

CLEAR BALLOT RESPONSE TO NEW HAMPSHIRE QUESTIONS

April 30, 2019



Clear Ballot

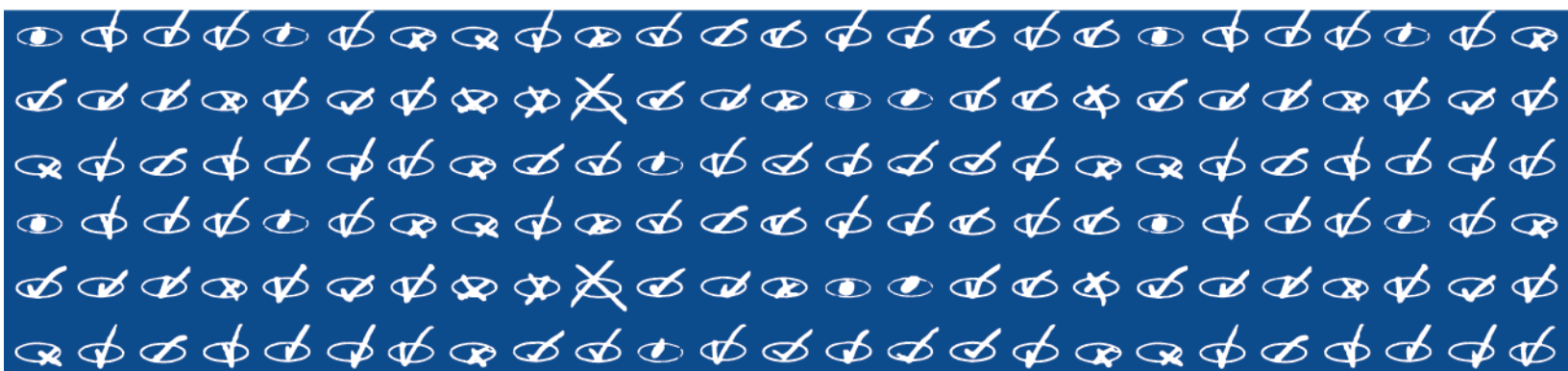




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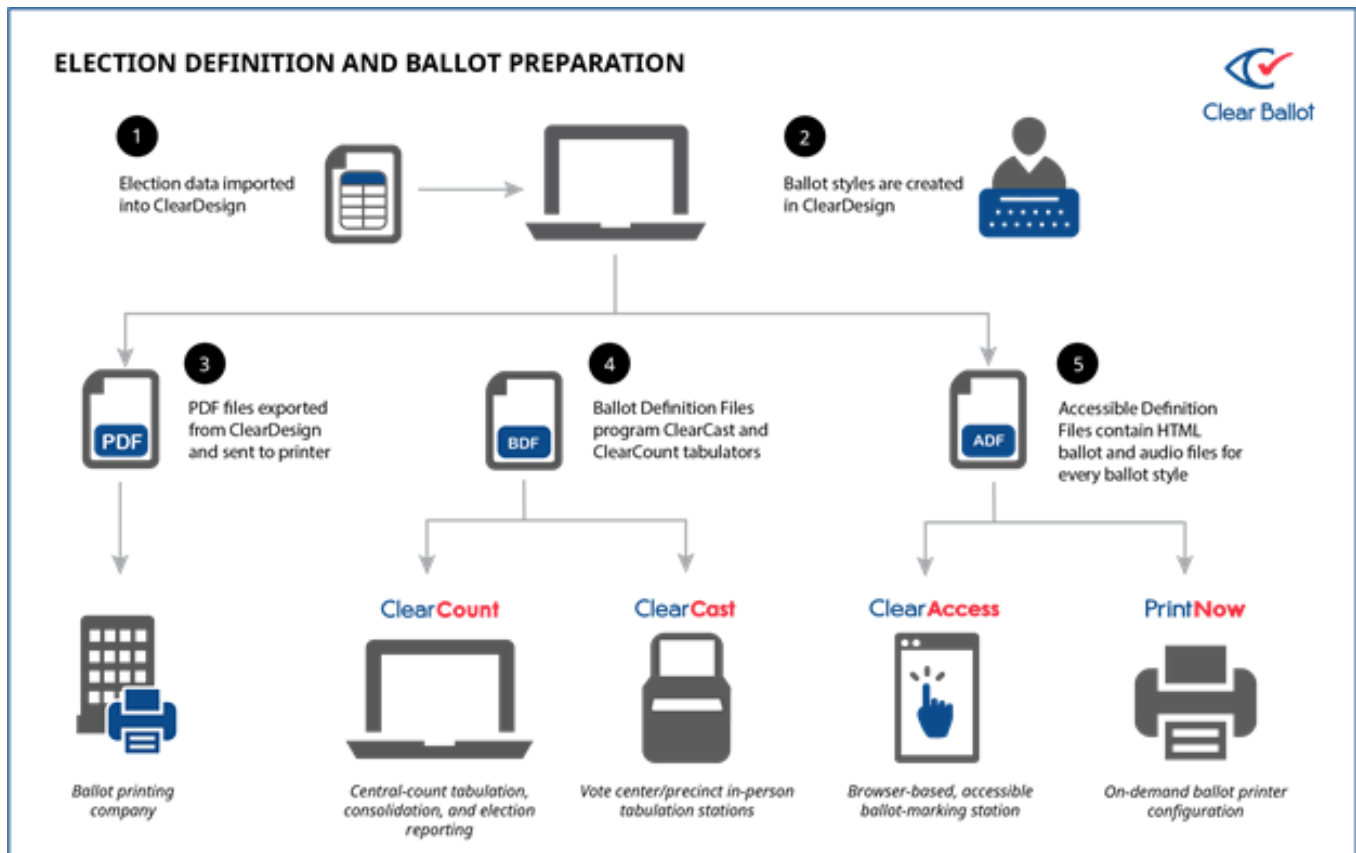
PRECINCT COUNT DEVICE

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.

Election Definition & Ballot Creation

The election definition process begins when an election is called and the election data from the New Hampshire VR/EMS is imported into ClearDesign. NH Election Officials would layout the ballots in ClearDesign, which would produce PDF files for each ballot style which would be sent to the printer.

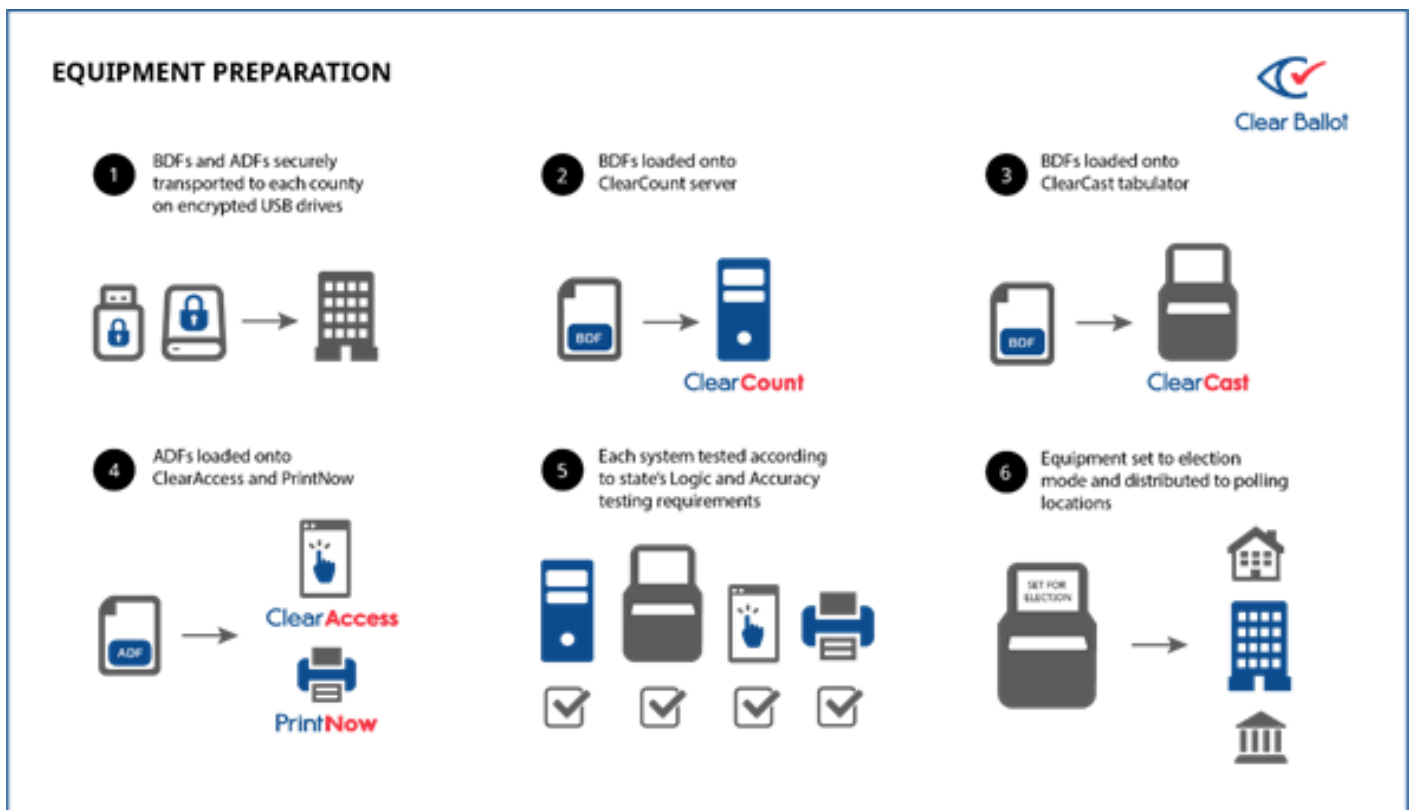
A Ballot Definition File (BDF) for programming ClearCast and ClearCount tabulators, and an Accessible Definition File (ADF), which contains the HTML ballot and audio files for every ballot style, is also generated for use with ClearAccess and Clear Ballot's PrintNow on demand ballot generation system. NOTE: Clear Ballot can also create the BDF from reverse engineering any other vendor's ballot and the process would be adjusted accordingly.





Equipment Preparation

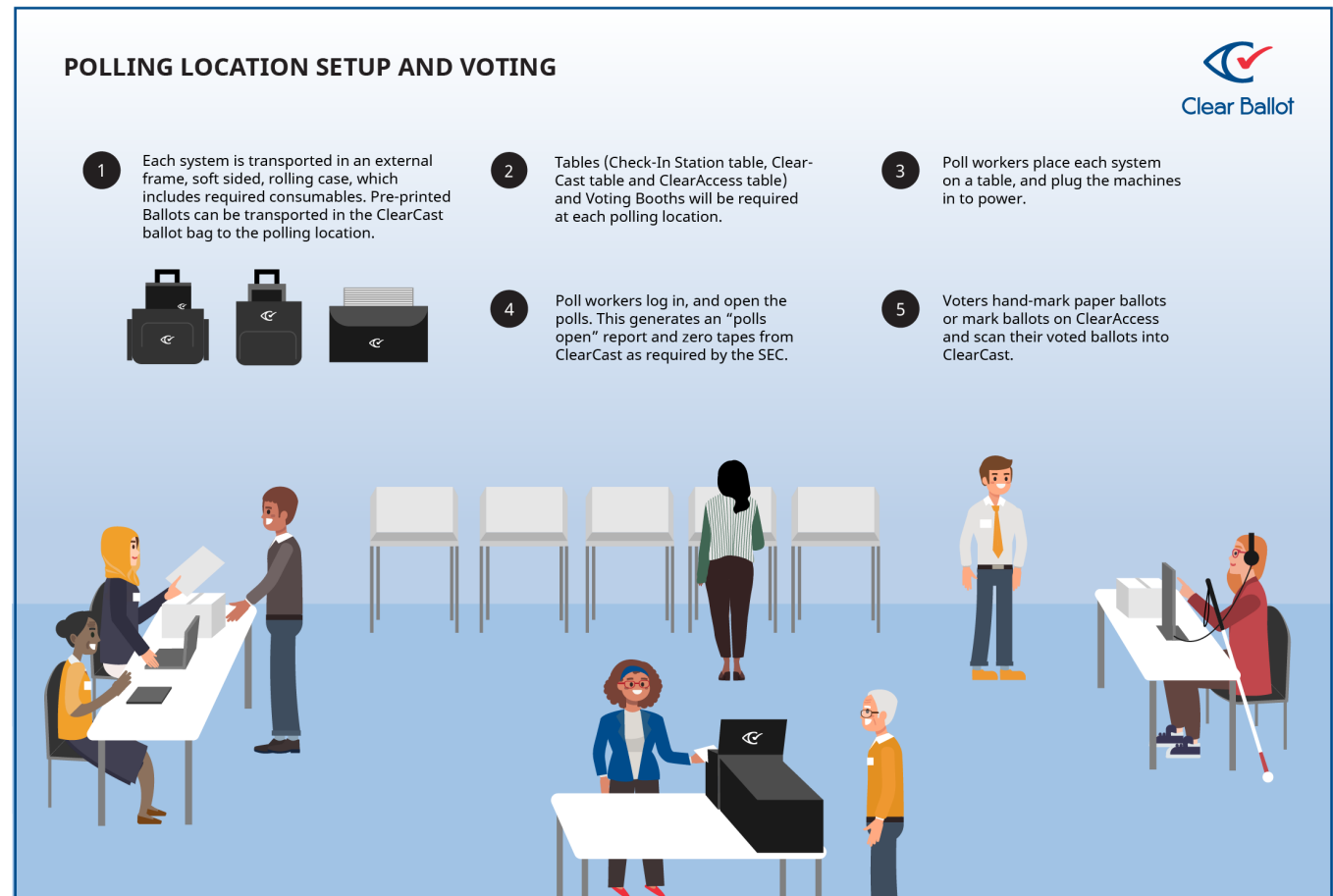
Once created by the Election Division and/or Clear Ballot, the BDF and/or ADF would be securely transported to each municipality on encrypted USB drives. They would then be loaded onto the ClearCount server, each ClearCast tabulator, and/or each ClearAccess ballot marking device and PrintNow on demand ballot generation system, depending on system configuration. Each system would be tested according to the State's Logic and Accuracy (L&A) testing requirements. After successfully completing L&A testing, all equipment is ready to be "Set for Election" and distributed to polling locations.





Polling Location Setup and Voting

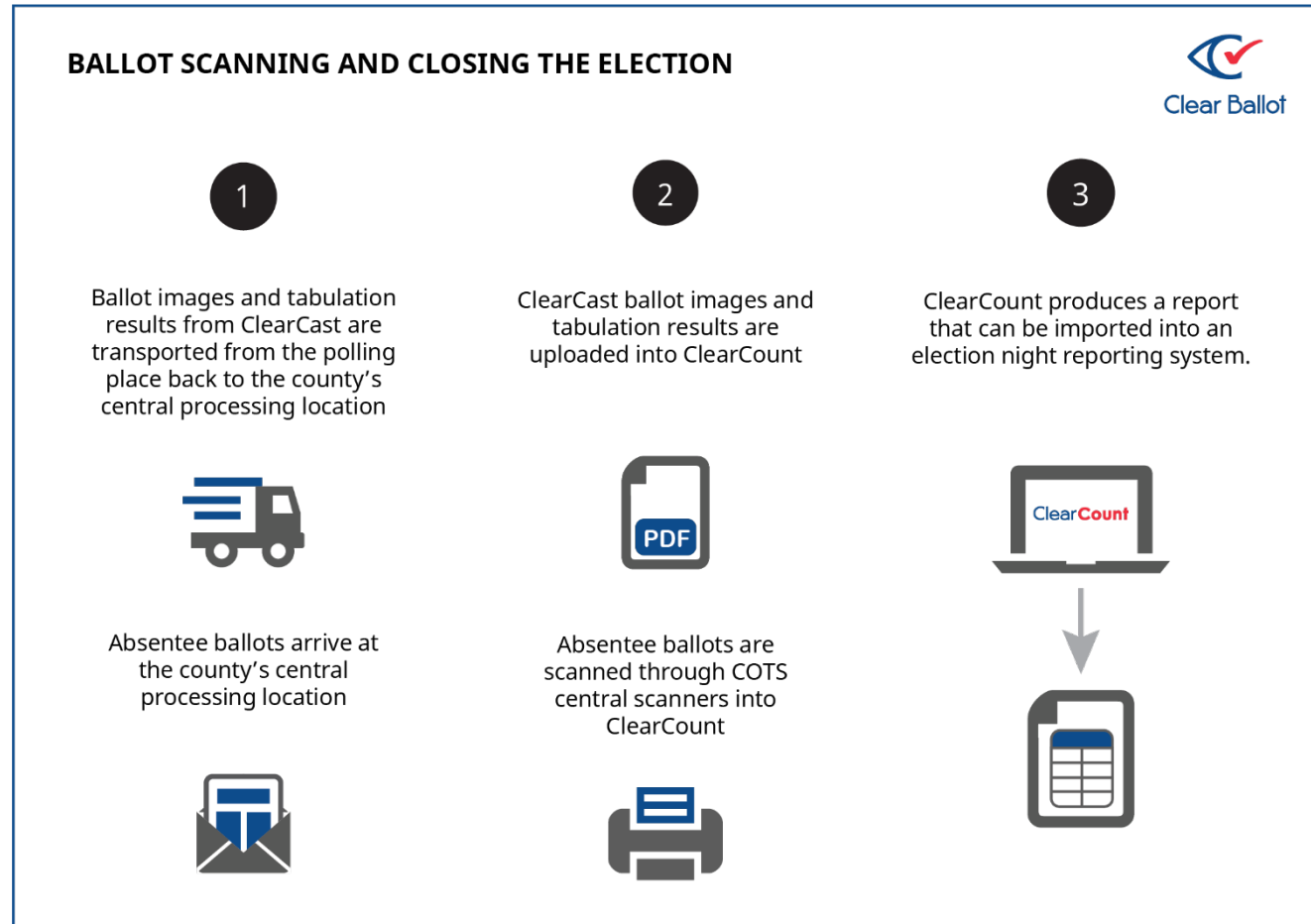
Each Polling Location would be outfitted with at least one ClearCast tabulator and/or one ClearAccess ballot marking device based on the j requirements. Each system is transported in a hard sided, rolling case with a telescoping handle. The case will include any required consumables. Election Workers would place each system on a table, plug in the machines to power, log in, and open the polls. This generates an “polls open” report and zero tapes. Voters would then be allowed to hand mark paper ballots or mark ballots on ClearAccess and scan their voted ballots into ClearCast.





Ballot Scanning and Closing the Election

Ballots will either be scanned in the polling location through ClearCast tabulators, through COTS central scanners for absentees. For ballots tabulated through ClearCast, tabulation results and ballot images will be transported either physically or through secure file transfer back to the State office for database aggregation and auditing.

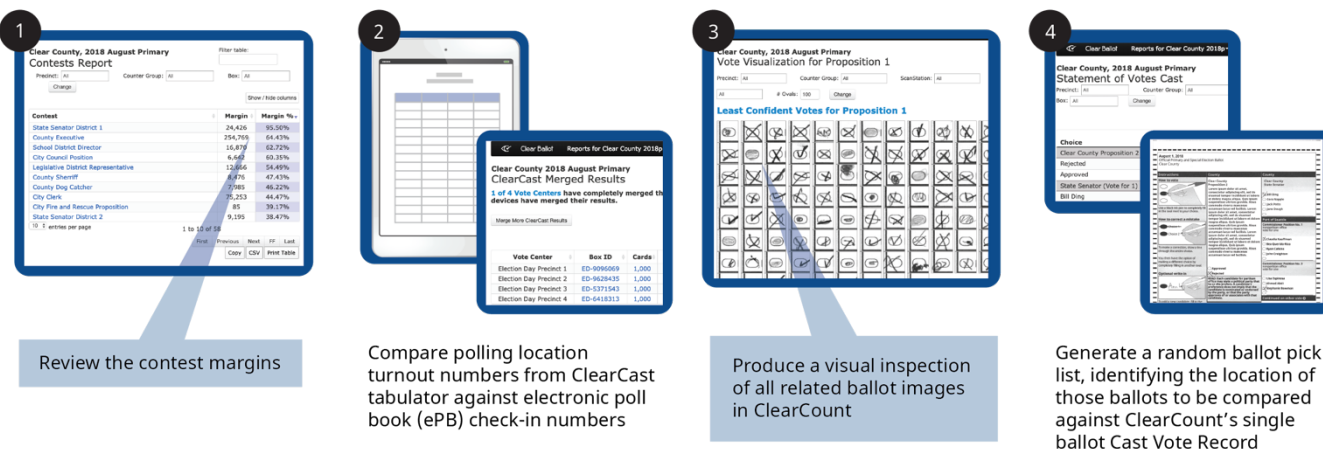




Post-Election Audits and Recounts

Depending on New Hampshire's preferred method of Post-Election Audit, ClearVote can provide many options to compliment manual or automated audits. Every vote counted in the official database can be tied back to the image of that ballot and specific vote to provide the visual verification needed for maximum transparency. The auditing process would begin with a review of contest margins, a comparison of polling location turnout numbers from ClearCast tabulator against check in numbers, and a visual inspection of all related ballot images in ClearCount. ClearCount can then produce a random ballot pick list, identifying the location of those ballots to be compared against ClearCount's single ballot Cast Vote Record.

POST-ELECTION AUDITS AND RECOUNTS



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

No. The ClearCast tabulator would need white space between the end of the piece of paper and the beginning of the timing marks. We were able to create a .BDF file from your ballots that would scan on our central tabulator for auditing. In order to scan NH ballots through our precinct scanner a small amount of development work would be required.

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

A variety of different weights of paper has been tested and used successfully with our system.

Recycled paper, which is virtually indistinguishable from new paper, scans and tabulates perfectly.

Below is a chart featuring the tested paper weight range for the Clear Ballot scanners:

Paper Type	Weight Range
Cover Stock	60 lb. to 90 lb.
Index Stock	65 lb. to 90 lb.
Bond Ledger	32 lb. to 53 lb.

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?

a. Yes. Clear Ballot scanners can read ballots printed on most COTS printers. We recommend using an Oki Data B342dn printer or a Brother Monochrome Laser Printer.

b. It is not required that ballots be printed by a commercial printing service. The State or townships can print their ballots independently.

c. Yes. Ballots must have a small margin before the start of the timing marks. 3/8" is the recommended margin size.



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.?

Yes. The ClearVote system creates an image of each cast ballot, in which every counted vote can be tied back to. This makes it the most auditable voting system available in the world. No, ballot imaging can not be turned off.

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.)?

No

PRECINCT CONFIGURATION

7. Describe a typical precinct configuration.

Clear Ballot is proposing the following equipment for a typical precinct:

- 1 ClearCast Digital Scanner
- 1 ClearAccess Ballot Marking Device
- Multiple Voting Booths to accommodate concurrent Voters
- Optional: Precinct Check In PrintNow Stations

Clear Ballot provides officials with the ability to 'right size' the system based on the number of registered voters in that precinct. Our table top ClearCast model leverages a collapsible ballot bag that holds 800 ballots. It is significantly less expensive and easier to transport and store than larger legacy voting systems.

- Clear Ballot recommends one table top ClearCast scanner, with the ballot bag attachment for all polling locations with less than 800 registered voters.
- For Polling locations with greater than 800 registered voters, Clear Ballot recommends the stand alone ClearCast scanner with our large ballot box which holds up to 2500 ballots and an additional collapsible ballot bag.



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

CLEARACCESS:

Opening Polls in ClearAccess:

Poll workers will open the polls for voting by:

1. Unpacking and setting up the ClearAccess voting station.
2. Logging in to ClearAccess as a Poll Worker.
3. Tapping the **Open Polls** button. The Open Polls report displays automatically.
4. Reviewing the Open Polls report, then tapping **Yes** to allow voting.
5. Logging in to ClearAccess as a Voter.

Closing Polls in ClearAccess:

Poll workers will close the polls by:

1. Logging in to ClearAccess as a Poll Worker.
2. Tapping the **Close Polls** button. The Close Polls report displays automatically.
3. Reviewing the Close Polls report, then tapping **OK** to close the polls.
4. Logging out of ClearAccess.
5. Turning off the touchscreen and printer.

For detailed diagrams on how the poll worker opens and closes the polls, please see **Attachment #1, ClearAccess Poll Worker Instructions**.



CLEARCAST:

Opening Polls in ClearCast:

Once the ClearCast voting station is set up and powered on, poll workers will open the polls for voting by:

1. Verifying the correct election and vote center is displayed on the screen.
2. Logging in to ClearCast as a Poll Worker.
3. Tapping the **Open Polls** button.
4. Tapping the **Start Voting** button.

Closing Polls in ClearCast:

Poll workers will close the polls by:

1. Tapping the ClearCast logo in the top left corner of the screen. The Voting Suspended report prints automatically.
2. Tapping the **Close Polls** button, followed by **OK**. The Polls Closed prints automatically.
3. Processing the reports per jurisdiction policies.
4. Tapping the **Shut Down** button.
5. Closing the polling location.

For detailed diagrams on how the poll worker opens and closes the polls, please see **Attachment #2, ClearCast Poll Worker Quick Guide**.



9. Describe precinct reporting features.

The voting station's thermal printer prints all ClearCast election reports, status reports and logs. The printer is maintenance-free and does not require ink cartridges. Its paper roll spools freely and is easy to load and remove from the printer. The printer is housed inside the same lockable compartment as the USB ports. The paper spools from the printer through a feed slot in the compartment door when it is closed. The length of the standard-sized paper roll ensures an ample amount of paper for printing reports. When the paper nears depletion, an alert appears on the touchscreen and colored streaks appear on the paper.

Each ClearCast tabulator is equipped with a 3.5 inch thermal printer. As part of the election definition, the Ballot Definition File (BDF) can be programmed to provide a wide range of information as required by the state and/or county administrators. This includes the following reports:

- Power On
- Zero Totals
- Polls Opened
- Voting Started
- Voting Suspended
- Polls Closed
- Polls Reopened
- Totals
- Summary Results
- Results by Precinct
- Count by Precinct
- Write-Ins
- Ballot Styles
- Election Closed

These reports can be automated to print automatically and in specific quantities based on the state's requirements.



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.

After a voter has checked in at the polling location, the poll worker provides, based on the voter's abilities and preference, a paper ballot which the voter would mark without assistance and insert into the ClearCast scanner, or to escort the voter to a ClearAccess ballot marking device where the voter would mark their ballot by making selections on an accessible touch screen.

CLEARACCESS

ClearAccess leverages the Anywhere Ballot, an EAC funded project which developed standards and best practices for elections, specifically to increase universal accessibility by allowing citizens to cast their votes on commercially available accessible devices like, PCs, tablets and smartphones. The result is a highly intuitive ballot marking session, supported by a variety of accessible input devices, which prints marked ballots on low-cost printers. ClearAccess is the only commercial application of the Anywhere Ballot.

When a voter has checked in at the polling location, the poll worker would print a QR bar code from their electronic poll book (ePB) which identifies the voter's ballot style, language preference, screen on/off preference (for blind voters), sound on/off preference, and ballot text size. The poll worker would accompany the voter to the ClearAccess ballot marking station to activate the voting session with their poll worker pass code. If no ePB is available, the poll worker can manually select the appropriate ballot style and validate with the voter that the ballots style is correct.

The ClearAccess system behaves as an assistive pencil for voters of all abilities. Once the voting session is activated the voter can navigate through the ballot wizard independently and privately using either the touchscreen, the keypad, or a sip-and-puff device. Voters with limited or no vision can use the ClearAccess headphones and keypad to vote using the system. The voter is presented with instructions on how to mark the ballot, and can adjust any visual or audio settings. All system messages are configurable by the state or county. At any time, the voter can customize the ballot presentation language (if required), screen display characteristics (contrast, font size), audio and/or assisted voting options, as well as the party (in an open primary). At the conclusion of voting, the voter's selections are presented for review and the voter is able to makes correction to all the ballot contests prior to printing. Voters using the ClearAccess headphones and key pad will have their selections read back audibly to them by the system before confirming their votes and commencing the printing process.

For detailed diagrams illustrating the ClearAccess voter interface experience, please see **Attachment #3, ClearAccess Voter Guide.**



CLEARCAST

The voter interface with ClearCast primarily involves poll workers and a paper ballot. After the poll worker checks in a voter and provides them with the correct ballot style, the voter goes to a voting booth to mark the ballot. Once the voter has completed marking their ballot, they will walk over to the ClearCast unit and cast their ballot through the scanner. The system will automatically alert them of any overvotes, undervotes or any other potential issues with their ballot. The voter can choose on screen whether to continue to cast their ballot or have it returned to them so that they can make changes. These alerts can be turned on or off through the EMS, ClearDesign.

For detailed diagrams illustrating the ClearCast voter interface experience, please see **Attachment #4, ClearCast Voter Guide.**

11. Describe how a voter casts a ballot.

Voters will take their filled out paper ballot (done so by hand, or using the ClearAccess ballot marking device) to the ClearCast scanner in a privacy sleeve. Once at the scanner, the voter will cast their ballot into the green ballot insertion area. The ClearCast system will alert the voter of overvotes or fully blank ballots, and offer the voter the option to return their ballot and correct their selections if they so choose, before the ballot is cast. When there are no conditions that would cause the system to flag the ballot for any reason, the tabulator will accept the ballot into the secure ballot box and notify the voter that their ballot has been cast.

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

Once a voter has cast their ballot, the ClearCast system alerts the voter that their ballot has been successfully cast on screen. ClearCast then provides the voter with an audible cue confirming that the ballot has been cast.

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

ClearCast:

When voting using our precinct tabulator, voters will receive messages on a 16" X 9.5" screen.

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

All messages can be customized and formatted within ClearDesign during the creation of the election. Font sizes can be formatted from size 6, up to size 36.



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.

CLEARACCESS

To select a candidate or question response on the visual ballot, the voter must touch the box the candidate is displayed in. The selected candidate turns blue (unless non-standard color options have been selected). To de-select the candidate, the voter must touch the name of a candidate again, and the candidate field will change again from blue to white.

Overvotes - It is not possible for the voter to overvote a contest using the ClearAccess ballot marking device. The system has clear voter messages indicating that they have made more selections than the contest or measure will allow. The voter must acknowledge the message and confirm the correct number of selections. No overvoted ballot can be printed from the ClearAccess system.

Undervotes - The ClearAccess accessible voting system can be configured to provide feedback to the voter identifying an undervoted or blank voted contest. The voter is provided an opportunity to correct the ballot for an undervote before the ballot is cast and counted. Contests are flagged as undervoted in the ballot review stage, facilitating the identification of an undervote condition.

All messages can be customized and formatted within ClearDesign during the creation of the election.

For diagrams showing how the voter is alerted of overvotes and undervotes, please see **Attachment #3, ClearAccess Voter Guide**.

CLEARCAST

When making changes to a filled out paper ballot, the voter must first alert a poll worker of their intentions, then, that poll worker would follow standard New Hampshire procedures to provide the voter with a new ballot and spoil the old one.

Overvotes - When an overvoted ballot is submitted into ClearCast a message appears on the touchscreen and an audio alert sounds informing the voter and poll worker of the presence of an overvote and that overvotes void the voter's selections in a contest. The contest or contests where the overvote occurred is also displayed. The voter is given the option to "Return" or "Submit" their ballot using the ClearCast touchscreen. If the voter selects "Return", their ballot will back out of the tabulator and the voter can return it to the poll worker in exchange for a new ballot. If the voter selects "Submit", their ballot will be tabulated through the ClearCast scanner, but no votes will be counted for the contests that were overvoted.



Undervotes - The ClearCast voting station can provide feedback to the voter that identifies specific contests for which no, or fewer than the allowable number of, selections has been made. This is not a standard or common setting. Should the state desire to alert the voter of undervoted contests, a message would appear on the touchscreen informing the voter of the contest or contests on the ballot that have been undervoted. The voter is given the option to “Return” or “Submit” their ballot using the ClearCast touchscreen. If the voter selects “Return” their ballot will back out of the tabulator and the voter can return to the voting booth, make selections in the undervoted contests, and resubmit their ballot through the tabulator. If the voter selects “Submit”, their ballot will be tabulated through the ClearCast scanner, but no votes will be tabulated for the contested that were undervoted. The same process is followed if the ballot is submitted fully blank. Most jurisdictions set their alerts to notify voters only on overvoted and fully blank ballots.

All messages can be customized and formatted within ClearDesign during the creation of the election.

For diagrams showing how the voter is alerted of overvotes and undervotes, please see *Page 2 of Attachment #4, ClearCast Voter Guide*.

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

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

Only if they have their own version of ClearDesign (EMS).

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.

All messages can easily be changed in ClearDesign without assistance from Clear Ballot.

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?

The messages are displayed on-screen, with the voter standing directly in-front of the screen. It would be difficult for another voter or the moderator to see the messages without actively attempting to do so. If standing on the side of the unit, the moderator will not be able to see the message.



19. What ballot lengths can be accommodated?

- A. a. 11"?
- B. b. 14"?
- C. c. 18"?
- D. d. 21"?
- E. e. 22"?

The ClearVote system can support all lengths listed and generally any ballot lengths between 5" - 22". A unique differentiator of Clear Ballot is that we can scan all of these sizes on the same scanners in the same election.

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

There is no required ballot header size.

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

The ClearVote system supports 8.5" ballots ranging from 5" to 22" in length.

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

Yes, ballot printing as a service is available for purchase by the State from Clear Ballot.

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.

The system supports up to 2,624 unique ovals for portrait style 8.5 x 22 inch ballots or 2,522 for the equivalent landscape style ballot. The discrepancy between the two is simply because the system reserves the top timing mark row for contest header information of which there are more positions reserved in a landscape layout.

For an example of a ballot that showcases every location of a ballot in portrait style, please see *Page 2 of Attachment #5, Oval Location Ballot*.



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 PDF s of ballots.
 - i. Salem 2018 general is a typical state ballot.
 - ii. Londonderry 2019 is a typical town/school ballot.

Clear Ballot offers election programming as a service for \$1,500/day

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.
 - 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.)

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 - Pape
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?

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.

A. ClearDesign ballot programming/EMS software

B. Yes, however at this time some development work would be required. An estimate of this work would be 2-4 weeks.

C. No. One of the greatest benefits of the ClearVote system is that ballots of different types, sizes, etc. can be read on the same machines in the same election. We have the most flexibility in reading ballots in the industry.

D. N/A

Clear Ballot strongly encourages the use of its ballot creation software for use with its system, however it does have the flexibility to read all ballot styles listed above.

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

The maximum number of unique ballot styles in a ClearVote election is 8,192. The maximum number of pages that can go through a precinct tabulator in one election is 9,999.



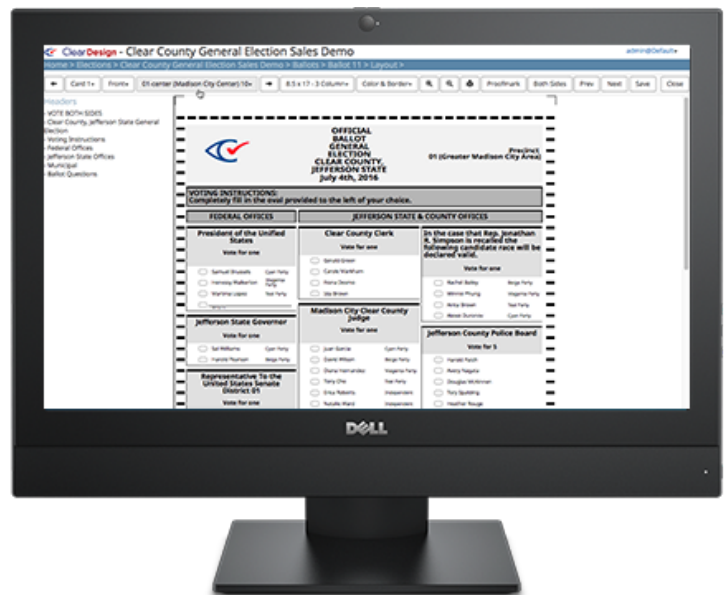
27. How much of the election specific programming can be done by local election officials for local ballots that are to be counted by your device?

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 September 8, and its general election on November 5 in 2020. 45 days before the general election is September 19. While the candidates for most races will be known by September 10, those which will be recounted may not be known until the Ballot Law Commission decides any contests arising from recounts on September 17. The Ballot Law Commission must also decide on outstanding issues regarding candidate eligibility and any challenges regarding replacement of candidates on the ballot.

With ClearDesign, local officials can do all ballot programming in an intuitive manner. An overview of our software is included below.

ELECTION MANAGEMENT SYSTEM

Election department staff can design ballots quickly and easily using the ClearDesign election management and ballot design solution. Our modern software architecture streamlines ballot proofing; it provides an easy to use drag-and-drop ballot editing tool and eliminates redundant steps in the ballot creation process. ClearDesign delivers election officials a solution that makes in-house ballot design a quick and easy process, with the flexibility to outsource ballot programming to a third party of their choosing.



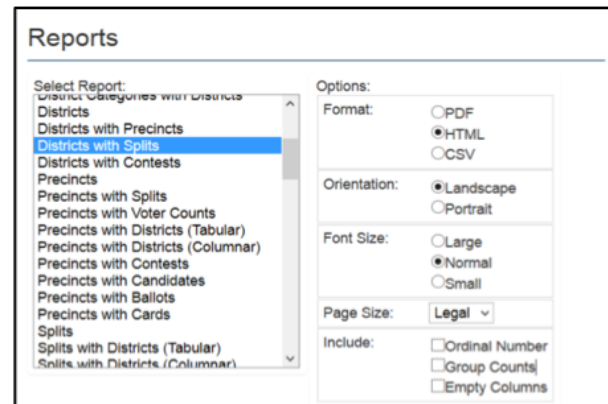
KEY BENEFITS:

- Efficient and easy management of multiple languages, with translation capabilities
- Generates all required ballot formats simultaneously in one database
- Facilitates last-minute ballot edits with “one click” or universal editing and re-generates only edited ballot styles
- Utilizes uniform precinct scanner media; Identical USB sticks are assigned to specific Wards or Precincts during Pre-Election Testing
- Efficient and easy management of recorded audio, built in text to speech, and/or third-party text-to-speech conversion
- Flexible Primary Election configuration
- Easily maintained precinct divisions/splits
- Ability to create and maintain over 15,000 ballot styles per election



MODERN USER INTERFACE

ClearDesign's user interface is built to allow non-technical personnel to become experts on ballot design quickly and easily. Clear Design's rich set of ballot layout tools includes drag-and-drop capabilities, flexible text editors, and dynamic ballot proofing. Users with basic proficiency in Microsoft Word can become expert ballot designers in no time.



EASY BALLOT PROOFING

Seventy-nine ballot-proofing reports help staff ensure that ballots are correct before production begins. The depth and breadth of ClearDesign reporting provides many options to find the proofing method that works best for your office. Reports can be produced in HTML, PDF, or CSV formats.

BALLOT SETS

The concept of Ballot Sets was developed to eliminate duplicate effort in the programming and proofing of accessible touch screen voting and UOCAVA ballots. ClearDesign allows users to auto-generate ballot styles in various formats that are identical in our tabulation system. It also allows election officials to create a ballot style in multiple formats, such as a 20-inch, double-sided ballot for the polling place, but a 2-card 8.5x11-inch double-sided ballot for UOCAVA voters who may not have access to a large form printer.

HTML BALLOT FORMAT

ClearDesign simultaneously creates PDF ballot formats for printing, and it creates an HTML ballot format to support both UOCAVA Electronic Ballot Delivery and the growing demand for Accessible Ballot Delivery. Redundant proofing and time-consuming precinct relationship mapping are eliminated with ClearDesign. This HTML ballot allows voters to mark their ballot using an EAC approved onscreen ballot marking wizard. Once marked the ballot can be printed, producing a machine-readable marked 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.

The Ballot Definition File which programs the precinct counter (ClearCast) is created in our ballot design and layout software, ClearDesign. We understand that election deadlines, especially those between candidate filing closing and first ballot use, can be very tight. Clear Ballot addresses these tight timelines with two mitigating factors--exceptional personnel, and modern software. First, Clear Ballot's ballot layout team is comprised of highly experienced election staff who have years of ballot layout experience. Our team is committed to your deadlines, and to delivering exceptional quality ballots for your voters. Second, ClearDesign is built from the ground up with modern programming languages on a modern platform, giving the ballot layout team the most flexible and easy to use ballot layout tool ever made. We start months before the election by building a series of election templates to cover every type of election we would encounter. The template includes global formatting for each component of the ballot, as well as card and contest headers which are designed to the customer's specifications. Once the final election data is available, it is overlaid onto the election template, needing only the final 'tweaking' that every election requires. If input is required from the election jurisdiction, the election can be backed up to our online production environment, where we can share the screen with local officials and walk through any questions either party might have, saving many hours that would be required to pass those same questions via e-mail. When the ballot is laid out, proofing reports are sent to the jurisdiction that verify ballot text and the relationships from splits to districts to contests and candidates. Additional proofing reports cover precinct locations and the number of scanners and accessible voting units at each location. Once proofing is complete, a full set of ballot PDFs can be uploaded to the jurisdiction for final proofing in just minutes.

After final proofing of the PDFs, the final Ballot Definition File, Accessible Definition File (for the accessible voting system, ClearAccess), and print ready PDFs are generated in minutes, and uploaded to a secure ShareFile location for the election officials to access.

This process is managed by your Customer Success Manager, who is in constant communication with your team so that we know when your filing windows close, when ballots need to be ready, and coordinates with the ballot layout team to ensure that resources are dedicated to your successful election.



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

Currently all clients of the ClearVote system program their own elections due to the intuitive and user-friendly software, ClearDesign. If Clear Ballot were subject to deadlines such as the one described previously, we would work with the State of New Hampshire to ensure that we could meet the deadline through having all election data and a template built prior to entering in the final information.

30. Would your pricing change given these constraints?

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

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.

No

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?

No the Clear Ballot System does not have an XML export of the ballot data.

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?

Yes, the ClearCast device can count a ballot marked by another system as long as the code channel is not interfered with in the marking process.

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.

Yes, it is compatible as long as the code channel is printed intact and the ballot is scaled on the page appropriately.

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?

Yes, Clear Ballot currently tabulates ballots built in the Accuvote system in several counties through its ClearAudit product.



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?

The ballot definition file (BDF) which either we can custom program or our EMS can generate automatically contains the XY coordinates of every oval position on every ballot style as they pertain to our timing marks on the ballot. This includes candidates, questions or ovaled write-ins. The BDF is a set of .csv files used by our precinct and central scanners to tabulate ballots from ClearVote or a third party system.

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?

No - ballot data for the accessible voting system would need to come from the original source.

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?

Yes the ballot definition file (BDF) created contains the XY coordinates of every oval position on every ballot style as they pertain to our timing marks on the ballot. This includes candidates, questions or ovaled write-ins.

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?

We have no licensing issues which would restrict the export of this data. The customer can freely use these data files as they wish.

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

N/A



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 ThIL 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?

A. ClearDesign can import election data so that keying in offices, candidates, and questions is not necessary. Currently, we can import data in several formats, including GEMS, SCORE (CO), OCVR (OR), WEI (WA), as well as formats for FL, MD, VT, NY, and others. It may be necessary to map ThIL data to ClearDesign the first time, then include that mapping in the next certified version of the software. In the meantime, we can assist with the data import process.

B. Yes, we can create a Ballot Definition File, which programs our ClearCast precinct scanner, from your ballot PDFs.

C. No, we only require the PDFs to create the Ballot Definition File, although additional data may make the process easier to proof.

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 multi-page ballots)? Provide the data and calculation supporting your answer.

Clear Ballot provides two (2) commercial-off-the-shelf 32 GB USB flash drives per precinct scanner. Reaching maximum capacity on a memory device is very unlikely if not impossible as it would require over 10,000 voters on a very complicated multi-page ballot. For 10,000 voters on a single machine, it would require processing voters at a rate of 4.68 seconds per voter for a 13 hour election, and if they had a complicated multi-page ballot, the voters would take longer than 5 seconds to be processed. In this very rare case, warning messages appear on the screen for when the storage is reaching capacity. If this is a large enough concern, Clear Ballot offers a double-sized 64GB option to guarantee this will not be an issue.



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?

A. Election results and ballot images can be retrieved from the device's internal memory for as long as the election remains open. Further, ClearCast employs two removable media storage devices to provide redundancy should one removable media device fail.

B. Closing the election within the software on the device will clear the internal memory.

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?

Clear Ballot's system can import a GEMS file to take all election data, but a separate file would need to be created based off the GEMS file for our machines to function properly.



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?

A. No - this scenario would be considered an overvote.

B. Yes

C. This is part of our central count/human adjudication software (ClearCount), so hardware/software is not available at the precinct.

I. Yes

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?

During adjudication of the ballot images, when inspecting the Write-In undervotes, simply select "Sort for un-captured intent". This will bring the images of ballots where the signature line has been used towards the top of the page. Scroll down to inspect undervoted ballots for that race. If you find that a voter has written in a candidate whose name appears on the ballot, you may adjudicate the ballot to record a vote for the proper candidate.



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

Yes, as many write in image reports can be printed as necessary. Clear Cast will also allow for paper to be changed with no loss of data if needed based on the number of reports being run.

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)?

A. Clear Ballot offers a write-in adjudication tool to aide in the tabulation of write-ins.

B. Results can be exported into Microsoft Excel.

ELECTION RESULTS REPORTING

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

Yes. ClearVote reports can be exported and downloaded in a variety of formats: Excel, PDF, CSV, Clipboard. The ClearVote system is browser based, using the ubiquitous and thoroughly tested interfaces that people use in their daily web browsing. All election data is available and sortable. Any information the State would want can be accessed through the ClearVote software and then exported in a number of ways.

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

Once thermal paper has been imaged on our equipment, it is expected that the image will remain legible for at least seven to ten years, assuming the documents are properly stored under normal filing conditions.

50. Is there a back-up memory card?

ClearCast ballot scanners are equipped with three (3) redundant storage points for tabulation results; two (2) removable encrypted USB 3.0 media drives and the ClearCast internal hard drive. At the designated Close of Polls, poll workers will end voting and close the election on the ClearCast scanner. This initiates printing of a Summary Totals Report by the device that contains the vote totals for every candidate in every race, including write-ins, as well as the totals for every issue, ballot question or other contests. The ClearCast scanner can be programmed when the election is coded to automatically produce as many copies of this report as is required, thus



making one or more reports available for return to the County as a hard copy of precinct vote totals along with the electronic vote totals contained on the USB drives.

Precinct vote totals are transferred to the county by poll workers, when they remove one of the encrypted USB drives from the tabulator and transport it to the county's central office. At the Central Office the precinct vote totals will be uploaded into the ClearCount module to aggregate all precinct results into a central database from which reports can be generated. The USB drives also include images of all ballots scanned by that scanner. Typically a copy of the Summary Totals Report from the scanner in each precinct will accompany the return of the USB drive.

Should a poll worker lose a USB drive, those ballot images and results would not be accessible due to the encryption used on the media. If a drive were to be lost or to not function upon return, the vote totals could be recovered from the second USB drive. If the second USB drive failed or was lost, the vote totals can be recovered from the ClearCast hard drive onto another encrypted USB drive. As a final failsafe, and assuming the physical ballots are still in the ballot box, those ballots could be re-tabulated to ensure the integrity of the election.

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

The ClearVote voting system allows for auditing, including post-election audits. The system has industry-leading Vote Visualization™ technology for audit speed and accuracy and has features that provide tools for generating the artifacts needed for Risk-Limiting Audits such as single cast vote records. The system allows for auditing at every point in the process, and without disrupting the completion of the process step under audit.

Features include:

- A Dashboard report that shows the reconciliation of cards scanned to ballots processed and the resolution of unreadable ballots.
- Statement of Votes Cast, which commits the vote total for the purposes of the audit.
- The Ballot Inventory Report, which details the physical location of every ballot cast in the election.
- The Election Log, which records all transactions pertaining to the current election.
- The System Log, which shows all transactions that occurred outside of the election. For example, successful and failed login attempts show up in this log.

The ClearVote system also features a Cast Vote Record (CVR), which is a spreadsheet that shows the adjudication of every choice on every ballot cast in the election. The data in the spreadsheet is recorded as a 1 for a vote, as 0 for a non-vote, and as blank when the contest does not appear on the ballot. The columns can be summed to compare totals in the CVR table to the Statement



of Votes Cast, or to any set of randomly selected ballots (for example, to conduct a risk-limiting audit).

SECURITY, AND CYBERSECURITY

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

CLEARCAST SECURITY

In today's political environment, the emphasis on providing a secure voting system is critical. Clear Ballot understands this and works every day to ensure your investment in ClearCast shows the stakeholders in your jurisdiction that you place a high priority on the security and integrity of elections. ClearCast has many security features, both on the physical device and in the underlying software, that have been designed to give election officials peace of mind.

CLEARCAST SECURITY FEATURES

- Keyed locks on all poll worker access
- Keyed locks on the maintenance access
- Intel® NUC uses BIOS password to protect settings
- USB sticks are authenticated (images, results, logs) to ensure they have not been tampered with
- USB sticks can be encrypted to prevent unauthorized system access
- All-metal shell to deny physical access, mischief, or damage in transit
-

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

The Clear Ballot system is designed as an isolated, hard-wire connected, stand-alone network. Physical control of the hardware is the first and the most critical step to ensure security. The small physical footprint of each component facilitates secure storage (e.g., in locked cages or storage boxes) when the system is not in use. Because all election software resides on a single, powerful database server, the Clear Ballot software is delivered to the local network of password-protected computers on an as-needed basis.

When the system is in use, attacks are prevented by password-protected, role-based access controls. Additional security measures, called "hardening", prevent attacks by ensuring that only known software can be run on these computers and that unauthorized storage media are not recognized by the operating system. Preventing attacks on the integrity of the election is facilitated by a design that minimizes physical handling of the ballots. Additionally, because of



ClearVote's minimization of the handling of the physical ballots, the potential for human error or malicious attack is virtually eliminated.

The ClearVote system employs FIPS 140-2 certified cryptography throughout the system. All network traffic on the closed ClearDesign and ClearCount networks is encrypted with TLS/SSL. All election data, transferred to and used by the voting devices, that is stored on USB media drives, is encrypted with AES-256 or stronger encryption and signed and validated using SHA-256 HMACs.

Audit logs provide a detailed record of; all users who log in and when, all reports that are generated, and all human adjudication of ballots. Attempts of unauthorized users to log in are captured in these logs. Additionally, all media contents are digitally signed and verified. If any signatures are found to be invalid, the media is rejected, and the administrators are made aware of it.

The ClearVote system is U.S. EAC certified, it was thoroughly vetted for security, usability and accessibility. A rigorous security evaluation was performed by Pro V&V, an NVLAP accredited Voting System Testing Laboratory (VSTL), by a heavily accredited security team. Pro V&V also performed accessibility testing using standards set up by VVSG.

Finally, Clear Ballot does a comprehensive peer review of all source code prior to any new release to undergo certification. Our build process and development environment dependencies are thoroughly documented. Upon release of source code and documentation to the VSTL, the Lab performs independent compliance review and comprehensive security analysis based on the following standards:

- United States Election Assistance Commission (EAC) 2005 Voluntary Voting Systems Guidelines (VVSG)
- EAC Decision on Request for Interpretation (RFI) 2010-02 and
- PEP 8 – Style Guide for Python Code (legacy.python.org/dev/peps/pep-0008/)

Once the software passes the above criteria, the VSTL independently generates a "Trusted Build" and archives the source code. The VSTL then provides a Test Report which includes the SHA-256 hashes of the Trusted Build(s) to ensure that election officials can verify that the software matches the System Identification Guide.

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

Maintaining the highest security protocols is essential towards ensuring a system can not be hacked. Please reference security features described in previous question.



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

The About screen of installed Clear Vote products calculates and displays the cryptographic hashes for Clear Ballot product files and installed system packages. These are validated and recorded during software setup, and can be re-verified at any time. Immutable Audit logs are created for every action in the system and can be easily viewed by administrators to verify if any unauthorized actions were performed.

56. What intrusion detection capabilities does your system have?

Additional Security measures included in the Clear Ballot system:

Clear Ballot products are built around three concepts: attack prevention, attack detection, and damage recovery.

ATTACK PREVENTION:

The Clear Ballot system is designed as an isolated, hard-wire connected, stand-alone network. As such, physical control of the hardware is the first--and the most critical--step to ensure security. The small physical footprint of each component facilitates secure storage (e.g., in locked cages or storage boxes) when the system is not in use. Because all election software resides on a single, powerful database server, the Clear Ballot software is delivered to the local network of password-protected computers on an as-needed basis.

When the system is in use, attacks are prevented by password-protected, role-based access controls. Additional security measures -- called "hardening"--prevent attacks by ensuring that only known software can be run on these computers and that unauthorized storage media are not recognized by the operating system. Finally, preventing attacks on the integrity of the election is facilitated by a design that minimizes physical handling of the ballots. There is no physical out-stacking of paper ballots, which creates the potential for human error or malicious attack.

ATTACK DETECTION:

Audit logs provide a detailed record of all users who log in and when, all reports that are generated, and all human adjudication of ballots. Attempts of unauthorized users to log in are captured in these logs. Damage recovery- The paper ballot is the only known voting method that preserves a durable record of voter intent. Therefore, should there be any problem with the database of ballot images if proper procedures are followed for backup and storage-box labeling, it is always possible to revert to the last known good copy of the election database and re-scan the ballots from that point forward.



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

Audit logs provide a detailed record of; all users who log in and when, all reports that are generated, and all human adjudication of ballots. Attempts of unauthorized users to log in are captured in these logs. Additionally, all media contents are digitally signed and verified. If any signatures are found to be invalid, the media is rejected, and the administrators are made aware of it.

58. What data is recorded in the activity log?

The ClearCount system logs all activity on the voting equipment.

This comprises:

- Activation/de-activation
- Errors occurring
- Errors resolved
- Power failures
- Power restorations

The system captures all operations of the system itself and actions of users in two read-only logs. ClearCount provides a time-stamped, unified web activity log that tracks all users' logins, logouts, and authentication failures, user access to election reports and card images, and administrative changes to elections or users.

Audit logs record all system and error messages generated when the product is in use. The audit log cannot be altered or deleted and may be printed at any time.

The logs can be viewed or audited at any time and are archived and stored by Clear Ballot Group for at least 6 months after an election.

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.

All election staffing roles must be clearly defined in terms of responsibilities. Election personnel should be subjected to appropriate vetting (such as, performing background checks) and assigned unique system credentials (user name, password, access level). Knowledge of system access passwords must not be shared. Every staff position should be provided the appropriate training with ClearVote products. Physical access to voting equipment, supplies and facilities must be restricted to authorized personnel. Election personnel should only perform authorized



duties. Reports, logs, and other materials should be reviewed at the end of the election to verify that staff members engaged within the scope authorized for their roles.

Unique user passwords must be created for every election cycle, or at least annually. Clear Ballot recommends that passwords associated with user roles be composed as follows:

- A password must include eight characters or more (Clear Ballot recommends a minimum of 14)
- A password must not have consecutively repeating characters
- A password must not include any word found in a dictionary of any language
- A password must not contain the user's account name or parts of the user's full name that exceed two consecutive characters
- A password must contain characters from three of the following four categories:
 - Latin uppercase characters (A through Z)
 - Latin lowercase characters (a through z)
 - Base 10 digits (0 through 9)
 - Non-alphabetic characters (for example, !, \$, #, %)

Knowledge of a user's password must be limited to the user, and not shared with anyone else, internal or external to the jurisdiction.

CLEARCAST ROLES:

ClearCast operations are executed by users who have logged in by specifying a role and a password. Passwords are assigned to a role, not a user. The role serves as a proxy for the user's identity. The role also determines which tasks the user is allowed to perform. The ClearCast roles and the tasks they perform are summarized below:

- **Maintenance**—The maintenance role provides access to system setup, logs, and system diagnostics. This role cannot access election data.
- **System administrator**—The system administrator role provides access to system setup, logs, and the loading and unloading of elections. This role cannot access election data.
- **Election administrator**—The election administrator role provides access to election data, logs, pre-election testing, election preparation, election management, and election reporting.
- **Poll worker**—The poll worker role provides access to poll opening and closing functions, reports and logs.



AUTHENTICATION:

Only one user can be logged in to a ClearCast voting station at a time. To log in, the user selects a role and specifies the password.

ACCESS CONTROL:

Access control in the ClearCast system is a permissions and role-based model consisting of:

- **Role**—A collective identity with a set of associated permissions.
- **Entity**—A data element the system controls access to.
- **Action**—An operation that can be performed on an entity.
- **Permission**—An entity/action pair that a role is permitted.

The ClearCast system requires all users to log in by specifying a role and a password before being able to access the system. Actions by the user, such as access to data or files, are allowed or prohibited based on the permissions associated with the user's role. The user's permission is checked for each action before that action is performed. If that action is not explicitly permitted, it is prohibited. Actions may be further prohibited based on system and election states. For example, to open the polls, the election must be open.

To preserve the simplicity of the end-user experience inherent in the ClearCast system, and to prevent an administrator from introducing security weaknesses by misconfiguring the system, the roles and their associated permissions are predefined.

CLEARACCESS ROLES:

When you login to ClearAccess you must select your role. Your ClearAccess role determines what you can do in the system.

- **Administrator**—Loads and unloads elections, configures the ClearAccess station, changes the Maintenance and Administrator passwords.
- **Election Administrator**—Configures the voting locations, tests ballots, prints ballot reports, closes elections.
- **Maintenance**—Performs background configuration and maintenance tasks.
- **Poll Worker**—Opens and closes the polls, prints ballot reports, troubleshoots ballot printing issues.
- **Voter**—Votes using the ClearAccess station. Only available in Polls Open mode.



AUTHENTICATION:

Every time a user logs into the ClearAccess system, the user is required to enter a password.

The user-entered code is hashed using a standard password-hashing algorithm and then validated against the hash password stored in the system database. The authentication information (user code) is stored as a hash of the password to ensure the password is kept confidential. The Administrator role is granted the ability to change the Administrator and Maintenance passwords. The other passwords are set in ClearDesign and are election-specific.

ACCESS CONTROL:

Access to the ClearAccess software is restricted to users who present the appropriate role-based credentials. Once logged in, available functionality is limited to the activities permitted by the user's role. For example, security and system administration functions are only available to the Administrator role. Clear Ballot recommends that during all stages of the election process—election preparation, voting, post-election activities, and storage—physical access to the ClearAccess hardware be limited to authorized individuals.'

CLEARDESIGN ROLES:

ClearDesign uses roles and permissions to control the access to specific functions. The permissions are based on the type of entity (district, precinct, contest) and the action (view, add, edit, delete) that is allowed.

Some entities have more actions than others. For example, the **election** entity can perform the basic add, edit, delete, and view actions and also the backup, restore, and report actions.

ClearDesign creates default roles and permissions for the following:

- **Administrator**—provides full control over all aspects of the system, including adding users, modifying permissions, and creating or deleting elections
- **Election Clerk**—can view, add, edit, and delete all entities within an election

AUTHENTICATION:

The basic permission required to access an entity is the view permission. If view permission is not granted, no other permission for that entity is granted. The altering of permissions requires edit permissions on roles. When roles change or users change roles, internal checks in ClearDesign prevent a user from accidentally locking the system. Users can remove role-editing permissions from themselves to prevent themselves from making more role changes.

ACCESS CONTROL:

ClearDesign requires all users to log in with a username and password to obtain access the system. All user interaction with ClearDesign takes place through a browser interface on DesignStations that require a login and password. ClearDesign checks the permissions on all



operations based on the logged-in user's ID ClearDesign permission. Therefore, users cannot access or modify anything not allowed by their own permissions. ClearDesign access control requires explicit permissions to access any operation, privileged or other. Valid user credentials, including a password, are required to upgrade the software. Every ClearDesign user has a username and password for accessing the system.

CLEARCOUNT ROLES:

The following table summarizes the roles that require a ClearCount account:

- Principal supervisor—Oversees all ClearCount activity. Can do everything any other user can do. Can create, delete, and modify ClearCount user accounts and can reset the passwords for those accounts.
- Assistant supervisor—Adds and deletes an election. Selects which election is the active election. Changes an election's phase. Can do everything a ballot resolution official can do.
- Ballot resolution official—Uses the Card Resolutions tool to modify election tabulation results of ballots that the system cannot automatically adjudicate, or for which the tabulation results are deemed incorrect. Cannot modify or delete any entry from any activity log. Can do everything an election reporter or public relations official can do.
- Scanning supervisor—Starts the Tabulator, can delete boxes of ballots by running the DeleteBox utility.
- Election reporter—Records all activity surrounding opening, recording, and resealing sealed ballot boxes or bags.
- Public relations official—Creates election reports, such as Statement of Votes Cast, and publishes the result.
- Scanner operator—Feeds batches of ballots into the scanner. In general, there is one scanner operator for each scanner. The scanner operator only has access to the ScanStation while it is running the Tabulator, which is always run using the ScanStation account. This same account is used on every ScanStation, of which there can be many.

AUTHENTICATION:

The server side of each protocol needs to be certain of the user's identity at the remote client before access can be permitted.



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.

Code review is part of the EAC's certification process. Test reports are publicly available at the EAC's Voting Systems Status Report site.

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?

The EAC certification process would reveal any back doors, etc. through code review and testing.

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

Clear Ballot is a pioneer in the post-election audit space. Our company was founded as the first, and to this day the only, independent automated audit system which is the foundation of our ClearVote voting system. At the center of our auditability value proposition is the ability to visualize results. ClearVote condenses all voted marks cast into a visual and easily searchable database. Clear Ballot's experience with the various types of audit processes being used in the United States is unparalleled. Our network of clients is made up of thought leaders in the post-election auditing world.

The number one principle of a successful post-election audit is the underlying data set. We define an audit as two systems, whether automated or manual, providing an independent tabulation of an identical set of data. In order to do this, it is important that a voting system tabulate ballots from auditable formats. Many touch screen voting systems produce summary ballots which re-interpret voter intent into a proprietary barcode, which is then used to tabulate results. The voter's selections are then listed below the barcode for the voter to review. This can be misleading because what the voter sees is not what the machine uses to tabulate votes, making identifying discrepancies in any post-election audit difficult.

ClearVote uses pre-printed paper ballots that voters mark by hand in the polling place. We have planned a comprehensive voter outreach program to educate the public on the benefits of an auditable system, and additional training to the State and all county officials on the benefits they will get from the transparency and auditability of the ClearVote system. For voters with disabilities, our ClearAccess touch screen ballot marking device produces an identical paper ballot for every voter. The paper ballot is then scanned into the ClearCast system and tabulated by the voter's marked ovals.



Once the election has been closed and all ballots have been aggregated at the county level, the ClearVote system produces a Single Ballot Cast Vote Record (CVR), which is a spreadsheet that shows the adjudication of every choice on every ballot cast in the election. The data in the CVR is recorded as a “1” for a vote, as “0” for no vote, and as blank when the contest does not appear on the ballot. The columns can be summed to compare totals in the CVR table to the Statement of Votes Cast, or to any set of randomly selected ballots, for example, to conduct a Risk Limiting Audit (RLA). Clear Ballot was the first voting system to incorporate a CVR in its reporting, a process which all voting systems have since adopted.

Whatever post-election audit process New Hampshire chooses to pursue, Fixed Percentage, Ballot Comparison RLA, Batch Comparison RLA, Ballot Polling RLA, or some hybrid thereof, Clear Ballot will be able to support and compliment those efforts with our technology and experience.

ClearVote’s unique visual presentation of election results brings confidence to voters and Election Officials alike. We hope for the opportunity to show this level of transparency to New Hampshire.

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

For a copy of the independent testing laboratory certification report on the proposed vote counting device, please see **Attachment #1, ClearAccess Poll Worker Instructions**.

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

ClearVote 1.5 has been certified in Ohio and the Commonwealth of Pennsylvania. The system has passed test in the state of Washington, and we expect the state to issue final Certification report soon.

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

ClearVote 1.5 was tested and certified to VVSG 1.0 standards.



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?

The EAC has not released requirements and or Test Assertions for the new proposed VVSG 2.0 principles and guidelines. As a results, testing labs, vendors, states and localities cannot comment on the high level and conceptual guidelines as it gives no clear or practical insights into the Commission's expectations.

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.

The EAC has not released requirements and or Test Assertions for the new proposed VVSG 2.0 principles and guidelines. As a results, testing labs, vendors, states and localities cannot comment on the high level and conceptual guidelines as it gives no clear or practical insights into the Commission's expectations.

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

All Clear Ballot software is proprietary.

ClearVote uses all COTS hardware, which has undergone extensive testing at the manufacturer to ensure that it has suitable duty cycles.

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

The latest versions of both ClearCount and ClearCast run on Ubuntu 18.04, and the vote counting software is proprietary and written using Python and JavaScript.

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.

L&A Testing can be performed in the ClearVote system in a matter of minutes depending on the jurisdictions L&A requirements.

In preparation for Logic and Accuracy (L&A) testing, election officials will have approved the election coding (BDF) that will be used on each ClearCast scanner to be deployed on Election



Day. A test deck must be created from a series of blank ballots to be used in the polling locations. Test ballots can also be generated from the ClearAccess ballot marking device for use in L&A. Clear Ballot suggests at least one ballot generated from the ClearAccess device be included in the test deck. Ballots must be marked in a predetermined pattern with the vote totals known in advance.

The election officials will insert the appropriate USB drives for the election into the ClearCast scanner, power on the unit and perform the following steps:

On the Election Preparation screen, tap the Logic and Accuracy Testing button. On the Logic and Accuracy Test screen, tap the Display Zero Tape button. On the Totals Report screen, tap the Print button.

Verify that a Zero Totals report prints. Review the tape and verify that all results numbers are zero.

Do not remove the report.

When the Logic and Accuracy Test screen appears, tap the Start Test Voting button. Verify that the ballot insertion screen appears with the prompt "Insert ballot."

The voting station is now ready to accept ballots. Feed the test ballots into the voting station. Verify that an overvote message appears onscreen for every ballot with an overvote.

Tap the **Return Ballot** button to retrieve the overvoted ballot and test the ballot reversal motor. Resubmit the ballot and tap the **Submit Ballot** button to cast the ballot.

Ensure that the card counter increments for each card that enters the ballot bag.

Verify that the battery status is either 100% or shows "Charging" on the touchscreen.

When the entire test deck has been processed, tap the top left corner of the screen to end ballot counting. The Logic and Accuracy Test screen reappears

Tap the **Display Results** button. The Totals Report screen appears.

Tap the **Print** button to print the report.

Compare the results on the report to the expected results provided with the test deck. If they do not match, obtain assistance before proceeding.

Tap the **Close** button on the Totals Report screen, and then tap the **End Test** button on the Logic and Accuracy Test screen. Tap the **Shut Down** button on the Election Preparation screen. Verify that the voting station shuts down.

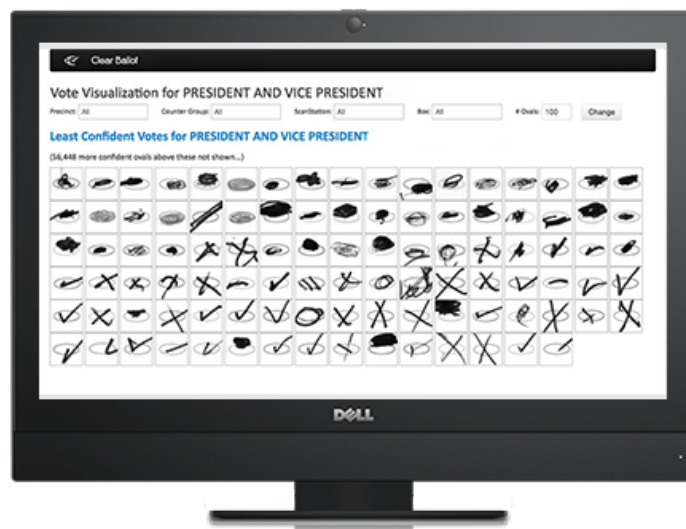


TRANSPARENCY

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

TRANSPARENCY OF RESULTS

ClearCount's unparalleled visualization of ballot images, down to the individual ovals, provides a level of transparency that has never been seen before in elections. ClearCount shows every vote in every contest and how/why the system counted it the way that it did. It is the first system that logically organizes voters' actual vote marks to provide visual cues that allow election officials to identify where they need to focus their attention. After reviewing our Statement of Votes Cast record for 5 minutes, one election administrator referred to this level of transparency as "administrative confidence" because in an election with a 5-vote difference, he felt sure that every vote was counted accurately.



REPORTING

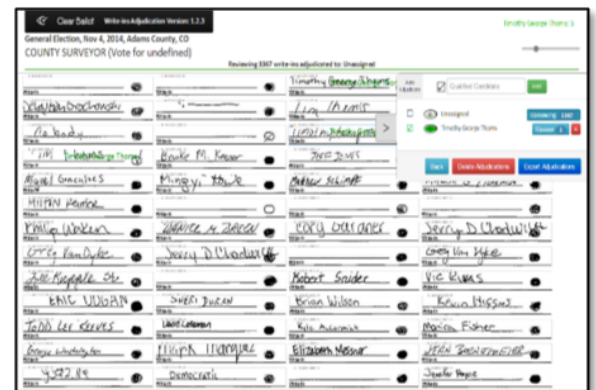
ClearCount offers results reports in a variety of formats to meet your jurisdiction's needs. Interim reports can be created on Election Night as results are accumulated. District reports can be generated as needed for customized data. Final Election Canvass reports can be created in detail and shared with media and stakeholders. Web reports can be exported in various formats as required. Additionally, our PDF reports give officials the ability to label and present data in a convenient, easy-to-use way. Clear Ballot will work with your jurisdiction to create the types of exports required by your state or constituents, ensuring that all the required deliverables of your elections are met.

Choice	Ballots With Contest	Votes	Overmarked With Vote for this Choice	Undermarked With Vote for this Choice	Links
US President & Vice President (Vote for 1)					
W/None	4,334	864	108	108	⋮
Dan Johnson and Bill Weld	4,334	756	108	108	⋮
Danell L. Castle and Scott N. Bradley	4,334	648	108	108	⋮
Jill Stein and James Berke	4,334	540	108	108	⋮
Gloria Estrella Rivera and Eugene Puryear	4,334	432	108	108	⋮
Alison Kennedy and Catherine Hart	4,334	324	108	108	⋮
Donald J. Trump and Michael R. Pence	4,334	216	108	108	⋮
Hillary Clinton and Tim Kaine	4,334	108	108	108	⋮
US Senator (Vote for 1)					
W/None	4,334	324	108	1,348	⋮
Chris Vance	4,334	216	108	1,348	⋮



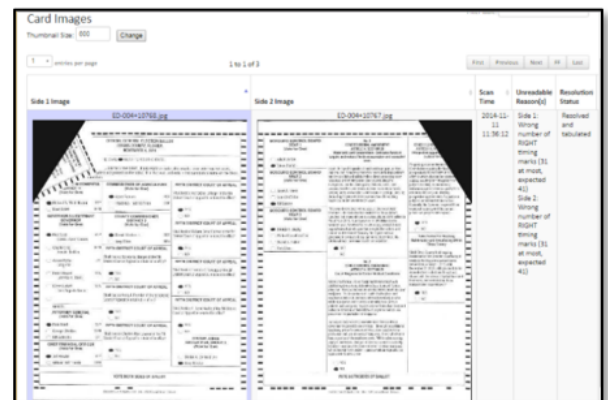
WRITE-IN MANAGEMENT TOOL

ClearCount's Write-In Adjudication utility allows officials to assign certified write-in candidates into digital "buckets" with the click of a mouse. This allows staff to count write-in votes quickly and accurately. Multiple staff can work on the same contest at the same time, allowing for a managed and organized approach to large write-in contests. Non-certified candidates can be assigned to a single bucket or assigned to individual buckets as required.



DIGITAL ADJUDICATION

ClearCount eliminates the need for election officials to manually duplicate paper ballots. Absentee ballots deemed unreadable by the system can be reviewed digitally. This allows officials to quickly and easily process ballots for voter intent by examining high-resolution images of the cast ballots, reducing the risk of human error inherent in ballot-handling, and significantly improving the speed and integrity of the tabulation process.



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?

No.

73. Can the general public readily obtain information about the testing process?

Yes. Information on Clear Ballot Group voting systems testing, including test plans, test reports, and scope of certifications is publicly available at the EAC's Voting Systems Status Report site.

74. Can the general public perform testing on the components and systems?

No.



STAGE OF PRODUCT LIFECYCLE

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

Software upgrades are typically offered on an annual or bi-annual basis and consist of feature enhancements requested by our clients or included to make our offering more competitive in new markets.

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

Clear Ballot builds its software to be compatible with new versions of hardware as they are released. Since we adhere to a COTS component philosophy, all hardware is upgradable as new versions come out.

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

Clear Ballot is the most modern voting system in the market. While other systems are still offering systems that were developed in 2009 or earlier, Clear Ballot is built upon the major innovation jumps that have occurred across the technology spectrum. As a result, Clear Ballot is the earliest product lifecycle in the market and offers the longest useful life.

As Clear Ballot offers new software releases to customers, we maintain backwards compatibility between our software and hardware. While other companies in the elections market require customers to replace their entire hardware fleet to receive an upgrade, Clear Ballot software upgrades allow counties to remain up to date with the most modern and secure functionality.

Clear Ballot's voting system customers have received multiple software upgrades since first implementing their systems. These upgrades are the result of customer feedback gathered by running elections, during user groups, and in 1v1 sessions with customers and Clear Ballot's Product Team. These upgrades demonstrate that Clear Ballot is not satisfied with the status quo and continues to innovate and bring common sense improvements that bring greater efficiency to customers. These upgrades extend the useful lifecycle of the product to match customer needs for years to come.

Clear Ballot also continuously integrates modern hardware into our offering. As customers grow, they aren't stuck with older hardware, and can proactively upgrade. Because Clear Ballot software is backwards compatible, customers are in control when their needs evolve. Each customer can choose to upgrade any piece of their hardware system (accessible hardware,



polling place hardware, absentee tabulation hardware) without needing to replace the entire voting system. This flexibility provides customers a voting system that grows with them, and remains modern and secure over time.

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

This version of ClearVote will be compatible for many years to come, given that it is the most modern release in the market. As we build additional functionality into our products and expand our product offering, we maintain backwards compatibility to ensure that we do not put customers into a scenario where an upgrade becomes mandatory. However, if customers do decide they would like to upgrade, we ensure that earlier versions of hardware are still compatible with the newest software version. We expect this system to be usable for decades with continued software upgrades.

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.

Clear Ballot is committed to providing the best long-term partnership to the state of New Hampshire. One of the organizing principles of our company was to provide election officials with cost effective solutions that minimize the total cost of ownership over time by giving you options on the consumables and leveraging COTS hardware support networks to provide service under our management. To provide complete transparency into the total cost of ownership of the ClearVote system our hardware warranty and software maintenance package will include annual hardware warranties, annual software license fees, ongoing support, software and hardware upgrades, and future enhancements all inclusive. Listed below are descriptions of the services provided under this plan:

HARDWARE WARRANTY

Clear Ballot's hardware warranty program provides assurance all system hardware is free of all defects on material and workmanship. During the warranty period, Clear Ballot will repair or replace, free of charge, any part defective in material or workmanship. For ClearCast hardware, Clear Ballot will replace system components as needed while under warranty at cost. Hardware warranties shall be designated to begin uniformly, immediately upon the completion of the state's pre-defined User Acceptance Testing and acceptance by the State, or at the end of 90 days after completion of delivery, whichever shall occur earlier. All warranty repairs must be performed by Clear Ballot or an authorized Clear Ballot representative.

During onsite preventative maintenance visits, Clear Ballot technicians perform equipment preventative maintenance on 100% of the client machines as well as providing a thorough



inspection of all equipment deemed to be problematic. The Clear Ballot technician will check in with officials upon arrival, and before leaving the site, and provide a report of the work to be performed. Our technicians maintain a detailed log of repairs and testing performed on each unit. Clear Ballot technicians run diagnostics on equipment, review digital images from each scanner from the previous election to check ballot image quality, check battery health and printer functions and provide any repairs or parts replacements under warranty. Technicians record, in pre-printed preventative maintenance checklists, the repairs and/or tests performed to each unit. Information recorded in the checklists include the unit's model and serial number and software/firmware version, if applicable. A report is attached to the checklist, which recaps the progress made during the service visit and details any and all outstanding issues that require further attention as well as suggested maintenance the county can perform moving forward. Clear Ballot will also coordinate with COTS OEM's to schedule annual preventative maintenance visits to ensure all COTS equipment is performing up to standards.

SOFTWARE MAINTENANCE

Software maintenance includes annual technical support, certified software upgrades, and software patches. Software Maintenance ensures that New Hampshire will have the most recent certified software versions of our system, that you have regular support on the use and maintenance of the system, and that the State has visibility and input on the direction of future enhancements to the software. A Clear Ballot Customer Success Manager will be assigned to each client in the State as a primary point of contact for technical support. Upgrades to all certified software at the time of purchase will be provided at no cost to clients while under maintenance. As the innovator in the industry, Clear Ballot is committed to continually improving our software to provide solutions that improve the experience for our customers. Clear Ballot has been re-certifying two versions of the system annually through the EAC and plans to continue to drive innovation in Voting Systems.

SUPPORT

The Customer Success Management team will hold bi-annual meetings to communicate the status of system upgrades, election support information, product roadmap, and enhancement requests. The Customer Success Management team will also coordinate all hardware service and software upgrade schedules with the State and clients.

Clear Ballot also provides a dedicated toll-free number for Help Desk Support, Emergencies, Customer Service, and Technical Support 8am to 5pm local time, Monday—Friday, holidays excluded, with expanded hours during election cycles. Support personnel talk to each customer to understand the nature of the call and provide initial troubleshooting to expedite resolution of common questions related to Clear Ballot's system. Issues requiring further technical assistance



are routed to the appropriate resources to ensure that callers speak to technicians who are equipped to handle the customer service, technical support, and other requests as needed.

Additionally, our online help desk is available 24/7, 365 days/yr. Our online help desk portal allows customers to view instructional videos and send questions to directly to customer support, with the assurance that their question will be responded to promptly. No matter what time of the day or night the issue or question arises, the online help desk portal is always available to place the question in the queue, time-stamped, and ready for response. The system alerts support personnel immediately upon receipt of a request. Requests through the system create a time-stamped, tracked service request ticket which ensures timely responses to help desk requests which allow us to provide the highest level of customer support possible. Clear Ballot will partner with the State to produce an agreed-upon report format for help desk ticket calls, open tickets, resolved tickets, and maintenance issues as required.

Clear Ballot will provide issue reporting via Field Service Bulletins. If there is a critical bug, we issue a Field Service Bulletin within 48 hours (or sooner within an election cycle), and we will work with the State and any effected counties on a daily basis until the bug is fixed. Clear Ballot will comply with the timing requirements agreed to with the State through the Clear Ballot Field Service Bulletin procedures and in conjunction with South Carolina certification authorities.

For a critical bug fix: Notification within 48 hours after the problem is identified. Bug fixes released within 48 hours of release from Clear Ballot QA with any workaround released within 5 business days.

For noncritical items: Notification within 48 hours after the problem is identified. Bug fixes applied at next maintenance release unless a security issue, which will be provided within 48 hours after release from Clear Ballot QA.

Clear Ballot will make security upgrades/patches available for the life of the contract. The deployment of each upgrade/patch will be determined by mutual agreement between Clear Ballot and agreed to with the client.

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

Clear Ballot continues to be the proven innovation leader in the elections market. Our company has always worked to expand the functionality and scope of our product lines based on customer feedback and our internal innovation team. Clear Ballot annually brings new releases back into states we have previously certified to offer new solutions and products to our customers while maintaining backwards hardware compatibility. In our near term releases anticipated for 2019, we have added numerous security enhancements using the latest standards in cryptographic hash functionality. We are also introducing some major improvements to our adjudication and



New Hampshire Questions

auditing capabilities based on feedback from our customers who have run ClearVote in hundreds of elections with millions of voters. These changes will continue to push our best-in-class results transparency while making our workflow processes easier and more efficient for our customers.

Clear Ballot will also continue to improve our Ballot on Demand solution, PrintNow, adding easy to use test deck creation software. We will incorporate our write-in-tool product into our certified product line for more seamless interaction and reporting of write-in results within ClearCount, our tabulation software.

We plan to expand our offerings outside the polling location and will focus on broadening our accessibility offerings. While our ClearDesign suite creates HTML and PDF ballots to serve a wide range of voters both in the polling place and remotely, we still plan to expand the capabilities of our remote ballot delivery offering. ClearAccess provides for multiple curbside voting options, and plans to expand the flexibility of that offering in 2019. While Clear Ballot currently integrates with all election night reporting products, the team is working closely with our current customers to build upon our transparent internal reporting options to provide a visibly intuitive election night reporting experience for the public.



HARDWARE- TECHNICAL

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

A ballot contains a number of sensitive areas, referred to as vote targets, into which a voter enters marks to cast a vote. Each vote target is associated with a choice name, such as a candidate name or a yes or no answer to a referendum question, or a choice name label containing the phrase "write-in". The targets and their choice names are grouped into named contests. A single side of a single ballot may contain one or more contests. This describes the algorithms and strategy used by the ClearVote software to determine where the vote targets are located on the ballot and whether or not the target has been sufficiently marked to be considered a vote.

After a card has been analyzed, each vote target is classified based on how it and other targets in the same contest have been marked. The classification categories are:

- Voted—The target is marked and no other targets in its contest are classified as overvoted.
- Overvoted—The target is marked, but more targets in its contest are marked than allowed by the contest's vote rule. The vote rule is the number of choices that can be marked for a contest.
- Undervoted—The target is not marked, and not enough targets in its contest are classified as voted to reach the maximum allowed under the contest's vote rule.
- Not Voted—The target is not marked, but at least one other target in its contest is classified as voted or overvoted.

Both ClearCount COTS Central scanners and the ClearCast precinct tabulator read ballots in the same manner. The system captures and stores ballot images while the scanning software asynchronously analyzes ballot images, whereby the logic used to analyze the ballot images is not dependent upon the rate at which ballots are processed. Ballots can be scanned in any orientation, face up or down, head first or last. The scanning function determines the ballot front and back, rectifies any potential image skew, and establishes the ballot identity and the corresponding location of the vote targets. The scanner records the location and degree of darkness on a ballot, and classifies every vote target into one of four categories listed above, visually arranging the least confident vote targets in each category.

BALLOT AUTHENTICATION

The landmarks (control marks situated in the corners on the front and back of a ballot) are assessed to determine which ballot image corresponds to the ballot's front, as well as the angle of rotation that places the ballot in its readable orientation. The edge marks running along the sides and top of a portrait ballot are used to precisely determine the amount of image skew, and



to correct for slight distortions in the image caused by the scanner. These edge marks form an imaginary grid on which the intersections of horizontal and vertical lines are the only valid positions for the center of a vote target. The code channel running along the base of a portrait ballot is then decoded to determine the ballot card ID, which is used in turn to determine the layout of vote targets on the ballot.

VOTE TARGET SCORING

Each vote target on the ballot is located through the image registration process, then assigned a score from 0 to 100 indicating its level of darkness. High scores are assumed to reflect affirmative voter intent. The vote target score is derived by analyzing the grayscale value of every pixel contained in the shape of the vote target. Therefore, a vote target with every pixel marked by a #3 pencil has a lower score than a vote target filled with a black felt-tipped marker. The scoring algorithm sums the darkness values of each pixel in the target, and then normalizes that total relative to what the score would be for a target that is 100% black.

NOISE FLOOR

The noise floor is computed as the lowest score of an empty area on each ballot side. Each ballot has two noise floors, one from each side of a ballot, which capture variations in the lighting conditions between the two cameras inside the scanner, as well as variations in paper stock (for example, colored ballots). After the noise floor has been computed for both sides of the ballot, three discriminate functions are successively applied to divide the population of vote targets into two groups—potential votes and not votes.

DISCRIMINANT FUNCTIONS

In statistics, a discriminant function is a mathematical knife that divides a population into two groups. To account for the inherent variability in the scanning process, and the inconsistency of human marking technique, Clear Ballot has developed a set of discriminant functions that successively divides the population of vote targets on a paper ballot into two groups—potential votes and not-votes.

Potential votes become votes when they satisfy the vote rule and successfully pass through each of the three discriminant functions. The population of marked vote targets is segregated so that there are as few visually empty vote targets as possible in the potential votes group. With two additional discriminate functions, the potential votes group is further winnowed, leaving vote targets that can then be submitted for vote target classification.

The first discriminant function (DF1) divides the population of vote targets on a ballot into two groups— one containing marked ovals (that is, potential vote targets), and the other containing empty ovals. DF1 initially overclassifies vote targets, a potential vote targets may later be



reclassified as a not-vote. In this step, the determination is made based on whether each mark is sufficiently above the noise floor.

The second discriminate function (DF2) further divides the population of potential votes from DF1 into the same two groups—potential votes and not-votes. The vote targets in each contest are compared to one another to determine which may represent stray marks. These appear as scores sufficiently different from other, more definite, potential votes in the same contest.

The final discriminate function (DF3) further divides the potential votes into the same two groups. The vote targets across the ballot are compared to other targets classified as potential votes to determine which may represent stray marks. These appear as scores sufficiently different from other potential votes. After the three discriminant functions have been applied and every vote target has been classified, the last step is to tabulate the results, applying the applicable vote rules to the list of potential votes, including the number to vote for, straight-party voting, primary preference voting, and cross-endorsement.

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.

Yes - While we have not tested with the one4all system, we do not expect any issues with integration due to our scanner's flexibility.

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 that can be counted by your precinct ballot counting device?

Yes - Ballots printed on the ClearAccess system are 100% compatible with our precinct ballot counting device, ClearCast.

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.

Yes, Clear Ballot scanners can read any type of mark on a ballot ranging from light pencil marks to highlighters.



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

The architecture of the system allows for the addition of alternative voting and tabulation techniques. For example, our work in New York State requires the support of fusion voting, where “cross endorsed” candidates can appear several times.

Alternate format voting methods such as preference or ranked choice voting are not currently supported. We have developed methodologies for all of the major alternate voting formats, but until our customers are given legislative requirements, we do not know which methodologies to incorporate into ClearVote. When that happens, we will provide a definitive timeline for development and certification.

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.

Yes

87. Can your device print a ballot on demand?

Ballot on Demand:

Clear Ballot’s “PrintNow” ballot on demand solution is a software/hardware system that allows jurisdictions of all sizes to print ballots individually for voters or in bulk, and test decks in house with high quality and low cost. Hardware costs are based on volume and do not include consumables.

88. How much does the ballot counting device weigh?

The ClearCast precinct tabulator weighs 32lbs.

89. How much does the base for the ballot counting device weigh?

The ballot bag configuration does not require a heavy base, only the attachment of a 3lb ballot bag that sits on top of a table.

The ballot box stand for the ClearCast device weighs about 50 pounds, but has wheels for transportation and can be collapsed for easy transportation and storage.



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?

The ClearCast tabulator comes with a wheeled transportation case for easy transport that weighs under 10 lbs. Combined the two weigh about 40lbs.

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

The collapsible ballot bag (table-top option) can hold between 700-900 ballots.

The collapsible ballot box has a removable bin inside which can hold 2500 ballots inside. This is a maximum as the bin would get very heavy after this much paper is held. The bin can easily be swapped out for a new bin in less than 60 seconds, which would be able to hold an additional 2500 ballots.

If the jurisdiction wishes to do so, they may forgo the bin and allow ballots to fall freely into the ballot box space, which will easily hold as many ballots as necessary for your entire election day.



ARCHITECTURE

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

There are two primary software programs that would be used by the boards of registration and elections at the State and county levels, ClearDesign, election management system, and ClearCount, tabulation and reporting software. Each system offers the most innovative modern software architecture in the industry and leverages a browser interface for ease of navigation. In many systems these two functions reside in a single software application. Clear Ballot made a strategic decision early in the development of our ClearVote system to keep these two modules separate to maintain high levels of system responsiveness and security.

CLEARDESIGN

ClearDesign is an election management system that is used to define jurisdictional data (languages, parties, districts, and precincts), define election data (contest and candidate), and lay out ballots. After these steps have been completed, ClearDesign produces files (ADF and BDF) for the voting devices.

The primary objective of the system is to make it easy for users to visualize the elements of an election and see the relationship between those elements. Using browser technology (HTML) and, in particular, its embedded links, the user can quickly and easily traverse the relationships between items.

Another objective is to let users quickly visualize ballot layouts. Therefore, the system breaks the ballot generation and layout into two parts. The generation determines which contests are on the ballots, and the layout places the contests on the cards of a ballot. A user can view the layout for a single ballot without having to lay out all the ballots.

CLEARCOUNT

ClearCount is a tabulation and reporting system that allows State and County officials to directly tabulate absentee ballots centrally using COTS scanning hardware, aggregate results from each precinct tabulator, and provide comprehensive reports including a statement of votes cast for the purposes of post-election audits and exports for the State's Election Night Reporting system.

The primary objective of the system is to provide the transparency and auditability that legacy voting systems have been unable to provide, and that the public and election administrators across the country have been asking for. The system is designed to provide digital ballot images in a way that is meaningful to election administrators and allows them to easily and precisely tabulate ambiguous voter marks, that sometimes happen when voters of mixed ages and abilities mark ballots by hand.



In the process of doing that, ClearCount has created a new set of data that election administrators can use to gain visibility and perspective on trends in the election. Through the visualization of all ballot images election administrators can better handle recounts and audits, identify hardware maintenance and poll worker training issues, and trends in the behavior of voters like they have never been able to do before.

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.

Due to its browser based software and interchangeable COTS hardware components, upgrading the ClearVote system is made simple.

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?

The ability to upgrade software and hardware components over time make the ClearVote system future proof. At any point in time, New Hampshire can upgrade pieces of the system without having to replace the system entirely. ClearVote will provide New Hampshire with a system that can grow with it over time.



BACKUP AND RECOVERY, BATTERY

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

BACKUPS:

Clear Ballot staff trains all voting system administrators to follow best practices by backing up election data on both the ballot layout database (ClearDesign) and tabulation server (ClearCount). Clear Ballot recommends nightly and final backups as the election definition is coded in ClearDesign, and likewise, nightly backups once scanning operations have commenced until finished within ClearCount.

DISASTER RECOVERY:

The paper ballot is the only known voting method that preserves a durable record of voter intent. Therefore, should there be any problem with the database of ballot images if proper procedures are followed for backup and storage-box labeling, it is always possible to revert to the last known good copy of the election database and re-scan the ballots from that point forward.

Clear Ballot further assists in a number of ways:

- Planning—Clear Ballot can aid the County in writing a Disaster Recovery Plan.
- Testing—Alongside County staff, Clear Ballot can help test the Plan between elections.
- Equipment—Clear Ballot maintains an inventory of system equipment at all times and could provide a County with an express shipment if needed. Similarly, where equivalent equipment can be obtained locally more quickly than express shipment allows, Clear Ballot can aid the jurisdiction to select and purchase suitable equipment, even if that equipment allows partial restoration until the better suited equipment arrives.
- Staff—Clear Ballot can bring staff to bear on the problem to aid the speed of the recovery effort as well as provide direct assistance within State guidelines to develop the election, staff polling places, whatever is needed.
-

96. Should the polling place lose 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?

Yes



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?

Yes - the built in battery back-up can last up to 4 hours.

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

The battery is easily replaceable for staff but not recommended in the field on election day. With the ClearCast tabulators, memory devices can be removed mid-election and put into a new machine. That machine will then pick up exactly where the other left off.

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

Batteries are replaced after 5-10 years depending on the amount of use.

Simply ensure the unit is unplugged and turned off, and follow these steps:

1. Open the back panel of the ClearCast device
2. Remove a velcro strap
3. Disconnect the battery cable
4. Remove the battery
5. Replace a new battery
6. Connect the battery cable
7. Reattach the velcro strap
8. Close the back panel

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?

The memory devices in 1 ClearCast machine can be put into another and picked up exactly where the last left off. This will be notated in the system logs. It prevents any catastrophic failures as there are two memory devices in each unit for redundancy.



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?

The capacity of the table-top ballot bag is 700-900 ballots depending on paper stock.

The capacity of the bin inside the larger standing ballot box option is 2500 ballots (depending on ballot stock).

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

The ballot box has a bin inside that holds 2500+ ballots, which can be removed and replaced once full.

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

The ClearVote system's small physical footprint facilitates for secure transport and storage of multiple units. Counties can choose whether to store their ClearCast and ClearAccess units in their respective carrying cases, which provide optimal protection for the system, as well as provide for easy transportation.

The minimal setup requirements allow for a fast startup and an easy and quick shut down process.

CLEARCAST STATION:

CLEARCAST DIMENSIONS:

Height: 14.2"

Width: 16"

Depth: 10"

Screen: 15.6"

Weight: 32 lbs

SETUP REQUIREMENTS:

A 4'x6' table on which the ClearCast unit with ballot bag would be placed. Spare thermal paper rolls in case the current roll is exhausted. Access to power so that the ClearCast unit can be plugged in and the battery fully charged. The election administrator should be sure to have keys to ClearCast units so they can be cleaned and maintained ahead of each election. Two USB drives



per ClearCast unit are used to program the unit with current election data. Refer to ClearCast Installation Guide for additional details.

STORAGE REQUIREMENTS:

The ClearCast system should be stored in areas that maintain uniform temperatures with normal humidity. The system can be stored in the rolling transport cases that come with the unit. The ClearCast units require periodic charging, meaning that storing each unit on shelving, tables or rolling carts is an acceptable method of storage that facilitates ease of charging.

CASE DESCRIPTION:

The ClearCast precinct scanner comes with a carrying and transportation case to hold the precinct scanner and one ballot bag. This case is on wheels with a pull handle (similar to carry on luggage). The dimensions are: Height: 18"

Width: 22"

Depth: 15"

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

Padding is included in the storage case to protect equipment from any rough handling

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

The hardware that the ClearVote system uses is designed for rugged use, and is tested for a variety of conditions that occur in the election market. These system components are packed in cases. All proposed voting system components are able to perform in a wide range of climates and humidity levels without ballot jams or other malfunctions.

CLEARCAST:

The ClearCast tabulator is built for resilience. Its internal components are securely enclosed within an all-metal housing. It is shipped in a custom transportation box that has been tested to provide shock and vibration resistance. The unit includes grips on each side, making it easy to carry. It also occupies a small footprint and can be stacked tightly when stored. No power is required for storage.

Limitations:

Battery Backup Capabilities: 4 hours

Practical temperature limits: 32°F to 100°F



Practical humidity: The ClearCast humidity tolerances are equivalent to the procedure of MILNSTD-810D, Method 507.2, Procedure IN-Natural Hot-Humidity

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

Generally 2, however Clear Ballot recommends storage racks that would significantly increase this number. For example, standard ULINE storage racks will hold 9-12 ClearCast units.

107. Is power required for storage?

Power is not required when storing the components of Clear Vote.

108. What storage temperature and humidity conditions are required?

CLEARCAST:

Practical temperature limits: 32°F to 100°F

Practical humidity: The ClearCast humidity tolerances are equivalent to the procedure of MILNSTD-810D, Method 507.2, Procedure IN-Natural Hot-Humidity

109. What other storage requirements are there?

The storage environment should be contain minimal dust.

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.

No. Clear Ballot digitally adjudicates all ballots, effectively eliminating the need for hand counting.

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?

See response to question #110.



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?

Ballot Box is 30" tall, 35" deep, and 20" wide and holds 2500 ballots per inserted bin. Price ranges between \$800-\$1,000

Ballot Bag is 12" tall, 24" deep, and 12" wide and holds 700-900 ballots per bag. Price is \$50 per bag.

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.

Clear Ballot was founded in Boston, Massachusetts in 2009 with a goal to develop a new class of solutions to help election administrators stay ahead of the technology curve. Our products, built with modern software architecture and commercially available (COTS) hardware, are designed to provide election officials with the most auditable, efficient, and transparent voting system available today.

Currently, Clear Ballot tabulates 70% of ballots in Oregon, and 65% of ballots in Washington. We are also implemented in 12 Ohio counties (totaling over 600,000 RVs), Colorado, Wisconsin and have provided statewide voting system audit projects in the States of Vermont and Maryland.

Clear Ballot is rapidly growing and currently has approximately 50 employees, each of whom has been chosen based on their skills and election experience. We are headquartered in Boston, Massachusetts and currently have representation in Virginia, Maryland, Florida, Ohio, Washington, and Colorado.

Clear Ballot will place our most experienced staff in New Hampshire, and continue our growth by hiring additional personnel to work with them. It is part of our company culture to proactively grow our staff in anticipation of future implementations.

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

Clear Ballot has been providing ballot central ballot counting since 2015 and precinct ballot counting since January of 2018.



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).

Our team is comprised of election experienced Senior Project Managers who have implemented statewide election systems over the course of their careers. A few examples follow.

In August 2017, King County, Washington, the 11th largest county in the United States, began using ClearVote to service their 1.3 million registered voters. To date, they have used ClearVote to run six (6) successful elections.

Clear Ballot tabulates 70% of ballots cast in Oregon and support customers who total 1.9 million registered voters. In Washington, we tabulate 65% of ballots cast in the state and support customers who total 2.7 million registered voters.

Clear Ballot has a statewide contracts with Maryland to audit ballots cast by their 4 million registered voters. We completed the nation's first 100% statewide audit for the 2016 General election in Maryland, alongside their 2018 Primary and Midterm elections. Clear Ballot technology has been installed in Broward County, Florida since 2015 to audit ballots cast by their 1.2 million registered voters.

ClearCast, our precinct ballot cast machine, is in use in 14 different counties in Wisconsin and Ohio.

Clear Ballot is the only voting system that provides officials with the ability to right size the system based on the number of registered voters in that precinct. Our table top ClearCast model leverages a collapsible ballot bag that holds 700-900 ballots. It is significantly less expensive and easier to transport and store than most legacy voting system precinct tabulators. Our stand alone ballot box holds 2500 ballots. For larger precincts, officials can use a combination of either.

- a) A single ClearCast unit can, depending on the length of the ballot and assuming a single card ballot, scan between 350 to 400 ballots per hour assuming voter lines are consistent and managed in getting voters to the scanner.
- b) Our general recommendation is to have more than 1 scanner for locations with over 1500 voters. This is not due to any limitation of the machine but rather to not have a single point of failure or single point of voter queuing.



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?

Clear Ballot Group, Inc. is a Corporation registered in the State of Delaware. There is currently one shareholder, Steve Papa, who owns more than 10% of the outstanding shares.

117. How many jurisdictions are currently using the device you are proposing for the State of NH?

14

118. Provide a list of current customers, the model of ballot counting device and type of voting system used and its implementation date.

Currently, Clear Ballot tabulates 70% of ballots in Oregon, and 60% of ballots in Washington. We are also implemented in Colorado and Wisconsin as well as provided statewide voting system audit projects in the States of Vermont and Maryland and several counties throughout Florida.

The proposed tabulation system has been installed in the following jurisdictions:

CLEARVOTE IMPLEMENTATIONS

Jurisdiction	State	Registered Voters	Implementation
Douglas County	CO	233,294	February 2018
Clinton County	NY	51,039	November 2016
Jefferson County	NY	65,510	August 2017
Saratoga County	NY	165,926	December 2017
Warren County	NY	46,196	January 2018
Champaign County	OH	26,398	In Process for May 2019 Election
Clark County	OH	90,384	In Process for May 2019 Election
Clinton County	OH	27,252	In Process for May 2019 Election
Highland County	OH	27,978	In Process for May 2019 Election
Jackson County	OH	21,501	In Process for May 2019 Election
Jefferson County	OH	48,463	In Process for May 2019 Election
Miami County	OH	74,338	In Process for May 2019 Election
Pike County	OH	18,833	In Process for May 2019 Election
Warren County	OH	160,431	In Process for May 2019 Election
Coos County	OR	34,271	January 2016



Curry County	OR	13,559	January 2019
Deschutes County	OR	105,834	October 2017
Douglas County	OR	62,499	August 2017
Harney County	OR	4,321	February 2016
Hood River County	OR	12,143	March 2018
Jackson County	OR	123,356	September 2016
Josephine County	OR	52,994	September 2015
Klamath County	OR	34,203	January 2016
Lane County	OR	212,627	November 2016
Linn County	OR	66,564	December 2015
Multnomah County	OR	454,754	August 2015
Wasco County	OR	13,525	March 2018
Washington County	OR	297,340	March 2016
Yamhill County	OR	54,277	March 2018
Benton County	WA	107,298	June 2018
Clallam County	WA	51,055	August 2018
Grays Harbor County	WA	40,429	February 2018
King County	WA	1,283,558	September 2017
Lewis County	WA	45,877	April 2018
Mason County	WA	37,719	July 2018
Pierce County	WA	495,661	May 2017
Skamania County	WA	7,549	March 2018
Snohomish County	WA	455,668	March 2018
Whatcom County	WA	135,715	March 2018
Sheboygan County	WI	61,732	August 2018

COUNTYWIDE AUDIT IMPLEMENTATIONS

Jurisdiction	State	Registered Voters	Implementation
Bay County	FL	119,126	September 2014
Broward County	FL	1,191,887	January 2015
Columbia County	FL	38,083	September 2016
Leon County	FL	208,524	September 2014
Nassau County	FL	61,760	August 2015
Putnam County	FL	47,843	October 2013
St. Lucie County	FL	193,027	October 2014



STATEWIDE AUDIT IMPLEMENTATIONS

Jurisdiction	State	Registered Voters	Implementation
Maryland	MD	3,992,451	June 2018
Vermont	VT	490,074	November 2016

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

The Clear Ballot Customer Success Team is dedicated to our new customers and the ongoing success of our existing customers. The Customer Success Team is made up of 13 technically skilled and election experienced Project Managers, Field Support Engineers, Trainers, Ballot Designers, Developers and Customer Success Managers. Our team members are stationed across the United States so that we may quickly tend to customer needs in person as well as by phone, email, or using our online Support Portal. Approximately half of the team are seasoned election professionals, averaging 18 years of election experience. The other half of the team is comprised of seasoned technical professionals averaging 17 years of technical experience.

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.

Clear Ballot Customer Success Team is made up of Senior Project Managers, Field Support Engineers, Trainers, Election Business Analysts and Customer Success Managers located within every timezone in the US, and accordingly, we can arrive onsite to implement ClearVote within 10 or 15 business days of an executed contract and hardware delivery.

One of every component making up the ClearVote system will initially be installed and configured for your immediate use and training. This includes ClearDesign Server and Station for ballot coding, one ClearAccess ADA ballot marking unit, one ClearCast ballot casting unit, ClearCount Server, Scan Station, Scanner and Admin station for central tabulation and election results reporting. Additional ClearAccess and ClearCast units are delivered once a site survey has been conducted by the Senior Project Manager and sufficient warehouse space to stage all units for your User Acceptance Testing (UAT) has been secured. All equipment delivered is staged by the Clear Ballot team members for UAT by the Town/City Election Team Members. An entire installation can be completed within 8-12 weeks of an executed contract.



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

The following Original Equipment Manufacturers produce their products outside of the United States:

- Fujitsu
- Brother
- Oki Data
- LG
- Cisco
- ELO
- Western Digital
- Storm Interface
- Wurth
- Corsair
- Anker
- APC
- SanDisk
- StarTech
- Zebra

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

CLEARCAST:

Clear Ballot's manufacturing facility in Nashua, New Hampshire has a production rate of 100 finished ClearCast systems per week. We maintain a supply chain of parts for manufacturing the ClearCast system for the useful life expectancy of the unit.

ClearAccess, ClearCount, and ClearDesign all run on commercially available hardware.

CLEARACCESS:

The ClearAccess system is run on an Elo touchscreen and features and Oki Data printer to print marked ballots.

CLEARCOUNT:

ClearCount is run on a Dell Latitude 5590 laptop, and utilizes a Fujitsu scanner in order to tabulate ballots.

CLEARDESIGN:

ClearDesign is run on a Dell Latitude 5590 laptop.



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?

Clear Ballot firmly believes that transparency, auditability, and the resiliency of an identical paper ballot for every voter are the fundamental elements that lead to secure voting systems. The Department of Homeland Security suggests, to enhance election system integrity, that officials should prioritize, purchase, and deploy auditable voting systems. ClearVote is the most transparent and most auditable voting system available today. Our system produces the highest quality digital images and allows for the visual inspection of our results data base from those digital images, which no other system can provide. This is essential to ensuring the auditability of your elections is the greatest form of security.

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

Our ClearCast vote counting solution is manufactured in Nashua, New Hampshire.

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

CLEARCAST:

Clear Ballot's manufacturing facility in Nashua, New Hampshire has a production rate of 100 finished ClearCast systems per week. We maintain a supply chain of parts for manufacturing the ClearCast system for the useful life expectancy of the unit. Clear Ballot can replace parts within a 30 day lead time or less, depending on the required part.

ClearAccess, ClearCount, and ClearDesign all run on commercially available hardware.

CLEARACCESS:

The ClearAccess system is run on an Elo touchscreen and features and Oki Data printer to print marked ballots. Clear Ballot can replace any component of the ClearAccess system within 30 days of notification.

CLEARCOUNT:

ClearCount is run on a Dell Latitude 5590 laptop, and utilizes a Fujitsu scanner in order to tabulate ballots. Clear Ballot can replace any component of the ClearCount system within 30 days of notification.



CLEARDESIGN:

ClearDesign is run on a Dell Latitude 5590 laptop. Clear Ballot can replace this component of ClearDesign within 30 days of notification.

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

This version of ClearVote will be compatible for many years to come, given that it is the most modern release in the market. As we build additional functionality into our products and expand our product offering, we maintain backwards compatibility to ensure that we do not put customers into a scenario where an upgrade becomes mandatory. However, if customers do decide they would like to upgrade, we ensure that earlier versions of hardware are still compatible with the newest software version. We expect this system to be usable for decades with continued software upgrades.

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.

Clear Ballot Group currently does not have any relationships or participate in any activities that would be seen as a conflict of interest specifically in regards to the submission of a proposal for evaluation or approval 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?

No

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.

There has been no voting system related litigation involving Clear Ballot Group within the last 10 years.



MAINTENANCE, TRAINING, AND SUPPORT

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

The Clear Ballot team is a combination of veteran election industry professionals with decades of experience running elections and a group of technically gifted Field Support Engineers. We are able to effectively communicate and train students with a wide range of backgrounds and skill sets from Election Directors, Election Administrators, IT Staff, Rovers and Poll Workers.

Our intuitive, browser based user interface is easy to learn and use. We have a wide range of training materials suited to meet the needs of Poll Workers, Site Supervisors, Rovers, IT team members and Election Administrators.

These training materials include Poll Worker pictorial instructions how to use precinct equipment, Site Supervisor checklists on how to open polls, close polls, run reports and deliver election data to election offices, Rover checklists on how to troubleshoot common problems, voting equipment inspection checklists and setup instructions for IT team members to reference as Clear Ballot team members setup the voting system under their supervision, and a checklist for how to program all election equipment, recommended L&A tests to run and how to run all reports needed to run elections.

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.

Training is generally included in our standard implementation price and varies based on the needs of the jurisdiction.

CLEARVOTE TRAINING COURSES

CLEARVOTE

- ClearVote System Orientation: High-level introduction to ClearVote™ system starting with ballot design and ending with election certification.
- ClearDesign to create and design ballots;
- ClearAccess at all polling locations to meet ADA requirements;
- ClearCast at all polling locations for all voters to cast ballots;
- ClearCount to scan, tabulate, and report election results.

Students: All Staff Length: 2 hours

CLEARACCESS



Overview of the ClearAccess System: Election Day operation of precinct equipment; opening and closing of polls, issuing ballots; using audio headphones, sip-and-puff, keypad, and touchscreen for casting ballots; basic maintenance and troubleshooting. This course also covers ClearAccess administration and operations. Topics include system configuration and testing prior to deployment to the polling locations; preparation of tabulators and accessible voting system components, including setup and pre-election testing; troubleshooting; post-election procedures. Students: Precinct Supervisors, Rovers, Poll Worker Trainers, IT Staff Length: 1 day

CLEARCAST

Overview of the ClearCast System: Election Day operation of precinct equipment; opening and closing of election, opening and closing of polls, casting ballots; basic maintenance and troubleshooting. This course also covers ClearCast administration and operations. Topics include system configuration and testing prior to deployment to the polling locations; preparation of tabulators, including setup and pre-election testing; troubleshooting; post-election procedures. Students: Precinct Supervisors, Rovers, Poll Worker Trainers, IT Staff Length: 1 day

CLEARCOUNT

Overview, Installation and Setup: Hands-on walkthrough on setting up the system hardware components and ClearCount software installation; configuring the ScanStation scanners; system hardening; troubleshooting.

Ballot Scanning and ScanStation Operations: Overview of ScanStation operation and maintenance. Topics include initializing ScanStations; ballot scanning; troubleshooting; resolving ballot jams; routine cleaning and preventive maintenance.

System Administration: Overview of system, election, and user administration. Topics include audit procedures; election reports; election activity logs; ClearCount system log; requirements for conducting a recount using the tabulator; preserving election records; troubleshooting.

Security Training: Overview of the security requirements and controls provided by the ClearCount system, including safeguards to prevent and detect tampering.

Visualization and Adjudication: Overview of ballot adjudication functions. Topics include visualization of votes, adjudication of ballots, and processing write-in votes.

Election Reports: Overview of election reporting functions. Topics include audit procedures; tabulation of results; accessing reports; report types; printing standard reports; customizing reports; methods for ensuring accuracy of precinct results; troubleshooting.

Students: Tabulation Room Staff, IT Staff, Canvassing Board Members when required, Senior Staff when required Length: 2–5 days. The length of the course varies based on the skill set of the class.



LOGIC AND ACCURACY TESTING (LAT)

Hands-on experience and recommendations for what to test and workflow to follow before and during the LAT.

Components include ClearDesign, ClearAccess, ClearCast and ClearCount.

This course covers exporting election definition files from ClearDesign, programming ClearCount, ClearAccess and ClearCast units with election data exported from ClearDesign, preparation and tabulation of test deck ballots, running election reports and State upload, if applicable. Students learn how to configure the precinct equipment with election and tabulation of test decks in ClearCount to produce reports.

Students: IT Staff, Tabulation Room Staff Length: 2 days (includes 1 day of onsite support during the LAT)

132. Provide examples of all training materials.

Below are four (4) samples of training files, one per ClearVote component:

Attachment #2, ClearCast Poll Worker Quick Guide

Attachment #6, ClearAccess Simplified Voter Instructions

Attachment #7, ClearCount Training Fujitsu

Attachment #8. ClearDesign Training

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

Preventative maintenance visits on-site:

The technicians performing equipment preventive maintenance will check in with officials upon arrival in the facility and before leaving the site. Our technicians maintain a detailed log of repairs and testing performed on each unit. The technicians record, in pre-printed Preventative Maintenance checklists, the repairs and/or tests performed to each unit. Information recorded in the checklists include the unit's model and serial number and software/firmware version, if applicable. A report is attached to the checklist, which recaps the progress made during the service visit and estimates the date for resolution of any and all outstanding issues.



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

Clear Ballot Technical Support team members are available during your business hours and extended business hours during ballot design, L&A and election day. Any unit that is not working as expected would be inspected and repaired if the problem is one of a small set of common problems that takes only minutes to complete inspection. If the unit continues not working properly, instructions to swap the failing unit for a spare unit would be followed and in less than 5 minutes, the replacement unit will become available for use by voters.

Subsequent to the election, the failing unit would again be inspected using a much more comprehensive checklist and will likely be fixed in place. If fixing in place is not a viable option, the unit will be replaced.

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

- A. On election day.
- B. At other times.

If a part is determined to be broken the customer should initiate a ticket in desk.com by calling our customer success team or emailing our support portal. If the device is COTS hardware Clear Ballot will contact the manufacturer on the customer's behalf to get the unit replaced or fixed. All Dell, Fujitsu and Elo hardware has Next Business Day maintenance packages; ClearCount Dell servers have Mission Critical Maintenance packages for same day service. Customers should ensure their equipment is ready for election day activities so issues can be fixed before critical time periods. If the device is manufactured by Clear Ballot, the Customer Success team and Hardware Engineers will determine whether the unit must be returned to headquarters for if a technician can be sent to attempt a field repair after a desk ticket has been created.

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

Clear Ballot Technical Support team members are available during your business hours and extended business hours during ballot design, L&A and election day. There is no additional cost for these extended hours. Additionally, and also included in the initial implementation, the Senior Project Manager and a Field Support Engineer are on site before logic and accuracy test (L&A), and throughout election day. Clear Ballot stands along side you until there is proficiency among your Election Team Members in using the ClearVote system.



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

Clear Ballot uses commercial off the shelf (COTS) hardware devices such as Dell servers and laptops, OKI printers, Fujitsu scanners and ELO touch screen computers. A hardware warranty for each device is included in the price of Clear Ballot Support and Maintenance Agreement which must be renewed annually.

Warrantied Fujitsu scanners, for example, include an annual service call from a certified Fujitsu technician who will inspect, maintain, replace consumables and clean each scanner. These annual visits from Fujitsu technicians are included with the paid Clear Ballot Support and Maintenance Agreement which includes hardware warranty.

All devices are covered under warranty and onsite repair response times are within 1 business day. During elections, ClearCount tabulation server response time is within 4 hours. Additionally, it is a standard practice to have some number of spare ClearAccess and ClearCast units so should one unit fail to operate as expected and is not able to be fixed in place within minutes, the failing unit can be swapped out immediately.

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.

Clear Ballot is committed to providing the best long-term partnership to the state of New Hampshire. One of the organizing principles of our company was to provide election officials with cost effective solutions that minimize the total cost of ownership over time by giving you options on the consumables and leveraging COTS hardware support networks to provide service under our management. To provide complete transparency into the total cost of ownership of the ClearVote system our hardware warranty and software maintenance package will include annual hardware warranties, annual software license fees, ongoing support, software and hardware upgrades, and future enhancements all inclusive. Listed below are descriptions of the services provided under this plan:

HARDWARE WARRANTY

Clear Ballot's hardware warranty program provides assurance all system hardware is free of all defects on material and workmanship. During the warranty period, Clear Ballot will repair or replace, free of charge, any part defective in material or workmanship. For ClearCast hardware, Clear Ballot will replace system components as needed while under warranty at cost. Hardware warranties shall be designated to begin uniformly, immediately upon the completion of the state's pre-defined User Acceptance Testing and acceptance by the State, or at the end of 90



days after completion of delivery, whichever shall occur earlier. All warranty repairs must be performed by Clear Ballot or an authorized Clear Ballot representative.

Clear Ballot offers enhanced warranty programs to ensure the maximum useful life of all hardware in New Hampshire, which include preventative maintenance visits at either each municipality or a central location within the state. During onsite preventative maintenance visits, Clear Ballot technicians perform equipment preventive maintenance on 100% of the machines as well as providing a thorough inspection of all equipment deemed to be problematic. The Clear Ballot technician will check in with officials upon arrival, and before leaving the site, and provide a report of the work to be performed. Our technicians maintain a detailed log of repairs and testing performed on each unit. Clear Ballot technicians run diagnostics on equipment, review digital images from each scanner from the previous election to check ballot image quality, check battery health and printer functions and provide any repairs or parts replacements under warranty. Technicians record, in pre-printed preventative maintenance checklists, the repairs and/or tests performed to each unit. Information recorded in the checklists include the unit's model and serial number and software/firmware version, if applicable. A report is attached to the checklist, which recaps the progress made during the service visit and details any and all outstanding issues that require further attention as well as suggested maintenance the county can perform moving forward. Clear Ballot will also coordinate with COTS OEM's to schedule annual preventative maintenance visits to ensure all COTS equipment is performing up to standards.

SOFTWARE MAINTENANCE

Software maintenance includes annual technical support, certified software upgrades, and software patches. Software Maintenance ensures that New Hampshire will have the most recent certified software versions of our system, that you have regular support on the use and maintenance of the system, and that the State has visibility and input on the direction of future enhancements to the software. A Clear Ballot Customer Success Manager will be assigned to each county in the State as a primary point of contact for technical support. Upgrades to all certified software at the time of purchase will be provided at no cost to the State while under maintenance. As the innovator in the industry, Clear Ballot is committed to continually improving our software to provide solutions that improve the experience for our customers. Clear Ballot has been recertifying two versions of the system annually through the EAC and plans to continue to drive innovation in Voting Systems.

SUPPORT

Clear Ballot will assign a Customer Success Manager (CSM) upon contract award that will reside in State and be the primary point of contact for the State and townships. Additional CSM's will be added during the implementation process to provide sufficient coverage as the system is



rolled out. The Customer Success Management team will hold bi-annual meetings to communicate the status of system upgrades, election support information, product roadmap, and enhancement requests. The Customer Success Management team will also coordinate all hardware service and software upgrade schedules with the State and townships.

Clear Ballot also provides a dedicated toll-free number for Help Desk Support, Emergencies, Customer Service, and Technical Support 8am to 5pm local time, Monday—Friday, holidays excluded, with expanded hours during election cycles. Support personnel talk to each customer to understand the nature of the call and provide initial troubleshooting to expedite resolution of common questions related to Clear Ballot's system. Issues requiring further technical assistance are routed to the appropriate resources to ensure that callers speak to technicians who are equipped to handle the customer service, technical support, and other requests as needed.

Additionally, our online help desk is available 24/7, 365 days/yr. Our online help desk portal allows customers to view instructional videos and send questions directly to customer support, with the assurance that their question will be responded to promptly. No matter what time of the day or night the issue or question arises, the online help desk portal is always available to place the question in the queue, time-stamped, and ready for response. The system alerts support personnel immediately upon receipt of a request. Requests through the system create a time-stamped, tracked service request ticket which ensures timely responses to help desk requests which allow us to provide the highest level of customer support possible. Clear Ballot will partner with the State to produce an agreed-upon report format for help desk ticket calls, open tickets, resolved tickets, and maintenance issues as required.

Clear Ballot will provide issue reporting via Field Service Bulletins. If there is a critical bug, we issue a Field Service Bulletin within 48 hours (or sooner within an election cycle), and we will work with the State and any affected townships on a daily basis until the bug is fixed. Clear Ballot will comply with the timing requirements agreed to with the State through the Clear Ballot Field Service Bulletin procedures and in conjunction with New Hampshire certification authorities.

Clear Ballot will make security upgrades/patches available for the life of the contract. The deployment of each upgrade/patch will be determined by mutual agreement between Clear Ballot and agreed to with the State.



139. Define all consumables and proposed timeline for replacement.

The consumables required for the ClearCast, ClearCount and ClearAccess components of the ClearVote system are summarized in the tables below. No consumables are required for the ClearDesign component. The primary consumables supply chain for customers is through Clear Ballot Group, Inc. although many items can be purchased from other vendors.

CLEARCAST CONSUMABLES

Part Name	Description	Recommended Replacement Cycle
One case thermal paper	Type: Thermal. Width: 79.5 ± 0.5 mm. Diameter: 60 mm maximum. Thickness: 55–90 µm. (50 rolls per case)	Use as needed
Battery	Zeus 12V 9AH sealed lead acid battery	5 years
Dynarex Alcohol Antiseptic Wipes - Scanner cleaner	2-5/8" Long Isopropyl Alcohol Antiseptic Wipes (200 per carton)	One time use

CLEARACCESS CONSUMABLES

Item	Description	Recommended Replacement Cycle
Sip/Puff Replacement Mouth Tubes (AC-0313-MUV-10)	Mouth tubes for sip-and-puff device (10 tubes, 1 inline filter)	One time use
Sip/Puff Replacement Mouth Tubes (AC-0313-MUV-100)	Mouth tubes for sip-and-puff device (100 count)	One time use
HamiltonBuhl™ HygenX™ Headphone Covers (HygenX45)	Headphone earpiece hygienic covers	One time use
Okidata 12K Toner Cartridge	Toner for Okidata B432dn printer	Replace as needed
Kapton Tape	Kapton® tape, 3/4" 2 mil (S-17213)	Replace before every election
Copper Tape	1/4" copper tape (AIT002) for Okidata B432dn Printer and APC UPS SMT2200C	Replace as needed

PRINTNOW CONSUMABLES

Part Name	Description	Recommended Replacement Cycle
Okidata 12K Toner Cartridge	Toner for Oki Data B432dn printer	Replace as needed
Black Toner - 46507616 Yellow Toner - 46507613 Magenta - 46507614 Cyan - 46507615	Toner for Oki Data C712	Replace as needed
Paper for bar code printer	2.25" thermal printer paper	Replace as needed



CLEARCOUNT CONSUMABLES (FOR FUJITSU SCANNERS)

Part Name	Part Number	Description	Recommended Replacement Cycle
fi-6400 consumables			
ScanAid™Kit	CG01000-530801	One pick roller, one separation roller, one brake roller, one cleaning kit (mid-volume cleaning kits include F1 cleaner, cleaning sheets, cleaning cloth, cleaning swabs and instructions)	
Pickrollerset	PA03575-K011		600,000 sheets or one year
Brakeroller	PA03575-K013		600,000 sheets or one year
Separatoroller	PA03575-K012		600,000 sheets or one year
Cleaning kit	SC-CLE-LV	One bottle of F1 cleaning fluid, 75 lint-free cleaning cloths (containing specially formulated F1 cleaning fluid, the cloth effectively removes dirt, toner, carbon, chemicals from treated papers, and other debris from the parts of the scanner that are in continuous contact with paper)	Approximately three months at one application per day, or one month at three per day
fi-6800 consumables			
ScanAid™Kit	CG01000-530801	One pick roller, one separation roller, one brake roller, one cleaning kit (mid-volume cleaning kits include F1 cleaner, cleaning sheets, cleaning cloth, cleaning swabs and instructions)	
Pick roller set	PA03575-K011		600,000 sheets or one year
Brake roller	PA03575-K013		600,000 sheets or one year
Separator roller	PA03575-K012		600,000 sheets or one year
Consumable kit for fi-6800	CON-3575-001A	One pick roller, one brake roller, one separation pad, one separation roller	
Cleaning kit	SC-CLE-LV	One bottle of cleaning fluid, 75 lint-free cleaning cloths	Approximately three months at one application per day, or one month at three per day



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

Below is the list of proprietary hardware that must be purchased directly from Clear Ballot.

- ClearCast precinct scanner
- ClearCast ballot bag
- ClearCast carrying case
- ClearAccess carrying case
- Emergency ballot bag

There are no proprietary consumables that must be purchased directly from Clear Ballot.

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

Clear Ballot Technical Support is available by phone, web and email 12 hours every business day and extended hours during ballot design periods and during elections. We have team members in every timezone so you can depend on reaching us during your regular business hours.

When a failed hardware or software component is reported, a case is created in our call tracking system using the device's serial number. The case is assigned to a technically capable Clear Ballot Group Support Representative who will aid in diagnosing the problem.

Software questions are answered same day, and hardware failures are investigated same day by instructing the customer to run diagnostics and corrective actions to common problems. If the problem persists, the support representative will facilitate contacting the vendor of the hardware to service and repair in place or replace the unit.

Equipment is warrantied and provides a same day response time and an onsite visit from expert vendor technicians should the problem be unresolved after the initial diagnosis by phone.



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?

\$5,700/unit comes with a storage/transport case, collapsible ballot bag and all consumables.

\$6,500/unit comes with a storage/transport case, free-standing ballot box and all consumables.

A. 1 year of maintenance/warranty is included. For all ongoing year the warranty is \$225/yr. Details included in warranty program explained previously.

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?

N/A

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?

\$225/unit/yr

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

Clear Ballot is opening to discussing this on a case by case basis.

146. What is included in the maintenance agreement?

Clear Ballot anticipates federal re-certification cycles that will lead to software and firmware of specialized hardware updates one or two times per year. Although new software and firmware of specialized hardware typically becomes available bi-annually, it is not immediately necessary to adopt use it. Product update timelines will consider election dates and cycles in the State of New Hampshire to ensure no conflicts. The initial ClearVote Warranty covers all hardware and software included in this Invitation to Bid for a period of 12 months. Clear Ballot begins that warranty period when the product is accepted, so for the software components of this proposed solution, the warranty would begin when the State certifies ClearDesign and ClearCount for use in New Hampshire or otherwise accepts the applications. All ClearVote hardware (to include ClearCast, ClearAccess, ClearCount central scanners, and ClearDesign hardware and firmware) warranties would likewise begin at the time of acceptance. Following the State's proposed



timeline, New Hampshire's software warranty would begin shortly after a contract is agreed upon and last for 12 months, at which time the State would renew this warranty by paying annual maintenance, which we have laid out in our cost proposal. Software maintenance includes annual technical support, and software patches.

Clear Ballot's hardware warranty program provides assurance all system hardware is free of all defects on material and workmanship for a period of 12 months. During the warranty period, Clear Ballot will repair or replace, free of charge, any part defective in material or workmanship. All warranty repairs must be performed by Clear Ballot or an authorized Clear Ballot representative or, for COTS equipment, by the manufacturer or an authorized manufacturer's representative.

In addition to Clear Ballot, Dell Inc. and Fujitsu certified support representatives will be permitted to provide support for their respective equipment without voiding any warranty terms. To avoid invalidating manufacturers warranties on any of the ClearVote hardware components, we use certified support personnel for each device. We use Fujitsu support professionals and have developed custom election specific support plans that are tailored to the unique aspects of running elections. Annual onsite hardware preventive maintenance visits by Clear Ballot certified representatives provide general preventive maintenance, replacement of any worn parts, an audit of ballot images to inspect scanner quality, an audit of device audit logs and an audit of device diagnostic tests.

As Clear Ballot offers new software releases to customers, we maintain backwards compatibility between our software and hardware. While other companies in the elections market require customer to replace their entire hardware fleet to receive an upgrade, Clear Ballot software upgrades allow counties to remain up to date with the most modern and secure functionality.

Clear Ballot's voting system customers have received multiple software upgrades since first implementing their systems. These upgrades are the result of customer feedback gathered by running elections, during user groups, and in 1v1 sessions with customers and Clear Ballot's Product Team. These upgrades demonstrate that Clear Ballot is not satisfied with the status quo and continues to innovate and bring common sense improvements that bring greater efficiency to customers. These upgrades extend the useful life-cycle of the product to match customer needs for years to come.

Clear Ballot also continuously integrates modern hardware into our offering. As customer's grow, they aren't stuck with older hardware, and can proactively upgrade. Because Clear Ballot software is backwards compatible, customers are in control when their needs evolve. Each customer can choose to upgrade any piece of their hardware system (accessible hardware, polling place hardware, absentee tabulation hardware) without needing to replace the entire



voting system. This flexibility provides customers a voting system that grows with them, and remains modern and secure over time.

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

The consumables required for the ClearCast, ClearCount and ClearAccess components of the ClearVote system are summarized in the tables below. No consumables are required for the ClearDesign component. The primary consumables supply chain for customers is through Clear Ballot Group, Inc. although many items can be purchased from other vendors.

CLEARCAST CONSUMABLES

Part Name	Description	Recommended Replacement Cycle
One case thermal paper	Type: Thermal. Width: 79.5 ± 0.5 mm. Diameter: 60 mm maximum. Thickness: 55–90 µm. (50 rolls per case)	Use as needed
Battery	Vision 12V 9AH sealed lead acid battery	5 years
Dynarex Alcohol Antiseptic Wipes - Scanner cleaner	2-5/8" Long Isopropyl Alcohol Antiseptic Wipes (200 per carton)	One time use

CLEARACCESS CONSUMABLES

Item	Description	Recommended Replacement Cycle
Sip/Puff Replacement Mouth Tubes (AC-0313-MUV-10)	Mouth tubes for sip-and-puff device (10 tubes, 1 inline filter)	One time use
Sip/Puff Replacement Mouth Tubes (AC-0313-MUV-100)	Mouth tubes for sip-and-puff device (100 count)	One time use
HamiltonBuhl™ HygenX™ Headphone Covers (HygenX45)	Headphone earpiece hygienic covers	One time use
Okidata 12K Toner Cartridge	Toner for Okidata B432dn printer	Replace as needed
Kapton Tape	Kapton® tape, 3/4" 2 mil (S-17213)	Replace before every election
Copper Tape	1/4" copper tape (AIT002) for Okidata B432dn Printer and APC UPS SMT2200C	Replace as needed



PRINTNOW CONSUMABLES

Part Name	Description	Recommended Replacement Cycle
Okidata 12K Toner Cartridge	Toner for Oki Data B432dn printer	Replace as needed
Black Toner - 46507616 Yellow Toner - 46507613 Magenta - 46507614 Cyan - 46507615	Toner for Oki Data C712	Replace as needed
Paper for bar code printer	2.25" thermal printer paper	Replace as needed

CLEARCOUNT CONSUMABLES (FOR FUJITSU SCANNERS)

Part Name	Part Number	Description	Recommended Replacement Cycle
fi-6400 consumables			
ScanAid™Kit	CG01000-530801	One pick roller, one separation roller, one brake roller, one cleaning kit (mid-volume cleaning kits include F1 cleaner, cleaning sheets, cleaning cloth, cleaning swabs and instructions)	
Pickrollerset	PA03575-K011		600,000 sheets or one year
Brakeroller	PA03575-K013		600,000 sheets or one year
Separatoroller	PA03575-K012		600,000 sheets or one year
Cleaning kit	SC-CLE-LV	One bottle of F1 cleaning fluid, 75 lint-free cleaning cloths (containing specially formulated F1 cleaning fluid, the cloth effectively removes dirt, toner, carbon, chemicals from treated papers, and other debris from the parts of the scanner that are in continuous contact with paper)	Approximately three months at one application per day, or one month at three per day
fi-6800 consumables			
ScanAid™Kit	CG01000-530801	One pick roller, one separation roller, one brake roller, one cleaning kit (mid-volume cleaning kits include F1 cleaner, cleaning sheets, cleaning cloth, cleaning swabs and instructions)	
Pick roller set	PA03575-K011		600,000 sheets or one year



Brake roller	PA03575-K013		600,000 sheets or one year
Separator roller	PA03575-K012		600,000 sheets or one year
Consumable kit for fi-6800	CON-3575-001A	One pick roller, one brake roller, one separation pad, one separation roller	
Cleaning kit	SC-CLE-LV	One bottle of cleaning fluid, 75 lint-free cleaning cloths	Approximately three months at one application per day, or one month at three per day

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

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?

\$6,150

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

Additionally Available Hardware, Accessories and Consumables	Price Per
ClearAccess System:	
ClearAccess Toner	\$ 267
ClearAccess EZ Access Keypad	\$ 200
ClearAccess Headphones	\$ 16
ClearAccess Printer Cable	\$ 8
ClearAccess Mobile External Batter Backup	\$ 44
ClearAccess Sip/Puff Breeze	\$ 399
Optional Configuration including Barcode Scanner for ClearVote	\$ 500
Additional ClearAccess Case	\$300
Premium ClearAccess Hard Case	\$ 690
Premium ClearAccess Soft Case	\$ 900
ClearAccess Table for Polling Location Use	\$ 90
ClearCount Central Scan System:	
ClearCount ScanAid Kit for Scanner	\$ 225



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ClearCount Report Printer	\$ 150
ClearCount Scanner Cable	\$ 8
ClearCast Voting System – Precinct:	
ClearCast Thermal Paper	\$ 132
ClearCast Replacement Battery	\$ 46
ClearCast Storage Case	\$ 300
ClearCast Ballot Bag	\$ 40
Additional ClearCast Case	\$ 300
ClearCast Premium Hard Case	\$ 720
ClearCast Premium Soft Case	\$ 900
ClearCast Table for Polling Location Use	\$ 90
Precinct Carts – Sizing Customized	as customized
ClearDesign Server – Laptop	\$ 2,200
ClearCount Server - Desktop	\$ 3,280
Desktop Server Monitor	\$ 164
Desktop Server and Mouse Bundle	\$ 20
Admin Station – Laptop	\$ 2,200
Admin Station – Desktop	\$ 2,200
High Resolution Monitor – 22”	\$ 239
High Resolution Monitor – 27”	\$ 399
Router – 4 Port	\$ 95
Router – 8 Port	\$ 137
Switch – 8 Port	\$ 44
Switch – 24 Port	\$ 107
Ethernet Cables – 8 Pack	\$ 27
4TB Backup Storage Drive	\$ 160
USB Stick	\$ 25
X4 Voting Booth	\$ 800
Classic Voting Booth Companion Pack – pack of two	\$ 200
Accessible Voting Booth Companion Pack (wide legs) – pack of two	\$ 260
Plastic Ballot marking Privacy Screen	\$ 20



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.

Based on the description above, Clear Ballot can absolutely meet New Hampshire's potential audit requirement. We have a demonstrated ability to audit ballots for the Accuvote System, and any other voting system on the market today. Clear Ballot was able to tabulate the sample ballots



sent to us by the State despite the complex rotation. A detailed overview of how our system can handle voter intent related issues on ballots is below.

Clear Ballot offers an efficient and automated approach to identifying ballots that require human judgment/review. Ballots requiring human resolution do not ever need to be physically separated as batches, or pulled from their batch. The ClearCount scanning and tabulation system excels in the ability to digitally adjudicate exception ballots and excels in the management of resolving overvoted ballots, management of undervotes, write-ins, and unreadable voting targets/ballots.

Manual adjudication process: The election's Dashboard provides a real-time summary of all scanning activity, including the number of ballots that require adjudication. Each of these ballots can be viewed via a digital link to a high-resolution grayscale image, which is the highest quality ballot image available from any voting technology. Election judges review and when necessary, adjudicate overvotes, undervotes/uncaptured intent, write-ins and voter mistakes, filtered by contest and candidate. Any marks or votes that are unreadable are held in suspense until adjudication teams resolve exceptions.

While scanning and adjudication can be done simultaneously, they do not have to be. Scanning and adjudication are two separate processes. Adjudication does not have to happen for the batch to move on through the process to tabulation. Scanning happens when batches are ready to scan, and adjudication can happen when it is most advantageous for the county to schedule observers. This maximizes both the efficiency of the adjudication process and the transparency of the system, making it completely open to public scrutiny.

The power of the ClearVote system lies in its ability to show election judges enough information to easily determine the voter's intent for any marginal marks. We call this *vote visualization*.

The ClearCount system instantly sorts the voted ovals for your review and consideration. Images can be viewed by contest or by candidate, and can be filtered by precinct, district, scanner used, time and day scanned, batch, contest, or any other user-customizable data.

Step 1. The ClearVote system reaches out and finds every ballot that contains a particular contest, then pulls the oval for that candidate off and puts all the ovals together.

Step 2. Then the system puts the ovals into four buckets; votes, overvotes, undervotes, and votes for others, so that every oval for this candidate can be accounted for in a close contest.

Step 3. Within each bucket, the system sorts the ovals by confidence—that is, the confidence that this mark is a vote, or that it is not a vote. Confidence is how close the vote is to a completely filled oval. This is where ClearVote sifts through the haystack, finds the needles, pulls them out, and lines them up for an election official to see.



The system finds the marks that it determines to be votes and sorts them. It groups the least confident ones together, to make them easy to review.

Hover over any mark and the system shows the associated contest from that ballot so that election officials can easily confirm the voter's intent. Clicking on a mark opens the full ballot for review.

While scanning and adjudication can be done simultaneously, they do not have to be. Scanning and adjudication are two separate processes. Adjudication does not have to happen for the batch to move on through the process to tabulation. Scanning happens when batches are ready to scan, and adjudication can happen when it is most advantageous for the county to schedule observers. This maximizes both the efficiency of the adjudication process and the transparency of the system, making it completely open to public scrutiny.

152. Is your central count system capable of being programmed 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?

The ClearAudit system can be programmed to read ballots created in any of the scenarios above.

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

Through a BDF creation process that essentially reverse engineers a ballot.

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

Yes

155. Does programming require uploading XML or XY coordinate information?

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

Clear Ballot will provide the file to be uploaded



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.

Yes - Pricing varies by model and software use for our central tabulation system. The software used for programming in the event of an audit is not available.

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?

For either scenario between 10-15 minutes. Also, over vote feedback would not need to be turned off since all sorting is done digitally.

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

Clear Ballot's Central Count software package is included in it's tabulation software. Pricing varies based on registered voter numbers of the jurisdiction.

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

It can be used at either depending on the desired configuration.

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. ?

A laptop (and potentially a scanner if central scanning of ballots was desired).