The State of New Hampshire

LHS Associates

Response to the State of New Hampshire Vote Tabulator Questions

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Security, Accuracy, Reliability

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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.

Response: LHS Associates Ballot Printing and Programming departments work together to complete the following steps:

Local Election

- Information and programming preferences (questionnaire) received from municipality.
- Data is keyed into Democracy Suite Election Management software (EMS).
- Election parameters are defined based on type of election (referendum, annual town election).
- Ballot design is laid out (including headers).
- Ballot proof PDF(s) are generated.
- Ballot Proof is sent to customer.
- Signed “OK TO PRINT” form is received from customer and ballots are finalized.
- Device Configure Files (DCF) are configured based on customer preferences.
- Ballot printing begins.
- Program is finalized and election information is burned to compact flash cards.
- Ballot testers are received and Quality control department runs L&A test.
- Quality control department double checks L&A test.
- Memory cards are sent to municipalities to run their own L&A test before election.

State Election

- Information and programming preferences (questionnaire) received from State.
- Ballot design is laid out (including headers) by State.
- Data is keyed into Democracy Suite Election Management software (EMS).

- Election parameters are defined based on type of election (primary or general).
- Ballot proof PDF(s) are generated.
- Device Configure Files (DCF) are configured based on customer preferences.
- Ballot printing begins.
- Program is finalized and election information is burned to compact flash cards.
- Ballot testers are received and Quality control department runs L&A test.
- Quality control department double checks LAT test.
- Memory cards are sent to municipalities to run their own L&A test before election.

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

Response: No, the sample ballots provided have codes for the AccuVote tabulators. The layout of the contests and candidates can be replicated but the codes for the ImageCast are different from those of the AccuVote.

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

Response: The ImageCast Precinct deploys a double sheet detector that prevents multiple ballots from being scanned at the same time through the use of acoustic effects. The double sheet detector is unaffected by ink on the page, or the weight and/or thickness of the ballot stock.

The approved paper for ImageCast ballots has been incorporated into a family of options known as VoteSecure (100# Text). Understanding that different printing technologies can impact the paper surface of a ballot in different ways, VoteSecure has been developed to allow printers to choose a VoteSecure option that will provide the best performance on a jurisdiction's voting equipment.

Tested and approved papers can be found in the chart below: **Manufacturer**	**Print Method**	**Weight**	**Color / Finish**	**Recommended Paper**
Rolland Enterprises Inc	Toner Based Ballot Production	100# Text	Bright White, Smooth Finish	**VoteSecure SL**
Rolland Enterprises Inc	Inkjet Ballot Production	100# Text	Bright White, Smooth Finish	**VoteSecure IJ**
Rolland Enterprises Inc	Offset Ballot Production	100# Text	Bright White, Smooth Finish	**VoteSecure SD**

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

Response: Print ready PDF files generated by Democracy Suite can be printed by both commercial digital printers and COTS printers.

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

Response: Yes, UOCAVA ballots printed by absentee voters can be printed using the Voters' personal COTS printer. Additionally, our Mobile Ballot Printing solution utilizes COTS printers.

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

Response: No, Ballots for hand marking can be printing using COTS equipment.

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

Response: No. Timing markers on the ballots, used when scanning, do now allow for any additional adjustment of the outside margins on the ballot. Users can choose different ballot layouts, and have control over the formatting and spacing of content within the area bounded by the timing markers.

Scanned Images of Ballots

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

Response: Yes

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

Response: Yes, this feature can be turned on the off depending on customer preference.

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.)?

Response: No, the ballot image is not saved until the ballot is accepted; however, an audit log of the rejected ballot will be created for any failed ballot attempt.

Precinct Configuration

7. Describe a typical precinct configuration.

Response: A typical precinct configuration for the ImageCast Precinct tabulator consists of the following items:

- One ImageCast Precinct tabulator, with internal backup battery
- Padded carry case for storage and delivery of the tabulator
- Two compact flash memory cards
- One key set; iButton security key and physical ballot box key
- One roll thermal printer paper
- One ballot marking pen for each voting booth
- Security seals; per SOS requirements
- One plastic ballot box, with integrated power supply
- One power-strip and/or extension cord if required
- Poll worker training manual for opening, closing and troubleshooting instructions.

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

Response:

ELECTION OPENING PROCEDURES

- Attach tabulator to ballot box.
- Plug tabulator into power source (wall outlet or power strip), the tabulator will automatically turn on.
- Unlock and open the hand count compartment.
- Place security key on security key pad, enter the password on the touch screen.
- Verify the date and time are correct.
- Press open poll.
- Press zero to print a zero report.
- After printing desired number of zero reports press no when asked “WOULD YOU LIKE ANOTHER COPY.”
- The tabulator is now ready to accept ballots.

ELECTION CLOSING PROCEDURES

- After the polls have closed, place security key on security key pad.
- Press close polls.
- Enter the password on the touch screen.
- When asked “ARE YOU CERTAIN YOU WISH TO CLOSE POLL”-– press yes.
- The tabulator will now print a results tape.
- After desired number of results tapes have been printed press no when asked “WOULD YOU LIKE ANOTHER COPY.
- To shut off the machine, press power down, then press YES.
- The tabulator is now closed.

9. Describe precinct reporting features.

Response: The ImageCast Precinct tabulator generates a zero and a results report similar to the reports generated by the AccuVote. The ImageCast is also capable of printing audit log reports and optionally a write in vote report.

10. Describe the voter interface.

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

Response: A ballot with an undervoted contest occurs when the ballot contains less voter selections than are allowed for a particular contest. The system can be configured to accept the undervote or to notify the voter they have undervoted the race allowing them to either confirm or correct the undervoted ballot through an audible and visual warning.

A ballot with an overvoted contest occurs when the ballot contains more voter selections than are allowed for a particular contest. If the system is configured to do so, voters are prompted to confirm or correct the overvoted ballot through an audible and visual warning.

b. Can the device be programmed to return the overvoted ballot to the voter?
Response: Yes, the tabulator can be programmed to return the overvoted ballot to the voter.

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

Response: Yes.

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

Response: The ImageCast Precinct tabulators are defined and configured in the Election Event Designer and these parameters are passed to the voting devices via the election files on the removable memory media. Voting devices are automatically configured to know which ballot styles to accept, how the unit should interact with voters and where results files are uploaded. The poll worker only needs to follow the Election Day procedures established by the City/Town, and never needs to decide regarding the voting device settings at the voting location

11. Describe how a voter casts a ballot.

Response: At the polling place, the voter makes their selections by filling in the voting targets next to their choices. The voter then inserts their ballot directly into the ImageCast Precinct, which performs the following functions:

- Scans the ballot and interprets the digital image to tabulate the voter choices
- Redundantly stores and tallies the results
- Prints cumulative totals of all votes cast after the polls have been closed

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

Response: When a voter inserts their ballot the tabulator notifies the voter their ballot is being processed. Once the ballot has been processed the tabulator then notifies the voter their ballot has been cast successfully. A public counter is displayed on the LCD screen and will increment each time a ballot is accepted.

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

Response: The ImageCast Precinct is equipped with an interactive 6.5 inch LCD touch screen. The screen is easily readable and discreetly provides voter feedback in up to 8 different selected languages. The size and resolution of the screen makes sure every voter feels confident that his or her vote is accurately counted, while providing the highest level of privacy. The on-screen instructions are easy to use and aid poll workers in opening and closing procedures.

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

Response: The font size is standard based on FEC guidelines for readability.

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.

Response: The tabulators Device Configuration File can be configured using Election Management Software prior to the election to detect for particular ballot scenarios and elicit various responses based on the type of ballot scenario detected.
Upon inserting ballots into the Tabulator, there are a few scenarios that may arise. These various ballot scenarios depend on the manner in which the voter has marked the ballot, as well as the configuration of the tabulator.

Voting scenarios can include the following:

- One or more undervoted contest(s)
- One or more overvoted contest(s)
- A combination of undervoted and overvoted contests
- Blank ballot
- Ambiguous marks detected
- Invalid or defective ballot

There are options on how the tabulator will react to each of these voting errors. There are four different options for each error:

- Automatically return ballot
- Automatically accept ballot
- Prompt voter
- Prompt voter with confirmation

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

Response: No, changes to messages can only be changed and/or altered within the programming software which takes place before the memory cards are burned, tested, and sent to the customer. There is no additional programming cost to alter these settings.

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

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

Response: No, changes to messages can only be changed and/or altered within the programming software which takes place before the memory cards are burned, tested, and sent to the customer. There is no additional programming cost to alter these settings.

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

Response: There is no cost for revisions to messages.

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

Response: The tabulator is equipped with a discrete 6.5 inch LCD touch screen to provide information and feedback directly to the voter. The screen is angled so only the person standing directly in front of the tabulator can easily read messages or information.

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

Response: No, the discrete lighting and strategic angle of the screen make it so only the person standing in front of the tabulator can see or read the messages displayed on the screen.

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

Response: No, the discrete lighting and strategic angle of the screen make it so only the person standing in front of the tabulator can see or read the messages displayed on the screen.

Ballot Design and Printing

19. What ballot lengths can be accommodated?

Response:

a. 11" YES
b. 14" YES
c. 18" YES
d. 21" YES
e. 22" YES

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

Response: The minimum size for a ballot header is 2 inches high by 7.25 inches.

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

Response: 22 inches

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

Response: Yes, the State and/or a town/city can purchase ballot printing directly from LHS Associates.

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.

Response: See Attachment #1

Device Programming

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

Response: Yes, LHS Associates has made every effort to make the upgrade to newer voting devices as easy and seamless as possible. As part of this seamless transition LHS has kept all pricing related to elections the same compared to the state's current equipment (AccuVote OS).

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

i. Salem 2018 general is a typical state ballot.

Response: $922.00

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

Response: $1,354.00

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?

Response: The State or Municipal user would have to purchase a Democracy Suite License and receive training on how to use the software to program an election.

a. What software is required?

Response: Democracy Suite Election Event Designer

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

Response: Yes, as long as the timing codes are offset and positioned correctly, the Ballot ID codes are the same and the oval size, shape and position are all identical to those found in the programming software.

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?

Response: We are able to program and create ballots in the same style/layout as we currently do for the AccuVote. All processes for creating, proofing, printing and delivering ballots will remain the same. The only difference between the AccuVote and Imagecast ballots will be the timing marks.

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

Response: *N/A*

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.

Response: Pricing for election coding for our new voting system remains the same as those for the current AccuVote system. The cities, towns and school districts will see no increase in pricing for election coding services.

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

Response: Depending on the file size of the individual ballot styles, each ICP can be programmed to accept 12 to 36 ballot styles. However, the number of ballot manifestations is virtually unlimited. A ballot manifestation is a ballot style that is able to support multiple languages, differences in districts, precincts, etc.
For example, if a customer has 10 ballot styles, and 100 precinct splits, the number of manifestations would amount to 1000 ballot manifestations.

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?

Response: All processes for creating a local election will remain the same as they currently are for the AccuVote. Please refer to Question #1 outlining workflow for Local Elections.

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.

Response: LHS creates election databases and sets ballot layouts six months ahead of an election, allowing the SOS to approve all items of a ballot with only the candidate names missing. Once candidate names and rotations are finalized, it would only take a matter of hours to import that data and generate ballot proofs for review by the SOS. Once proofs are approved print ready PDFs would be available from 5 minutes to a couple hours depending on the number ballot styles being generated.

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

Response: Yes LHS Associates has seen similar turnaround times in the State of Connecticut and the State of Vermont.

30. Would your pricing change given these constraints?

Response: No.

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

Response: *N/A*

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?

Response: Ballots created using Dominion's system are generally output in print ready pdf and png files. However, we can export data in whatever format is required, including XML, but we would have to work with the State to make sure the file is compatible with the current accessible system.

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?

Response: Since certifying the ImageCast Precinct tabulator in May 2014, LHS has worked with ES&S (the provider of AutoMark services to the Commonwealth of Massachusetts) to ensure ongoing compatibility between the ImageCast Precinct tabulator and the AutoMark VAT. In August of 2015, Certification of firmware for the AutoMark VAT compatible with the ImageCast Precinct tabulator was issued by the Massachusetts Secretary of State's Office.

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.

Response: Yes, as long as the timing codes are offset and positioned correctly, the Ballot ID codes are the same and the oval size, shape and position are all identical to those found in the programming software.

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?

LHS Response: The ImageCast Precinct Tabulator does not have the ability to count a ballot designed to be counted by the Accuvote ballot counting device because the timing marks are different for each system.

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?

Response: Yes. Coordinates of targets can be exported.

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?

Response: Yes. Ballot data can be exported in XML format.

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?

Response: Yes. Coordinates of targets can be exported.

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?

Response: Yes.

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

Response: $4 per candidate

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

> *a. Can your system accept an upload of XML data as an alternative to keying in the data on the offices, candidates, and questions?*
>
> **Response:** Yes. The Election Data Transfer module can facilitate this data upload.
>
> *b. Can your system "scrape" or otherwise extract from a PDF the data necessary to program your precinct device to count that ballot?*
>
> **Response:** Yes. Targets on the PDF can be mapped using Synergy to properly program the ImageCast Precinct count the 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?

Response: Yes. This data would be transferred using the Election Data Transfer module.

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

Response: Two Compact Flash cards store files containing information regarding the election configuration, ballot layout, customer configuration, as well as scanning results, scanned ballot images, and the tabulator's audit log.

a. What is its storage capacity in GB?

Response: Each flash memory card is 16GB

b. Is it proprietary or commercial off the shelf?

Response: COTS

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

Response: The ImageCast Precinct utilizes 2 Compact Flash Cards

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 calculations supporting your answer.

Response: The ImageCast Precinct is delivered with 16GB Compact flash memory cards (removable). The table below provides the approximate number of ballot images that can be stored based on the file size of ballot size.

		Memory Card Size			
Ballot Size (Single-Sided)	**Approx. Ballot Image Size (KB)**	**2GB**	**4GB**	**8GB**	**16GB**
8.5" x 11"	250	6000	14000	30000	62000
8.5" x 14"	277	5400	12600	27000	55800
8.5" x 17"	312	4800	11200	24000	49600
8.5" x 20"	334	4500	10500	22400	46400
8.5" x 22"	357	4200	9800	21000	43400
Ballot Size (Double-Sided)					
8.5" x 11"	357	4200	9800	21000	43400
8.5" x 14"	454	3300	7700	16500	34100
8.5" x 17"	499	3000	7000	15000	31100
8.5" x 20"	555	2700	6300	13500	27900
8.5" x 22"	624	2400	5600	12000	24800

There are no limits to the size of the election database. 12,000-24,000 is the typical range of ballot cards that can be scanned.

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

Response: No.

a. If yes, describe the capacity?

Response: N/A

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

Response: N/A

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?

Response: No.

Management of Write-in Votes

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?

Response: Yes

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

Response: Yes

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.

Response: This feature 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?

Response: 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?

Response: The Imagecast Precinct Tabulator will detect a name written into a write-in designated area on the ballot (even if the oval is not filled in) and automatically increase the number of write-ins for that race by one.

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

Response: Yes

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?

Response: Yes. By using Democracy Suite Results Tally Reporting software, the user may upload the data and results from the memory cards and consolidate the information into clear and easy to read reports, including a write-in report that can be printed directly from the software or exported in a number of different formats.

a. Is proprietary software needed?

Response: Yes. Dominion Voting Systems Democracy Suite Results Tally Reporting Software is needed in order to decrypt election files stored on the tabulator memory cards.

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

Response: The write-in report can be exported in XML and HTML. Other export formats for additional reports include: PDF, WORD and EXCEL.

Election Results Reporting

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

Response: Yes. Democracy Suite 5.0 Results Tally Reporting Software can be saved and/or exported a number of ways including Word, Excel, PDF, HTML and XML.

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

Response: Thermal paper will remain visible after use for a minimum of 24 months or two years as long as the tape is not exposed to direct sun light or intense heat for long periods of time.

50. Is there a back-up memory card?

Response: Yes. The Imagecast Precinct Tabulator utilizes a dual memory card function that allows data to be recorded to two memory cards simultaneously, creating a built in redundancy.

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

Response: There are three methods the State could use to conduct RLAs.

1. Manual count audit using physical ballots.

2. Manual count audit using digital ballot images and audit marks.

3. Re scanning physical ballots using ImageCast Central (High Speed Scanner).

Security, and Cybersecurity

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

Response:

EMS Security

To protect any modification of software by malicious users, the Democracy Suite Election Management System integrates the Microsoft .NET Framework code signing process, within which, digitally signs every executable and library (DLL) during the software build procedure. After the installation of Election Management software, only successfully verified EMS software components will be available for use. Digital signature verification is performed by the .NET Framework runtime binaries. If a malicious user tries to replace or modify any EMS executables or library files, the digital signature verification will fail and the user will not be able to start the EMS application.

Hardware Access Controls

Democracy Suite utilizes hardware-based security tokens (iButton security keys) in the process of access control for ImageCast Precinct tabulators. These password paired hardware tokens contain data encryption information used in the voting process (encryption and signing keys). Without a valid security token, and paired access password, the administrative functions of election tabulators are effectively locked.

EMS Audit Log

From the initial state of the election project, until the deactivation state, the EMS system maintains an activity log within the EMS Database. This activity log contains every action that any of the users have performed within the system and represents a detailed audit log that can be analyzed and printed in the form of an audit report. The audit record information cannot be modified or permanently deleted using the EMS client applications. It can, however, be exported for archiving purposes as part of the record retention policy. Keeping in mind that audit log information can contain a significant amount of information, it is the responsibility of the administrative user to perform regular archiving of the log.

During the voting phase of the election event, ImageCast devices also keep an activity audit log which tracks events happening on the device itself.

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

Response: Democracy Suite and the accompanying tabulators are designed to operate in an isolated closed network only and shall not be joined to a general network. This helps ensure both the security and integrity of the system. Any access to the system is protected using multi-factor authentication including a programmed iButton along with an authorized username and password.

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

Response: The ImageCast Precinct platform provides the following security controls that increase the system's overall protection:

- Physical security mechanisms that use the system's intrusion points to detect intrusions
- Access control mechanisms with iButton security keys and security credentials used to authenticate and authorize users.
- Data integrity security mechanisms that use NIST-approved algorithms for on-board hardware- or software-based signing of data (Open SSL library in FIPS mode).
- Data confidentiality security mechanisms that use NIST-approved algorithms for on-board hardware or software-based encryption and decryption of data (Open SSL library in FIPS mode).
- Non-repudiation security mechanisms with real-time audit logs.

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

Response: Audit logs capture all activity on the units. Any attempt to alter the system would require two-factor authentication to access editable files and be recorded in the audit log.

56. What intrusion detection capabilities does your system have?

Response: The EMS audit log indicates any unauthorized access of any reporting data, results data, or system intrusion.

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

Response: The ImageCast Precinct maintains a real-time log of its operation, including error and audit log events. The election software application has an integrated logging service, meaning it is active from the moment the device becomes operational. The system also has a battery-supported real-time clock (RTC), and an intrusion detection micro-controller which allows system events (such as intrusions) to be monitored and recorded off-line. Each software subsystem (module) is responsible for reporting error, exceptions and audit events. The log module constantly monitors the queue of received event messages and updates the log files. The audit log file contains information about the event and its source with a time/date stamp. The log is stored in non-volatile memory and can be reviewed and printed on demand by authorized personnel. In addition to the logging mechanism, the system monitors, reports and reacts to a variety of system-level events. These reactions allow end-users (i.e. administrative personnel) to react appropriately. Visual and audio-based notifications are additional employed for greater usability.

58. What data is recorded in the activity log?

Response: Every action, event, and operation that occurs on an ImageCast Precinct will be permanently logged to the audit log file that VVSG 2005 vol I exists on both memory cards. This file is encrypted and digitally signed to protect its integrity.

Authorized users can use the LCD screen buttons to print this Audit Log report on the ImageCast Precinct 's internal printer. This LCD onboard Audit Log report only reports on a maximum of forty audit events (i.e. the last forty audit events to have occurred. If users use the LCD screen to request a report of more than forty audit events, the system will still only report the maximum forty audit events).

As per VVSG Vol. I requirements, this printing procedure meets the following:

- The generation of audit trail records does not interfere with the production of output reports.
- The entries can be identified so as to facilitate their recognition, segregation, and retention.
- The audit record entries are kept physically secure.

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

Response: In addition to Acceptance testing to ensure the units are functioning properly, once the system has been fully configured, and as soon as possible after receipt of the first set of actual election ballots from the printer, the customer will need to conduct pre-election testing in order to confirm that the system has been correctly configured, and that all components are functioning properly.

Once the Pre-election testing is complete and the system has been re-zeroed, all components of the system must be stored in a secure location until the election (or until the first early voting opportunity, as the case may be) in order to ensure that they cannot be accessed or tampered.

> *a. If usernames and passwords are required, describe the requirements and levels of authority.*
>
> **Response:** A programmed iButton (security key) and poll worker password are required for Opening a tabulator and closing an election (or pre-election testing event) to generate a report. A programmed iButton (security key) and Administrator password are required for re-zeroing a tabulator. Poll worker and Administrator passwords are always different.

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.

Response: Yes. Dominion uses a suite of industry standard automated code review tools adopted by the EAC VSTL review process. These tools provide real-time feedback to ensure that all code is developed is in compliance with industry and EAC guidelines.

All digital records are encrypted and signed, so the signature is the hash checksum. This applies to any software on the machine, but also to all election data. Should anything be added, the cryptographic hash will immediately be incorrect, which the system will detect and respond appropriately.

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?

Response: In addition to the code review performed during the development process, the individual units protect from altering any programming of election files by requiring two factor authentication to access the files, and any intrusion attempt will be logged.

Additionally, in the power on sequence, the unit will not function until the poll official accesses the administrator screen. The ImageCast tabulators are unlocked by an activation card, which then authenticates the software version during startup to ensure it is a certified version that has not been tampered with.

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

Response: The ImageCast Precinct maintains a real-time log of its operation, including error and audit log events. The election software application has an integrated logging service, meaning it is active from the moment the device becomes operational. The system also has a battery-supported real-time clock (RTC), and an intrusion detection micro-controller which allows system events (such as intrusions) to be monitored and recorded off-line. Each software subsystem (module) is responsible for reporting errors, exceptions and audit events. The log module constantly monitors the queue of received event messages and updates the log files. The audit log file contains information about the event and its source with a time/date stamp. The log is stored in non-volatile memory and can be reviewed and printed on demand by authorized personnel. In addition to the logging mechanism, the system monitors, reports and reacts to a variety of system-level events. These reactions allow end-users (i.e. administrative personnel) to react appropriately. Visual and audio-based notifications are additional employed for greater usability.

Every action, event, and operation that occurs on an ImageCast Precinct will be permanently logged to the audit log file that VVSG 2005 vol I exists on both memory cards. This file is encrypted and digitally signed to protect its integrity.

Authorized users can use the LCD screen buttons to print this Audit Log report on the ImageCast Precinct 's internal printer. This LCD onboard Audit Log report only reports on a

maximum of forty audit events (i.e. the last forty audit events to have occurred. If users use the LCD screen to request a report of more than forty audit events, the system will still only report the maximum forty audit events).

As per VVSG Vol. I requirements, this printing procedure meets the following:

- The generation of audit trail records does not interfere with the production of output reports.
- The entries can be identified so as to facilitate their recognition, segregation, and retention.
- The audit record entries are kept physically secure.

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

Response: See Attachment #2

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

Response: States offering the ImageCast precinct include:

Alaska
Iowa
Kansas
Massachusetts
Michigan
Missouri
New Mexico
New York
Ohio
Tennessee
Virginia

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

Response: Yes. The ImageCast Precinct meets VVSG Guidelines 1.1 and has been approved by the EAC.

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?

Response: Dominion Voting has been an active participant in the VVSG 2.0 public working groups and requirements development process. We have a deep commitment to making sure our customers are able to field the most advanced and secure voting systems. We are continually updating our systems across the country with multiple EAC certifications each year. When the VVSG 2.0 requirements are adopted by New Hampshire, we intend to be ready to certify our systems to these latest standards.

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?

Response: We have a deep commitment to making sure our customers are able to field the most advanced and secure voting systems. We are continually updating our systems across the country with multiple EAC certifications each year.

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

Response: When the VVSG 2.0 requirements are adopted by New Hampshire, we intend to be ready to certify our systems to these latest standards.

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

Response: The Imagecast Precinct Tabulator is proprietary hardware. The memory cards, iButtons (security key) and thermal paper rolls are all COTS items.

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

Response: Linux

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

Response: New Hampshire municipalities will follow the same procedures for L&A testing as they currently utilize. A hand count will be conducted from a sample batch of ballots (following the laws and guidelines provided by the SOS) once totals are accumulated by hand the same sample batch of ballots will be fed through the tabulator. Once the ballots have all been inserted the election official will close the polls and print a results tape. The election official will then ensure that the hand count totals match the tabulator results. Once verification is complete the tabulator will need to be re-zeroed before it is powered down and prepared for the election.

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

Response:

- Make sure the machine is UNPLUGGED and turned OFF.
- Insert the memory card labeled POLL WORKER into the card slot labeled POLL WORKER. Insert the memory card labeled ADMIN into the card slot labeled ADMINISTRATOR
- Plug in machine (it will automatically turn on).
- While the program is loading, please make sure you have SECURITY KEYS and the KEY PASSWORD ready.
- When the machine begins beeping, please put the SECURITY KEY on top of the SECURITY KEY PAD, located on the left side of the machine labeled SECURITY KEY. This is to authenticate election files. Note: if an error occurs try again. If errors are persistent, please call the LHS Help Desk for assistance.
- When prompted, enter the KEY PASSWORD using the OPERATOR
- SCREEN, then, press ENTER.

- Please verify that date and time are correct. If correct, press YES, if not, press NO, then follow the instructions to correct the date and time.
- You are now in the ADMINISTRATIVE MENU – press OPEN POLL.
- Press ZERO to print a ZERO REPORT.
- Check the print out to verify the election title and date, are accurate.
- When asked “WOULD YOU LIKE ANOTHER COPY”-– press NO.
- Insert test ballots. Make sure to insert the ballots in various orientations.
- After all test ballots are put through, place the SECURITY KEY on top of
- SECURITY KEY PAD.
- To obtain results, press CLOSE POLL.
- When prompted, enter the KEY PASSWORD using the OPERATOR SCREEN, then, press ENTER.
- When asked “ARE YOU CERTAIN YOU WISH TO CLOSE POLL”-– press YES.
- The IMAGECAST will now print a results tape. If you experience problems with your printer, please call the LHS Help Desk for assistance.
- When asked “WOULD YOU LIKE ANOTHER COPY”-– press NO.
- Verify the printed report against your hand count tally of the test ballots.
- You are now in the “ADMINISTRATIVE MENU”-– press UTILITIES – then press RE-–ZERO. This will set the counter back to zero.
- Enter the ADMIN PASSWORD-– if you DO NOT have this password-– please call the LHS Help Desk for assistance.
- To shut off the machine, press POWER DOWN, then press YES.

This Process takes about 15-20 minutes to complete depending on the number of ballot styles.

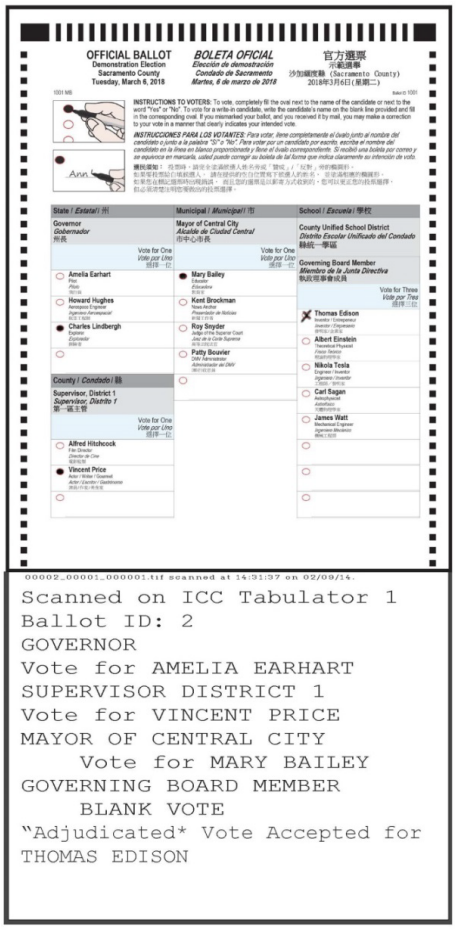
b. Is the pre-election test process run on the device in election mode or is it run in a "test" mode? Explain.

Response: There is no “Pre-election test mode”. There is only one mode of operation on the tabulator to insure a “true” test of function and accuracy.

Transparency

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

Response: If allowed by the State, every single ballot in the election is imaged and appended with Dominion's patented AuditMark, a record of how the system interpreted the voter's selections. This ballot-level audit trail allows election officials and other stakeholders to review not only the ballot images, but also the tabulator's interpretation of each ballot.



Each image is labeled with the tabulator, batch, and sequence number within the batch, which corresponds to the physical ballot in the stack. The AuditMark is appended directly to the image showing how the vote was interpreted at scan time. This AuditMark will also include any adjudications applied to the ballot for voter intent. Even if ballots for a given batch are mixed after scanning, these multiple records provide a way of correlating the digital Cast Vote Record data to the image scanned and finally to the physical paper ballot. While the AuditMark allows ballot-level auditing, it is never tied to the voter.

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?

Response: Access and use of the source code will be dictated by the final signed contract, unless otherwise required by State certification.

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

Response: Access to sensitive details of the testing process will have to be negotiated to ensure proper security and will be dictated by the final signed contract, unless otherwise required by State certification.

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

Response: We have worked with several large jurisdictions to prepare public demonstrations to familiarize voters with the new voting equipment. We would be happy to discuss this in more detail to determine the scope of the testing desired.

Stage of Product Life Cycle

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

Response: Upgrades to the ImageCast Precinct tabulator are performed with each recertification effort with the EAC. Information regarding Dominion's products and more specific upgrades performed can be found at the following link: https://www.eac.gov/voting-equipment/certified-voting-systems/

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

Response: Software can be upgraded through a firmware flash upgrade. This is a simple procedure that can be done onsite by an LHS technician. If new hardware becomes available, it would be included in the Democracy Suite product line. Allowing new tabulators and older models to run side by side. This would allow towns and cities, in the future, to replace hardware as needed instead of all at once.

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

Response: The ImageCast Precinct has been certified under numerous releases with the EAC as recently as this year. As Dominion is undoubtedly the most active vendor in the development and certification arena, we will continue to listen to our customers, build upon our experiences and enhance our products accordingly. Since 2013, Dominion has ranked first in the most rigorous state-level independent testing and evaluation processes. This being said, we will continue to support and upgrade the ImageCast Precinct to extend the usefulness of the product line for the long term.

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

Response: As with all ImageCast products, through support and upgrades, we expect the ImageCast Precinct to be serviceable for a minimum of 10 years.

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.

Response: LHS Associates intends to continue to support the ImageCast Precinct for a minimum of 10 years, including parts and product support.

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

Response: We understand that election officials need to ensure that the significant investment required to upgrade a voting system is made with confidence and peace of mind that the technology will keep up with changing requirements and public expectations. Dominion's development team is continually working on refining existing products and functionality, leading to annual VVSG 2005 certification campaigns with the EAC, as well as state certifications where required.

Hardware- Technical

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

Response: The ImageCast Precinct can be thought of as a sheet fed scanner. This means that as the paper is pulled through the machine, a complete image is taken of the top and bottom of the ballot. The scanner then passes this image to a software program which looks for markings (black squares which are often called fiducials') around the ballot. If the correct number of fiducials is found, and the ballot bar code passes checksum logic tests, the software then knows that it is looking at a valid ballot.

Once a ballot is verified, the system begins to interrogate the ballot markings. To begin, the machine integrates every black pixel for each marking area corresponding to a position on the ballot. If the number of black pixels exceeds the threshold marking defined by the jurisdiction, the mark is considered a vote and a digital signal is created. If there is no mark present, an appropriate digital signal is created. For those cases where handwritten or write-in votes are present, the marks are detected and these ballots are placed in the secondary ballot compartment.

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.

Response: Yes, the ImageCast Precinct tabulator is able read a preprinted ballot marked by an ImageCast BMD device or an AutoMark VAT. If the NH one4all was able to mark a preprinted ImageCast ballot, then the answer is theoretically yes. We would work with the State to test the functionality and accuracy prior to real world use.

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

Response: There are several accessible voting options available. The ImageCast BMD is a ballot marking device that connects to the ImageCast Precinct tabulator. This system marks a preprinted ballot and can be scanned and counted using the precinct tabulator.

The ImageCast X is a tablet based accessible solution that utilizes a COTS printer to generate a 8.5 x 11 inch ballot with a voter verifiable selection review and a QR code that is then scanned and counted by the precinct tabulator.

The ImageCast Evolution is an all in one solution, combining a traditional precinct tabulator with a Voter Assisted Terminal (VAT) Ballot Marking Device (BMD).

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.

Response: The ImageCast Precinct scanner is capable of reading ballots marked by a number of different common writing implements, including various ink colors, pencil, markers, and highlighters. The ImageCast Precinct works best when reading ballots marked with dark inks, such as blue or black. Lighter inks or pencils may be used, but ballots marked with this type of marking device may trigger an "ambiguous mark" condition. These ambiguous mark conditions are digitally out-stacked to our adjudication module for further resolution by the Elections Official.

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

Response: Yes. The ImageCast Precinct is currently counting rank choice ballots in New Mexico and in November 2019 it will be used to count Proportional Representation ballots in Cambridge MA.

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.

Response: Yes.

87. Can your device print a ballot on demand?

Response: The precinct tabulator cannot, however we offer a mobile ballot printing system that allows for on demand ballot printing using a COTS printer.

88. How much does the ballot counting device weigh?

Response: The ImageCast Precinct tabulator weighs 14 pounds.

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

Response: The ballot box weighs 85 pounds.

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?

Response: The canvas carry/storage case weighs 1 pound. The carry case with a tabulator inside weighs 15 pounds.

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

Response: The ImageCast Precinct can be paired with rolling ballot box or a collapsible ballot box.

Collapsible ballot box total capacity is about 2200 ballots.

Rolling ballot box total capacity is about 4500 ballots.

Architecture

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

Response: The software is designed around a hierarchical modular scheme. Modules exist for every functional aspect of the tabulator. Each module communicates with one or more modules. Modules only interface with other modules in the same layer or layers below it.

With regards to software design, a module is a set of source code that is responsible for one or more identifiable functionalities. It contains one or more source code files and/or one or more sets of classes. One source code file is not linked to more than one module unless it is a common module.

Processor speed was one of the major constraints influencing software design. The Central Processing Unit (CPU) on the tabulator is the Freescale Coldfire 5249 which provides 140MHz of processing speed.

Having full audit functionality and a failsafe mechanism is an operation consideration dependent upon software design to move towards serialization. That is, most of the software modules run in one processing thread. The only other threads that exist are for battery monitoring, security monitoring, exception handling, and for running an audio voting session in parallel with ballot scanning.

All modules have at least two interface functions: Initialize and Shutdown. The functions are either static members of classes or externally accessible C functions.

The Initialize functions are called at startup to initialize the module. Initialization consists of different acts for different modules, but most often includes class declaration, variable/register initialization and confirmation, and device configuration. If any of these fail, initialization halts. The modules are initialized from bottom up and begin with the Device Layer modules.

The Shutdown functions are called when the unit is to be powered down in response to irrecoverable errors or user selection. The modules are shut down from the top down starting with the Application Layer.

Identification of Software items
The firmware of the system can be broken down into the following components: election firmware, COLILO boot loader, operating system, Apploader firmware, peripheral code, verification firmware, and update firmware.

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.

Response: The proposed ImageCast Tabulator's initial purchase comes with the latest version hardware & software approved by the EAC, with the ability to upgrade to a newer version when available. The process to upgrade to newer versions is a simple flash loading procedure that can be installed via compact flash memory cards. Once the upgrade is completed and approved by the State the installation process will take about 25 minutes to complete per machine and must be conducted on site by a LHS Technician.

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?

Response: The latest version of Dominion's ImageCast Precinct was certified earlier in 2019. As previously detailed, we continuously work with clients to work on product enhancements. We would be happy to discuss the capabilities of the ImageCast Precinct to meet all of your precinct level needs now and in the future to ensure it is the best option on the market today and will remain so for years to come.

Backup and Recovery, Battery

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

Response: The data files supporting the election are contained on the Compact Flash memory cards. The files stored on these cards allow for recovery from external conditions that cause equipment to become inoperable. The election results, device logs and scanned ballot images are recoverable from the memory cards. Further, the AuditMark functionality can be used to independently verify the total votes for any particular candidate or ballot issue.

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?

Response: In the event of a power failure, the ImageCast Precinct tabulators have an internal Lithium Ion, rechargeable battery, with a two-hour running life. In the case of a power failure, including full power drain, restarting places the unit in “Interrupt” mode, in which the previously stored election data is reloaded when the unit resumes operation. If there is catastrophic electrical or mechanical damage, the memory cards can be inserted into a spare tabulator. When the spare tabulator is powered on, the unit resumes operation using the previously stored election data and stored results.

The switch from battery power to AC power (or vice versa) takes place automatically. If the AC power is disconnected or unavailable, the unit will continue to operate on battery power as long as a sufficient charge remains in the battery. When AC power is reconnected or otherwise resumes, the ImageCast Precinct tabulator automatically returns to AC power mode. If the unit has been powered down, the administrator can press the battery restart switch to power up the ImageCast Precinct tabulator using battery power alone. This feature only works if the AC power is disconnected or unavailable. If AC power is available, the unit will run in AC power mode by default.

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?

Response: 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?

Response: Yes

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

Response: Two Hours

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

Response: Yes

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

Response: The battery is replaced by removing a metal panel from the bottom of the Imagecast Precinct tabulator that is secured with security torx screws. Once the panel is removed the battery must be disconnected from the power supply harness then removed. A new battery is installed and the metal panel is reattached. This typically takes about 2 minutes to complete.

Perform periodic charging of the back-up battery module for 12 hours every 9 months will prolong the battery life and limit replacement to once every 5 years.

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?

Response: Election data is stored on the compact flash memory cards. In the case of a tabulator failure the memory cards can be installed in a new tabulator and the election can resume from the last ballot inserted, while any ballot collected in the time it took to switch tabulators can be inserted into the new tabulator.
In the case of a catastrophic failure, the memory cards can be inserted into a PC with Democracy Suite software. The Election data can be decrypted and reported.

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

Response: Democracy Suite Results, Tally and Report software.

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

Response: Software licensing cost is dependent on quantity of licenses and jurisdiction size.

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

Response: Data generated by the Democracy Suite platform is protected by the deployment of FIPS-approved symmetric AES and asymmetric RSA encryption. The Democracy Suite Election Management System uses these techniques to encrypt election files prior to their use on ImageCast tabulators. Once the polls have been closed, the ImageCast tabulators encrypt all of the results files prior to transmitting them back to EMS. SHA-256 hashes are used for all data integrity and verification.

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?

Response: The ballot box base for the Imagecast Precinct tabulator has an estimated capacity of 4,000 ballots in the regular compartment, 400 ballots in the write-in compartment, and 250 ballots in the hand count compartment. These numbers are estimates and are also dependent on the length of the ballot.

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

Response: The ballot box includes caster wheels, a built-in power supply and three (3) separate compartments such that ballots with write-in votes are able to be separated from ballots without write-in votes, the third compartment is for auxiliary ballot storage. This three-compartment set up is the same as the city current uses. The ballot box supplied is from the same manufacturer as the vote tabulator equipment and compatible with the proposed tabulator.

Both additional compartments (write-in and hand count) are easily removable. Capacity in this case would result in an estimated 5000+ ballots depending on length.

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

Response: The Imagecast precinct weighs roughly 14 lbs and is no larger than the State's current vote tabulator. The Imagecast Ballot box weighs 85 lbs and has the ability to nest the tubs inside of each other 3 boxes high. The width of the Imagecast Ballot box is 24" the length is 36" and the height without the top cover is 32". It is recommended that the Imagecast Ballot box is stored in a cool dry place due to the built-in power supply.

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

Response: The ballot box includes a plastic cover that can be locked and sealed for protection from damage or unauthorized access. No additional equipment is required.

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

Response: Store the tabulator (and Ballot Box, if applicable) in a dust-free, clean environment. The tabulator should be stored in the canvas carry case between elections. The carry case should be sealed shut to protect from unauthorized access to the tabulator. Likewise, the ballot box should be stored with the top cover locked in place to protect from damage and unauthorized access.

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

Response: Ballot boxes can be nested 3 deep. Tabulators should never be stacked or piled.

107. Is power required for storage?

Response: No

108. What storage temperature and humidity conditions are required?

Response: The storage temperature min/max: From -25°C - 60°C. The operating and storage conditions (Relative Humidity): From 20% - 80% RH non-condensing.

109. What other storage requirements are there?

Response: None

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.

Response: Yes. The ballot box has a third compartment for ballots that need to be hand counted. The capacity of this compartment is 250 ballots.

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 ballots in this storage area?

Response: Yes. The slot is unlocked during opening procedures and remains open for the duration of the election.

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?

Response: The size of the standard plastic ballot box is 24 inches by 36 inches by 36 inches. The capacity of the largest area is 4,000 ballots. The capacity of the write-in area is 500 ballots. The capacity of the hand count/auxiliary area is 250 ballots.

The size of the collapsible ballot box is: 35 inches by 28 inches by 25 deployed and 35 inches by 28 inches by 6 inches collapsed. The capacity of the largest area is 2,000 ballots. The capacity of the write-in area is 150 ballots. The capacity of the hand count/auxiliary area is 100 ballots.

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.

LHS Response: LHS Associates, Inc. was founded in 1972 in Andover, MA as a computer-based service provider serving municipalities in the areas of voter lists, tax billing, jury lists and similar products. Over time, the business has diversified to become the largest provider of election services in the Northeastern United States, serving more than 700 customers throughout New England. In 1992 LHS introduced the AccuVote Optical Scan Vote Tabulator to the New England election marketplace. LHS currently supports more than 2,500 AccuVote Tabulators including more than 250 used in the State of New Hampshire.

With the production of the AccuVote stopped in 2008, LHS Associates took five years to test and evaluate new vote tabulators from major manufacturers. Ultimately LHS chose to represent the ImageCast Precinct Tabulator from Dominion Voting Systems. Since 2012, LHS Associates, Inc. has been the exclusive reseller and support organization for Dominion Voting Systems in the New England territory. Prior to 2012, LHS Associates has represented BRC, Global Elections, Diebold and Premier Elections Solutions in the same capacity. For more than three decades, equipment manufactures in the election industry have chosen to contract with LHS Associates to represent them in New England. The experience, unique knowledge and dedication to customer service sets LHS apart from other vendors in the industry.

In 2014 the ImageCast was certified by the Commonwealth of Massachusetts and since then LHS has been awarded 143 contracts comprising of more than 1200 ImageCast Precinct Tabulators in Massachusetts.

Our experience and dedication was demonstrated in 2004 when LHS upgraded the entire City of Boston from lever voting machines to Optical Scan Tabulators. The entire project was successfully completed in six months and included delivery, acceptance testing, hardware modification, training, voter outreach, programming, ballot printing and election day support.

Two years later LHS again displayed their ability when they upgraded the entire State of Connecticut from lever machines to 1,865 Optical Scan Tabulators. The whole project was

successfully completed in eight months and included delivery, testing, training, voter outreach, programming and ballot printing for 169 communities.

The latest example of large scale projects completed came in 2018, when LHS was responsible for the management of 1,500 electronic poll books in the State of Rhode Island. In five weeks LHS conducted maintenance, prepared units for deployment, trained 120 election day technicians, loaded election day files, supported the state on election day and managed all post election poll book activities.

LHS' business focuses on vote tabulator sales, maintenance, programming, testing, onsite support, poll worker training, technician training, election night reporting, help desk support, state certification and consulting at State and Local levels. Being the only election service company located in New England gives LHS a unique understanding of how elections are conducted and the expectations of local officials. LHS Associates' experienced staff has worked hand in hand with Clerks and Election Officials in New England for over 31 years.

Our history, reputation, experience and location make LHS the most advantageous option for long term support and sustainability.

DVS Response: Dominion is a company that has distinguished itself while pursuing excellence in customer service by implementing a technical culture focused on achieving the highest levels of accuracy, reliability and transparency. Established in 2003, Dominion deepened its roots as a leading company in the elections industry in 2010, with the acquisition of assets from both Premier Voting Solutions and Sequoia Voting Systems. Today, Dominion's human resource pool of over 250 employees, consisting of seasoned election veterans and engineering experts has well over 2,000 years of combined elections experience conducting accurate and successful elections with our customers.

Dominion is headquartered in Denver, CO, with office locations in Toronto, ON, Jamestown and Endicott, NY, McKinney, TX, and San Leandro, CA. Dominion is strategically positioned in all 4 U.S. continental time zones to support its customer base of over 1,300 jurisdictions in 33 states. Dominion is one of the largest and most trusted providers of elections technology solutions in the United States and the world. As an example, during the U.S. Presidential Elections in November 2016, roughly 36% of registered American voters cast their ballots using our equipment.

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

LHS Response: Since 1992

DVS Response: Since 2003.

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.

Response: LHS has successfully implemented and supported large polling places across New Hampshire for more than 25 years. Towns like Londonderry, Bedford and Merrimack are just a few examples of our experience with large single precinct polling places. The only change we would recommend would be for additional tabulators to help process voters more quickly during busy elections. Additional tabulators should either be leased or purchased for Presidential Primaries and General Elections where a historically large turnout could create longer than usual lines and voting times.

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

Response: The ImageCast Precinct tabulator can handle any number of voters in a single election. Based on the rules and regulations of New Hampshire, a single unit can be “refreshed” by emptying the ballot box contents and securely handling the contents, or inserting new Compact Flash devices if the memory nears capacity. We would work with local jurisdictions to develop proper handling based on local rules and regulations.

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).

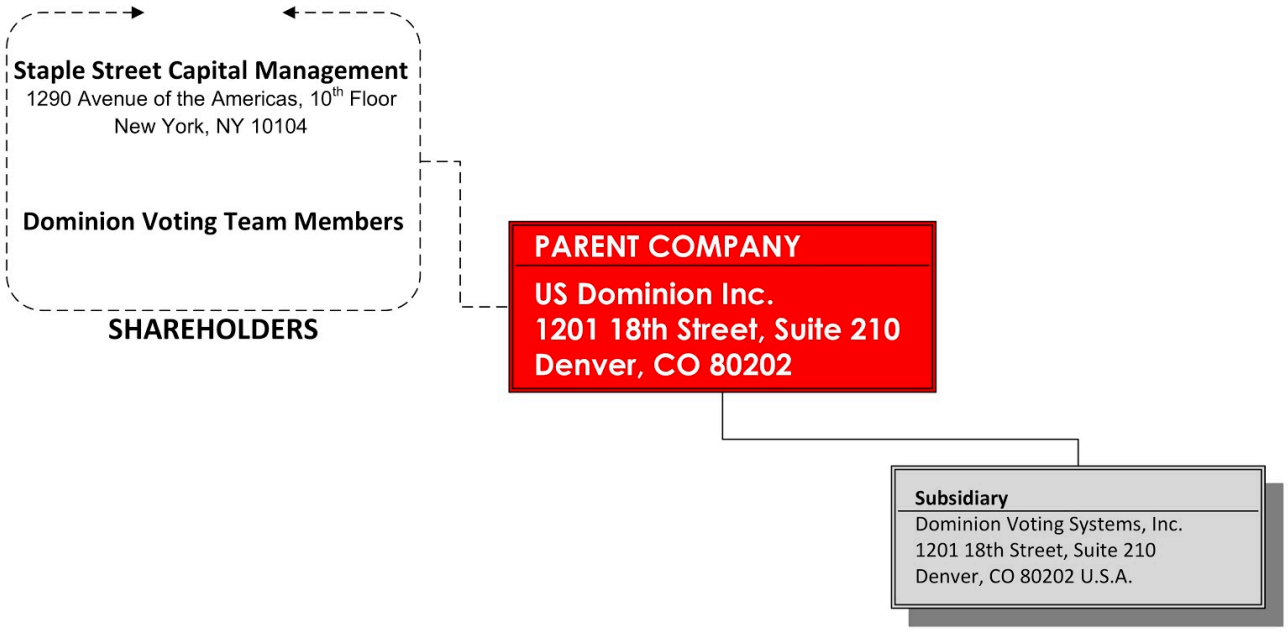
Response: Ballots, depending on their length take 6 to 8 seconds to scan using the ImageCast Precinct. Our customers tell us that the average voter spends between 8 and 10 seconds at the tabulator, which can vary based on ballot conditions that may exist. However, the unit is highly scalable, and in large polling sites additional tabulators can be used to reduce lines.

We would be happy to work with you to determine an appropriate number of units to handle any expected turnout.

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.

LHS Response: LHS is a privately owned S-Corporation. Its shareholders are Joel Bergeron, Jeffrey Silvestro and John Silvestro

DVS Response:



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

LHS Response: LHS is incorporated in the Commonwealth of Massachusetts.

DVS Response: Dominion is incorporated in the State of Delaware.

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

Response:

A representative list of customers utilizing the ImageCast Precinct is included below:

The State of Alaska

- City and Borough of Sitka (ICP-A, 2014)
- City of Valdez (ICP, 2015)
- The City of Bethel (ICP, 2017)
- The City and Borough of Ketchikan (ICP, 2017)

The State of Iowa

- Adair County (ICP-BMD, 2015)
- Appanoose County (ICP-BMD, 2016)
- Bremer County (ICP-BMD, 2016)
- Cedar County (ICP BMD, 2013)
- Hardin County (ICP-BMD, ICC, 2015)
- Lucas County (ICP-BMD, 2016)
- Mitchell County (ICP-BMD, 2015)
- Wayne County (ICP-BMD, 2016)
- Dickinson County (ICP, ICC, 2017)

The State of Kansas

- Lane County (ICP-BMD Audio, 2015)
- Reno County (ICP, ICX, 2017)
- Thomas County (ICP, ICX, ICC, 2017)

The State of Louisiana

- All 64 parishes (ICC, 2011)

The Commonwealth of Massachusetts (LHS Associates, Inc.)

- Adams (ICP, 2018)
- Agawam (ICP, 2016)
- Amesbury (ICP, 2017)
- Andover (ICP, 2017)
- Ashland (ICP, 2016)
- Athol (ICP, 2017)
- Attleboro (ICP, 2016)
- Auburn (2016)
- Avon (ICP, 2018)
- Ayer (ICP, 2019)
- Barre (ICP, 2018)
- Belchertown (ICP, 2017)
- Bellingham (ICP, 2016)
- Bernardston (ICP, 2016)
- Beverly (ICP, 2017)
- Blackstone (ICP, 2016)
- Boston (ICP, 2019)

- Boxborough (ICP, 2018)
- Boxford (ICP, 2016)
- Boylston (ICP, 2018)
- Bridgewater (ICP, 2018)
- Brimfield (ICP, 2016)
- Brockton (ICP, 2016)
- Cambridge (ICP, 2018)
- Canton (ICP, 2018)
- Charlton (ICP, 2017)
- Chelmsford (ICP, 2018)
- Cheshire (ICP, 2016)
- Clinton (ICP, 2015)
- Cohasset (ICP, 2016)
- Danvers (ICP, 2019)
- Dartmouth (ICP, 2017)
- Dedham (ICP, 2016)
- Deerfield (ICP, 2018)
- Dover (ICP, 2017)
- Dracut (ICP, 2017)
- Dunstable (ICP, 2018)
- Duxbury (ICP, 2016)
- East Bridgewater (ICP, 2017)
- Eastham (ICP, 2014)
- Easthampton (ICP, 2018)
- Easton (ICP, 2016)
- Egremont (ICP, 2018)
- Everett (ICP, 2019)
- Falmouth (ICP, 2016)
- Fitchburg (ICP, 2015)
- Franklin (ICP, 2018)
- Georgetown (ICP, 2017)
- Grafton (ICP, 2018)
- Granby (ICP, 2016)
- Great Barrington (ICP, 2016)
- Groton (ICP, 2016)
- Hatfield (ICP, 2018)
- Hingham (ICP, 2018)
- Holden (ICP, 2017)
- Holliston (ICP, 2016)
- Holbrook (ICP, 2018)
- Hopedale (ICP, 2019)
- Hopkinton (ICP, 2019)
- Hudson (ICP, 2014)
- Hull (ICP, 2018)
- Kingston (ICP, 2018)
- Lakeville (ICP, 2019)
- Lee (ICP, 2019)
- Lenox (ICP, 2018)
- Leominster (ICP, 2015)
- Lexington (ICP, 2017)
- Lincoln (ICP, 2019)
- Longmeadow (ICP, 2016)
- Lynnfield (ICP, 2016)
- Manchester-by-the-Sea (ICP, 2017)
- Mansfield (ICP, 2014)
- Marblehead (ICP, 2018)
- Marshfield (ICP, 2018)
- Maynard (ICP, 2018)
- Medford (ICP, 2018)
- Melrose (ICP, 2017)
- Methuen (ICP, 2017)
- Middleborough (ICP, 2016)
- Middleton (ICP, 2019)
- Milford (ICP, 2018)
- Milton (ICP, 2018)
- Monson (ICP, 2017)
- Needham (ICP, 2015)
- Newbury (ICP, 2015)

- Norfolk(ICP, 2018)
- North Adams (ICP, 2018)
- North Andover (ICP, 2017)
- Northampton (ICP, 2018)
- Northfield (ICP, 2016)
- Norton (ICP, 2016)
- Norwood (ICP, 2018)
- Orange (ICP, 2016)
- Otis (ICP, 2018)
- Palmer (ICP, 2019)
- Pembroke (ICP, 2017)
- Pepperell (ICP, 2017)
- Pittsfield (ICP, 2018)
- Plainville (ICP, 2014)
- Plymouth (ICP, 2017)
- Quincy (ICP, 2016)
- Raynham (ICP, 2019)
- Reading (ICP, 2016)
- Richmond (ICP, 2019)
- Rockport (ICP, 2015)
- Rutland (ICP, 2017)
- Salisbury (ICP, 2018)
- Saugus (ICP, 2017)
- Sheffield (ICP, 2019)
- Sherborn (ICP, 2014)
- Shirley (ICP, 2015)
- Southborough (ICP, 2017)
- South Hadley (ICP, 2015)
- Southwick (ICP, 2019)
- Spencer (ICP, 2018)
- Sterling (ICP, 2018)
- Stockbridge (ICP, 2018)
- Stow (ICP, 2018)
- Sturbridge (ICP, 2018)
- Sudbury (ICP, 2019)
- Tewksbury (ICP, 2018)
- Tyngsborough (ICP, 2019)
- Uxbridge (ICP, 2016)
- Wales (ICP, 2016)
- Walpole (ICP, 2016)
- Wakefield (ICP, 2019)
- Wareham (ICP, 2016)
- Watertown (ICP, 2018)
- Wellesley (ICP, 2016)
- Wenham (ICP, 2016)
- West Boylston (ICP, 2016)
- West Springfield (ICP, 2019)
- Westfield (ICP, 2018)
- Westminster (ICP, 2016)
- Weston (ICP, 2015)
- Westwood (ICP, 2016)
- Whitman (ICP, 2019)
- Williamsburg (ICP, 2019)
- Williamstown (ICP, 2019)
- Winchendon (ICP, 2016)
- Winchester (ICP, 2016)
- Winthrop (ICP, 2017)

The State of Michigan

- Alger County (ICP, ICX-BMD, 2017)
- Allegan County (ICP, ICX-BMD, 2018)
- Antrim County (ICP, ICX-BMD, 2018)
- Baraga County (ICP, ICX-BMD, 2018)
- Barry County (ICP, ICX-BMD, 2018)
- Benzie County (ICP, ICX-BMD, 2018)
- Berrien County (ICP, ICX-BMD, 2017)
- Branch County (ICP, ICX-BMD, 2017)
- Calhoun County (ICP, ICX-BMD, 2017)
- Cass County (ICP, ICX-BMD, 2017)
- Charlevoix County (ICP, ICX-BMD, 2017)
- Chippewa County (ICP, ICX-BMD, 2018)
- Clare County (ICP, ICX-BMD, 2017)
- Crawford County (ICP, ICX-BMD, 2018)
- Delta (ICP, ICX-BMD, 2017)
- Dickinson County (ICP, ICX-BMD, 2018)
- Gladwin County (ICP, ICX-BMD, 2017)
- Gogebic County (ICP, ICX-BMD, 2018)
- Gratiot County (ICP, ICX-BMD, 2017)
- Houghton County (ICP, ICX-BMD, 2017)
- Huron County (ICP, ICX-BMD, 2017)
- Ingham County (ICP, ICX-BMD, 2017)
- Iosco County (ICP, ICX-BMD, 2017)
- Iron County (ICP, ICX-BMD, 2018)
- Isabella County (ICP, ICX-BMD, 2017)
- Jackson County (ICP, ICX-BMD, 2017)
- Kalkaska County (ICP, ICX-BMD, 2017)
- Kent County (ICP, ICX-BMD, 2017)
- Keweenaw County (ICP, ICX-BMD, 2018)
- Lake County (ICP, ICX-BMD, 2018)
- Lapeer County (ICP, ICX-BMD, 2017)
- Leelanau County (ICP, ICX-BMD, 2018)
- Lenawee County (ICP, ICX-BMD, 2017)
- Luce County (ICP, ICX-BMD, 2017)
- Mackinac County (ICP, ICX-BMD, 2017)
- Manistee County (ICP, ICX-BMD, 2017)
- Marquette County (ICP, ICX-BMD, 2017)
- Mescota County (ICP, ICX-BMD, 2017)
- Menominee County (ICP, ICX-BMD, 2017)
- Midland County (ICP, ICX-BMD, 2018)
- Missaukee County (ICP, ICX-BMD, 2017)
- Monroe County (ICP, ICX-BMD, 2017)
- Montmorency (ICP, ICX-BMD, 2018)
- Newaygo County (ICP, ICX-BMD, 2017)
- Oceana County (ICP, ICX-BMD, 2018)
- Ogemaw County (ICP, ICX-BMD, 2018)
- Ontonagon County (ICP, ICX-BMD, 2018)
- Osceola County (ICP, ICX-BMD, 2018)
- Oscoda County (ICP, ICX-BMD, 2018)
- Otsego (ICP, ICX-BMD, 2017)
- Presque Isle (ICP, ICX-BMD, 2018)
- Saginaw County (ICP, ICX-BMD, 2018)
- Sanilac County (ICP, ICX-BMD, 2017)
- Schoolcraft County (ICP, ICX-BMD, 2017)
- Shiawassee County (ICP, ICX-BMD, 2017)
- St. Clair County (ICP, ICX-BMD, 2017)
- St. Joseph County (ICP, ICX-BMD, 2017)
- Tuscola County (ICP, ICX-BMD, 2017)
- Van Buren County (ICP, ICX-BMD, 2017)
- Wayne County (ICP, ICX-BMD, 2017)
- Wexford County (ICP, ICX-BMD, 2018)

The State of Missouri

• Adair County (ICP-BMD, 2015)
• Callaway County (ICP-BMD, 2015)
• Carroll County (ICP-BMD, 2015)
• Crawford County (ICP-BMD, 2015)
• Gasconade County (ICP-BMD, 2015)
• Grundy County (ICP-BMD, 2015)
• Harrison County (ICP-BMD, 2016)
• Jasper County (ICP-BMD, 2015)
• Livingston County (ICP- BMD, 2015)
• Lafayette County (ICP-BMD, 2015)
• Maries County (ICP-BMD, 2015)
• Mercer County (ICP-BMD, 2015)
• McDonald County (ICP-BMD, 2014)
• Montgomery County (ICP-BMD, 2016)
• Newton County (ICP-BMD, 2015)
• Nodaway County (ICP-BMD, 2015)
• Osage County (ICP-BMD, 2015)
• Pike County (ICP- BMD, 2015)
• Saline County (ICP-BMD, 2015)
• Warren County (ICP-BMD, 2014)
• Butler County (ICP-BMD, 2017)

All 33 counties in the State of New Mexico
(ICC, ICE, ICP-BMD, ICP, 2014)

52 Counties in the State of New York
(all except Albany, Erie, Nassau, Rockland, Schenectady and the five boroughs of New York City) (ICP, ICP-BMDICC, 2008)

The State of Ohio

• Belmont County (ICP-A, ICC, 2015)
• Guernsey County (ICE, ICC, 2013)
• Harrison County (ICP, ICE, ICC, 2014)
• Huron County (ICC, ICE, ICP-A, MBP, 2015)
• Muskingum County (ICP, ICE, ICC, ADJ, 2017)

The State of Tennessee

• Hamilton County (ICE, ICP-A, ICC, 2013)

The Commonwealth of Virginia

• Caroline County (ICP-BMD, 2015)
• King George County (ICP-BMD, 2014)

The Commonwealth of Puerto Rico
(ICP, 2016)

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

DVS Response: Please see previous response.

LHS Response: Please See Attachment #3

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

Response: LHS employs a staff of 24 full-time employees with a combined 190+ years of election experience. 50% of LHS employees are New Hampshire residents.

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.

Response: If inventory is available LHS would be able to deliver a new system to a town/city as quickly as one week after an order is placed. If inventory is not available delivery may take up to 60 days after an order is received. Of course any order placed within 90 days of an election would not be possible due to ballot layout, printing and programming restrictions. In this scenario the order would be delivered 14 days after the election, following approval from the SOS.

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

Response: The ImageCast Precinct is manufactured by Flextronics, located in Texas for the exclusive use by Dominion and its partners.

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

Response: The ImageCast Precinct is manufactured by Flextronics, located in Texas for the exclusive use by Dominion and its partners. As such, Dominion maintains spare units and parts in our McKinney, Texas Facility.

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?

Response: Dominion's Democracy Suite System and components, Including the ImageCast Precinct, meet the security standards defined by the Federal Election Assistance Commission. Our systems are tested and certified by the Voting Systems Test Labs per the Voluntary Voting

Systems Guidelines. These Federal guidelines are developed in conjunction with and rely upon NIST security standards to protect the confidentiality, integrity and availability of the information systems.

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

Response: The ImageCast Precinct tabulator is manufactured by Flextronics, located in Texas for the exclusive use by Dominion and its partners. Below we provide the location:

Flextronics
12455 Research Blvd.
Austin, TX 78759

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

Response: The ImageCast Precinct tabulator is manufactured by Flextronics, located in Texas for the exclusive use by Dominion and its partners. Dominion maintains an inventory of critical components in its warehouses around the country.

Dominion Voting's rigorous and proven project management systems identify long lead-time items early in the project, and project managers work with county officials to arrange delivery. Additionally, Dominion maintains strong relationships with major shipping firms, including a strategic partnership with one major independent shipper. In the past we have successfully used these relationships to assist customers.

Therefore, we do not anticipate any difficulties meeting capacity needs for the units, parts or service.

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

LHS Response: LHS has supported four generations of voting machines in New England. Starting with punch cards machines, then the Optech IIIP optical scanners, then the AccuVote optical scanners and now the ImageCast Precinct tabulators. As we transition from one

system to the next our philosophy has remained the same, LHS will support your voting system as long as physically possible. In some cases, such as the AccuVote, we have been able to support the system for a decade following the end of production. We accomplish this by licensing software from the developers and building our own inventory of parts for repairs. This allows us the freedom to operate independently after a manufacturer decides to end a product line or exit the election industry.

Our long-time service to the New England region as a whole is a testament to our ability to grow alongside the election process. As new demands arise, we adjust to offer innovative, state-of-the-art equipment and technology best suited to meet those demands.

DVS Response: As with all ImageCast products, through support and upgrades, we expect the ImageCast Precinct tabulator to be serviceable for a minimum of 10 years. We maintain strong relationships with the manufacturer and also maintains an inventory of critical components in its warehouses around the country. Through our relationships maintain relationships with service technicians and have the ability to provide technician level training to customers to support the ImageCast Precinct tabulator if preferred. We work with clients to ensure a customized level of support based on your needs.

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.

Response: LHS and DVS have no actual or perceived conflicts of interest that would arise from the submission of our 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?

Response: 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.

LHS Response: LHS has no voting system-related litigation in the last ten years.

DVS Response: Below we provide a list of lawsuits; however, we do not have any lawsuits or litigation to disclose regarding customers. None of the legal activity details would have any effect on our ability to provide ImageCast Precinct units or support:

1. In the United States District Court for the District of Delaware, C.A. No. 1:17-cv-01172-VAC-CJB; ELECTION SYSTEMS & SOFTWARE, LLC, Plaintiff v. DOMINION VOTING SYSTEMS, INC. On August 21, 2017, plaintiff Election Systems & Software LLC ("ES&S") flied a complaint against Dominion. In its complaint, ES&S alleged that the ImageCast Evolution voting machine, which Dominion manufactures and sells, infringes United States Patent No. 8,991,701. Dominion strongly denied the infringement as well as any liability to ES&S. The parties settled the dispute in 2018.

2. In the First Judicial District Court of the State Of Nevada: CHRISTOPHER NEPPER, an individual, Petitioner/Plaintiff v. STATE OF NEVADA, ex rel. its Office of the Secretary of State, BARBARA CEGAVSKE, in her official capacity as Nevada Secretary of State, STATE OF NEVADA, ex rel. its Attorney General's Office, ADAM PAUL LAXALT, in his official capacity as Nevada Attorney General, DOMINION VOTING SYSTEMS, INC. Christopher Nepper lost the election for Mineral County Clerk-Treasurer to Lorraine Haight. Discrepancies with the voter turnout figures in Mineral County subsequently came to light. The Mineral County District Attorney's Office conducted an investigation, concluding that 178 votes were not counted. The investigation ultimately concluded that the uncounted votes were due to a human procedural error, not any issue with the voting devices or tabulation software. In 2016, the claims by Mr. Nepper were dropped with prejudice.

3. In re SVS Holdings, Inc.; Tom H. Connolly, Chapter 7 Trustee v. Sequoia Voting Systems, Inc., Dominion Voting Systems Corporation and Dominion Voting Systems, Inc., United States Bankruptcy Court for the District of Colorado, Case No. 10-24238-HRT, Adversary Proceeding No. 12-1757-HRT; United States District Court for the District of Colorado, Civil Action No. 13-cv-00169-REB. The Chapter 7 Trustee for debtor SVS Holdings, Inc. filed a lawsuit seeking to avoid the purchase of certain assets by Dominion Voting Systems, Inc. and Dominion Voting

Systems Corporation from Sequoia Voting Systems, Inc. under Sections 544, 548, and 550 of the Bankruptcy Code and analogous sections of Colorado and Delaware state law. The Chapter 7 Trustee's pursuit of this litigation was funded by Smartmatic USA Corporation. The parties settled the dispute in 2017.

Maintenance, Training, and Support

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

Response: At LHS Associates, the focus of our training platform is to provide poll workers and election administration staff with the necessary knowledge to implement a voting system that will smoothly and efficiently process voter's ballots. We accomplish this through the utilization of various training formats and training customization. Training customization begins with tailoring our sessions to specific needs for any particular municipality. Our training sessions cover specific explanation of hardware functions and detail of all phases of the election. These sessions include hands on presentation and in-person training sessions to be led by an LHS Representative along with a visual Poll Worker guide to be tailored, if necessary.

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.

Response: LHS has a long history of training poll workers and Elections Officials in New Hampshire. From the Secretary of State Staff down to the newest poll workers, LHS has proven their ability to effectively train at every level.

Our approach uses a combination of in person onsite training, specially designed training materials and hands on tutorials. Trainings are conducted at the local levels with time, date and location determined by the Clerks. LHS never conducts regional trainings that force poll workers or clerks to travel to one location. LHS will always training onsite, in the town or city where the product is being implemented.

Clerk Training Session Description:
This Training session will introduce hardware components and cover Pre-Election testing, Opening and closing of the polls.

Frequency – One Event
Length – Two Hours + Q&A
Audience– Clerk and staff

LHS will provide documentation to accompany all training, consisting of a minimum of the following;

- One (1) pre-election testing guide.
- One (1) Poll Worker training guides.
- One (1) Instruction to Voters Posters.

Poll Worker Training Session Description:
Two training sessions coordinated by the Clerk will take place, which will include an in-depth overview of the ImageCast Precinct Voting System and will focus on the opening of the polls, ImageCast Messages, troubleshooting, Voter Education, Over Votes, Blank Ballots, Ambiguous Marks, closing the polls, and printing results.

Frequency – Two Events (Cities will have three events)
Length – 90 Minutes each + Q&A
Audience– Clerk and Poll workers

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

Response: The above trainings are covered in the initial purchase price for an Imagecast Precinct Tabulator bundle.

132. Provide examples of all training materials.

Response: See Attachment #4 (Poll worker guide)

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

Response: The LHS maintenance plan includes:

- All parts, labor, travel and shipping costs.
- Unlimited access to the LHS Help Desk for Pre-Election, Election Day and Post-Election questions, concerns or troubleshooting.
- An annual maintenance visit to the municipality to inspect, calibrate and service all equipment.

- Any necessary repairs will take place in the municipality. If onsite repair is not possible loaner equipment will be left in the municipality's possession until all equipment can be repaired and returned.
- A trained technician employed by LHS, not a subcontractor, will conduct all maintenance work.
- A locally based service center with full time employees trained in repairing and servicing voting equipment.
- An employee of LHS, not a subcontractor, will perform all maintenance and repair work.

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

Response: For every Election in New Hampshire, LHS positions no less than six dedicated regional service technicians across New Hampshire. Our goal is a response time of less than 60 minutes for any onsite repairs or services.

If a problem arises, the customer would place a call to our toll free help desk. If the operator is not able to resolve the problem over the phone, a service ticket would be issued and a regional technician would be dispatched to the location. Once the technician is assigned, they call the customer while in route to make an introduction and discuss the issue prior to arrival. Once the technician is onsite, they meet the local election official (usually the moderator) and under the supervision of the election official and a police officer the technician will repair the unit in question. If the unit is not able to be repaired, a loaner unit will be left with the customer for the remainder of the election. If necessary, the technician will remain on site until any auxiliary ballots are re-fed through the loaner unit.

All service tickets are archived and reported to the SOS after each election. This included tickets for pre-election issues and election day issues.

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

a. On election day.

Response: 45 minutes – 1 hour

b. At other times.

Response: For critical Pre-Election repairs: 24 to 48 hours, unless a faster response is necessary.

For non critical repairs: Timing is scheduled with the Clerk based on the available schedule of both the Clerk and the LHS technician.

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

Response: Yes

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

Response: LHS Technicians will reach out to municipalities to schedule a maintenance visit time and date that works for both parties. On that time and date, the LHS technician will arrive on-site with all necessary tools and diagnostic equipment to be able to run diagnostics, test, and clean all Imagecast Precincts tabulators covered under the annual Maintenance contract. If any equipment requires repair that cannot be completed on site the LHS technician will leave loaner equipment on site and take the municipality's equipment back to headquarters to be repaired and / or serviced.

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.

Response: Included in the purchase of the Imagecast Precinct tabulator is a one year manufacturer warranty. After the warranty expires, we recommend municipalities sign an annual maintenance agreement with LHS. We do not offer multiple post warranty options or service levels. We believe all equipment should be serviced at the same level to ensure success across the State.

139. Define all consumables and proposed timeline for replacement.

Response: The Imagecast Precinct tabulator only contains two consumable products; the internal backup lithium-ion battery and thermal paper roll. It is recommended to change the battery every 5 years. It is recommended to change the thermal paper roll when it gets low (typically every election).

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

Response: LHS will suggest the products and consumables that we believe will result in the highest level of success or efficiency. However, we will never require the customer to purchase those products or consumables directly from us. We do offer a price match guarantee and urge any customer who finds the same product listed at a lower price to contact us before purchasing.

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

Response: If a problem arises, the customer would place a call to our toll free help desk. If the operator is not able to resolve the problem over the phone, a service ticket would be issued and a technician would be assigned. The assigned technician would then call the customer, discuss the issue and schedule an onsite appointment. Once the technician is onsite, under the supervision of the clerk, the unit problem will be diagnosed and attempted to be repaired. If the unit is not able to be repaired, a loaner unit will be left with the customer. The

problematic unit will be returned to the manufacturer for further diagnosis and repair. If for any reason the unit is beyond repair, as a result of a manufacturer defect, a new unit will be delivered to the customer. If the unit is able to be repaired, the LHS technician will return the unit, conduct an acceptance test and remove the loaner unit.

Cost

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

Response: The cost is of the ImageCast Precinct tabulator is not a set price and is subject to change. We would work with the SOS and the Town/City Clerks to establish a price that is financially acceptable for everyone. The end price will be significantly lower than the original price of the AccuVote.

Included in the purchase of an ImageCast Precinct tabulator:

- One (1) Tabulator
- One (1) Padded carrying case
- Two (2) Commercial Grade Compact Flash memory cards
- One (1) Spare power cord for table top testing
- One (1) Key set
- Two (2) Thermal paper rolls
- One (1) Dozen ballot marking pens
- Six (6) Security seals
- One (1) Internal battery
- One (1) Plastic Ballot Box with three (3) compartments, casters and a built in power supply.
- One (1) Year Hardware & Software Warranty
- One (1) Pre Election Testing Guide
- One (1) Poll Worker Training Guide
- One (1) Voter Tutorial Video
- One (1) Instruction to Voters Poster.
- Two (2) 90 minute training sessions
- One (1) Onsite acceptance test of all equipment delivered
- One (1) Onsite pre election testing assistance
- Shipping and Handling

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

Response: Yes, a one year warranty, maintenance and support are included.

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

Response: The determining factor for pricing is the market. LHS aims to offer the lowest price when compared to competitors offering the same level of services and accessories. The next factor is whether the machine is a primary or a spare, we offer deep discounts for customers who purchase additional equipment to use as spare or backup units.

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

Response: Yes.

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?

Response: Pricing for annual maintenance agreements on new voting equipment is $25 less than the current price for AccuVotes. LHS is willing to freeze this pricing for a three year period.

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

Response: Not for a single customer. Maintenance agreement discounts only apply for Statewide contracts.

146. What is included in the maintenance agreement?

Response: Items included in the maintenance agreement for new voting equipment is the same as the current AccuVote system.

- All parts, labor, travel and shipping costs.
- Unlimited access to the LHS Help Desk for Pre Election, Election Day and Post Election questions, concerns or troubleshooting.

- An annual maintenance visit to the Town/City to inspect, calibrate and service all equipment.
- Any necessary repairs will take place in the Town/City. If onsite repair is not possible loaner equipment will be left in the Town/City's possession until all equipment can be repaired and returned.
- An employee of LHS, not a subcontractor, will conduct all maintenance work.
- A locally based service center with parts and technicians trained in repairing and servicing voting equipment.

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

Response:

- Replacement Battery (Every 5 years) $175.00
- Marking Pens (per dozen) $15.00
- Paper Roll (case of 50 rolls) $75.00
- Security Seals (100 per package) $25.00

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

Response: No.

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

Response: This is dependent on how many machines a Town/City decide to purchase.

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

Response: A Collapsible ballot box is $1,000

Central Count Audit

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

Response: *The ImageCast Central Scanner (ICC) is a COTS high speed scanner that is modular, scalable and easy to use.*

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

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

a. A different vendor's system?

Response: No, the ImageCast Central (ICC) system is programmed to count only ImageCast ballots.

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)?

Response: No

c. Microsoft Word?

Response: Possibly, as long as the timing codes are offset and positioned correctly, the Ballot ID codes are the same and the oval size, shape and position are all identical to those found in the programming software.

d. Adobe In-design?

Response: Possibly, as long as the timing codes are offset and positioned correctly, the Ballot ID codes are the same and the oval size, shape and position are all identical to those found in the programming software.

e. Any ballot in PDF form?

Response: No. Only ImageCast Ballots in PDF form.

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

Response: The same way the ImageCast Precinct tabulator would be programmed to accept the same ballot.

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

Response: No, programming information for the ICC is completed through Democracy Suite Election Event Designer (EED).

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

Response: No, programming does not use uploading of XML or XY coordinate information. Programming information for the ICC is completed through Democracy Suite Election Event Designer (EED).

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

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

Response: Yes

a. If yes, provide pricing information.

Response: $25,000 for the ICC G1130 Kit.

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

Response: Programming fees for the ICC are the same as the ICP and AccuVote.

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.

Response: For central auditing purposes we would need to work with the state to understand how many ballots would be processed before determining a price. The ICC can only read ImageCast ballots, the use for auditing would be limited to only the communities that purchase an ImageCast Precinct tabulator. This number could be minimal in the beginning and increase with sales to more municipalities over time. In any scenario the price would be based on an annual license fee ranging from $5,000 per year to start up to $105,000 per year for statewide auditing.

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?

Response: Rate of processing for a 14" ballot is about 64 per minute or 3840 per hour. Based on this it would take just under 16 minutes to process 1000 ballots.

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?

Response: Rate of processing for an 18" ballot is about 53 per minute or 3180 per hour. Based on this it would take just under 19 minutes to process 1000 ballots.

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

Response: Pricing for this question was previously answered in 156 c.

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

Response: The central count device is designed for use at a central count location but can be used at a polling place.

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. ?

Response: The following components make up the ImageCast Central:

- Canon DR-G1130 scanner
- Dell Optiplex 24 7440 all-in-one workstation