company, American Information Services (AIS), was incorporated on August 29, 1979. After acquiring the Business Records Corporation Election Services Division, the newly formed entity was incorporated as Election Systems & Software, Inc., on Dec. 4, 1997. Effective October 1, 2011, ES&S

changed its form of legal entity from a C-corporation to a Delaware limited liability company. ES&S corporate headquarters is in Omaha, Nebraska. The company maintains eight (8) facilities across North America.

114. How long has your company been handling ballot counting device machines?

ES&S RESPONSE

ES&S has been handling ballot counting device machines for nearly 40 years.

115. Describe your company's expertise implementing solutions for large polling places containing a single precinct. (Large is defined as greater than or equal to 10,000 registered voters who will vote in one precinct/ polling place.) Identify what, if anything, you change in your recommended configuration for a large polling place.

a. How many ballots/voters can a single precinct ballot counting device handle at an election?

b. At what number of voters or separate pages of ballots do you recommend that the polling place have two or more ballot counting devices? Currently, some large polling places using the Accuvote device have two or more devices operating to avoid lines of voters waiting to deposit their ballot(s).

ES&S RESPONSE

a.

The maximum number of ballot styles for each election is 15,000.

b.

The DS200 is able to scan and deposit a ballot in seconds. To avoid lines, one or two machines may be necessary. ES&S can provide consultation on the number of voting machines necessary based on expected turnouts and peak voting periods and the number of voting booths and voting locations. For example, if it is expected that as many as 2000 people can arrive during the hours of 5 p.m. – 7 p.m., then two (2) machines would suffice to ensure expedited casting of the ballots.

116. Describe in detail the ownership of your company. In the event of any corporate, LLC or similar entity ownership, please identify the individuals who own shares constituting 10% ownership or more in such entities.

a. In what nation or state is your company incorporated?

ES&S RESPONSE

Election Systems and Software, LLC ("ES&S") is a Delaware limited liability company and is a wholly owned subsidiary of Government Systems, Software & Services, Inc. ("GS3"). GS3 is a privately-owned Delaware corporation. Both ES&S and GS3 are headquartered in Omaha, NE.

McCarthy Capital owns more than 10 percent of GS3. Nancy A. McCarthy owns 10.86 percent of McCarthy Capital.

117. How many jurisdictions are currently using the device you are proposing for the State of NH?
118. Provide a list of current customers, the model of ballot counting device and type of voting system used and its implementation date.

ES&S RESPONSE

More than 34,000 DS200 units are in use. We have numerous statewide installations including Alabama, Arkansas, Delaware, Maryland, Maine, Montana, Nebraska, North Carolina, North Dakota, Rhode Island, South Carolina, South Dakota, Utah (27 of 29 counties), and West Virginia.

119. Provide the total number of company employees dedicated solely to the support of election related products and services.

ES&S RESPONSE

ES&S has more than 500 employees dedicated solely to the support of election related products and services.

120. Provide a description of your capacity to deploy your proposed voting system to a New Hampshire town/ city within one month of your receipt of an order.

ES&S RESPONSE

Please see **Attachment C**: **Project Management Narrative**.

121. Disclose any parts or services used in/ necessary for the proposed device that are obtained from outside of the United States.

ES&S RESPONSE

Almost all our electronic components are sourced outside the United States. The tables for DS450 and DS850, the stand that is part of the ExpressVote Kiosk, and the membrane on the USB flash drives are made in the USA.

122. Describe the chain of supply, including country of production/modification, for each of your vote counting device's components.

ES&S RESPONSE

ES&S designs and manufactures its voting equipment to withstand normal use without deterioration and without excessive maintenance cost for a minimum lifecycle of 10-15 years, and we have many examples of equipment that surpassed that time frame.

To ensure the sustainability of our products throughout its lifecycle and beyond, ES&S engineers its voting system products with an eye on durability, ease of maintenance, and availability of parts and supplies. The ES&S supply chain is the most extensive in the election industry. We have the largest product offering, so we must have a strong supply chain. Product sustainably and lead-time compression is the driving force to having a strong supply chain. We choose long-life industrial-grade components and hardware to ensure we meet and exceed parts availability.

We have complete bill of materials for all our product lines. We continually monitor our component inventory supply, customer demand, and supplier availability. ES&S involvement includes inventory management, hardware engineering, manufacturing, purchasing, and field services. Our outside contacts include contract manufacturing partners, manufacturer representatives, manufacturers, and component suppliers. Constant monitoring and effective communications between all manufacturing partners is the main reason why we continue to enjoy success.

123. Has the Department of Homeland Security, NIST or an equivalent agency or entity provided a list of acceptable products that could be safely and securely be included in a voting system?

ES&S RESPONSE

All ES&S products are tested to be safe and secure. We are not aware of any DHS, NIST or other government agency who has provided a list of acceptable products.

124. Provide the location, town/ city and state, of the manufacturer of your proposed vote counting solution.

ES&S RESPONSE

ES&S uses contract manufacturers in the United States, Philippines, and Germany to produce our vote count products. All our contract manufacturers are ISO certified, and have been reliable partners for many, many years. Regardless of where the tabulation equipment is fabricated, all equipment receives a final QC process in Omaha, Nebraska. This QC process includes inspecting and testing the equipment and loading the software and firmware that is State certified for each customer.

125. Explain your capacity to manufacture and supply replacement/ spare parts for your proposed vote counting device.

ES&S RESPONSE

ES&S is the manufacturer of all the vote tabulation system hardware, software, and firmware in this bid. ES&S has manufactured and deployed more than 32,000 DS200 tabulators and nearly 17,000 ExpressVote

units throughout North America. Because we are our own manufacturer, we can provide expert repairs and software and firmware maintenance and support.

ES&S stocks over $800,000 of available repair inventory (spare parts and subassembly inventory) in our Omaha warehouse to support the product line in our proposal.

Our commitment to maintaining high inventory levels is supported through solid supply chain and inventory parts management systems. These include minimum buy commitments and lead time management policies. Our field technicians carry more than $100,000 in available repair inventory for the product line in our proposal.

Our perpetual inventory system coupled with an ongoing supply chain assessment with our key manufacturers and suppliers provides our customers and field technicians with immediate access to our certified spare parts inventory. This is the primary reason that we suggest the state maintain an ES&S warranty service contract as maintenance of a service and support contract guarantees availability of service staff and a certified spare parts inventory.

ES&S tracks parts usage to maintain our perpetual inventory of parts.

126. Explain your philosophy and practice regarding supporting vote counting devices throughout their useful life.

ES&S RESPONSE

ES&S has more experienced field service techs located across the country than any other vendor. Their skills, combined with our design and manufacturing process, ensure your system will be in operation the next 10 years and beyond.

ES&S designs and manufactures its voting equipment to withstand normal use without deterioration and without excessive maintenance cost for a minimum lifecycle of 10-15 years. This is exemplified by the fact that existing ES&S voting equipment product lines far exceed the normal lifecycle of 10 years.

For example, the ES&S Model 100 precinct tabulator has been in service for more than 17 years; the ES&S Optech Eagle has been in service for over 25 years; and the Model 650 Central Count scanner has been in service for over 14 years.

To ensure the sustainability of our voting system products, ES&S engineers them with an eye on durability, ease of maintenance, and availability of parts and supplies. The ES&S supply chain is the most extensive in the election industry. We choose long life-industrial grade components and hardware to ensure we meet and exceed parts availability. We continually monitor our component inventory supply, customer demand, and supplier availability.

127. Disclose any actual or perceived conflicts of interest that may arise from the submission of your proposal for evaluation or from being approved by the New Hampshire Ballot Law Commission.

ES&S RESPONSE

ES&S is not aware of any actual or perceived conflicts of interest that may arise from the submission of ES&S' proposed solution for evaluation or from being approved by the New Hampshire Ballot Law Commission.

128. Has your company or any of its principals made political campaign contributions to any candidate who sought or is seeking elective office in New Hampshire or a federal office to be voted on by New Hampshire voters?

ES&S RESPONSE

ES&S or any of its principals has not made political campaign contributions to any candidate who sought or is seeking elective office in New Hampshire or a federal office to be voted on by New Hampshire voters

129. Disclose all voting system-related litigation that names your company or its principals as a plaintiff or defendant within the last ten (10) years.

ES&S RESPONSE

None.

MAINTENANCE, TRAINING, AND SUPPORT

130. Describe your role-specific training for local election administration staff.

ES&S RESPONSE

Introducing new technology presents unique challenges. Election Systems & Software understands that a successful transition to new election technology depends on more than executing a logistics plan. A key element to success is ensuring that your election staff is empowered with the knowledge to administer the new system and carry out a trouble-free election.

To make this transition successful, we emphasize on-site, hands-on training as a critical component of our overall implementation plan. Our training goal is to ensure a strong level of comfort and competency for your election administration staff and workers. ES&S is committed to maintaining our flexible approach in tailoring the right mix of products, training, support, and service to your jurisdiction.

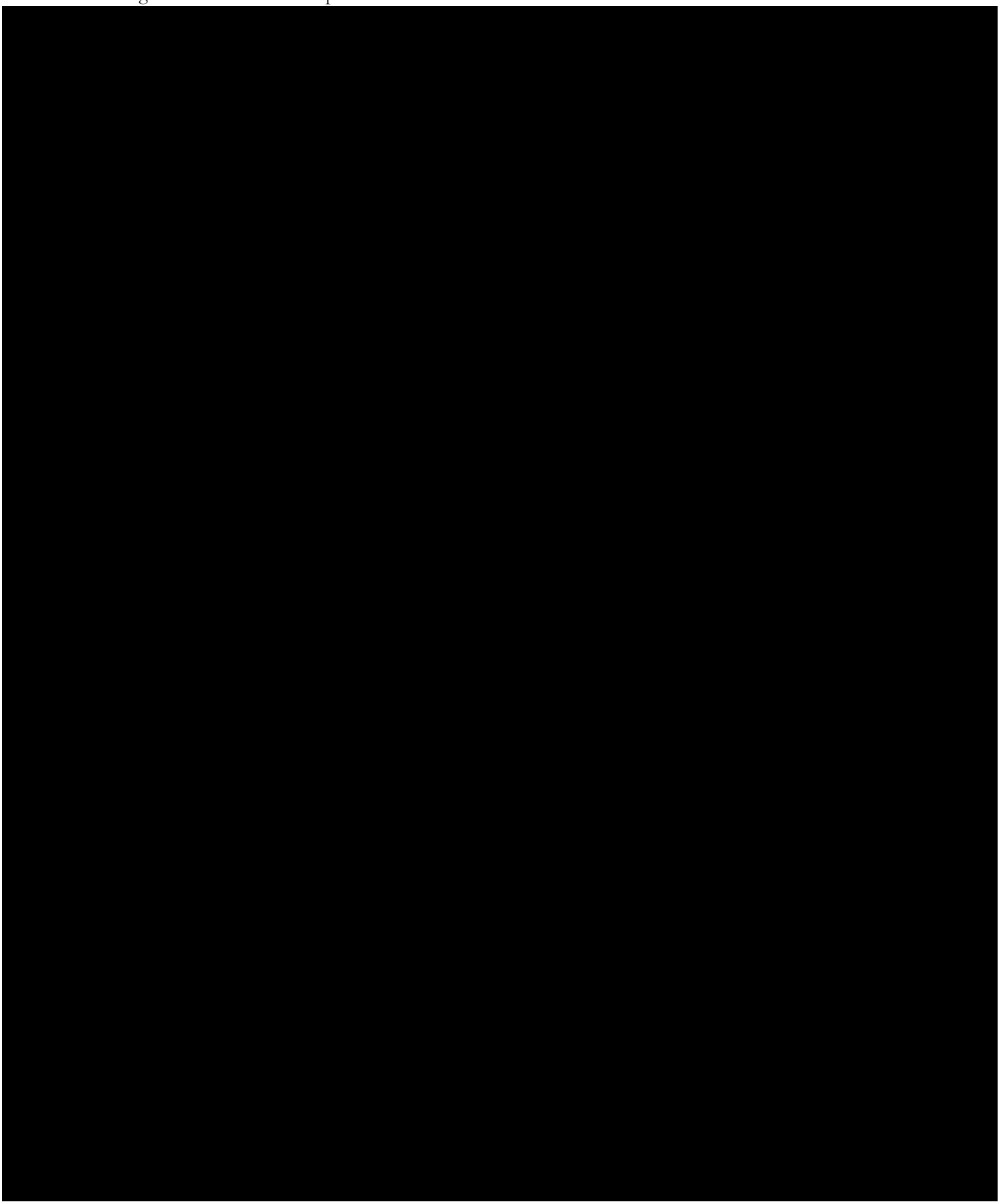
ES&S measures the success of new equipment installations by the quantifiable way in which our clients can manage their unique election processes while using ES&S' systems. Our comprehensive, classroom-based training program promotes a strong level of competency for all intended users through courses, tailored to specific audiences. Our courses incorporate a high degree of hands-on instruction and simulations, increasing the relevancy of every minute your election workers spend in the classroom.

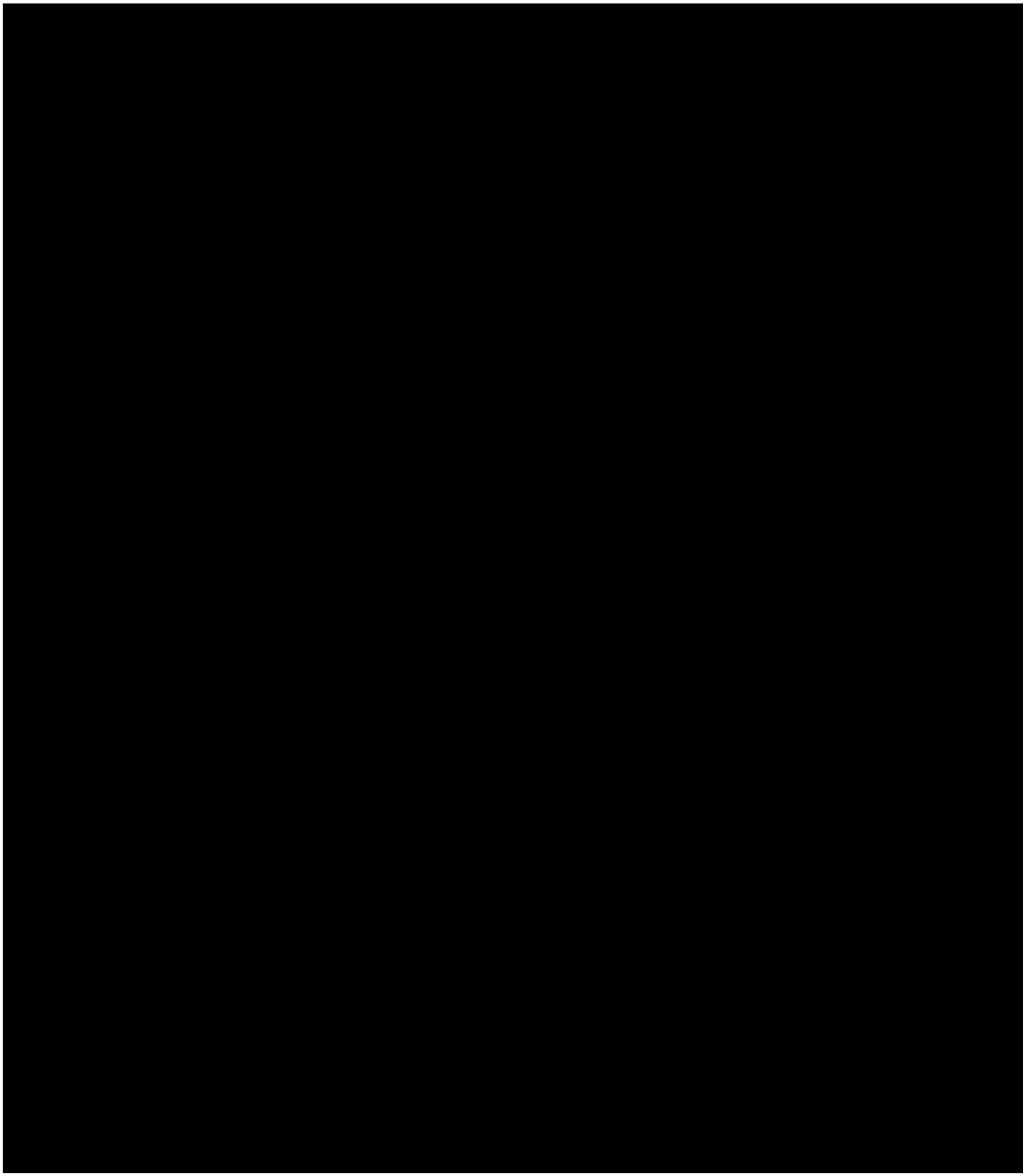
131. Provide your detailed training plan for local officials who will operate your ballot counting device, including potential number of dates, number of classes, etc.

a. Explain whether this training is included in the purchase price or if not the fee you will charge for this training.

ES&S RESPONSE

CONFIDENTIAL





[redacted]

132. Provide examples of all training materials.

ES&S RESPONSE

Our ES&S Instructional Design team has developed a comprehensive series of training documentation including Administrator, Poll Worker, Troubleshooting, and Quick Start Guides. Our goal with these manuals is to provide your election staff with easy-to-follow operating procedures to refer to after the classroom training has concluded. This approach to our customized manuals allows your staff to be fully prepared and ensures autonomy in election operations while using our equipment.

Samples of an Administrator Guide Table of Contents and a Poll Worker Guide Table of Contents are included below. The complete package of written ES&S training guides will be provided upon execution of the signed contract.

Table of Contents

DS200® Digital Precinct Scanner Administrator Learning Plan.....5
Learning Objectives.....5
Agenda.....5
DS200® Digital Precinct Scanner.....6
Product Overview & Ballot Box Components.....6
Digital Scanner Components.....7
Preparing the DS200 for Use.....8
DS200 Scanner Setup.....8
Powering Up the Scanner.....8
Preparing the Printer Tape.....8
Loading Election Data to the DS200.....9
Clearing and Initializing.....9
Installing Election Definition.....9
Configuration Report.....9
Using the Admin Menu.....10
Accessing Admin Menu.....10
Changing the Date and Time.....10
Access Code Bypass.....10
Calibrating the Touch Screen.....11
Calibrating from Admin Menu.....11
Calibrating Prior to Loading Election.....11
Calibrating With Poll Open.....11
Opening the Polls for Voting.....12
Opening the Poll.....12
Printing the Zero Totals Report.....12
Go to Voting Mode.....12
Casting Ballots with the DS200.....13
Inserting Ballot for Tabulation.....13
Ballot Exceptions.....13
Unreadable Marks on Ballot.....13
End of Voting.....14
Closing the Poll & Printing Reports.....14
Clearing Test Results.....14
Power Down Methods.....14
Appendix A: Troubleshooting the DS200.....15
Ballot Not Feeding.....15
Election Definition Not Found.....15
DS200 Not Plugged Into Power Source.....15

Table of Contents

DS200® Digital Precinct Scanner Poll Worker Learning Plan.....5
Learning Objectives.....5
Agenda.....5
DS200® Digital Precinct Scanner.....6
Product Overview & Ballot Box Components.....6
Digital Scanner Components.....7
Preparing the DS200 for Use.....8
DS200 Scanner Setup.....8
Powering Up the Scanner.....8
Preparing the Printer Tape.....8
Opening the Polls for Voting.....9
Opening the Poll.....9
Printing the Zero Totals Report.....9
Go to Voting Mode.....9
Assisting Voters with the DS200.....10
Inserting Ballot for Tabulation.....10
Ballot Exceptions.....10
Unreadable Marks on Ballot.....10
End of Voting.....11
Closing the Poll.....11
Printing Post-Election Reports.....11
Power Down Methods.....11
Appendix A: Troubleshooting the DS200.....12
DS200 Not Plugged Into Power Source.....12
Reports Not Visible on Paper.....16
Cleaning the DS200 Touch Screen & Scanner.....16

Table of Contents

ExpressVote Universal Voting System Administrator Learning Plan.....5
LearningObjectives.....5
Agenda.....5
ExpressVote® Universal Voting System.....6
Product Overview & ExpressVote Components.....6
Access Compartment.....7
Preparing the ExpressVote for Use.....8
Powering Up the ExpressVote.....8
Clearing and Initializing.....8
Installing the Election Definition.....8
ExpressVote Administrative Tasks.....9
ExpressVote Main Menu.....9
Calibrating the Touch Screen.....9
ExpressVote Reports.....9
System Administrator Menu Tasks.....10
Accessing System Administrator Menu.....10
Changing the Date.....10
Changing the Time & Time Zone.....10
Vote Session Initiation and Controls.....11
Initiating a Voting Session.....11
Touch Screen Navigation Bar.....11
Audio-Tactile Keypad Controls.....11
Voting on the ExpressVote.....12
Vote Card Using Touch Screen.....12
Vote Card Using Audio-Tactile Keypad.....12
Editing Vote Selections & Printing a Ballot.....12
Closing the Poll & Shutting Down the ExpressVote.....13
Powering Down & Storing the ExpressVote.....13
Appendix A: Troubleshooting the ExpressVote.....14
Jammed Ballot Card.....14
Screen Calibration Issues.....14
Election Definition Not Found.....14
Idle Error Message.....15
ExpressVote Not Accepting Ballot Card.....15
Protecting Privacy While Assisting Voters.....15
Report Printer Runs Out of Paper.....16
Scanner Calibration Issues.....16
Contacting Technical Support.....16

Table of Contents

ExpressVote Universal Voting System Poll Worker Learning Plan.....5
Learning Objectives.....5
Agenda.....5
ExpressVote® Universal Voting System.....6
Product Overview & ExpressVote Components.....6
Access Compartment.....7
Vote Session Initiation and Controls.....8
Initiating a Voting Session.....8
Touch Screen Navigation Bar.....8
Audio-Tactile Keypad Controls.....8
Voting on the ExpressVote.....9
Vote Card Using Touch Screen.....9
Vote Card Using Audio-Tactile Keypad.....9
Editing Vote Selections & Printing a Ballot.....9
Powering Down the ExpressVote.....10
Powering Down & Storing the ExpressVote.....10
Appendix A: Troubleshooting the ExpressVote.....11
Jammed Ballot Card.....11
Screen Calibration Issues.....11
Idle Error Message.....11
Protecting Privacy While Assisting Voters.....12
Report Printer Runs Out of Paper.....12
Contacting Technical Support.....12
Appendix B: Additional Accessible Voting Options.....13
Voting with the Rocker Switch Device.....13
Voting with the Sip & Puff Device.....13
Appendix C: ExpressVote Rolling Kiosk.....14
Moving the Kiosk & Raising the Enclosure.....14
Tilting the Enclosure & Deploying Privacy Panels.....14
Daisy Chaining Multiple Kiosks.....14

133. Describe your company's preventative maintenance on your vote counting device.

ES&S RESPONSE

After the initial warranty period, ES&S offers three hardware extended maintenance packages:

Extended Warranty with Annual Maintenance: Under the Extended Warranty with Annual Maintenance, ES&S provides a routine preventative maintenance service event every year. This on-site event includes the inspection, cleaning, calibration, and testing of covered equipment and all labor and parts except for consumable items. Our ES&S technicians carry the diagnostic programs, specialized tools, certified spare parts, and test ballots needed to service and test the product per hardware specifications and the maintenance agreement. Under this maintenance program, hardware repairs are covered when failures are system-related.

Extended Warranty with Biennial Maintenance: Includes the same features as the Extended Warranty with Annual Maintenance, except that the routine preventative maintenance service event occurs every other year rather than annually.

Extended Warranty: Provides for remedial maintenance services that are performed at ES&S' designated depot location. While the program does not include routine preventative maintenance service events, any time remedial maintenance is provided, a technician will conduct a hardware preventative maintenance inspection.

All three maintenance programs include use of certified replacement parts, repairs by certified technicians, priority status for repair services, technical Help Desk support, and one annual invoice for budgeting peace of mind.

134. How do you handle service calls relative to a device being down during an election?

ES&S RESPONSE

Our ES&S Help Desk forms our single-point support system for all aspects of your total system: Voting Machines, Electronic Poll Book, Elections Management and Voter Registration System, and Absentee Voting System.

The Help Desk is staffed with experienced hardware and software technical support representatives who stand ready to resolve any issue you have, whether for the polling place/early voting site equipment, absentee voting system, election management and voter registration system, or electronic poll books.

TECHNICAL SUPPORT

The ES&S Technical Support Team ("Help Desk") offers multiple support channels to assist customers with issues and concerns ranging from simple "how-to" questions to complex functional inquiries. Customers who purchase and maintain ES&S hardware maintenance and software license support services through ES&S agreements automatically receive on-call telephone support.

Your call to the Technical Support Team during our hours of operation will immediately be answered by an expert hardware or software technician who will answer your questions and/or begin resolution of your issue. ES&S uses remote support tools like WebEx as well as Team Viewer and GoToAssist to provide over-the-shoulder assistance when needed. We track all questions or concerns and their resolution to provide continuity of service.

ISSUE RESOLUTION

During **Election Day activities**, our Technical Support Team is ready to help on its extended-hour schedule (for a 24-hour period beginning at 4 a.m. Central) to meet the various poll open and closing times for our customers across the United States. During any General Election, ES&S augments our technical support team to further ensure that your issue will receive an immediate response when you contact the Help Desk.

During non-election periods, the Technical Support Team can be reached on weekdays between 7 a.m. to 7 p.m. Central Time. After hours, a representative will return your call as soon as possible, but no later than the next business day.

When a planned system maintenance event is scheduled on evenings, weekends, or holidays, ES&S recommends that the State of New Hampshire notify their account manager, who can inform the Technical Support Team to expect potential service calls, ensuring the most rapid response possible.

TOLL-FREE PHONE SUPPORT

Our dedicated toll-free customer support telephone number is 877-ESS-VOTE (877-377-8683). The support line is open 24 hours a day, 7 days a week. Technical Support Team hardware and software technicians will immediately respond to your call during our business hours from 7 a.m. to 7 p.m. (Central Time), Monday through Friday. After hours or during weekend/holidays, <<Client>> can leave a message 24/7 and a representative will return your call as soon as possible, but no later than the next business day.

Furthermore, your account manager may be contacted by cell phone 24x7x365. Your account manager will provide the state and its agencies with redundant sources to help you resolve any issue you may have during after hours, weekends, and holidays.

EMAIL SUPPORT

Customers can communicate directly with specialized ES&S support and technical representatives.

ES&S CUSTOMER PORTAL

The State of New Hampshire will receive login credentials to the ES&S customer portal. The portal contains copies of all user documentation, including administrator and operator manuals and product advisories. The portal also provides access to request forms and a link to the ES&S supply store website.

135. What is your response time to fix a device or bring a replacement?

a. On election day.

b. At other times.

ES&S RESPONSE

During a New Hampshire election, we will have the technicians strategically placed around the state for support.

For elections where ES&S is providing on-site support, such support will be immediately available for the day before, the day of, and the day after the election. For any elections in which a jurisdiction has not subscribed to on-site support, the response time depends on the severity of the issue. In most cases, critical Election Day issues can be handled over the phone with the ES&S Help Desk and through use of the recommended backup equipment purchased by a jurisdiction. Otherwise, typical on-site response would be within four (4) hours.

Technicians will be dispatched through our corporate headquarters in Omaha, Nebraska. If an issue cannot be resolved via the phone, a ticket is sent to the Field Services team, a work order is created, and the order is assigned to a technician, who will make an on-site visit to resolve the issue.

136. Are on site, election day, responses included in the maintenance agreement? If not, what is the cost?

ES&S RESPONSE

On-site and Election Day support is not included in ES&S' standard maintenance agreement. ES&S does provide Election Site Support Events for a fee. Please see **Pricing**. ES&S' Election Site Support Event

provides one trained representative who is available to the State the day immediately prior to the election, Election Day and until noon on the day immediately after Election Day.

137. How do you handle doing annual service on your devices? Is that included in the service agreement?

ES&S RESPONSE

ES&S offers a variety of maintenance coverage options for its customers. ES&S' maintenance coverage options are detailed below:

After the initial warranty period, ES&S offers three hardware extended maintenance packages:

- **Extended Warranty with Annual Maintenance:** Under the Extended Warranty with Annual Maintenance, ES&S provides a routine preventative maintenance service event every year. This on-site event includes the inspection, cleaning, calibration, and testing of covered equipment and all labor and parts except for consumable items. Our ES&S technicians carry the diagnostic programs, specialized tools, certified spare parts, and test ballots needed to service and test the product per hardware specifications and the maintenance agreement. Under this maintenance program, hardware repairs are covered when failures are system-related.

- **Extended Warranty with Biennial Maintenance:** Includes the same features as the Extended Warranty with Annual Maintenance, except that the routine preventative maintenance service event occurs every other year rather than annually.

- **Extended Warranty:** Provides for remedial maintenance services that are performed at ES&S' designated depot location. While the program does not include routine preventative maintenance service events, any time remedial maintenance is provided, a technician will conduct a hardware preventative maintenance inspection.

All three maintenance programs include use of certified replacement parts, repairs by certified technicians, priority status for repair services, technical Help Desk support, and one annual invoice for budgeting peace of mind.

Once a customer has determined which maintenance coverage options best meets its needs, ES&S will set forth the selective maintenance coverage option in ES&S' Hardware and Software License, Maintenance and Support Services Agreement.

WARRANTY AND POST WARRANTY

138. Describe all hardware and software warranty and post warranty maintenance and support options available for your proposed vote counting device solution.

ES&S RESPONSE

ES&S' provides a one (1) year warranty on its proprietary equipment and proprietary software to begin upon deliver or acceptance as mutually agreed upon by the parties. Such warranty provides that ES&S will repair or replace any component of the ES&S' proprietary equipment or proprietary software which, while under normal use and service: (i) fails to perform in accordance with its documentation in all material respects, or (ii) is defective in material or workmanship. The warranty does not include the repair or replacement of any

ES&S equipment components that are consumed in the normal course of operating the equipment, including, but not limited to, printer ribbons, printer cartridges, paper rolls, batteries, removable media storage devices, PCMCIA cards or marking devices. Any repaired or replaced item of ES&S equipment or ES&S software shall be warranted only for the unexpired term of the warranty period. ES&S' warranty is effective provided that (I) the ES&S equipment or ES&S software to be repaired or replaced has not been repaired, changed, modified or altered except as authorized or approved by ES&S, (II) the ES&S equipment or ES&S software to be repaired or replaced is not damaged as a result of accident, theft, vandalism, neglect, abuse, use which is not in accordance with instructions or specifications furnished by ES&S or causes beyond the reasonable control of ES&S or State and (IV) the State has installed and is using the most recent update, provided to it by ES&S.

Further, ES&S warrants that the ES&S equipment and ES&S software will operate in conjunction with third party products provided by ES&S during the warranty period, provided that (i) the State has installed and is using the most recent update, provided to it by ES&S, and (ii) the third-party products are performing in accordance with their own specifications and documentation in all material respects and are not defective in material or workmanship. In the event of a breach of this warranty, ES&S will repair or replace the item of ES&S equipment or ES&S software that is causing such breach to occur. Please note that ES&S has merely purchased the third-party products for resale to the State, and that the proprietary and intellectual property rights to the third-party products are owned by parties other than ES&S. Except for the payment to ES&S for the third-party products, all the State's rights and obligations with respect to the third-party products, including any warranties, flow to and from the third-party manufacturer.

In addition, and during the warranty period, ES&S shall provide the State with new releases, upgrades or maintenance patches to the software and firmware, together with appropriate documentation ("Updates"), on a schedule defined by ES&S as well as provide help desk hardware, software and firmware support.

Upon the expiration of the warranty, ES&S' software and firmware license model provides for an annually renewable software license, maintenance and support agreement which the State will need to renew annually to maintain a license to use the voting system software and firmware. In addition to maintaining the right to use the voting system software and firmware, the annual software license, maintenance and support agreement continues to provide the State and/or its jurisdictions with updates as well as access to ES&S' help desk.

In addition, ES&S offers hardware maintenance and support services upon the expiration of the warranty period. The hardware maintenance and support provide a customizable solution for both preventative maintenance services and repair services for the voting system units purchased by the State. Routine maintenance services provides that an ES&S representative will come on site once every twelve or twenty-four months depending on the coverage option chosen by the State and complete an inspection of all ES&S voting system units in order to ensure that such units are operating in accordance with their documentation. Generally, routine maintenance services shall include cleaning, lubrication, diagnostic check, and calibration services associate with each unit. In addition to routine maintenance services, ES&S will provide repair services for any unit in which a defect or malfunction occurs while the units are under normal use and service. Our ES&S service technicians carry diagnostic programs, specialized tools, an ample inventory of certified spare parts, and test ballots allowing them to service and test the product according to the hardware specifications and the maintenance agreement. Further, the State will have access to ES&S' help desk support during the hardware maintenance and support period.

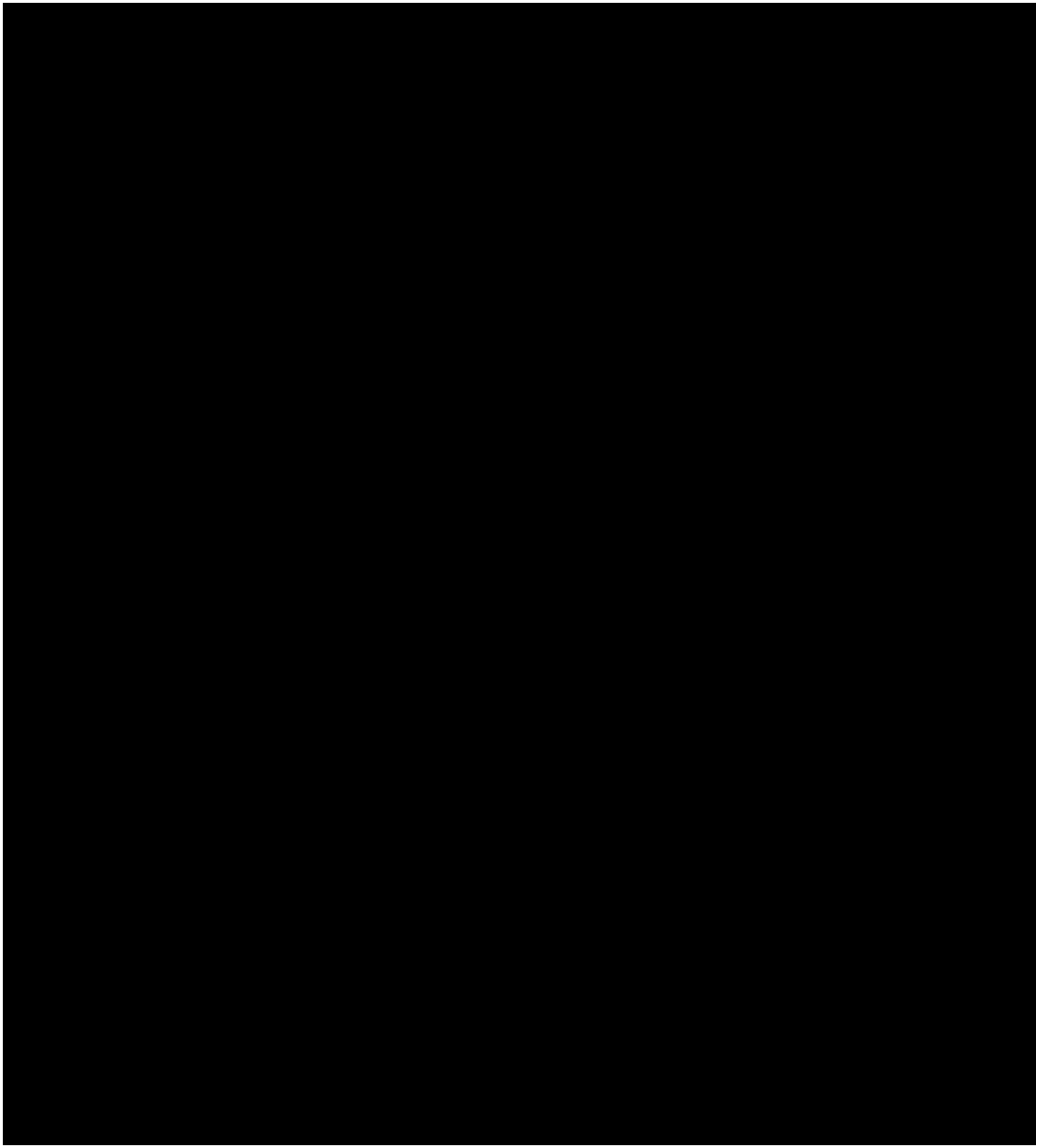
The specific terms and conditions associated with ES&S' warranty and hardware maintenance and software license, maintenance and support services are set forth in ES&S' Standard Agreement which may be provided upon request.

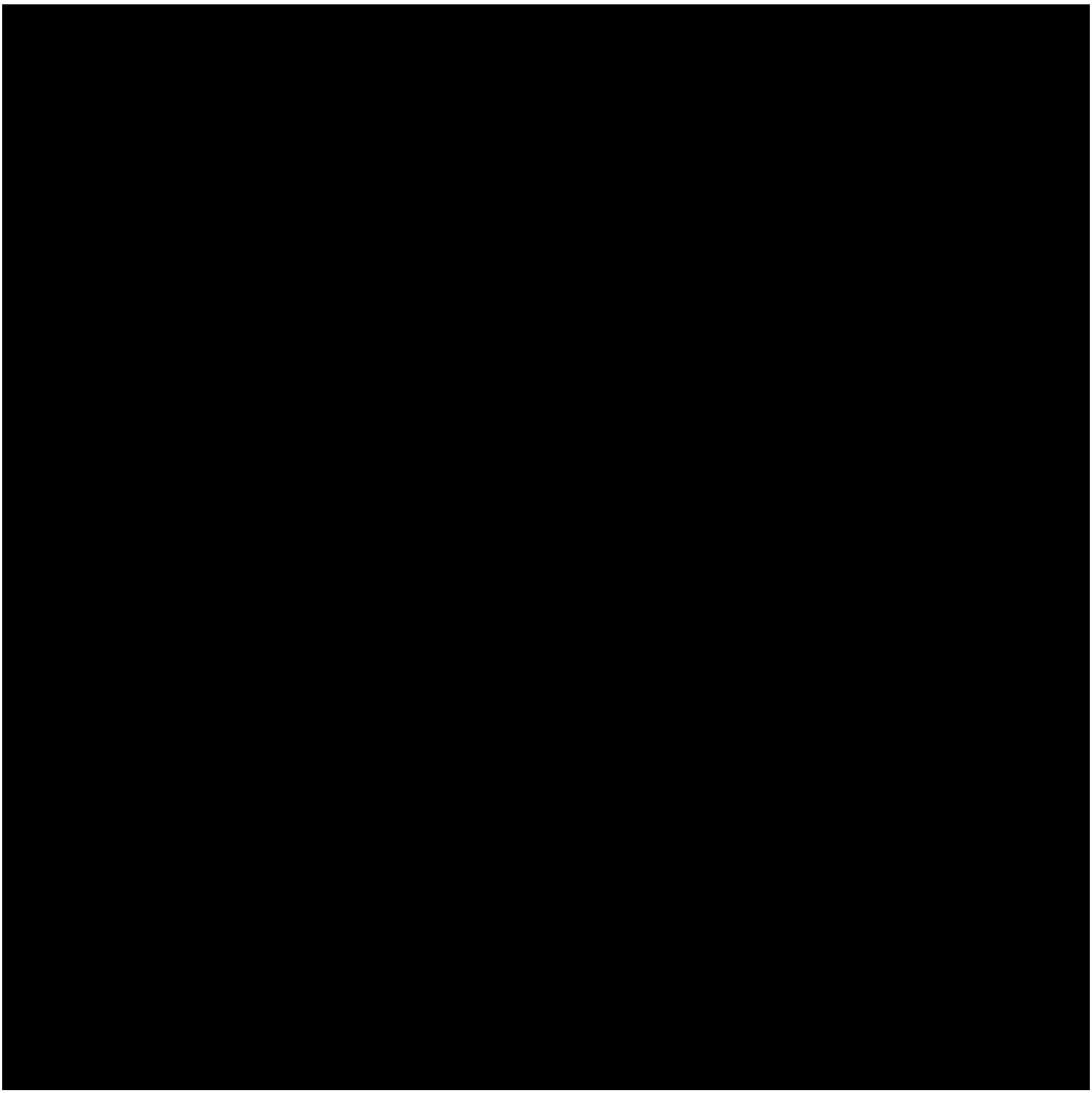
139. Define all consumables and proposed timeline for replacement.

140. List any proprietary hardware and consumables that must be purchased specifically from the vendor.

ES&S RESPONSE

CONFIDENTIAL

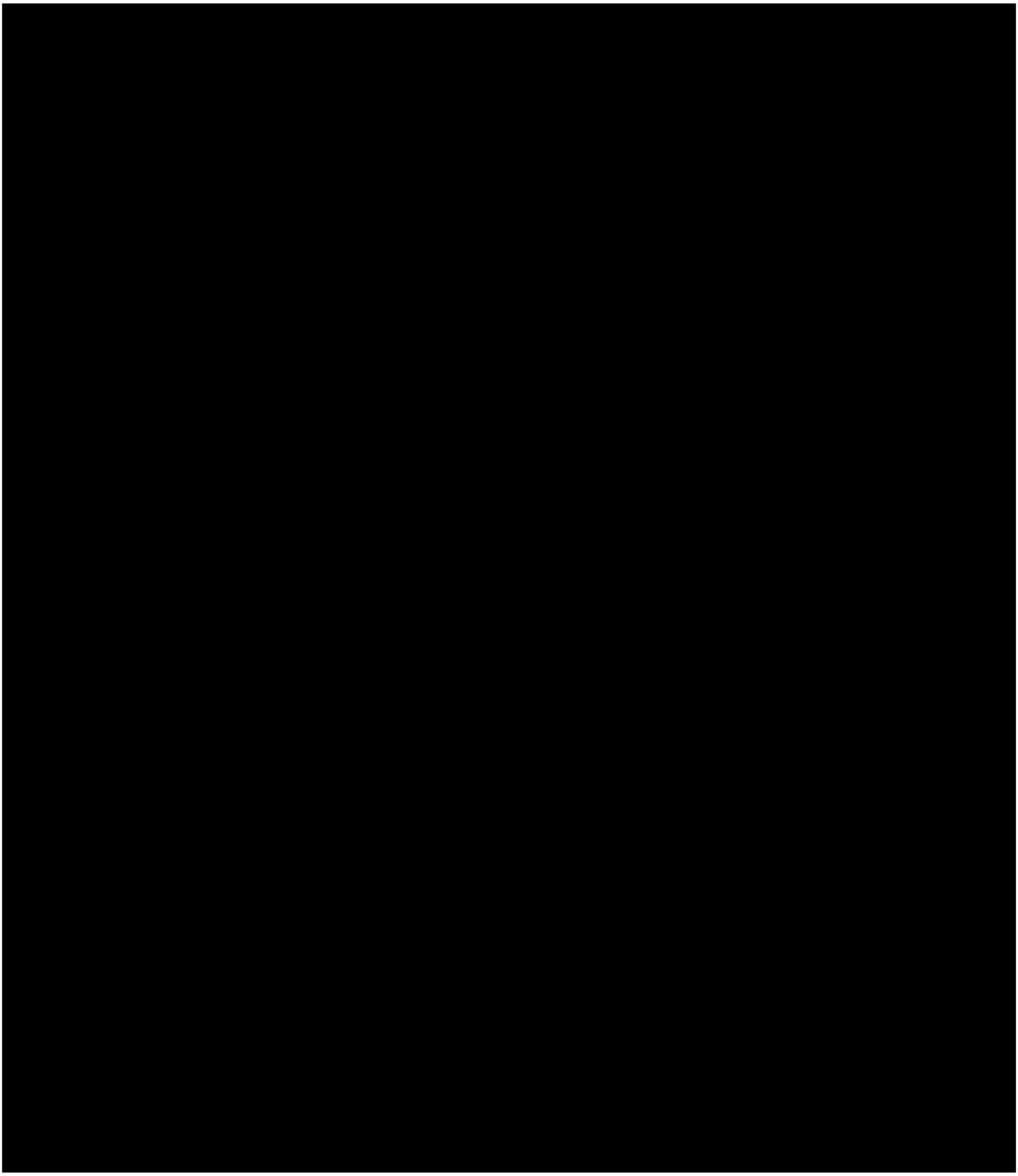


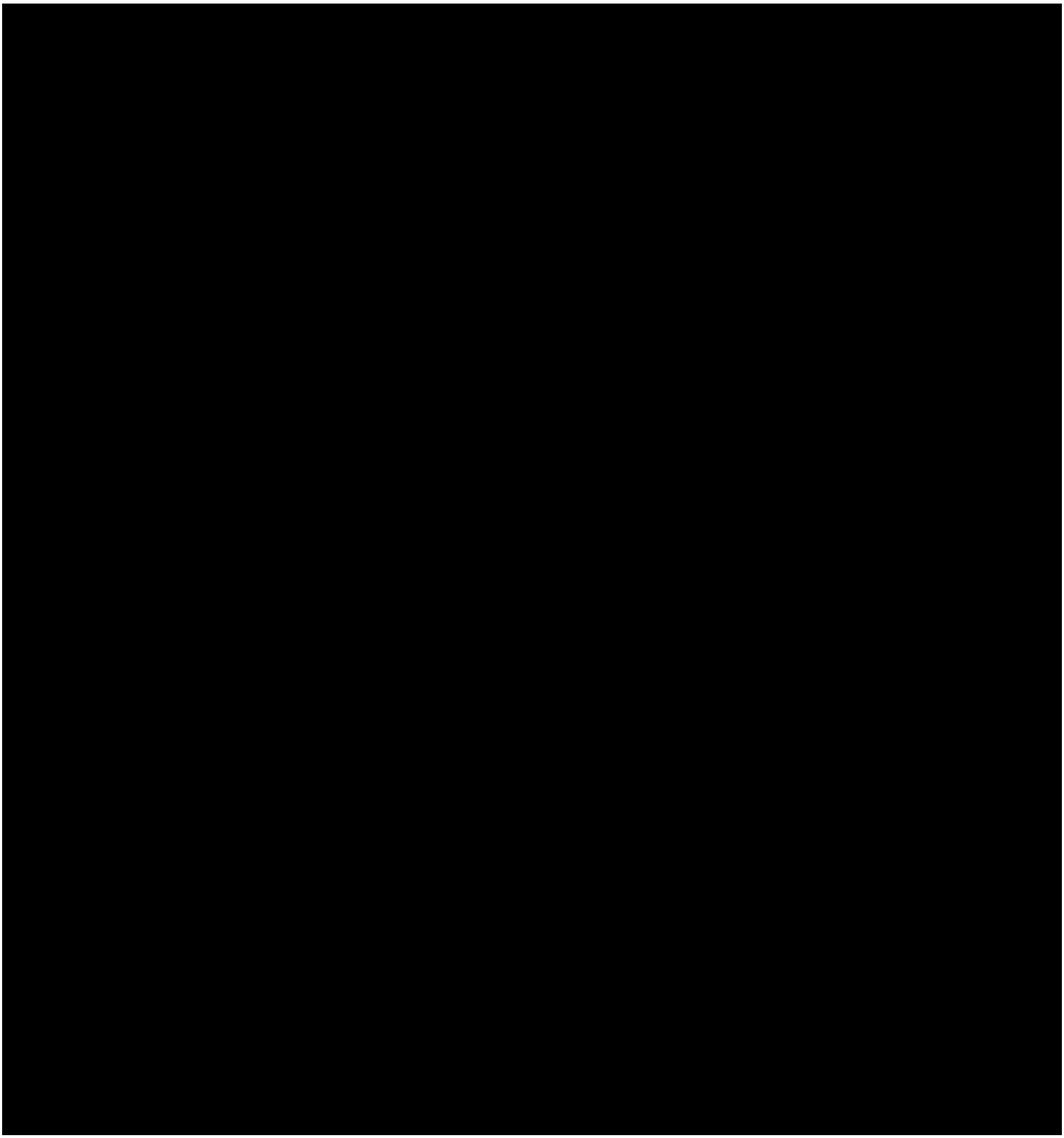


[redacted]

DS450

[redacted]



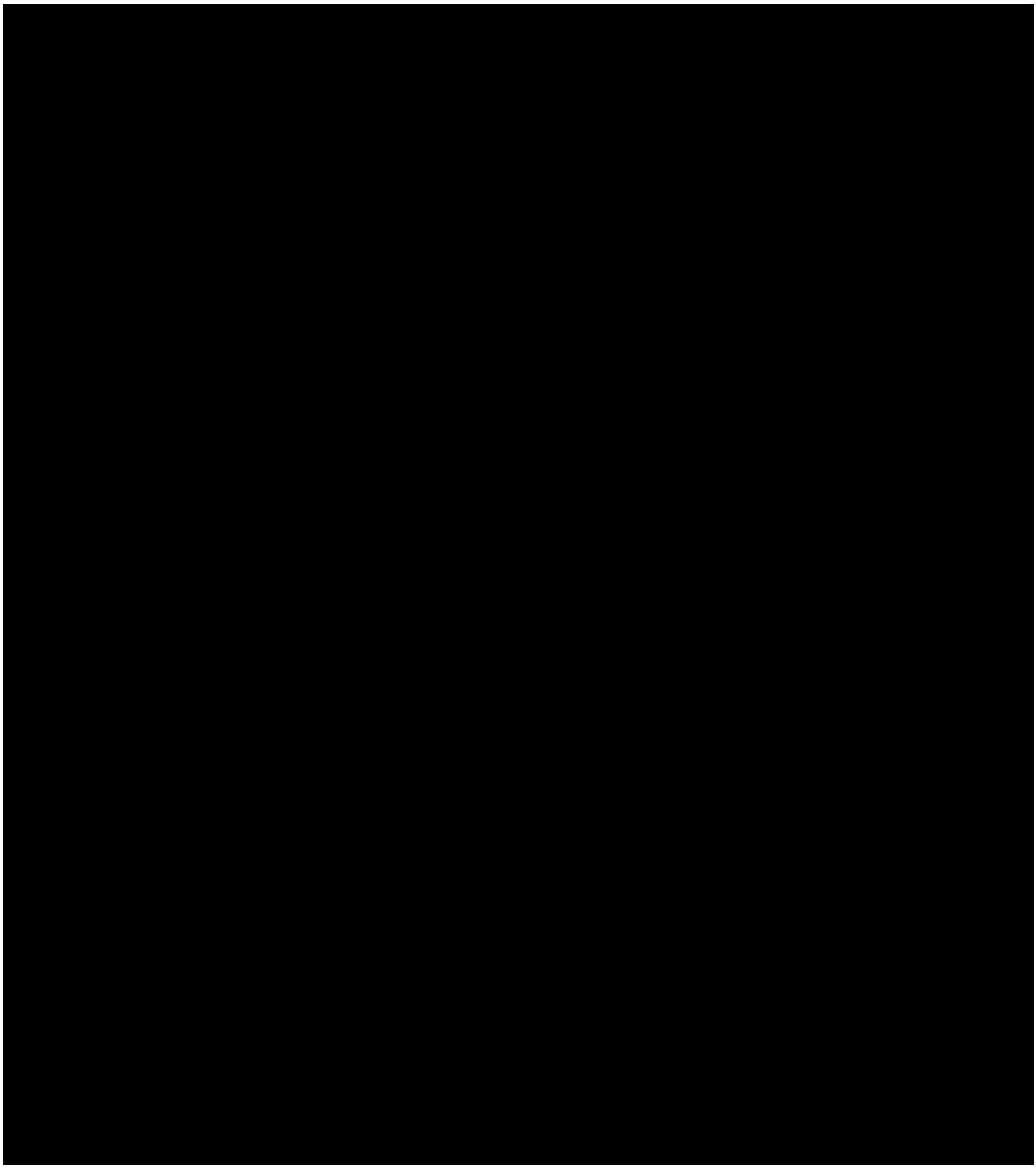


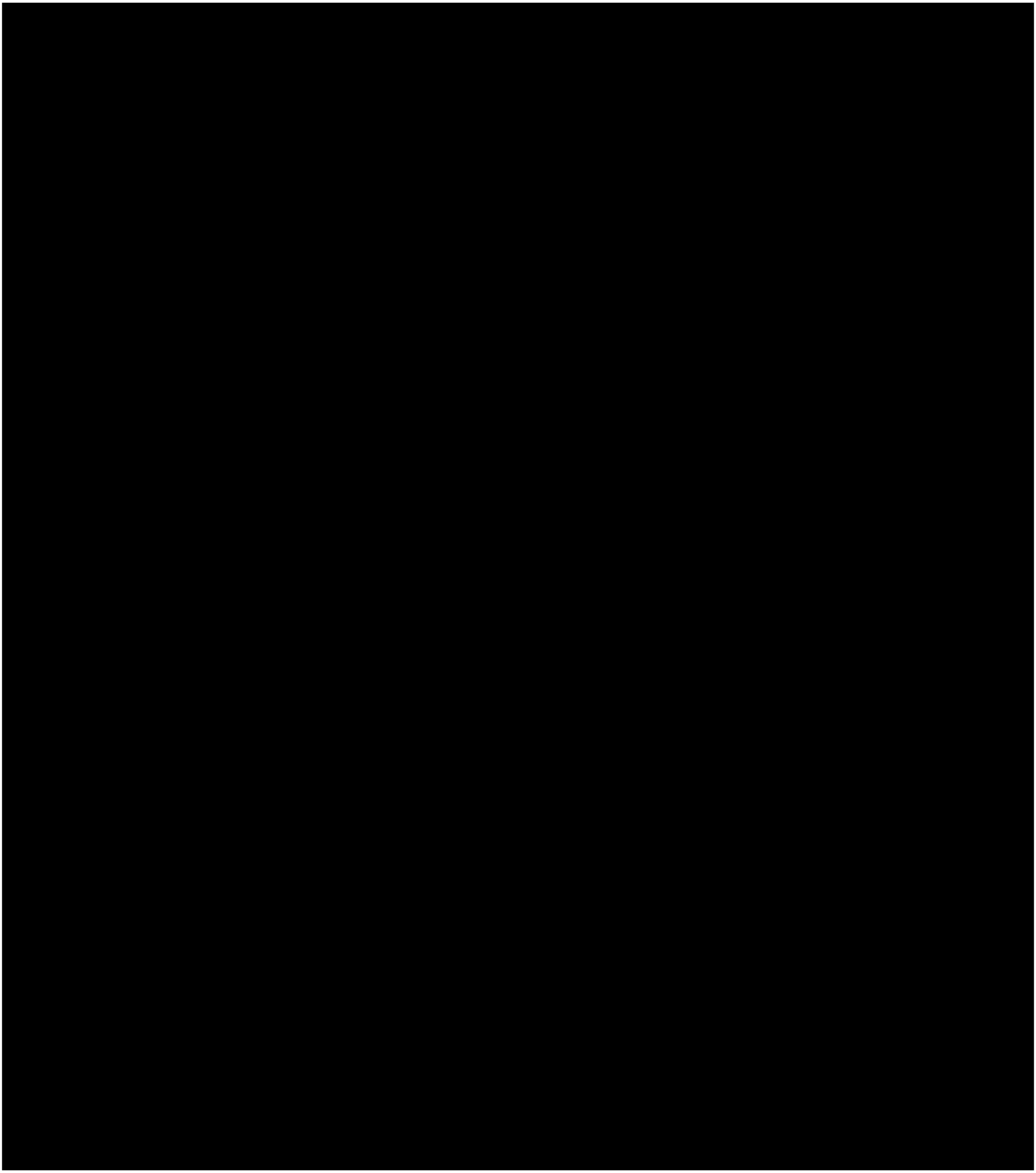
[redacted]

DS850

CONFIDENTIAL

[redacted]



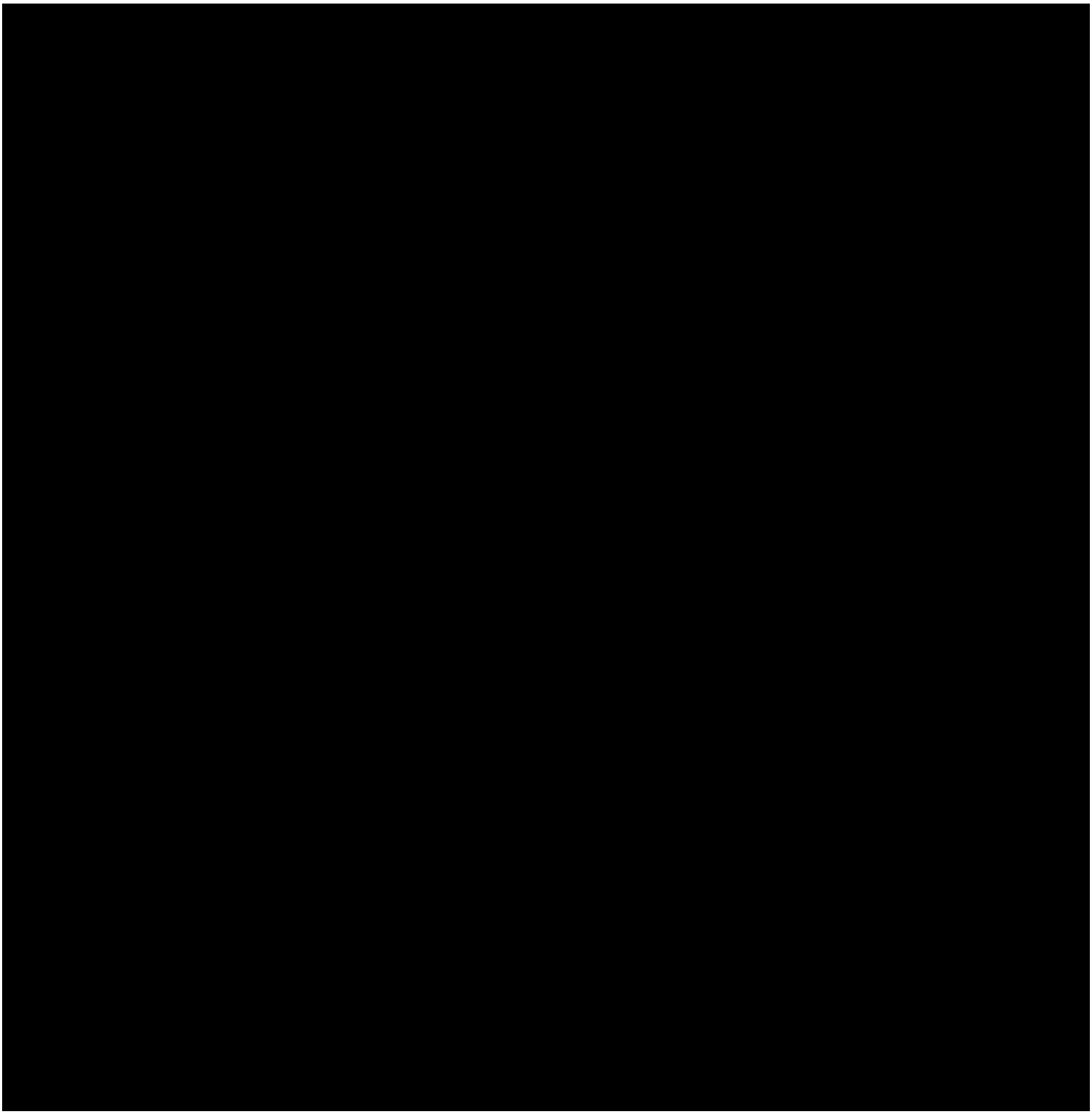


[redacted]

EXPRESSVOTE

CONFIDENTIAL

[redacted]



141. Describe the processes for returning, replacing, or repairing failed components of the proposed vote counting device.

ES&S RESPONSE

During the warranty period and for so long as the State is paying for and receiving post warranty maintenance and support services from ES&S, ES&S will repair or replace any component of our proprietary equipment or proprietary software which, while under normal use and service, (a) fails to perform in accordance with its documentation in all material respects, or (b) is defective in material or workmanship. ES&S provides both on-site and depot repair services depending on the coverage option chosen by the State. For services provided on-site by ES&S, ES&S' technicians carry diagnostic programs, specialized tools, an ample inventory of certified spare parts, and test ballots allowing them to service and test the product according to the hardware specifications and the maintenance agreement. For depot repair services, the State would be responsible for sending the affected unit to ES&S' depot location for repair. Once the unit has been repaired, ES&S will send the unit back to the State.

COST

142. What is the cost of your precinct count device, and what accessories are included in that price?

a. Does it include a maintenance agreement and if so for how long and what does it entail?

ES&S RESPONSE

Please see **Pricing**.

a.

A one (1) year warranty is included. After the expiration of the warranty, the state can select one of the ongoing maintenance options which we have set for two (2) years after the warranty period

143. If you do not provide a single price in all circumstances, please explain your pricing program.

a. Is there a discount depending on number of machines purchased?

ES&S RESPONSE

Yes. Discounts are available; however, discounts are dependent upon the complete configuration purchased.

144. For maintenance after the maintenance agreement included in the purchase price expires, what is the cost per year of your maintenance agreements per machine?

ES&S RESPONSE

Please see **Pricing**.

145. Is there a maintenance agreement discount for multiple machines?

ES&S RESPONSE

No.

146. What is included in the maintenance agreement?

ES&S RESPONSE

Depending on the hardware maintenance coverage option chosen by the State, ES&S' will provide the State with routine maintenance and repair services. Routine maintenance services provides that an ES&S representative will come on site once every twelve or twenty-four months depending on the coverage option chosen by the State and complete an inspection of all ES&S voting system units in order to ensure that such units are operating in accordance with their documentation. Generally, routine maintenance services shall include cleaning, lubrication, diagnostic check, and calibration services associate with each unit. In addition to routine maintenance services, ES&S will provide repair services for any unit in which a defect or malfunction occurs while the units are under normal use and service.

In addition, ES&S' hardware maintenance and software license, maintenance and support services agreement provides the State with new releases, upgrades or maintenance patches to ES&S' proprietary software and firmware, together with appropriate documentation ("Updates"), on a schedule defined by ES&S as well as provide help desk hardware, software and firmware support.

ES&S' hardware maintenance and software license, maintenance and support services agreement also provides the State with access to ES&S' technical bulleting and priority services which includes priority on service calls, priority on response time and priority on certified ES&S parts inventory.

147. What other supplies will be required for your machine and approximate costs? (i.e. thermal paper, batteries, how many seals, etc..)

ES&S RESPONSE

Please see **Pricing** for a listing of Consumables and Additional Items.

148. Are there are any additional costs for using and maintaining your device that have not been addressed by these questions and your answers?

ES&S RESPONSE

No.

149. What is the total cost of your recommended "complete" package (computer, scanner, ballot box, memory cards/flash cards/sticks) plus maintenance costs (programming, service calls, training) for three years starting at the date of delivery?

ES&S RESPONSE

The pricing shows the initial purchase of a DS200 and annual pricing after a one (1) year warranty. Please see **Pricing**.

150. What are other non-essential accessories that can be purchased, i.e. collapsible ballot box, flash drives, memory cards? What does each cost?

ES&S RESPONSE

Please see **Pricing**. An optional collapsible ballot box and additional memory cards are included.

CENTRAL COUNT - AUDIT

The New Hampshire Legislature is considering legislation that would require the Secretary of State to conduct a study of the use of ballot counting devices in a post-election audit. A premise of the test is that a ballot counting device would be used for the audit that is from a different manufacturer and vendor of any device used for the election night ballot count.

The legislation contemplates that ballots cast in a prior election would be used for this test. The process to be used likely will include identifying those ballots that are marked in a manner that require human adjudication. To the extent the results from your device show a different count from the election night count or from hand re-count results, it will be important to report how many ballots were marked in a manner that the ballot counting device used at the election should have reported a different result from that produced by the audit device count. This would include ballots where the ballot marking instructions were not followed, such as the oval left blank but the selected candidate's name is circled. The audit will need to distinguish ballots where a voter has marked the oval beside the printed name of a candidate and then written in the name of the same candidate on the write-in line for that office. The audit will need to distinguish ballots where a voter did not mark the oval beside the printed name of a candidate, but wrote that candidate's name in as a write-in.

We are particularly interested in learning how your central count/ audit products will make such an audit count more effective and efficient. Were such audits to be required at future elections, we anticipate that the law will require the use of a ballot counting device from a vendor/ manufacturer other than the vendor/ manufacturer who provided the precinct ballot counting device used on election day.

New Hampshire law requires complex ballot column rotation on general election ballots. (RSA 653:1 and RSA Chapter 656) At Primaries, New Hampshire law requires name rotation when multiple candidates seek a party's

nomination for the same office. Therefore, this post-election process will require that each distinct ballot to be tested be programmed in the ballot counting device. For example, if the test were of votes for the office of Governor at a general election on ballots from several polling places (precincts), a given candidates name could be in one of three different positions, depending on the column position rotation position used in a given precinct.

151. Please address the practicality of using your central count products in this circumstance.

ES&S RESPONSE

ES&S is committed to supporting modern post-election audit procedures, including risk limiting audits (RLA). We have implemented a number of RLA features with even more support coming in future releases.

If a paper-based RLA is desired, the DS450/DS850 is capable of printing a serial number on each ballot. The serial number is small and printed near the corner of the ballot, but most importantly it is printed after the ballot has been scanned and processed. This allows for a pristine image capture of the ballot as it was marked by the voter. As results data is transferred from the DS450/DS850 to the Electionware software, Electionware maintains a database of all ballot serial numbers, corresponding ballot images, and corresponding cast vote records (CVR).

Since the ballot, image, and CVR are now linked, any ballot that is randomly selected for audit can now easily be located and reviewed. For example, if ballot number 123456789 is randomly selected for audit, the user is able to:

(A) Locate the ballot because the number is printed on the ballot,

(B) Locate the ballot image in Electionware by simply entering the ballot number, and

(C) View the CVR for the ballot in Electionware. The CVR provides details on the ballot's tabulation

ES&S believes these features are tremendously helpful for any jurisdiction that is seeking to perform a risk limiting audit. In the future, we will be adding similar serialization functionality to the DS200 and ExpressVote.

Finally, some jurisdictions have chosen to forgo the review of physical ballots and perform RLA using only ballot images and the corresponding cast vote records. Our system fully supports this model with no future enhancements required. If a list of ballot numbers is randomly selected for audit, their images and CVRs can quickly be located within Electionware. This type of audit is conducted today in Utah with tremendous success. One county informed ES&S they were able to conduct their audit of 600 independently and randomly selected ballot numbers in 25 minutes. The audit produced 100 percent accuracy.

*The following questions pertain to your software and hardware that is suitable for a **central count/ audit.***

152. Is your central count system capable of being programed to count a ballot created by:

a. A different vendor's system?

i. If yes, but restricted to particular vendors, please list which vendor's system ballot your central count system can be programmed to count.

b. The NH election management system (PCC product)?

c. Microsoft Word?

d. Adobe In-design?

e. Any ballot in PDF form?

ES&S RESPONSE

a.

No. Our central count system is only capable of being programmed to count a ballot created by our proprietary system.

b.

Not applicable.

b.

No.

c.

No.

d.

No.

e.

After a ballot is designed in ES&S' proprietary Electionware product, it can be exported and printed in PDF form.

153. If the answer is "yes" in any of the circumstances listed, how is your central count system programmed for that ballot?

ES&S RESPONSE

Not applicable.

154. Does programming your central count device use data and oval position locations extracted from a pre-printed paper ballot?

ES&S RESPONSE

The ES&S voting system election management product, Electionware, supports the import of industry standard, comma separated values (CSV) files to load election Ballot Definition Data. ES&S has worked with many states and jurisdictions to create import files for a standardized election definition.

We are happy to assist the state in creating uniform import files for Electionware. These files are very simple TXT files, which include field identifiers in each file to eliminate any guesswork in how the data is organized. Users can import all or only a part of the election with our simple 1-click election definition Import Wizard.

155. Does programming require uploading XML or A'Y coordinate information?

a. If yes, please provide information on the format and data specifications for the file to be uploaded.

ES&S RESPONSE

Although the ballot layout can be exported in a grid format to clearly identify the X, Y coordinates, it is not required.

156. Can NH acquire the software/hardware required to program your central count device?

a. If yes, provide pricing information.

b. If you program a ballot on a fee basis, provide pricing information.

c. If the fee structure is other than a per ballot programming fee, for example if you use the number of registered voters as part of the fee determination, please explain how you would price programming a ballot in New Hampshire's central count audit circumstance.

i. One precinct's ballot might be voted on by 200 voters, the next by 12,000 voters. We expect the effort required to program both ballots would be the same.

ES&S RESPONSE

Please see **Pricing**.

157. Please provide data the rate at which your central count device scans ballots?

a. Assuming one sided 14-inch ballot, with over vote voter feedback turned off, how long would your device require to scan 1000 ballots, if they are fed in as fast as possible?

b. Assuming one sided 18-inch ballot, with over vote voter feedback turned off, how long would your device require to scan 1000 ballots, if they are fed in as fast as possible?

ES&S RESPONSE

Our proposed central scan tabulators are the fastest in the industry. The DS450/DS850 are the industry leaders for central count tabulators. This means that the DS450/DS850 can scan, tabulate and sort out any write-ins, overvoted ballots, unreadable ballots, and other ballots with exceptions faster than any other machine in the industry. One DS450/DS850 will do the work of multiple machines required by our competition. The DS450/DS850 will do the work faster, more efficiently and with less staff than anything else on the market today.

The DS450/DS850 has been uniquely designed to accept ballots that have been folded. The Ds450/DS850 uses a patented technology known as TruGrip™, to provide constant contact with each ballot. By using axled, double-rollers, full control of the ballot is ensured from start to finish.

The Ds450/DS850's TruGrip™ transport and motorized input and main output bins provide exceptional high-speed scanning of folded and damaged ballots. The Ds450/DS850 has successfully scanned in thousands of folded mail-in ballots for customers in numerous elections with excellent handling of the ballots, even when the ballots were damaged.

All of these modes are done at the full speed of the DS850. The theoretical run rate of the DS850 is:

11" – 365 bpm

14" – 300 bpm

17" – 250 bpm

19" – 200 bpm

Actual ballot throughputs in the field are between 4000 and 8000 ballots per hour when scanning, tabulating and generating reports and up to 12,000 ballots per hour when simply scanning and sorting.

The DS450 scanner and tabulator unit's nominal processing speed for folded ballots in ballots per minute is: (bpm):

11" - 92 bpm

14" - 75 bpm

17" - 63 bpm

19" - 50 bpm.

The following chart depicts the number of 19" ballots scanned per hour.

Scanner/Tabulator	Throughput (ballots/hour)	Throughput (ballots/minute)
DS850	12,000	200
DS450	3,000	50
DS200	600	10

158. If you have a central software package, what does that package contain and what is the cost?

ES&S RESPONSE

Electionware software is required to program our proposed equipment.

Electionware is our election management system (EMS) software solution that provides complete election management. The State of New Hampshire will be able to use Electionware software to create the election information database, format ballots, program ballot scanning equipment, create voice files, count ballots, and generate results reports. Electionware is a fully integrated election management software application that will allow New Hampshire to complete election management tasks through a uniform user experience. It has a powerful and intuitive interface and a single, common relational database.

ELECTIONWARE: KEY FEATURES & BENEFITS

Ease of use. Electionware is an easy-to-use EMS software application that eliminates wasted effort on unnecessary tasks. This allows users to program elections and create and lay out ballots much faster.

Security. Electionware incorporates the very latest in election security, including heightened audit controls and change management processes that are built-in to make sure New Hampshire election data is safe and secure.

Single user interface. Electionware comprises several modules, each one representing a stage of the election creation process. Stepping through each module allows the user to systematically proceed with election creation free from worry that key steps have been overlooked.

Integrated help system. Electionware contains an interactive, comprehensive help system.

Multi-user support. Electionware's multiple user support allows election officials to simultaneously enter information and prepare data from several workstations. Each user is assigned their own login credentials and level of access while the system tracks all actions in its robust Events Log.

Election results reporting. The Electionware suite's election results reporting program can generate paper and electronic reports for election officials, candidates, and the media. Reporting features enable the user to read data from the tabulators, customize report formats, and accumulate accurate election results.

Please see **Pricing**.

159. Is the central count device only used at a central location or can it be used at polling place?

ES&S RESPONSE

The central count device is only used at a central location. However, if necessary, our precinct count device (DS200) can be used as a central count device.

160. If the central count software can be used at a polling location for human adjudication of ballots, what would be necessary to use it, i.e. laptop, printer, etc. ?

ES&S RESPONSE

Not applicable.

State of New Hampshire

Purchase Proposal Quote

Submitted by Election Systems & Software

Quantity	Item Description	Price
	Tabulation Hardware	
	Model DS200 Precinct Scanner with Plastic Ballot Box:	
1	Model DS200 (Includes Scanner Internal Backup Battery Plastic Ballot Box with Steel Door and e-Bin Paper Roll One (1) Standard 4GB Memory Device and One (1) Year Warranty)	$5 750 00 Per Unit
	Model DS200 Precinct Scanner with Collapsible Ballot Box:	
1	Model DS200 (Includes Scanner Internal Backup Battery Collapsible Ballot Box Soft-Sided Nylon Case Paper Roll One (1) Standard 4GB Memory Device and One (1) Year Warranty)	$5 350 00 Per Unit
X	DS200 Equipment Installation	$115 00 Per Unit
	Shipping	
X	Shipping and Handling	**Per Quote**
	Software	
1	ElectionWare Software - Reporting Only Software License for State Use (See Ballot Layout Coding and Voice File Fees Schedule for ES&S Programming Fees)	$8 125.00
	Or	
1	ElectionWare Software - PYO License with English Language Synthesized Voice Files for State Use	$49 500.00
	Election Services	
	Implementation Services	
1	Project Management	$1 700.00 Per Day
1	Equipment Operations Training	$1 700.00 Per Day
1	Poll Worker Train-the-Trainer	$1 700.00 Per Day
1	Software Training	$1 700.00 Per Day
1	Election On-Site Support (One Event includes a person on-site the day before day of and day after election)	$4 675.00 Per Event
	Annual Post-Warranty License and Maintenance and Support Fees (Fees are Based Upon a 2-Year Customer Commitment to Subscribe to the Following Services)	
	Annual Post-Warranty Hardware Maintenance and Support Fees:	
1	HMA DS200 - Extended Warranty	$110 00 Per Unit
	Or	
1	HMA DS200 - Extended Warranty with Biennial Maintenance	$147 50 Per Unit
	Or	
1	HMA DS200 - Extended Warranty with Annual Maintenance	$185 00 Per Unit
	Annual Post-Warranty Firmware License and Maintenance and Support Fees:	
1	Firmware License - DS200	$80 00 Per Unit
	Annual Post-Warranty Software License and Maintenance and Support Fees:	
1	ElectionWare Software - Reporting Only Software License for State Use (See Ballot Layout Coding and Voice File Fees Schedule for ES&S Programming Fees)	$8 125.00
	Or	
1	ElectionWare Software - PYO License with English Language Synthesized Voice Files for State Use	$49 500.00
	Consumables and Additional Items	
1	Standard 4GB Memory Device (Additional)	$105.00 Each
1	Paper Roll (Additional)	$1.75 Per Roll
1	8.4 Numbered Pull-Tite Seal-Blue	$0.31 Each
1	Tamper Evident Seal/Label: 100 Label Roll Barcode 1 x 3-3/8 Non-Residue Tamper Evident Labels – Blue	$44.95 Per Roll

Note: Consumables and Additional Items Pricing does not include Shipping & Handling.

Footnotes:

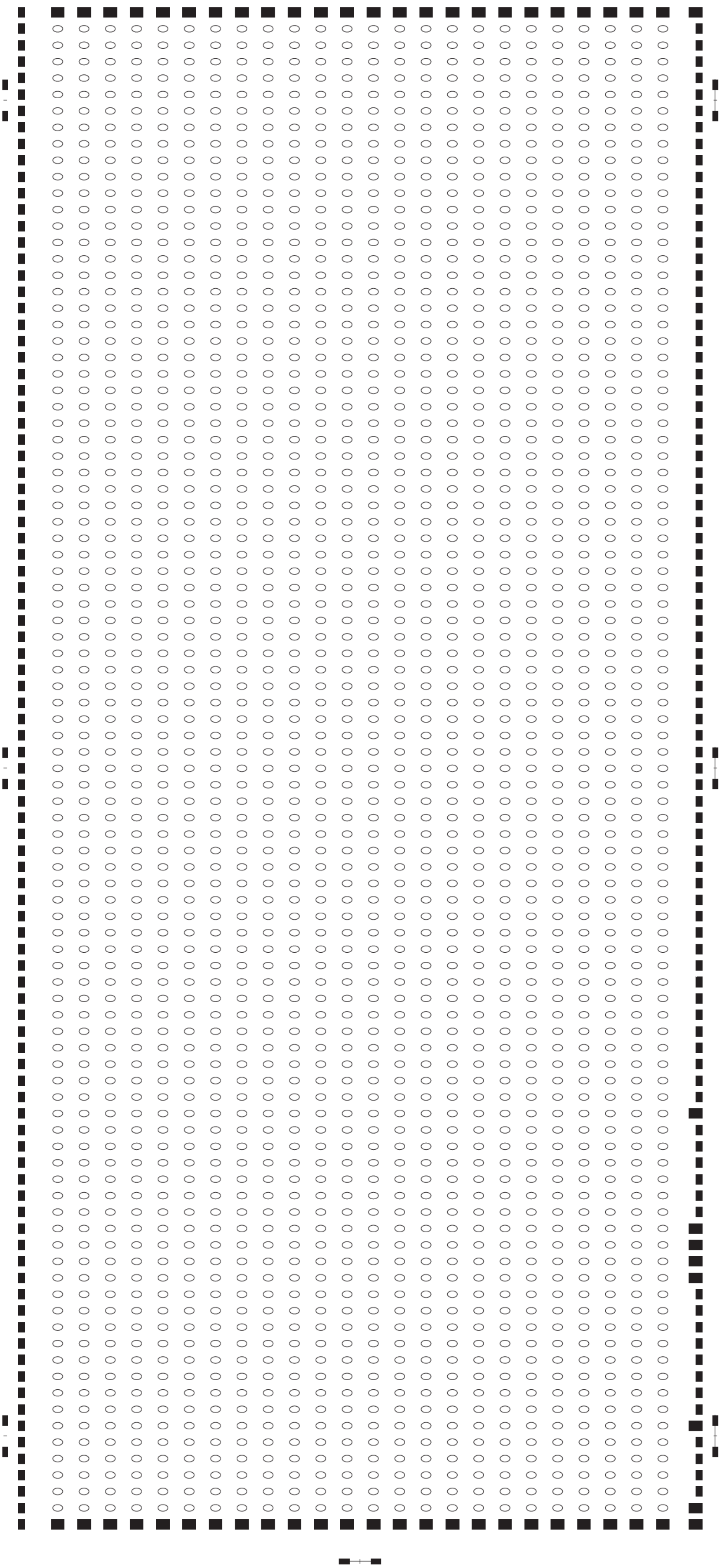
1. Rates valid for 60 days and thereafter may change.
2. Any applicable (City & State) sales taxes have not been included in pricing and are the responsibility of the customer.
3. The Prices above do not include a 3rd Party Election Management System (EMS) which will be required to run ElectionWare software. Election Management Systems are highly configurable and can be purchased through ES&S which will be priced per quote dependant upon county and state needs.

Ballot Layout, Coding, and Voice File Fees

Description	Fees
Paper Ballot Layout (Price per Ballot Face)	
English and Spanish (combined):	
1 to 500 Faces	$36.75
501 or more Faces	$31.50
Languages other than English/Spanish	
1 to 500 Faces, per Language	$73.50
501 or more Faces, per Language	$63.00
Base Charge for Ballot On Demand (BOD)	$561.91

Programming Services	
Base Charge per Equipment Type	$525.00
Base Charge for ERM file set-up	$525.00
Ballot types created (open primary or multiple-page ballots)	$78.75
Precincts (for every precinct in the election)	$9.45
Splits (for every additional ballot style within a precinct.)	$9.45
Ballot Face Configurations (every unique ballot face in the election)	$16.80
Contest / Issue Entries (total number of contests, referenda, questions, and/or propositions in the election)	$18.50
Candidate / Response Entries (total number of candidates &/or responses, including referenda and all write-ins for each contest/issue)	$8.00
Headers (Central Tabulators)	$2.10
Re-Coding Fees	$525.00 + applicable fee for each changed element

Other Services (Standard Overnight Delivery Charges Will Apply and Will Be Billed Separately)	
Media burn (Flash / PCMCIA Cards, Mem Packs, PEBs, and Jump Drives)	$12.50
Electronic transfer files (charge per county, per election)	$125.00
SOS Media	$75.00
.pdf File Extraction (per Style)	$1.50
Sample Ballot Creation	$40.00
Publication Ballot Creation (Ballot Layout As Is)	$185.00
Custom Publication Ballot Creation	$350.00
ESSIM Test Deck Creation (does not include print costs)	$350.00
Auto Test Deck PDF Creation ($20.00 per Style. Minumum Charge of $200.00)	$200.00
Ballot Assignment Chart	$399.50
Download Results From Media	$65.00
ERM State Utility File	$425.00



United States Election Assistance Commission

Certificate of Conformance

ES&S EVS 6.0.2.0

VVSG 2005 VER. I

EAC CERTIFIED

The voting system identified on this certificate has been evaluated at an accredited voting system testing laboratory for conformance to the *Voluntary Voting System Guidelines Version 1.0 (VVSG 1.0)* . Components evaluated for this certification are detailed in the attached Scope of Certification document. This certificate applies only to the specific version and release of the product in its evaluated configuration. The evaluation has been verified by the EAC in accordance with the provisions of the EAC *Voting System Testing and Certification Program Manual* and the conclusions of the testing laboratory in the test report are consistent with the evidence adduced. This certificate is not an endorsement of the product by any agency of the U.S. Government and no warranty of the product is either expressed or implied.

Product Name: EVS

Model or Version: 6.0.2.0

Name of VSTL: SLI Compliance

EAC Certification Number: ESSEVS6020

Date Issued: October 4, 2018

Executive Director

Scope of Certification Attached

Manufacturer: *Election Systems & Software*
System Name: *EVS 6.0.2.0*
Certificate: *ESSEVS6020*

Laboratory: *SLI Compliance*
Standard: *VVSG 1.0 (2005)*
Date: *October 4, 2018*

Scope of Certification

This document describes the scope of the validation and certification of the system defined above. Any use, configuration changes, revision changes, additions or subtractions from the described system are not included in this evaluation.

Significance of EAC Certification

An EAC certification is an official recognition that a voting system (in a specific configuration or configurations) has been tested to and has met an identified set of Federal voting system standards. An EAC certification is **not**:

- An endorsement of a Manufacturer, voting system, or any of the system's components.
- A Federal warranty of the voting system or any of its components.
- A determination that a voting system, when fielded, will be operated in a manner that meets all HAVA requirements.
- A substitute for State or local certification and testing.
- A determination that the system is ready for use in an election.
- A determination that any particular component of a certified system is itself certified for use outside the certified configuration.

Representation of EAC Certification

Manufacturers may not represent or imply that a voting system is certified unless it has received a Certificate of Conformance for that system. Statements regarding EAC certification in brochures, on Web sites, on displays, and in advertising/sales literature must be made solely in reference to specific systems. Any action by a Manufacturer to suggest EAC endorsement of its product or organization is strictly prohibited and may result in a Manufacturer's suspension or other action pursuant to Federal civil and criminal law.

System Overview

The ES&S EVS 6.0.2.0 voting system is a modification of the ES&S EVS 6.0.0.0 voting system, certified on July 2, 2018, which contains limited changes to the Electionware application. The ES&S EVS 6.0.2.0 voting system is composed of software applications, central count location devices and polling place devices with accompanying firmware, and COTS hardware and software.

Electionware®

Electionware election management software is an end-to-end election management software application that provides election definition creation, ballot formation, equipment

configuration, result consolidation, adjudication and report creation. Electionware is composed of five software groups: Define, Design, Deliver, Results and Manage.

ExpressVote XL™

ExpressVote XL is a hybrid paper-based polling place voting device that provides a full-face touchscreen vote capture that incorporates the printing of the voter's selections as a cast vote record, and tabulation scanning into a single unit.

ExpressTouch®

ExpressTouch Electronic Universal Voting System (ExpressTouch) is a DRE voting system which supports electronic vote capture for all individuals at the polling place.

ExpressVote® Hardware 1.0

ExpressVote Universal Voting System Hardware 1.0 (ExpressVote HW1.0) is a hybrid paper-based polling place voting device that provides touch screen vote capture that incorporates the printing of the voter's selections as a cast vote record, to be scanned for tabulation in any one of the ES&S precinct or central scanners.

ExpressVote® Hardware 2.1

ExpressVote Universal Voting System Hardware 2.1 (ExpressVote HW2.1) is a hybrid paper-based polling place voting device that provides touch screen vote capture that incorporates the printing of the voter's selections as a cast vote record, and tabulation scanning into a single unit. ExpressVote HW2.1 is capable of operating in either marker or tabulator mode, depending on the configurable mode that is selected in Electionware.

There are two separate versions of the ExpressVote hardware version 2.1: 2.1.0.0 and version 2.1.2.0 (6.4 & 6.8). Please note that all future references to ExpressVote HW 2.1 as used throughout the document refers to both hardware versions.

DS200®

DS200 is a polling place paper-based voting system, specifically a digital scanner and tabulator that simultaneously scans the front and back of a paper ballot and/or vote summary card in any of four orientations for conversion of voter selection marks to electronic Cast Vote Records (CVR).

DS450®

DS450 is a central scanner and tabulator that simultaneously scans the front and back of a paper ballot and/or vote summary card in any of four orientations for conversion of voter selection marks to electronic Cast Vote Records (CVR).

DS850®

DS850 is a central scanner and tabulator that simultaneously scans the front and back of a paper ballot and/or vote summary card in any of four orientations for conversion of voter selection marks to electronic Cast Vote Records (CVR).

Event Log Service (ELS)

ELS monitors and logs users' interactions with the Election Management System. Events that happen when a connection to the database is not available are logged to the Windows Operating System log through the ELS.

Removable Media Service (RMS)

RMS is a utility that runs in the background of the Windows operating system. RMS reads specific information from any attached USB devices so that ES&S applications such as Electionware can use that information for media validation purposes.

Configurations

Within the scope of the ES&S EVS 6.0.2.0 voting system, three unique configurations are supported, in order to accommodate limitations of components with the ES&S EVS 6.0.2.0 voting system.

Configuration A

ES&S EVS 6.0.2.0: Test Configuration A is comprised of the entire suite of voting system products.

- Electionware
- ExpressVote Marker (HW 1.0)
- ExpressVote Marker/Tabulator (HW 2.1)
- ExpressVote XL
- ExpressTouch
- DS200
- DS450
- DS850

Configuration B

- Electionware
- ExpressVote Marker (HW 1.0)
- ExpressVote Marker/Tabulator (HW 2.1)
- DS200
- DS450
- DS850

Configuration C

- Electionware
- ExpressVote XL

Mark Definition

ES&S' declared level mark recognition for the DS200, DS450 and DS850 is a mark across the oval that is 0.02" long x 0.03" wide at any direction.

Tested Marking Devices

Bic Grip Roller Pen

Language Capability

EVS 6.0.2.0 supports English, Spanish, Chinese (Cantonese), Korean, Japanese, Hindi, Bengali, Vietnamese, Tagalog, Creole, Russian, and French. Configuration C also supports Punjabi and Gujarati.

Proprietary Components Included

This section provides information describing the components and revision level of the primary components included in this Certification.

System Component	Software or Firmware Version	Hardware Version	Model	Comments
Electionware	5.0.1.0			
ES&S Event Log Service	1.6.0.0			
Removable Media Service	1.5.0.0			
ExpressVote HW 1.0	1.5.0.0	1.0		Paper-based vote capture and selection device
ExpressVote Previewer (1.0)	1.5.0.0			
ExpressVote HW 2.1	2.4.0.0	2.1.0.0 2.1.2.0		Hybrid paper-based vote capture and selection device and precinct count tabulator
ExpressVote Previewer (2.1)	2.4.0.0			
DS200	2.17.0.0	1.2.1, 1.2.3, 1.3		Precinct Count Tabulator
DS450	3.1.0.0	1.0		Central Count Scanner and Tabulator
DS850	3.1.0.0	1.0		Central Count Scanner and Tabulator
ExpressVote XL	1.0.0.0	1.0		Hybrid full-faced paper-based vote capture and selection device and precinct count tabulator
ExpressTouch	1.0.0.0	1.0		DRE
ExpressVote Rolling Kiosk		1.0	98-00049	Portable Voting Booth
Voting Booth		N/A	98-00051	Stationary Voting Booth
ExpressVote Single Table		N/A	87033	Voting Table for One Unit
ExpressVote Double Table		N/A	87032	Voting Table for Two Units
ADA Table		N/A	87031	Voting Table for One Unit

System Component	Software or Firmware Version	Hardware Version	Model	Comments
DS200 Ballot Box		1.0	98-00009	Collapsible Ballot Box
DS200 Ballot Box		1.2, 1.3, 1.4, 1.5	57521	Plastic ballot box
DS200 Ballot Box		1.0, 1.1, 1.2	76245	Metal ballot box
DS200 Tote Bin		1.0	00074	Tote Bin Ballot Box
DS450 Cart		N/A	3002	
DS850 Cart		N/A	6823	
Universal Voting Console		1.0	98-00077	Detachable ADA support peripheral
Tabletop Easel		N/A	14040	
ExpressTouch Voting Booth		N/A	98-00081	Stationary Voting Booth
SecureSetup	2.0.0.1			Proprietary Hardening Script

COTS Software

Manufacturer	Application	Version
Microsoft Corporation	Server 2008	R2 w/ SP1 (64-bit)
Microsoft Corporation	Windows 7 Professional	SP1 (64-bit)
Microsoft Corporation	WSUS Microsoft Windows Offline Update Utility	11.1.1
Symantec	Endpoint Protection	14.0.1 (64-bit)
Symantec	Symantec Endpoint Protection Intelligent Updater (File-Based Protection)	20180116-002-core3sdsv5i64.exe
Symantec	Symantec Endpoint Protection Intelligent Updater (Network-Based Protection)	20180115-040-IPS_IU_SEP_14RU1.exe
Symantec	Symantec Endpoint Protection Intelligent Updater (Behavior-Based Protection)	20180108-003-SONAR_IU_SEP.exe
Cerberus	CerberusFTP Server – Enterprise	9.0.3.1 (64-bit)
Adobe	Acrobat	XI
Microsoft Corporation	Visual C++ Redistributable	vc_redist.x86.exe (32-bit)
RSA Security	RSA BSAFE Crypto-C ME for Windows 32-bit	4.1
OpenSSL	OpenSSL	2.0.12
OpenSSL	OpenSSL	2.0.16
OpenSSL	OpenSSL	1.02d
OpenSSL	OpenSSL	1.02h
OpenSSL	OpenSSL	1.02k

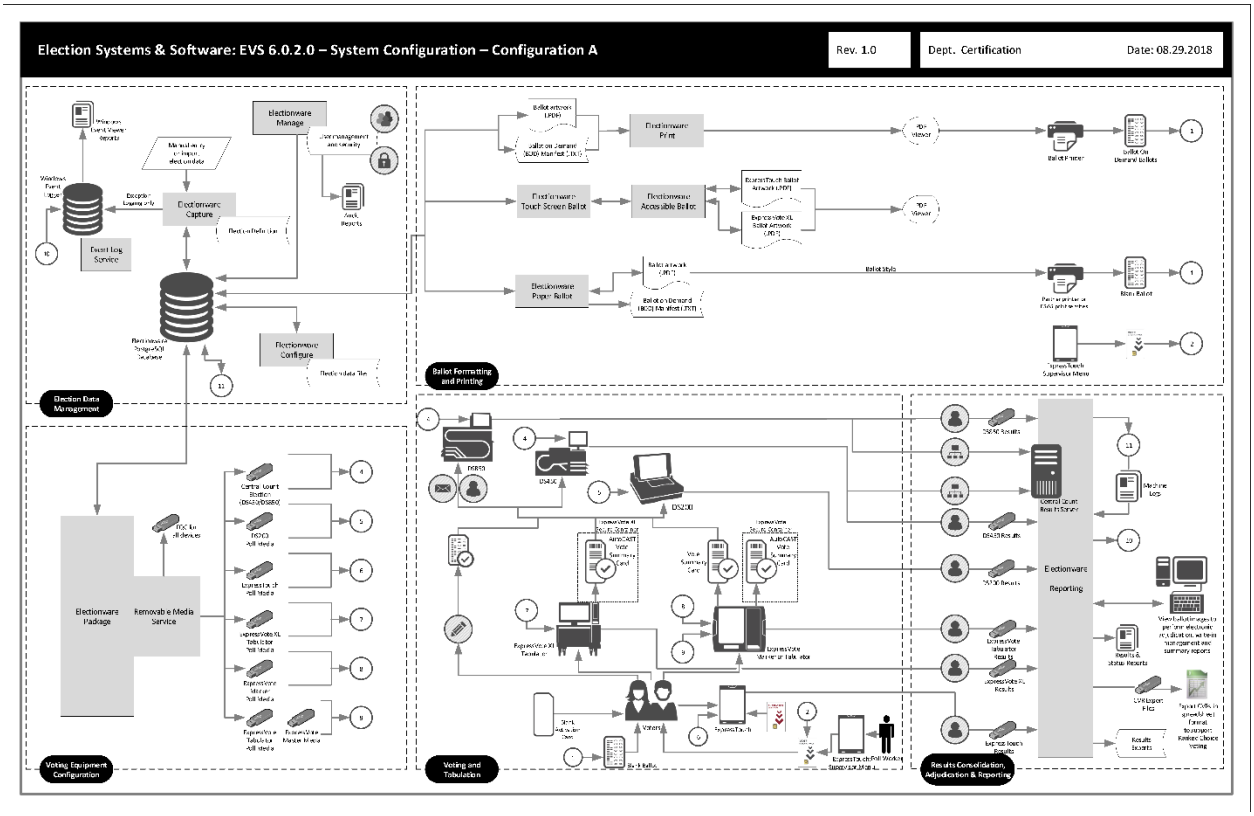
COTS Hardware

Manufacturer	Hardware	Model/Version
EMS Server		
EMS Client or Standalone Workstation		
Innodisk	USB EDC H2SE (1GB) for ExpressVote 1.0	DEEUH 1-01GI72AC1SB
Innodisk	USB EDC H2SE (16GB) for ExpressVote 2.1	DEEUH 1-16GI72AC1SB
Delkin	USB Flash Drive	512MB, 1 GB, 2 GB, 4 GB, 8 GB
Delkin	Validation USB Flash Drive	16 GB

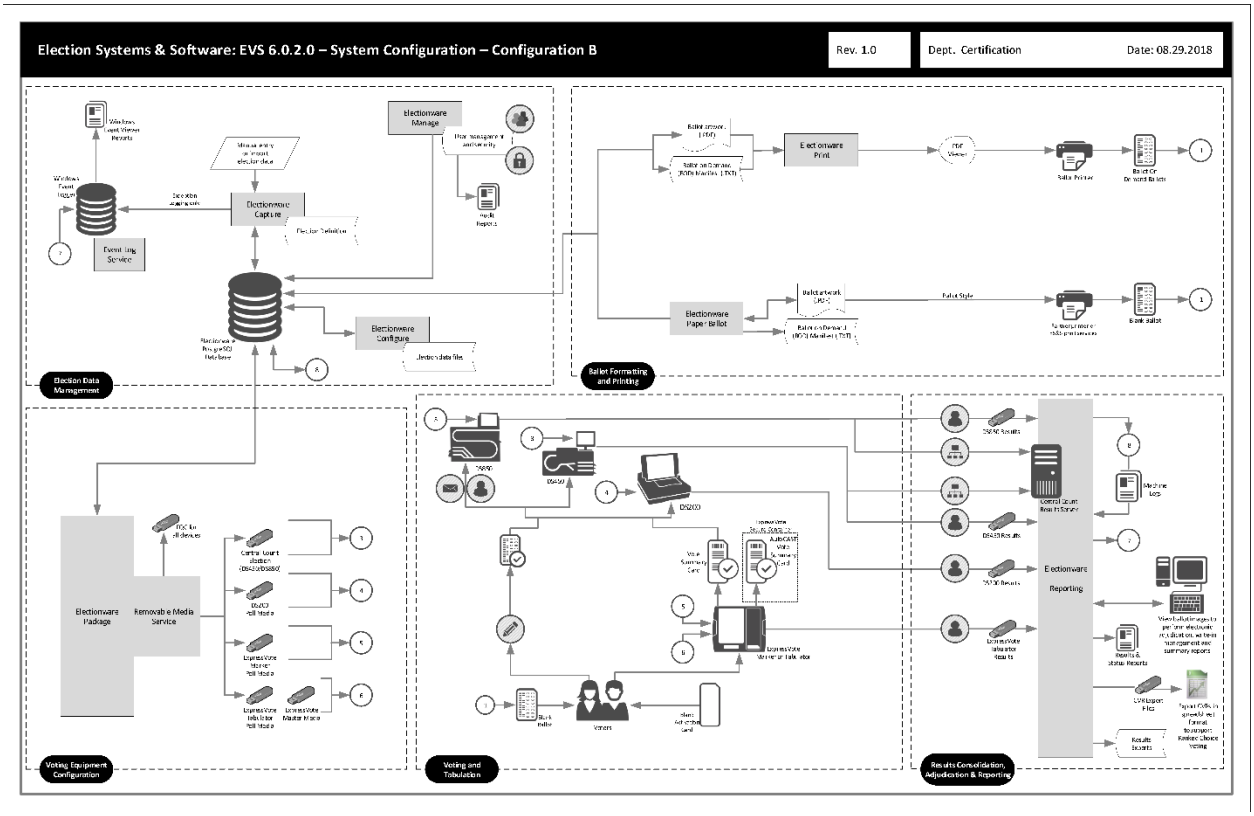
Delkin	USB Embedded 2.0 Module Flash Drive	MY16MGFSY-RA000-D / 16 GB
Delkin	Compact Flash Memory Card	1 GB
Delkin	Compact Flash Memory Card Reader/Writer	6381
Delkin	CFAST Card	2GB, 4GB
Lexar	CFAST Card Reader/Writer	LRWCR1TBNA
CardLogix	Smart Card	CLXSU128kC7/ AED C7
SCM Microsystems	Smart Card Writer	SCR3310
Avid	Headphones	86002
Zebra Technologies	QR code scanner (Integrated)	DS457-SR20009
Symbol	QR Code scanner (External)	DS9208
Dell	DS450 Report Printer	S2810dn
OKI	DS450 and DS850 Report Printer	B431dn/B431d
OKI	DS450 and DS850 Audit Printer	Microline 420
APC	DS450 UPS	Back-UPS Pro 1500
APC	DS850 UPS	Back-UPS RS 1500 or Pro 1500
Tripp Lite	DS450 and DS850 Surge Protector	Spike Cube
Seiko Instruments	Thermal Printer	LTPD-347B
NCR/Nashua	Paper Roll	2320
Fujitsu	Thermal Printer	FTP-62GDSL001/ FTP-63GMCL153

Configuration Diagrams

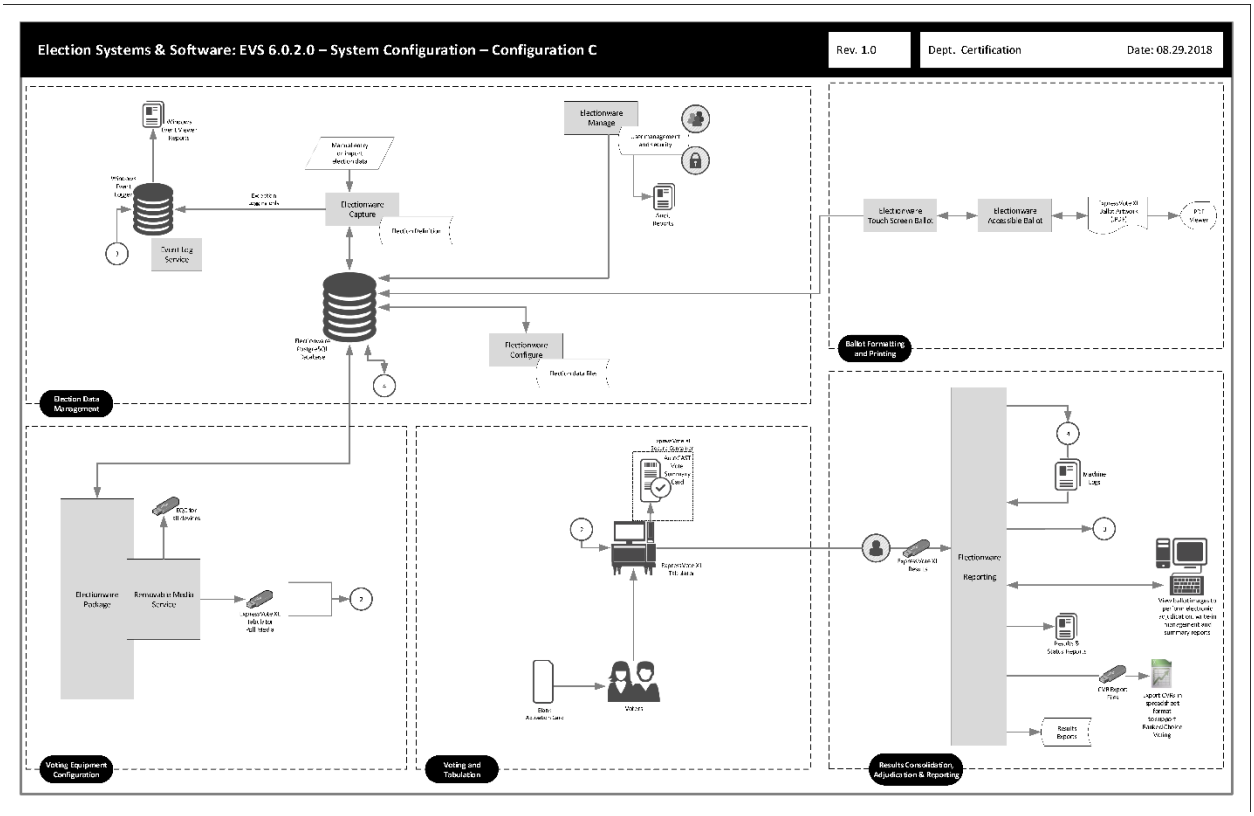
Configuration A



Configuration B



Configuration C



System Limitations

This table depicts the limits the system has been tested and certified to meet.

System Characteristic	Boundary or Limitation	Limiting Component
Max. precincts allowed in an election	9,900	
Max. ballot styles in an election	15,000	
Max. candidates allowed per election	10,000	
Max. contests allowed in an election	10,000	
Max. number of parties allowed	General election: 75 Primary election: 30	
Max. District Types/Groups	25	
Max. districts of a given type	250	
Max. Contests allowed per ballot style	500	
Max. Reporting Groups in an election	14	
Max. candidates allowed per contest	230	
Max. "Vote For" per contest	230	
Max. ballots per batch	1,500	

Component Limitations:

Electionware

1. Electionware capacities exceed the boundaries and limitations documented for ES&S voting equipment and election reporting software. For this reason, ballot tabulator limitations define the boundaries and capabilities of Electionware system.
2. Electionware software field limits were calculated using default text sizes for ballot and report elements. Some uses and conditions, such as magnified ballot views or combining elements on printed media or ballot displays, may result in limits lower than those listed in the System Overview.
3. The Electionware Export Ballot Images function is limited to 250 districts per export.
4. Electionware is limited to the language special characters listed in the System Overview. Language special characters other than those on this list may not appear properly when viewed on equipment displays or reports.

5. The Straight Party feature must not be used in conjunction with the Single or Multiple Target Cross Endorsement features.
6. The 'MasterFile.txt' and the 'Votes File.txt' do not support results for elections that contain multiple sheets or multiple ExpressVote cards per voter. These files can be produced using the Electionware > Reporting > Tools > Export Results menu option. This menu option is available when the Rules Profile is set to "Illinois".

Paper Ballot Limitations

1. The paper ballot code channel, which is the series of black boxes that appear between the timing track and ballot contents, limits the number of available ballot variations depending on how a jurisdiction uses this code to differentiate ballots. The code can be used to differentiate ballots using three different fields defined as: Sequence (available codes 1-16,300), Type (available codes 1-30) or Split (available codes 1-18).
2. If Sequence is used as a ballot style ID, it must be unique election-wide and the Split code will always be 1. In this case the practical style limit would be 16,300.
3. The ExpressVote activation card has a limited ballot ID based on the three different fields defined as: Sequence (available codes 1-16,300), Type (available codes 1-30) or Split (available codes 1-18).

ExpressVote

1. ExpressVote capacities exceed all documented limitations for the ES&S election management, vote tabulation and reporting system. For this reason, Election Management System and ballot tabulator limitations define the boundaries and capabilities of the ExpressVote system as the maximum capacities of the ES&S ExpressVote are never approached during testing.

ExpressVote XL

1. ExpressVote XL capacities exceed all documented limitations for the ES&S election management, vote tabulation and reporting systems. For this reason, Election Management System and ballot tabulator limitations define the boundaries and capabilities of the ExpressVote XL system as the maximum capacities of the ES&S ExpressVote XL are never approached during testing.
2. ExpressVote XL does not offer open primary support based on the ES&S definition of Open Primary, which is the ability to select a party and vote based on that party.
3. ExpressVote XL does not support Massachusetts Group Vote.
4. ExpressVote XL does not support Universal Primary Contest.
5. ExpressVote XL does not support Multiple Target Cross Endorsement.
6. ExpressVote XL does not support Reviewer or Judges Initials boxes.
7. ExpressVote XL does not support multi-card ballots.
8. In a General election, one ExpressVote XL screen can hold 32 party columns if set up as columns or 16 party rows if set up as rows.
9. ExpressVote XL does not support Team Write-In.

ExpressTouch

1. ExpressTouch capacities exceed all documented limitations for the ES&S election management, vote tabulation and reporting systems. For this reason, Election Management System limitations define the boundaries and capabilities of the ExpressTouch system as the maximum capacities of the ES&S ExpressTouch are never approached during testing.

2. ExpressTouch does not offer open primary support, which is the ability to select a party and vote based on that party.
3. ExpressTouch does not support Massachusetts Group Vote.
4. ExpressTouch does not support Universal Primary Contest.
5. ExpressTouch does not support Multiple Target Cross Endorsement.
6. ExpressTouch does not support Team Write-In.

DS200

1. The ES&S DS200 configured for an early vote station does not support precinct level results reporting. An election summary report of tabulated vote totals is supported.
2. The DS200 storage limitation for write-in ballot images is 3,600 images. Each ballot image includes a single ballot face, or one side of one page.
3. Write-in image review requires a minimum 1GB of onboard RAM.
4. To successfully use the Write-In Report, ballots must span at least three vertical columns. If the column is greater than 1/3 of the ballot width (two columns or less), the write-in image will be too wide to print on the tabulator report tape.

Functionality

VVSG 1.0 Supported Functionality Declaration

Feature/Characteristic	Yes/No	Comment
Voter Verified Paper Audit Trails		
VVPAT	No	
Accessibility		
Forward Approach	Yes	
Parallel (Side) Approach	Yes	
Closed Primary		
Primary: Closed	Yes	
Open Primary		
Primary: Open Standard (provide definition of how supported)	Yes	Configuration B only
Primary: Open Blanket (provide definition of how supported)	No	
Partisan & Non-Partisan:		
Partisan & Non-Partisan: Vote for 1 of N race	Yes	
Partisan & Non-Partisan: Multi-member ("vote for N of M") board races	Yes	
Partisan & Non-Partisan: "vote for 1" race with a single candidate and write-in voting	Yes	
Partisan & Non-Partisan "vote for 1" race with no declared candidates and write-in voting	Yes	
Write-In Voting:		
Write-in Voting: System default is a voting position identified for write-ins.	Yes	
Write-in Voting: Without selecting a write in position.	Yes	
Write-in: With No Declared Candidates	Yes	
Write-in: Identification of write-ins for resolution at central count	Yes	
Primary Presidential Delegation Nominations & Slates:		
Primary Presidential Delegation Nominations: Displayed delegate slates for each presidential party	No	

Feature/Characteristic	Yes/No	Comment
Slate & Group Voting: one selection votes the slate.	No	
Ballot Rotation:		
Rotation of Names within an Office; define all supported rotation methods for location on the ballot and vote tabulation/reporting	Yes	
Straight Party Voting:		
Straight Party: A single selection for partisan races in a general election	Yes	
Straight Party: Vote for each candidate individually	Yes	
Straight Party: Modify straight party selections with crossover votes	Yes	
Straight Party: A race without a candidate for one party	Yes	
Straight Party: N of M race (where "N">1)	Yes	
Straight Party: Excludes a partisan contest from the straight party selection	Yes	
Cross-Party Endorsement:		
Cross party endorsements, multiple parties endorse one candidate.	Yes	
Split Precincts:		
Split Precincts: Multiple ballot styles	Yes	
Split Precincts: P & M system support splits with correct contests and ballot identification of each split	Yes	
Split Precincts: DRE matches voter to all applicable races.	Yes	
Split Precincts: Reporting of voter counts (# of voters) to the precinct split level; Reporting of vote totals is to the precinct level	Yes	It is possible to list the number of voters.
Vote N of M:		
Vote for N of M: Counts each selected candidate, if the maximum is not exceeded.	Yes	
Vote for N of M: Invalidates all candidates in an overvote (paper)	Yes	
Recall Issues, with options:		
Recall Issues with Options: Simple Yes/No with separate race/election. (Vote Yes or No Question)	No	
Recall Issues with Options: Retain is the first option, Replacement candidate for the second or more options (Vote 1 of M)	No	
Recall Issues with Options: Two contests with access to a second contest conditional upon a specific vote in contest one. (Must vote Yes to vote in 2nd contest.)	No	
Recall Issues with Options: Two contests with access to a second contest conditional upon any vote in contest one. (Must vote Yes to vote in 2nd contest.)	No	
Cumulative Voting		
Cumulative Voting: Voters are permitted to cast, as many votes as there are seats to be filled for one or more candidates. Voters are not limited to giving only one vote to a candidate. Instead, they can put multiple votes on one or more candidate.	No	
Ranked Order Voting		
Ranked Order Voting: Voters can write in a ranked vote.	No	

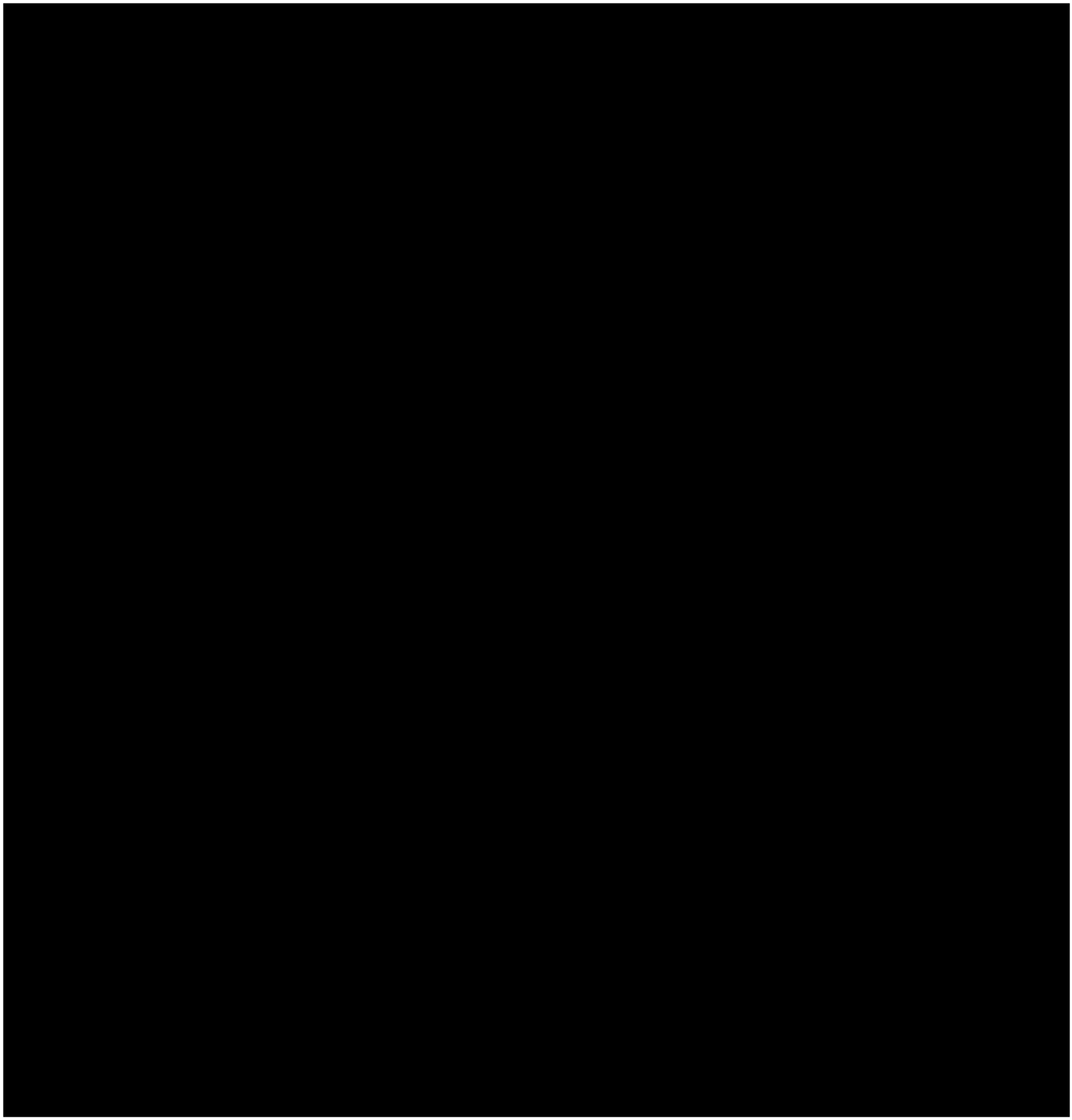
Feature/Characteristic	Yes/No	Comment
Ranked Order Voting: A ballot stops being counting when all ranked choices have been eliminated	No	
Ranked Order Voting: A ballot with a skipped rank counts the vote for the next rank.	No	
Ranked Order Voting: Voters rank candidates in a contest in order of choice. A candidate receiving a majority of the first choice votes wins. If no candidate receives a majority of first choice votes, the last place candidate is deleted, each ballot cast for the deleted candidate counts for the second choice candidate listed on the ballot. The process of eliminating the last place candidate and recounting the ballots continues until one candidate receives a majority of the vote	No	
Ranked Order Voting: A ballot with two choices ranked the same, stops being counted at the point of two similarly ranked choices.	No	
Ranked Order Voting: The total number of votes for two or more candidates with the least votes is less than the votes of the candidate with the next highest number of votes, the candidates with the least votes are eliminated simultaneously and their votes transferred to the next-ranked continuing candidate.	No	
Provisional or Challenged Ballots		
Provisional/Challenged Ballots: A voted provisional ballots is identified but not included in the tabulation, but can be added in the central count.	Yes	
Provisional/Challenged Ballots: A voted provisional ballots is included in the tabulation, but is identified and can be subtracted in the central count	Yes	
Provisional/Challenged Ballots: Provisional ballots maintain the secrecy of the ballot.	Yes	
Overvotes (must support for specific type of voting system)		
Overvotes: P & M: Overvote invalidates the vote. Define how overvotes are counted.	Yes	
Overvotes: DRE: Prevented from or requires correction of overvoting.	Yes	
Overvotes: If a system does not prevent overvotes, it must count them. Define how overvotes are counted.	Yes	
Overvotes: DRE systems that provide a method to data enter absentee votes must account for overvotes.	Yes	
Undervotes		
Undervotes: System counts undervotes cast for accounting purposes	Yes	
Blank Ballots		
Totally Blank Ballots: Any blank ballot alert is tested.	Yes	
Totally Blank Ballots: If blank ballots are not immediately processed, there must be a provision to recognize and accept them	Yes	
Totally Blank Ballots: If operators can access a blank ballot, there must be a provision for resolution.	Yes	
Networking		
Wide Area Network – Use of Modems	No	
Wide Area Network – Use of Wireless	No	

Feature/Characteristic	Yes/No	Comment
Local Area Network – Use of TCP/IP	No	
Local Area Network – Use of Infrared	No	
Local Area Network – Use of Wireless	No	
FIPS 140-2 validated cryptographic module	Yes	
Used as (if applicable):		
Precinct counting device	Yes	DS200, ExpressTouch, ExpressVote HW2.1, ExpressVote XL
Central counting device	Yes	DS450 and/or DS850

Baseline Certification Engineering Change Order's (ECO)

There are not any ECO's certified with the voting system.

ATTACHMENT C: PROJECT MANAGEMENT NARRATIVE



[redacted]

[redacted]