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State of Georgia

Request for Information (RFI):
New Voting System
Event number: 47800-SOS0000035

ORIGINAL

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Requested Information

3.1   Background

State law provides for a uniform voting system where every county uses the same type of voting system equipment. Georgia has 159 counties and 159 election superintendents who run elections for each respective county. The State Entity maintains the statewide voter registration system; builds the ballots for each federal, state, and county election; and creates the electronic pollbooks files. The State Entity expects at this time that it will retain these responsibilities while using the new voting system.

The State Entity is interested in replacing the following components of its current voting system:

- **Election Management System: Global Election Management System ("GEMS")**
- **In Person Voting Machines: AccuVote R6 and AccuVote TsX ("DREs")**
- **Precinct Scanners & Tabulators: AccuVote-OS**
- **Statewide Electronic Pollbook System: ExpressPoll 4000 and ExpressPoll 5000**

The State Entity is also interested in exploring options for native Election Night Reporting (public display of election night aggregated results) capabilities that are available with proposed voting system solutions.

The State Entity is not interested in replacing its voter registration system at this time.

Georgia has four methods of voting: absentee by mail voting using optical scan paper ballots, absentee in person voting (three weeks of early voting), provisional ballot voting, and election day voting. Currently, absentee in person and election day voting are conducted solely on DREs. The State Entity anticipates that these four methods of voting will continue while using the new voting system. During absentee in person voting, voters are able to vote in any early voting location in their county. Georgia would like to keep this option for early voting in any new system. On election day, voters must vote at their assigned precinct.

Dominion Voting Systems, Inc. (Dominion) has read and understands the background information as related to this Request For Information (RFI).

3.2 Statistics

Polling Places: Approximately 2,365

DREs: Approximately 27,000

Precinct Scanners & Tabulators: Approximately 800

Registered Voters: Approximately 6,700,000 (92% Active Status; 8% Inactive Status)

Ballots Cast in November 2016 General Election: 4,165,405

2018 Primary Election Turnout Breakdown:
- **70%-75% of Electors Vote on Election Day**
- **20%-25% of Electors Vote During Absentee in Person Voting (Early Voting)**
- **2%-5% of Electors Vote Absentee by Mail**
- **Less than 0.2% of Electors Vote Provisionally**

2016 General Election Turnout Breakdown:
- **40%-45% of Electors Vote on Election Day**
- **50%-55% of Electors Vote During Absentee in Person Voting (Early Voting)**
- **5%-10% of Electors Vote Absentee by Mail**
- **Less than 0.2% of Electors Vote Provisionally**

Dominion has read and understands the statistics as presented in Section 3.2.

3.3 Georgia's Election Calendar

Federal, state, and county office elections are held in even-numbered years. For partisan offices, there is a general primary and a general election. In order to win a primary, general, or special election in Georgia, a candidate must receive a majority of the votes cast for that office. If no candidate receives a majority of votes cast, a run-off election is held between the candidates with the two highest number of votes. Non-partisan and judicial elections occur simultaneously and on the same ballot as the primaries in even-numbered years. Municipal elections usually occur in November of odd-numbered years, but some are held in even-numbered years.

Dominion understands the State's Election Calendar guidelines as provided in Section 3.3 above.

3.4   Future Methods of In-Person Voting

The State Entity anticipates that Georgia will move to a method of in-person voting utilizing optical scan paper ballots; digital scanners and tabulators; and ballot-marking devices for voters with disabilities. Provisional ballots will still be available as required by law. It is likely that one of the following methods of in-person voting will be utilized once the next voting system is deployed:

- **Method 1: In-person (early and election day) voting is primarily conducted with optical scan paper ballots marked by hand. Ballot-marking devices are available to be used as needed. Ballots (hand-marked and marked using ballot-marking devices) are scanned by digital scanners and deposited into a secure ballot box.**

- **Method 2: In-person (early and election day) voting is conducted solely with ballot-marking devices. Ballots marked using ballot-marking devices are scanned by digital scanners and deposited into a secure ballot box.**

- **Method 3: Absentee in-person (early) voting is conducted solely with ballot-marking devices. Election day voting is primarily conducted with optical scan paper ballots marked by hand. Ballot-marking devices are available to be used as needed. Ballots (hand-marked and marked using ballot marking devices) are scanned by digital scanners and deposited into a secure ballot box.**

Dominion has read and understands the Future Methods of Voting information as presented in Section 3.4. This information has been taken into consideration to develop responses to the Questionnaire section below.

3.5 Basic Requirements

An election management system, digital scanners and tabulators, and ballot-marking devices must be certified by the Election Assistance Commission to satisfy – at the minimum – the VVSG 1.0 standard.

- **Solution must have been deployed successfully in another state.**
- **Solution must have functionality to quickly and accurately audit voting records.**
- **Solution must support overlapping and concurrent elections.**
- **Solution must have write-in candidate capability.**
- **Solution must incorporate encryption and digital signatures as security measures.**

Dominion has read and understands the Basic Requirements as presented in Section 3.5. This information has been taken into consideration to develop responses to the Questionnaire section below.

3.6 Questions

1)   Explain how your solution meets our needs for the following voting system components:

- **Election Management System**

  At the heart of our complete voting system solution is Democracy Suite, a robust and tested Election Management System that drives all voting channels out of a single comprehensive database; mail-in ballots, in person voting, accessible voting, and Uniformed Overseas Citizens Absentee Voting Act (UOCAVA)/Remote Accessible Vote By Mail (RAVBM). All pre-election and post-election tasks utilize the same database. From ballot layout to results reporting on Election Night, Democracy Suite is a complete, end-to-end elections solution that provides a single, powerful and versatile platform for election management. The manner in which the application is being considered is consistent with Dominion's experience in managing statewide implementations where the core application is utilized centrally (e.g. by the State) and the local jurisdictions use only a subset of the core application, which is further explained below.

  Democracy Suite is comprised of two main modules: Election Event Designer and Results, Tally and Reporting.

  ## Election Event Designer
  The Election Event Designer (EED) has all the tools needed to build the election project. From importing of your election data, ballot layout, audio, languages, machine settings to creation of election files for each voting unit, Election Event Designer sets the stage.

  We understand that ballot programming is a complex task that requires a high degree of accuracy and control. Dominion has developed tools to make this process more efficient, ensuring accuracy and peace of mind for your election staff. For instance,

  - Election definition data may be entered manually or imported from voter registration systems using the Election Data Translator utility. The Election Data Translator utility allows the import of the election definition from State or County election files further simplifying the election definition process.
  - Templates used for creating custom ballot layouts and options can be reused from election to election and imported into newly created election databases. Election definition data as well as the templates used for creating elections allow jurisdictions to create uniform, easy-to-read, and space efficient paper ballots.
  - Election Event Designer uses the State or County geopolitical and election data to calculate the appropriate ballot styles and generate full-sized press-ready ballots in industry-standard PDF format. EMS lays out a variety of import ballot formats and can be used allow for the easy import of translated ballot content in jurisdictions using

multiple languages.

- In the case of Georgia specifically, these files would then be transferred to local jurisdictions if the ballot layout functionality remains with the State.

The Democracy Suite system supports ballot layouts consistent with Georgia guidelines and requirements. The ballot is 8.5" wide, and standard ballot lengths for the ImageCast Tabulators (ImageCast Central, ImageCast Precinct and ImageCast Evolution, which is an all-in-one ballot marking device, scanner and tabulator) are 11" to 22" ballots. The number of voting positions depends on the ballot style and the length of the ballot. The system can generate and process a 22" double-sided portrait ballot that can accommodate 500 voting positions.

Results Tally and Reporting

Results Tally and Reporting (RTR) module allows for upload of results files from in-person and central tabulation equipment. The consolidated results are verified, tabulated and published. RTR offers maximum flexibility to create predefined reports.in addition to a variety of standard election day reports including, election summary, Statement of Votes Cast, Cards Cast and RCV round by round reports.

An additional efficiency built into the Democracy Suite RTR module is that reports can be generated as ballot processing continues uninterrupted. Under the current system, pulling reports causes a disruption to ballot processing. This efficiency enables the City to better respond to the community requests for real time election data.

Additional features supported by Democracy Suite include our Audit Mark, Dual Threshold and Adjudication modules detailed below:

Audit Mark

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.

Dual Threshold

When a hand-marked ballot is scanned by an ImageCast tabulator – at the precinct level or centrally – a complete duplex image is created and then analyzed for tabulation by evaluating the pixel count of a voter mark. The pixel count of each mark is compared with two thresholds (which are customer configurable. to determine what constitutes a vote.

If a mark falls above the upper threshold, it is determined to be a valid vote. If a mark falls below the lower threshold, it will not be counted as a vote. However, if a mark falls between the two thresholds (known as the "ambiguous zone"), it will be deemed as a marginal mark and the ballot will be returned to the voter for corrective action.

With this feature, the voter is given the ability to determine their intent at the time they cast their ballot, not an inspection or recount board after the fact, when it is too late. The chart below

illustrates the Marginal Mark threshold interpretation. If a mail ballot is returned with a marginal mark, the ballot is outstacked to the Adjudication Module. Here a team will view a voter's intent and the outcome noted in the system.

ImageCast Adjudication

As ballots are being scanned on the ImageCast Central or through in-person voting locations, the Adjudication software electronically out-stacks ballots, in real time, that need to be reviewed for conditions ranging from overvotes, undervotes, blank ballots, blank major contests and marginal marks to certified write-ins. The Adjudication module allows for the efficient processing of ballots that require resolution of voter intent on a ballot-by-ballot basis. Ballots with write-ins that are tabulated on the ImageCast Evolution, will also be sent through Adjudication for resolution. This system eliminates the need to purchase or print additional ballots, take days to manually adjudicate and re-scan days after the election is over. Simple scan ballots and adjudicate ballots the same day. Adjudication also offers a robust, ballot-level audit trail. Each ballot scanned by the system is appended with an AuditMark.

```
Scanned on ICC Tabulator 1
Ballot ID: 2
UNITED STATES SENTATOR
    Vote for CHARLES GUTHRIE
UNITED STATES REPRESENTATIVE
    Vote for ROBERT LA FOLLETTE
STATE SENATOR 37TH DISTRICT
    BLANK VOTE
BOARD OF EDUCATION
    BLANK VOTE
```
```
Adjudicated at 2:48 PM on 12/12/2016 by admin
Scanned on ICC Tabulator 1
Ballot ID: 2
UNITED STATES SENTATOR
    Vote for CHARLES GUTHRIE
UNITED STATES REPRESENTATIVE
    Vote for ROBERT LA FOLLETTE
STATE SENATOR 37TH DISTRICT
    "Adjudicated* Vote Accepted for ANDREW CARNEGIE
BOARD OF EDUCATION
"Adjudicated* Vote Accepted for BOOKER T. WASHINGTON
```

When a ballot is reviewed in the Adjudication module, and a user makes an adjudication decision, the ballot image is appended with a record of that decision: which user took what action at what time. This allows election officials to ensure that adjudication decisions made by authorized users can be further scrutinized and reviewed, and reversed if necessary, with a clear audit trail of which decisions were made concerning a particular ballot.

- **Ballot Marking Devices**

  Dominion's primary offering for ballot marking devices is the ImageCast X, which can be configured as a ballot marking device or a direct recording electronic with a Voter Verifiable Paper Audit Trail printer. Below we provide additional details for each product:

ICX Ballot Marking Device

Today, voters and election officials are increasingly looking to leverage everyday technologies to improve the voting process and experience. Dominion is listening to our customers, and has a designed a touchscreen, in-person Ballot Marking Device that combines the flexibility, efficiency, and simplicity of modern technology, with an underlying platform of security and performance – Democracy Suite. The ImageCast X Ballot Marking Device can support different voting models, including early voting.

In addition to its touchscreen functionality, the ImageCast X Ballot Marking Device was designed as a voting solution for all. The fully ADA-compliant ImageCast X offers several options for voters with accessibility needs to vote in a private and independent manner. It presents the ballot in audio only, visual only, or both audio and visual modes, depending on personal preference.

The ImageCast X is compatible with a range of accessibility devices that voters can use to navigate through the ballot and make their selections. The system is compatible with a hand-held controller called the Audio Tactile Interface (ATI), sip and puff device, or paddle device.

Voters make their selections on the ImageCast X, which then prints a paper ballot. The printed choice summary ballot contains a written summary of the voter's choices, as well as a 2D barcode that is read by Dominion's ImageCast Central tabulator. No votes are stored on the ImageCast X touchscreen unit. The ImageCast Central tabulators store and tabulate all votes.

The ImageCast X is comprised entirely of COTS (commercial-off-the-shelf) hardware. The flexibility and ease of use of this device makes it the best option for the changing election landscape.

ImageCast X Direct Recording Electronic

The ImageCast X can also be configured as a DRE configuration when accompanied by the VVPAT (Voter Verified Paper Audit Trail) thermal printing unit. The VVPAT method provides feedback to voters using a ballot-free voting system. The VVPAT is an independent verification system for voting machines designed to allow voters to verify that their vote was cast correctly, to detect possible election fraud or malfunction, and provide a means to audit the stored electronic results.

- **Digital Scanners & Tabulators**

ImageCast Precinct

The ImageCast Precinct is one of the most widely used tabulators with over 100,000 units deployed worldwide. It is one of the most reliable optical scan tabulators, and safely stores and tabulates each vote from every ballot – including hand-marked ballots and choice summary ballots.

Used in large scale elections, the ImageCast Precinct is the industry's most reputable and reliable optical scan tabulator. Not only does the ImageCast Precinct tabulator consistently tabulate votes, it also has a strong track record on wireless results transmission in large, complex elections.

ImageCast Evolution

The ImageCast Evolution unit (ICE) is a precinct-level, digital scan, ballot marking device and tabulator that is designed to perform three major functions:

- Ballot scanning and tabulation
- Ballot review and second chance voting
- Accessible voting and ballot marking

The ImageCast Evolution is Dominion's most advanced and **simple to use** tabulator. It features a full LCD interface that presents a unique, all-in-one digital ballot scanning and internal ballot marking solution. The ImageCast Evolution was designed to exceed the EAC VVSG 2005.

The ImageCast Evolution functionality includes scanning and ballot marking for all targets on ballots ranging from sizes of 8 ½inches by 11 to 22 inches in length. The ImageCast Evolution provides several different options for certain ballot parameters. For example, a jurisdiction can configure the ImageCast Evolution to automatically accept, reject or divert a ballot under certain conditions. Additionally, it can be configured to alert the voter or operator of any errors that require further action to be taken.

Voters make their selections by filling in the voting targets next to their choices on a paper ballot. The voter then inserts the ballot directly into the ImageCast Evolution, which performs the following functions:

- Scans the ballot.
- Alerts the voter of any errors on the ballot, with or without full ballot review on.
- Interprets the digital image of the ballot and appends to the bottom of the image a record of how that ballot was interpreted by the machine (AuditMark imaging technology, proprietary to Dominion Voting Systems).
- Redundantly stores and tallies the results.
- Prints cumulative totals of all votes cast after the polls have been closed.

The ImageCast Evolution is also equipped with an ultra-sonic multi-feed detector that prevents the device from accepting more than one ballot a time. Dominion has developed secure ballot paper that

if used, is detected by the unit. If the paper is a copy or not a valid ballot, the unit will reject the ballot.

- ### High Speed Scanners and Tabulators

ImageCast Central

Dominion's ImageCast Central, like all of our ImageCast products, stores the ballot image with the secure AuditMark. The system's flexibility allows the jurisdiction to customize out-stacking conditions, such as overvotes, undervotes, marginal marks, and certified write-in contests. The ImageCast Central has all the tools election officials are looking for to make their central count process easy and more efficient.

With the ImageCast Central count solution, Dominion focused its efforts on how to create efficiency using lower cost, off-the-shelf scanners which meet the VVSG 2005 standards, and software that streamlines the process.

Easy to Use

The ImageCast Central features a user friendly, intuitive touchscreen user interface to securely access the administrative functionality of the unit as required for the setup, operation and closing of the device. Non-technical personnel can easily learn to handle equipment, as the software is intuitive and requires minimal training for users. It is simple - the operator loads the batch into the scanner; presses scan. When complete, the operator presses the accept button and moves on to the next batch.

The operator does nothing but process the ballots. The system's intelligence does the rest.

Flexible and Scalable Solution

Along with the requisite COTS hardware, the ImageCast Central provides ample flexibility to meet the needs of small, medium and large jurisdictions. ImageCast Central allows jurisdictions to consolidate results in an efficient environment, in real time.

Better Central Scan Reliability

This use of less expensive and compact third-party devices enables the ImageCast Central count solution to offer higher sustained throughputs in the face of hardware failures, flexible site layouts when space is at a premium, and access to a vast pool of readily available replacement parts and certified technicians. Additionally, these units have minimal moving parts, which increases the reliability. A simple microfiber towel is all you need to clear the dust and particles left by paper ballots. The uptake rollers and be easily

removed for cleaning or replacement. All of these factors translate to improved maintainability, and lower cost of ownership.

The ImageCast Central has a proven track record of being able to scan ballots in real- life ballot scenarios, such as folded ballots, and ballots that have been crushed, stained or are dirty. Customers have noted that this has significantly reduced the number of ballots that need to be hand duplicated before being processed through the system. The Canon scanner features a simple paper path, limiting the number of paper jams. There is no pre-sorting of ballots or re-orientation of ballots needed before scanning.

Programming the ImageCast Central

Central scanning is typically used to process absentee or mail-in ballots. The election definition is taken from EMS, using the same database that is utilized to program any precinct scanners for a given election. Multiple ImageCast Central scanners can be programmed for use in an election. The ImageCast Central application is installed and later initialized on a computer attached to the central count scanner. Ballots are processed through the central scanner(s) in batches based on jurisdictional preferences and requirements.

Results from the ImageCast Central

The ImageCast Central stores ballot images by scanned batches. The scanned ballot images are migrated to the Election Management System through computer networking or removable media. As with results data from any precinct scanners in use for an election, Results Tally and Reporting is the portion of EMS that processes the images to provide tabulation and operational reports to the jurisdiction.

Batches can be appended, deleted, and processed in a number of ways to suit typical election workflows, intake of ballots before, during, and after Election Day, jurisdictional requirements surrounding absentee ballot tabulation, and canvassing needs. The ImageCast Central also features all of the technological advances present in the precinct-level tabulators – the AuditMark and the Dual Threshold technology.

The ImageCast Central is compatible with several scanner options to meet any demands, big or small. Our lineup includes the Canon Dr-M260 for small jobs, Canon DR-G1130 for medium to high volume, and the Interscan HiPro for high volume.

Configurations including the commercially available off the shelf products of the Canon Dr-M260 and Canon DR-G1130 are easily scalable by adding any number of additional units to handle expected volume. The Interscan HiPro (subject to certification) offers the highest scan capacity to meet the needs of the largest jurisdictions. Below we provide some detailed information regarding each scanner:

Cannon M260
- Low Cost and Highly Scalable
- Fully Integrated with ImageCast Central Software
- Scans single-sided and double-sided 11" to 22" ballots
- Up to 120 images per minute depending on settings

Canon G1130
- Mid-range Cost and Highly Scalable
- Fully Integrated with ImageCast Central Software
- Scans single-sided and double-sided 11" to 22" ballots
- Up to 200 images per minute depending on settings

Interscan HiPro (subject to certification)
- Single unit for high capacity needs
- Fully integrated with our ImageCast Central Software
- Small footprint of approximately 16 square feet
- Scans single-sided and double-sided 11" to 22" ballots
- Dual input trays for continuous scanning
- Up to 300 images per minute depending on settings

- **Statewide Electronic Pollbook System**

  For the purposes of this RFI response, Dominion is not proposing an electronic Pollbook System. As an elections provider for more than 1,200 entities throughout North America, our EMS is capable of working with many third party pollbook providers. We would be happy to explore compatibility with any pollbook provider selected by the state of Georgia or individual jurisdictions.

2) **Describe how your solution would accommodate each of the proposed methods of in-person voting described in Section 3.4. Discuss the pros and cons of each method as it relates to your solution.**

   Dominion believes in offering a variety of solutions to meet the needs of our customers, as opposed to adhering to a one size fits all mentality. Therefore, we have developed scalable products and solutions that can meet a variety of objectives to meet your needs.

   For example, the In-Person voting solution can be performed on the ImageCast X Ballot Marking Device or on the ImageCast Evolution. Scanning and tabulation can be performed at the local precinct level using the ImageCast Precinct or ImageCast Evolution, while central scanning is performed with the ImageCast Central.

   As detailed previously, the ImageCast X can be configured as a ballot marking device or a Direct Record Electronic. As a Ballot Marking Device the ImageCast X prints the completed ballot using the accompanying printer. The ballot can then be deposited into a ballot box for central tabulation or fed into the precinct based ImageCast Precinct or ImageCast Evolution.

   Simplicity and scalability are the main advantages of using the ImageCast X. To vote using the ImageCast X, a voter is provided with an activation card to activate the voting session and reveal the voter's specific ballot style. Once the voter has reviewed their ballot and has confirmed they are ready to print, the ImageCast X can print a reduced choice summary ballot on standard non-proprietary paper (8.5" x 11" or 8.5" x 14"), which contains a written summary of the voter's choices, as well as a 2D barcode which is read by any ImageCast tabulator.

   ImageCast X units can be scaled by adding or removing units from individual precincts to properly adjust for voter traffic. And given the compact size of the ImageCast X, efficient storage and transportation solutions are available.

   The ballot produced by the ImageCast X Ballot Marking Device is compatible with all ImageCast tabulation solutions including the ImageCast Precinct and ImageCast Evolution, which can be used as a precinct level scanner and tabulator where ballots are fed, scanned, and tabulated, pending any outstack conditions requiring adjudication. Alternatively, ballots can be inserted in to a general ballot box for central tabulation with the ImageCast Central.

The ImageCast X configured as a Ballot Marking Device, or a Direct Record Electronic, supports an efficient tabulation process, while preserving both a paper audit trail and digital ballot images to support an efficient audit process.

As Dominion works with approximately 1,300 jurisdictions across North America, we have the ability to provide numerous solutions to meet the needs of the State of Georgia.

Below we provide high level details on potential solutions for each of the voting scenarios. We would be happy to provide additional information in response to a Request For Proposal or upon request.

a) **Method 1: In-person (early and election day) voting is primarily conducted with optical scan paper ballots marked by hand. Ballot-marking devices are available to be used as needed. Ballots (hand-marked and marked using ballot-marking devices) are scanned by digital scanners and deposited into a secure ballot box.**

Potential solutions for Method 1 include utilizing the ImageCast Evolution as an all-in-one ballot marking device and tabulator, or alternatively, utilizing the ImageCast X as the ballot marking device and paired with an ImageCast Precinct as the tabulator:

The ImageCast Evolution would be the only unit required to meet the needs set forth in Method 1, drastically reducing the number of units needed to be deployed in any given jurisdiction. At minimum 2-6 units per location would be sufficient to handle any Accessibility Voting requirements as well as Early Vote and in Precinct voting that would be done primarily on paper.

The **ImageCast X** paired with the **ImageCast Precinct** can be utilized to meet your needs under method 1. The ImageCast X can be configured as a Ballot Marking Device or as a Direct Recording Electronic with an associated Voter Verified Paper Audit Trail (VVPAT). In a VVPAT configuration, the voter prints the verifiable audit trail and casts the vote electronically. In the BMD configuration the voter prints the ballot which is then subsequently scanned in the ImageCast Precinct Tabulator. In either configuration, the jurisdictions would only need 1-2 ImageCast X units per polling location. The associated number of ImageCast Precinct Tabulators would remain 2-6 units depending on the factors highlighted above.

b) **Method 2: In-person (early and election day) voting is conducted solely with ballot-marking devices. Ballots marked using ballot-marking devices are scanned by digital scanners and deposited into a secure ballot box.**

If the jurisdiction were to select Method 2 as its primary method of voting than the number of ImageCast X units (either VVPAT or BMD) would increase relative to the decrease in the number of ImageCast Precinct Tabulators. In this scenario, the ImageCast X BMD/VVPAT configuration would be 2-6 units per location depending on the jurisdiction and 1-2 ImageCast Precinct Tabulators.

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c)   Method 3: Absentee in-person (early) voting is conducted solely with ballot-marking devices. Election day voting is primarily conducted with optical scan paper ballots marked by hand. Ballot-marking devices are available to be used as needed. Ballots (hand-marked and marked using ballot marking devices) are scanned by digital scanners and deposited into a secure ballot box.

Our proposed Method 3 solution is similar to Method 2 above with respect to product offering and quantities. The ImageCast X units (either VVPAT or BMD) can be utilized for both Early Voting and Election Day to reduce the overall number of units required for purchase.

3)   Describe the paper stocks associated with your proposed solution. What are its storage requirements in regards to climate and space?

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, VoteSecur has been developed to allow printers to choose a VoteSecure option that will provide the best performance on a jurisdiction's voting equipment.

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**

The paper does not require any special storage requirements and can be stored in the same conditions as the associated hardware as described later in this proposal.

4) **Please provide a number of scanners and ballot-marking devices that Georgia would need for each proposed method of in-person voting described in Section 3.4, keeping in mind that currently voters are allowed to vote at any early voting location in the county during absentee in-person voting.**

Method 1

Dominion Voting has a variety of options available to meet the requirements set forth in Method 1.

ImageCast Evolution (ICE). The ICE is the only "all-in-one" ballot marking device and precinct tabulator on the market today. If the jurisdiction were to select this product offering then it would be the only unit required to meet the needs set forth in Method 1, drastically reducing the number of units needed to be deployed in any given jurisdiction. Dominion anticipates that additional information would be provided as part of any Request for Proposal that would further delineate the requirements set forth in this method of voting. At minimum 2-6 units per location would be sufficient to handle any Accessibility Voting requirements as well as Early Vote and in Precinct voting that would be done primarily on paper. Further analysis would need to be conducted to ascertain the throughput per location, early voting sites based on this configuration, logistical information such as warehouse space and transportation to and from polling locations, ballot box design (e.g. hard case or collapsible) in order to provide a complete configuration.

ImageCast X BMD or VVPAT with ImageCast Precinct. In this configuration, the ImageCast X can be utilized in either a BMD configuration or in a similar DRE configuration with an associated Voter Verified Paper Audit Trail (VVPAT). In a VVPAT configuration, the voter prints the verifiable audit trail and cast the vote electronically. In the BMD configuration the voter prints the ballot which is then subsequently scanned in the ImageCast Precinct Tabulator. In either configuration, the jurisdictions would only need 1-2 ImageCast X units per polling location. The associated number of ImageCast Precinct Tabulators would remain 2-6 units depending on the factors highlighted above.

Method 2

In-person (early and election day) voting is conducted solely with ballot-marking devices. Ballots marked using ballot-marking devices are scanned by digital scanners and deposited into a secure ballot box.

If the jurisdiction were to select Method 2 as its primary method of voting than the number of ImageCast X units (either VVPAT or BMD) would increase relative to the decrease in the number of ImageCast Precinct Tabulators. In this scenario, the ImageCast X BMD/VVPAT configuration would be 2-6 units depending on the jurisdiction and 1-2 ImageCast Precinct Tabulators.

Method 3

Absentee in-person (early) voting is conducted solely with ballot-marking devices. Election day voting is primarily conducted with optical scan paper ballots marked by

hand. Ballot-marking devices are available to be used as needed. Ballots (hand-marked and marked using ballot marking devices) are scanned by digital scanners and deposited into a secure ballot box.

If the jurisdiction were to select Method 3 as its primary voting method then it would be similar to Method 2 above with respect to product offering and quantities. Bearing in mind that the ImageCast X units (either VVPAT or BMD) can be utilized for both Early Voting and Election Day to reduce the overall number of units required for purchase.

5) **Depending on the method of in-person voting described in Section 3.4 that Georgia adopts, it may have a need for ballot-on-demand printing capability. Please describe your solution to our potential need for ballot-on-demand printing.**

Mobile Ballot Printing
Dominion offers a Mobile Ballot Printing solution to easily print ballots whenever and wherever needed. Fully integrated with Democracy Suite, the Mobile Ballot Printing module allows jurisdictions to provide "Vote Anywhere" locations in a cost-effective and flexible way. The system is hardware "agnostic," giving you the flexibility to use your existing print hardware or leverage other commercially available off-the-shelf (COTS) printers.

The Mobile Ballot Printing module has a user-friendly interface that presents clear information about ballots available to print, and features audit reports to track how many times each ballot style has been printed. Democracy Suite ballots have interfaced with a variety of on-demand ballot printing solutions, and Dominion is willing to work with the current vendor to provide this service to the jurisdictions. The vendors qualified to print Dominion ballots are subject to a printing qualification process conducted by Dominion for quality assurance.

6) **Explain how your solution meets each of the basic requirements in Section 3.5.**

Per the requirements set forth in Section 3.5, an election management system, digital scanners and tabulators, and ballot-marking devices must be certified by the Election Assistance Commission to satisfy – at the minimum – the VVSG 1.0 standard.

- **Solution must have been deployed successfully in another state.**

  Agreed. Democracy Suite and associated ImageCast product solutions have been successfully deployed throughout North America. Our response to Question 23 below provides a representative list of current and future customers utilizing our solutions. We would be happy to provide references upon request or in response to a Request For Proposal.

- **Solution must have functionality to quickly and accurately audit voting records.**

  Agreed. Dominion provides strong auditing capabilities at every phase of the election event. Below, we provide details regarding auditing of the system and components to support a secure election project, auditing of vote records to provide timely election night returns, and post-election audit services to ensure transparency and accuracy of the election.

  System Audit
  The tabulator Audit trail file is stored on the Compact Flash memory card, and contains a chronological list of all messages generated by tabulator software. All audit record entries include a date and a time stamp. This file is encrypted and digitally signed to protect its integrity.

  During the final results tally audit activity, the automated audit log of each optical scanner is input into the EMS Results Tally and Reporting system for a consolidated record.

  This tabulator Audit trail file will include:

  - System startup messages (recorded by Application Loader).

  - System self-diagnostic messages (module initializations, security verifications).

  - All administrator operations (messages include "security key" id names).

  - All ballots cast, rejected and diverted.

  - All voter notifications (undervotes, overvotes).

  - All system errors (paper jams, power failures, hardware failures, data errors, etc.).

  - Source and disposition of system interrupts resulting in entry into exception handling routines.

  - All messages generated by exception handlers.

  - Notification of system login or access errors, file access errors, and physical violations of security as they occur, and a summary record of these events after processing.

  - Non-critical status messages that are generated by the machine's data quality monitor or by software and hardware condition monitors.

  All audit logs are digitally signed. If there is tampering of the audit data or logs, this is detected by the operating unit. The unit reports "Election file mismatch' and will not operate since modifying the audit files can only indicate malicious usage.

Every action, event, and operation that occurs on ImageCast tabulators is permanently logged to an audit log file that exists on both memory cards. Every event and operation that occurs on the election management system is kept on the election project audit within the EMS Database. This file is signed and encrypted.

Audit logs are available to operators at all times. On the optical scanners, these can be accessed from the Administration menu, and printed. In EMS, a directory of audit files is accessed in the graphical user interface, and can be printed. Operators with Administration privileges can access these files at any time.

Audit log records cannot be deleted nor modified. Users with proper authorization levels can generate and view the audit report. Audit reports cannot be deleted.

Ballot Audit Review

Dominion has developed a Ballot Audit and Review system to assist election officials in performing election canvasses and risk-limiting audits. This tool will be capable of sorting and filtering images of ballots by ballot style, precinct, polling location, contest and candidate, for the purposes of a recount or post-election audit. Officials can review all the digital ballot images in an election, or a subset of ballots based on the chosen filtering conditions.

This tool will provide an efficient and user-friendly interface for reviewing ballot images and associated results, as well as providing a framework to support a variety of auditing methodologies.

This tool allows multiple officials to access digital ballot images with their Digital Ballot AuditMark marks, digital Cast Vote Records, and related review notes. Filtering options enables the creation of ballot review subsets for specific audit reviews. This tool resides in a secure post-election environment that is separate from EMS.

Officials can create ballot review sets by filtering for any given audit scenario including specific requests from Election Committees and other internal and external parties. Users may make notes to individual ballots and ballot review sets to aid in follow-on reviews and audit discussions. Administrators may create and assign a ballot review set to a specific official. Upon reviewing each ballot, officials may add a note, mark it for additional review, or mark it as complete. Ballots within a ballot review set may be sorted against these attributes as desired.

Efficiency is realized through filtering and sorting capabilities. Officials may select specific filter criteria including District, Precinct, Precinct Split, Contest, Candidate, Tabulator, Outstack Conditions, Mark Fill Percentage, Adjudicated, Ballot Type, and or Ballot ID.

Flexibility is realized through user-friendly screen designs to aid in the rapid selection of filters and their choices in both large and small data set scenarios.

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Furthermore, the Administrator may choose to distribute a large ballot review set across multiple users to speed the process.

The Cast Vote Record, (CVR) export, in JSON format, includes the highest degree of granularity, detailing up to each mark read by the system.

The ImageCast Ballot Audit and Review module will allow election officials to perform very intricate filtering and searches on the universe of ballots. Including loading sets of ballots, precincts, ballot styles, districts to be retrieved. The system will allow the election officials to read the output of any system that generates random sampling of ballots.

This process will generate ballot sets that can be reviewed by multiple parties. The ballot set will contain the ballot images with all the auditmarks, and the cast vote record for each ballot.

Post-election Risk Limiting Audit Capabilities
Democracy Suite at its core produces all necessary data for the State to perform Risk Limiting Audits. A Risk Limiting Audit presumes that the voting system is incorrect and customizes an audit package based on the acceptable risk limits and determines the proper number of ballots for review as an acceptable audit sampling.

Dominion is very proud to have assisted 58 of 64 Colorado counties that utilize Democracy Suite in the **first ever statewide Risk Limiting Audit.** To fulfill each Colorado county's obligation to perform a Risk Limiting Audit, Dominion prepared an export of ballot images, cast vote records, and all data necessary for the ballot manifest, which were integrated with a third party open source module.

- **Solution must support overlapping and concurrent elections.**

  Agreed. The Democracy Suite EMS and supporting hardware can store more than 10,000 ballot styles for any given election. Upon checking in at the polling place or vote center, an activation card is issued to the voter to insert into the applicable voting machine. The activation card accesses and displays the proper ballot and contests specific to the voter. So overlapping and concurrent contests are properly displayed based on the voter registration information.

- **Solution must have write-in candidate capability.**

  Agreed. Whether voting on an ImageCast X, ImageCast Evolution, or using a paper ballot, the Democracy Suite EMS allows for defining the number of allowable choices for each office, contest, measure, and for special voting options such as write-in candidates. write-in contests are available.

  Write in candidates processed on an ImageCast X or ImageCast Evolution prompts a touchscreen keyboard to appear, allowing the voter to type in the name of their preferred write in candidate. Paper ballots also support write-in candidate capability for any contest deemed appropriate during the election definition phase. Additionally,

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ballots with write-in candidates can be set as an outstack condition during scanning to require additional scrutiny prior to tabulation.

- **Solution must incorporate encryption and digital signatures as security measures.**

  Agreed. The proposed solution provides a layered and comprehensive set of security controls for the end-to-end online voting process, including pre-voting (election definition), voting (online voting/ballot marking), and post-voting (results processing, reporting and publishing). Security controls include physical security mechanisms (secure data centers), access control (role-based access control and user authentication with real-time audit records), data confidentiality (encryption using NIST verified algorithms such as AES256) as well as data integrity (digital signatures and certificates using NIST verified algorithms such as RSA and SHA256).

  Data Protection: Data files (XML and log files) are digitally signed and encrypted when stored. Any data files (XML and log files or other data) utilize SSL or SFTP secure channels for data communication.

  Dominion has vendor-managed backup procedures and processes in place to protect against data loss. The system is supported by a fully- redundant network and application architecture with no single point of failure. The system was specifically designed to span multiple data centers, on multiple servers with proactive network security devices powered by industry leaders. These separate data centers employ multiple redundant power supplies including backup generators.

  Multiple redundancies ensure our clients the confidence that their voting solution will be available throughout the voting period, regardless of load, heavy usage, or potential power outages. For any network type failures Dominion incorporates multiple static IP addresses, load balancers, etc.

  Audit Log: The application contains an Audit Log section, where all administrative access, and what actions were taken by individual administrative users, are recorded. Each audit entry is date and time stamped, and displays the ID of the administrative user, the action taken, as well as a description of the individual action. Clicking the Date Time label or the User label will change the sort order of the audit log display. The audit log is a permanent record of all system actions and cannot be deleted or reset by the election officials.

7) **Describe how your proposed solution provides unofficial results on Election Night at the polling place.**

   In Democracy Suite RTR (Results, Tally, and Reporting) we offer multiple ways of exporting data.

The Results Tally and Reporting module of the Democracy Suite EMS produces fast, versatile and easy customizable reports from data available in the election project. The Results Tally and Reporting module of the Democracy Suite EMS uses SQL Server Reporting Services to produce the following standard reports:

- Election Summary Report
- Statement of Votes Cast (precinct-level results)
- Cards Cast Report

All these reports can be exported to PDF, Microsoft Word, Microsoft Excel, and Microsoft PowerPoint.

These three reports allow filtering by Polling Location, Tabulator and Counting Group. Election Summary and SOVC reports can be customized to include a number of statistics including: Times Cast, Undervotes, Overvotes, Total Votes, Counting Group breakdown, Write-ins, Percentage by ballots cast or by votes cast, sorting of candidates by global order or by votes received. Filters by contest, precincts or districts can be applied. Report titles can be modified to indicate unofficial or canvass results. Report profiles can be saved, loaded and exported between election projects.

Additional reports include:

- Results per precinct (simplified precinct-level report)
- Contest overview data (simplified summary report)
- Located Scanned Ballots
- Results per Tabulator
- Canvass
- Write-ins per Tabulator
- Registration and Turnout
- Contests on Margin
- Tabulator Status
- Ballots Cast Per ballot Style
- Ballots Cast Per Tabulator

All these reports can be generated at the same time that scanning and adjudication is happening, without affecting performance or accuracy. Additionally, reports can be customized. Headers can be customized to include "official" or "non-official" wording, or other desired wording.

8) Describe how your proposed solution transfers data collected from Ballot Marking Devices, Digital Scanners, High Speed Scanners, and Tabulators to the Election Management System and vice versa.

a) Include a description of the essential peripherals that are used in the data transfer process (i.e. flash drives, memory cards, and other items that will have to be replaced periodically). Are these items proprietary

and are replacements purchased directly from the vendor or are they commercially available?

Dominion offers several solutions for transferring results files from the ballot marking devices and in-precinct scanners/tabulators. Below we describe transfer methods including a wireless modem transfer (on a closed network), wired modem transfer (on a closed network), and physical transfer. Ultimately, the method of transmission will be determined by the State based on local, regional, and state requirements and limitations.

Wireless Modem Transfers

Transmission of results via modem is a very intuitive process, involving minimal input from a poll worker. The ImageCast Precinct can be configured to automatically transmit results after the polls have been closed.

If the system recognizes the transmitted files as valid, they are automatically made available for tally in the Results Tally & Reporting module in the EMS. The ImageCast tabulators at the voting location will receive confirmation from the server that the results transmission was successful, or in rare cases, prompt the poll worker to retry the transmission. At the Elections office, election officials can view the upload status of all ImageCast tabulators deployed in the field from a single intuitive dashboard.

The modem must be plugged into the unit in order to begin results transmission. The intuitive user interface on the tabulator informs the poll worker of the status of the transmission and when it is completed.

Wire-based transmission

The second option available is similar to the receiving stations where removable media is transported to regional centers for remote tally. Memory cards, with encrypted vote totals, are taken from the ImageCast tabulators to regional tally locations.

At the hub, the memory cards are inserted into a card reader connected to a Results Transfer Manager client laptop with a secure Internet connection. The Results Transfer Manager will automatically upload the encrypted results files, and transmit them to the ImageCast Listener server, in a manner similar to results sent via modem. Once the files are received, they are available for loading into the Results Tally & Reporting module of the EMS system. The following diagram depicts the flow of data utilizing the Results Transfer Manager.

Physical Transfer

The ImageCast Evolution and ImageCast Precinct use two Compact Flash (CF) memory cards as their removable storage media. During ballot tabulation, ImageCast tabulators save the election files, ballot images and log simultaneously to both CF memory cards. The Primary CF card contains set of data files that defines the election, the tabulated results file, the ballot images, and the log file. The Administrative CF card holds a copy of the election results, images, and audit log. The files stored on these cards allow for recovery from any conditions that might cause the equipment to become inoperable. On the ImageCast tabulators, when an estimated 512 MB is used for the election database, audio files, etc. (typical), the remaining space is allocated for storing ballot images. An

8GB memory card can hold approximately 13,500 8.5" x 20" double-sided ballots, and approximately 22,400 8.5" x 20" single-sided ballots. If required, a CF card with a lager capacity can be used.

The ballot images are given a random ID number as their file name, and when the images are extracted by the Results Tally & Reporting client application, they are randomized, thus ensuring the ballot images are de-coupled from voter order. All results files can be encrypted and are digitally signed.

The paper ballot acts as the final CVR. In case of system failure, the ballots in each ballot box can be rescanned on a different tabulator, on either an ImageCast Evolution, ImageCast Precinct or ImageCast Central.

The process for reading and tabulating votes from the ImageCast Evolution and ImageCast Precinct is simple. It requires uploading the content from the encrypted compact flash memory cards into the Results Tally & Reporting application, from where the results can be validated and published, ready for reporting. The flash memory cards are not proprietary and can be purchased from Dominion or a third-party vendor.

9) Does your solution include Election Night Reporting capabilities? If so, please describe your Election Night Reporting solution, including security features.

Yes. The Democracy Suite EMS uploads the result files into the results tally module, and consolidated results are verified, tabulated, and published. Once the vote data is uploaded into the result tally module, the flow of results to the public and media can be controlled. RTR allows election officials to review the results before releasing them, and the system provides a number of reporting methods, including but not limited to Summary and Precinct-level (Statement of Votes Cast) result reports. In addition to the static, pre-defined reports found in most reporting systems, RTR's Summary and Precinct-level reports use the Microsoft SQL Server Reporting Services engine to offer maximum flexibility to user. These reports feature a variety of configurable options and filters, including detailed breakdowns of provisional ballots cast, ballots cast during early voting, on Election Day, and by mail. Election administrators may use the default settings, or configure the data fields included in the reports depending on the target audience. Reports may be filtered by precinct, district, contest, tabulator, or voting location, to narrow in on specific results data of interest contained within the election database.

The RTR module features numerous export types for compatibility with third-party web-based Election Night Reporting software including our own.

10) Georgia plans to begin using the new voting system by the 2020 Presidential Preference Primary, which was last held in March. Please provide an approximate timeline to implement your proposed solution.

In an effort to ensure all customer needs are being fully considered and addressed, Dominion customizes implementation schedules and timelines for each client. Below we

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provide a general narrative describing the major milestones of implementation, followed by a sample timeline:

Project Initiation & Kick-Off Meeting

The designated Dominion Project Manager and the Dominion Technical Lead will meet with the State of Georgia to discuss and finalize the following activities:

1. Review project governance structure, project roles and responsibilities
2. Project Management Artifacts Review
   a. Review and adjust the following with a view to finalize immediately following contract signing:
      i. Project plan activities, schedule and milestones
      ii. Issue tracking & escalation plan
      iii. Risk mitigation plan
      iv. Communication plan
      v. Conflict resolution plan
3. Training Plan finalization
   a. Review and adjust training sessions and schedule
4. Review Architectural & Technical Specifications deliverables

Requirements Gathering, Gap Analysis & Application Configuration

A key phase in the initial stages of the project implementation will be a gap analysis performed by the Dominion team, and subsequent configuration will be developed and implemented.

Through this thorough analysis, Dominion will identify if there are aspects of system functionality which need to be customized in order to meet the State's statutory requirements. Dominion technology is used in dozens of states across the United States, each with its own set of particular and unique requirements. Below we describe the steps involved in customizing the system to the State's environment.

The Dominion Voting Democracy Suite Election Management System (EMS) is a highly configurable election system that can be adapted to meet the needs of any jurisdiction. Dominion will work closely with the State of Georgia to ensure that the system is deployed in a manner that meets all jurisdiction requirements. The following steps are typically required:

Create Election Data Import Bridge
In this series of steps, Dominion works with the IT professional responsible for the creation and maintenance of the EIMS database to create a bridge that allows the direct import of geopolitical data into the Democracy Suite EMS. This step dramatically increases the speed and accuracy of the creation of the election database within the Democracy Suite EMS. In this way, election divisions, contests, candidate names, propositions and other essential data need not be input twice, reducing the likelihood of user error.

Customization of Configurable Options
During this stage, the State will provide final input and approval on ballot layouts, reports content, and the configuration of the options of the ImageCast voting terminals. This step takes place at the same time as the data import bridge is created and results data export file is created and provided to the IT system managers.

End-to-End Test
All Dominion systems are certified and tested to the highest standards. As a part of our internal quality assurance process, all systems undergo a rigorous operational test prior to release to the customer. This end-to-end test simulates real-election conditions and utilizes Election Day configurations. An election database is created, ballots are produced and cast on the appropriate voting systems, polls are closed, results are transmitted to the Results Tally & Reporting application of the Election Management System, and the State of Georgia reports are generated. Dominion understands that all systems must undergo a rigorous operational test prior to production release.

Procurement and Delivery
Procurement will be conducted in a manner that allows the coordination of supplies and consumables to be shipped directly to the State. During the procurement phase of the project, all of the commercial off the shelf components used in our election system are purchased. Dominion will deliver all required equipment to the State based on the timeline outlined in the project plan.

While it would be preferable for all parties to identify final quantities of all supplies and consumables required for Election Day on the initial contract, provision in the project plan has been made to allow incremental orders to be placed following change management processes. The State of Georgia always has the opportunity to work with the Dominion Project Manager to place additional orders at any time.

Installation & Acceptance Testing
The State of Georgia is responsible for User Acceptance Testing, and Dominion will provide an onsite presence to support acceptance testing performed by the State. Acceptance testing involves a visual inspection of the voting platforms, successfully completing a series of internal diagnostics, and successfully tabulating ballots from a sample test election. Dominion provides documentation and training for client technicians, as well as warehouse set-up guidelines for inbound acceptance testing.

Preparation for Acceptance Testing
Dominion will provide guidelines and checklists to the State of Georgia for acceptance testing and coordinate dates with the staff for software installation. This includes assessing suitability and identifying any modifications required, identifying areas for each process including a secure area for inventory control, preparing necessary acceptance documentation, and ensuring all necessary supplies are available.

Installation
Dominion will configure and install all software including the operating system and application software and set up the solution including all hardware and connections provided as part of the system.

Acceptance Testing

The State's Acceptance Team, with support from Dominion staff, will conduct detailed acceptance testing of the voting equipment. This acceptance testing provides assurance of full product functionality and accuracy. Acceptance testing is an essential part of the Dominion quality assurance process and takes place on-site at the customer location.

ImageCast X Voting Terminals - System Acceptance Testing:
1. Physical inspection of equipment
2. Functional testing using provided test materials

ImageCast Central – System Acceptance Testing:
1. Physical inspection of equipment
2. Functional testing using provided test materials

EMS Acceptance Testing:
1. Utilization of the EMS system to restore or create a simple election project
2. Creation of sample election files and ballots for in-person and ImageCast Central voting system
3. Directly load sample results from voting terminals
4. Create Election Results Reports

Training

Dominion will work closely with the State of Georgia to ensure that the training program is customized to meet your specific needs. Dominion will prepare and provide all needed training material, which includes training manuals, quick reference guides, website instructional courses, and technical reference manuals when necessary. Training and curriculum particular to the resources, staff, and needs of the State will be developed as part of the implementation meetings and materials will be provided before implementation for both hardware and software functions. In addition to formal training, our specialists will work to transfer the required knowledge and skills to relevant State staff, with the objective of ensuring that your staff is empowered to manage all aspects of the system's availability and functionality. Dominion takes pride in our ability to transfer to local officials the skills necessary to conduct even complex elections with autonomy.

Election Programming

The creation of the election database is a critical step in the election implementation. Given the very limited time available between the certification of the final ballot and the distribution of UOCAVA / Mail ballots, it is very important that timelines are appropriately managed. Dominion employs an iterative approach to ballot and report creation, where successive rounds of proofs are provided to election officials as more information becomes available. Using this approach, in many cases ballots have already been approved by the time they are certified, maximizing the time available for pre-election testing and logistics.

The following are the basic steps involved in election programming:

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Final election data provided to programming team – Final election data is provided to the programming team. This should be provided at the earliest possible date.

Election Programming Quality Assurance – On completion of election programming, a back-up of the final data structure is transferred to the Dominion Team for verification and testing. The purpose of this test is to ensure that no unintended errors have impacted the data structure.

Test decks generated – On completion of programming quality assurance, the test decks are created for use in Logic and Accuracy testing.

Ballots and ballot audio generated and approved - On completion of programming quality assurance, ballots (including audio and paper ballots) are generated. Ballot proofs and electronic ballot image files are generated and provided to State Officials. State Officials carefully review each ballot. When State officials are satisfied that the ballots are correct, they initial each ballot, and when they are satisfied that all ballots are correct, they sign-off on their accuracy, and the image files are provided to the printer.

Ballot printing and distribution – Ballot printing and distribution are the responsibility of the printer and the State of Georgia Officials. Dominion will provide a recommended ballot inspection process that should be followed to ensure that all ballots produced are of sufficient quality.

Memory Media Programming – Memory media for the ImageCast X and ImageCast Central devices is programmed.

Receive test ballots from printer – The receipt of test ballots is the milestone that triggers the beginning of L&A testing.

Logic and Accuracy Testing

State officials and their staff will conduct logic and accuracy testing of voting equipment, using processes, procedures, and support provided by Dominion. The Dominion project team will be available throughout the L&A process available to assist on an as required basis. Training for State officials on the L&A process will take place prior to Logic and Accuracy testing.

Election Support

The Dominion project team will reach an agreement with the State of Georgia on their specific roles during ballot scanning and Election Night. Dominion's on-site support resource will have the necessary skills to assist the State to ensure the polling location opens in a timely fashion and that the equipment functions properly. In addition, a key role for the on-site support resource is to assist the State with tabulation and results reporting. Dominion's active voting support strategy can be customized to meet your specific needs.

Post-Election Debrief Meeting

Within 30 days following election event, Dominion will coordinate a post-election debrief meeting to discuss post-election events and activities with the State of Georgia. The debrief meeting is an opportunity to review lessons learned from both Dominion and the State, evaluate success factors and areas for improvement for process enhancement in

future election cycles. On completion of these reviews, project documentation and the project plan will be revised to reflect learning from the first election.

Below we provide a sample Project Timeline for your review:

ID		Task Name	Duration	Work	Jul 29, '18 S M T W T F S	Aug 5, '18 S M T
1		Contract Process	8 days	0 hrs		
2	▦	RFP Opening	6 days	0 hrs		
3	▦	Contract Awarded	1 day	0 hrs		
4		Contract Executed	1 day	0 hrs		
5		Joint Project Team Communications	4 days	0 hrs		
6		Joint Project Team Meeting	4 days	0 hrs		
7		Introduction of Teams - Introduction of Team Members - Team	1 day	0 hrs		
8		Set up Recurring Meeting/Conference Call Schedule	1 day	0 hrs		
9		Define Project Phases and key deadlines & milestones	1 day	0 hrs		
10		Define customer Computer Infrastructure needs and requireme	1 day	0 hrs		
11		Define customer ImageCast Hardware Tabulator needs and req	1 day	0 hrs		
12		Order System Components	1 day	0 hrs		
13		Fine Tune and Modify Project Outline	1 day	0 hrs		
14		Democracy Suite System Implementation - Customer	18 days	0 hrs		
15		Verify Election Profile Information for Customer to be implement	1 day	0 hrs		
16		Deliver Customer Computer Infrastructure	1 day	0 hrs		
17		Install Customer Computer Infrastructure	1 day	0 hrs		
18		Conduct Acceptance Testing of Customer Computer Infrastructur	1 day	0 hrs		
19		Train Customer Staff - Democracy Suite EMS	1 day	0 hrs		
20		Deliver Customer ImageCast Precinct and Central Count hardware	3 days	0 hrs		
21		Conduct Acceptance Testing Training for Customer Staff	1 day	0 hrs		
22		Conduct Acceptance Testing of ImageCast Precinct and Central Cc	10 days	0 hrs		
23		Train Customer Staff - ImageCast hardware components	2 days	0 hrs		

Project: Project1 - Draft1 Date: Mon 6/18/18	Task	Inactive Summary	External Tasks
	Split	Manual Task	External Milestone
	Milestone	Duration-only	Deadline
	Summary	Manual Summary Rollup	Progress
	Project Summary	Manual Summary	Manual Progress
	Inactive Task	Start-only	
	Inactive Milestone	Finish-only	

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ID		Task Name	Duration	Work	Jul 29, '18							Aug 5, '18			
	ⓘ				S	M	T	W	T	F	S	S	M	T	W
24		Legacy System Removal	5 days	0 hrs											
25		Poll Worker Training & Documentation	40 days	0 hrs											
26		Meet with Joint Project Team & gather existing training materials	2 days	0 hrs											
27		Conduct Poll Worker Documentation Workshop/T3 Training	5 days	0 hrs											
28		Finalize Poll Worker Training Documents/Make final edits & Print	3 days	0 hrs											
29		Schedule & Conduct Poll Worker Training	30 days	0 hrs											
30		Election Events	43 days	0 hrs											
31		Mock Election (If included in contract)	13 days	0 hrs											
32		Determine complexity of mock election (how many pcts, locati	1 day	0 hrs											
33		Election Programming	2 days	0 hrs											
34		Print Ballots (If applicable to purchased system)	5 days	0 hrs											
35		Create Election Media	1 day	0 hrs											
36		Conduct Logic & Accuracy Testing	2 days	0 hrs											
37		Deploy Equipment	1 day	0 hrs											
38		Conduct Mock Election	1 day	0 hrs											
39		Meet with Joint Project Team to discuss election event	1 day	0 hrs											
40		Official Election Event - Jurisdiction-wide	20 days	0 hrs											
41		Determine complexity of election (how many pcts, location, ele	1 day	0 hrs											
42		Election Programming	3 days	0 hrs											
43		Print Ballots (If applicable to purchased system)	7 days	0 hrs											
44		Create Election Media	1 day	0 hrs											
45		Conduct Logic & Accuracy Testing	2 days	0 hrs											
46		Deploy Equipment	5 days	0 hrs											

Project: Project1 - Draft1
Date: Mon 6/18/18

Task		Inactive Summary		External Tasks		
Split	··············	Manual Task		External Milestone	◆	
Milestone	◆	Duration-only		Deadline	↓	
Summary		Manual Summary Rollup		Progress		
Project Summary		Manual Summary		Manual Progress		
Inactive Task		Start-only				
Inactive Milestone	◇	Finish-only				

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ID		Task Name	Duration	Work	Jul 29, '18							Aug 5, '18			
	ⓘ				S	M	T	W	T	F	S	S	M	T	W
47		Conduct Election Event	1 day	0 hrs											
48		Meet with Joint Project Team to discuss election event	1 day	0 hrs											

	Task	▬▬▬	Inactive Summary	▭▭▭	External Tasks	▬▬▬
	Split	•••••••••••••	Manual Task	▬▬▬	External Milestone	◆
	Milestone	◆	Duration-only	▬▬▬	Deadline	⬇
Project: Project1 - Draft1	Summary	▬▬▬	Manual Summary Rollup	▬▬▬	Progress	▬▬▬
Date: Mon 6/18/18	Project Summary	▬▬▬	Manual Summary	▬▬▬	Manual Progress	▬▬▬
	Inactive Task	▭▭▭	Start-only	▮		
	Inactive Milestone	◇	Finish-only	▮		
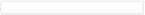
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11) **Georgia has a fairly centralized election creation process where the state builds the ballots for the counties. How does your election management system work efficiently in this state-centered model? Describe how your proposed solution transfers election data and ballot information created at a state level to local jurisdictions for execution, including security features.**

Dominion is vastly familiar with the centralized election process through our work with entities such as the State of Louisiana, who has been a longstanding customer. Our experience with Louisiana's centralized process uniquely positions Dominion to implement and administer a new voting system for the State of Georgia as we have proven systems and experienced personnel able to support a centralized election process. Below we provide a high-level overview of the methods used to support a centralized system.

The ImageCast voting devices are defined and configured in the Election Project 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 or display to the voter, 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 State, and never needs to make a decision regarding the voting device's settings at the voting location.

For the ImageCast scanners and tabulators, the election definition is taken from Democracy Suite EMS, using the same database that is utilized to program any in-person voting devices for a given election. Multiple ImageCast scanners can be programmed for use in an election. The ImageCast tabulator application is installed and later initialized on a computer attached to the central count scanner. Ballots are processed through the central scanner(s) in batches based on jurisdictional preferences and requirements.

12) **Describe the security features of your proposed solution including, but not limited to, cyber security; physical security; and data integrity verification and validation.**

Dominion implements security protocols that meet or exceed EAC VVSG 2005 requirements. All of Dominion's security protocols are designed and implemented to stay current with the rapidly evolving EAC security requirements set forth by various iterations of the VVSG.

Dominion's security technology is unprecedented insofar as it takes into account every aspect and every component of the Democracy Suite platform. This includes – but is not limited to – the full encryption of election projects, iButton security keys, Compact flash cards, election data, software applications, elections results files, and data transmission. In addition, Dominion developed a custom ballot authentication system built around an (optional) secure ballot paper stock and in-tabulator authenticators.

Maintaining Data Integrity
Data generated by the Democracy Suite platform is protected by the deployment of FIPS-approved symmetric AES and asymmetric RSA encryption. The Democracy Suite

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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. Should an intrusive process or altering of any file occur, hash values will be, in turn, altered as well. With that said, any presence of an intrusive process will be detected, as the hashes of any altered data will not match the value initially determined.

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, Dominion Voting 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.

Role-based Access Controls

Democracy Suite integrates a role-based access control system for all software and hardware components. Each user accessing the system is the member of one of the predefined or custom-made roles. Each role has its own set of permissions, or actions that users of that role are allowed to perform. This access control approach provides authentication and authorization services and can be granular according to the jurisdiction's needs and organization. Complete user and role membership management is integrated within the Democracy Suite EMS Election Event Designer client module.

The Democracy Suite EMS platform implements role-based user management for provisioning access control mechanisms on each election project. Managing access control policies is integrated within the User Management activity of the EMS EED module. This activity is permitted only for users with administrative privileges.

For communication channels (as well as data storage) a combination of security techniques for data integrity, authenticity and confidentiality is implemented. Democracy Suite integrates AES or RSA encryption algorithms for data confidentiality, along with SHA-256 and HMAC digital signatures for data signing (data authenticity and integrity). The system does not require external Internet connections.

Communications

For communication channels (as well as data storage) a combination of security techniques for data integrity, authenticity and confidentiality is implemented. Democracy Suite integrates AES or RSA encryption algorithms for data confidentiality, along with SHA-256 and HMAC digital signatures for data signing (data authenticity and integrity). The system does not require external Internet connections.

Effective Password Management

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Proper password management requires multiple activities and controls, namely:

- Input data validation
- Data quality
- Utilization of one-way (hash) cryptography
- Computer generated passwords for greater entropy and protection from dictionary attacks
- Different password strength profiles for different user levels
- Utilization of hardware tokens for storing user credentials (two-level authentication security: something you know and something you have)
- User state machine (initial, active, inactive)
- All of these activities and controls are integrated within the Democracy Suite platform.

Dominion utilizes authentication and authorization protocols that meet EAC VVSG 2005 standards. In addition, Dominion's solution relies on industry-standard security features to ensure that the correct users based on a user role or group are granted the correct privileges. Finally, each jurisdiction is responsible for ensuring that only authorized personnel have access to both the system and tools used for installation and configuration purposes. All back-end system, and tabulator operations are continuously and completely logged at all times to maintain a complete record of all election-related processes.

File Type	Storage Place	Mode 1- Symmetric Crypto	
		Confidentiality	Integrity
Election files (ICP) and election database (ICE), DCF (ICP) and MBS (ICE), result files (ICP/ICE)	NAS and Compact Flash	AES-128/256	HMAC (SHA-256)
Reports and Logs	NAS and Compact Flash	AES-128/256	HMAC (SHA-256)
Ballot Images	NAS and Compact Flash	-	HMAC (SHA-256)
Ballot Layout Definition (XML)	NAS and Compact Flash	-	HMAC (SHA-256)
Official Ballots	NAS	X.509 Digital Certificate	
User Credentials	iButton	HMAC (SHA-256)	HMAC (SHA-256)

File Type to Security Algorithmic Mappings

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

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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.

13) Describe the accessibility features of your proposed solution for voters with disabilities.

The ImageCast X and Image Cast Evolution are both designed to accommodate voters of all abilities. Below we detail the accessibility features of each unit.

ImageCast X Accessibility
Designed as a voting solution for all, the ImageCast X configured as either a Ballot Marking Device or Electronic Recordable Device offers several options for voters with accessibility needs to vote in a private and independent manner. The ImageCast X offers the following user interfaces:

- Visual mode: Voter navigates their ballot using one of the available accessibility tools and the visual display
- Audio mode: Visual display can be disabled, and the voter uses headphones to navigate an audio ballot using one of the available accessibility tools
- Visual & audio mode: Voter navigates their ballot using one of the available accessibility tools, the visual display, and the audio ballot

The ImageCast X BMD can present the ballot in audio only, or both audio and visual modes, depending on personal preference. Voters can adjust the rate and volume of their audio ballot, as wells as the text size and contrast of the display or disable the display entirely for added privacy. Every voter configurable option is automatically reset to its default value with the initiation of each new voting session.

Voters can review, verify and correct their selections prior to printing their ballot on the accompanying printer, if using the BMD configuration, or printing on the accompanying
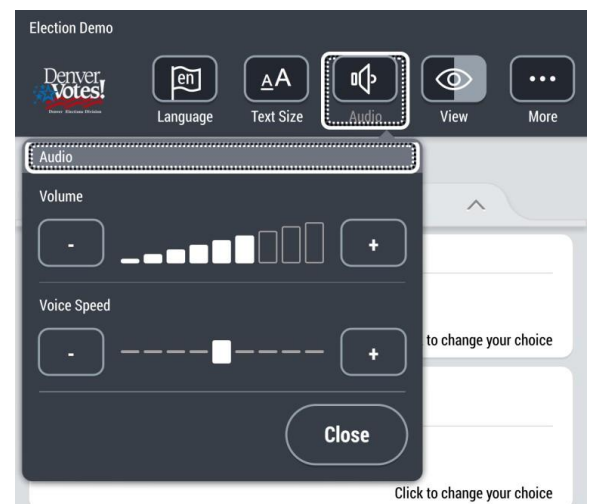
VVPAT printer if using the ERD configuration. Voters are warned if they have missed, or undervoted a contest, and have the opportunity to go back and correct their selections.

The ImageCast X BMD features the latest technological advances in accessible voting technology, providing more options for voters with accessibility needs to vote privately and independently.
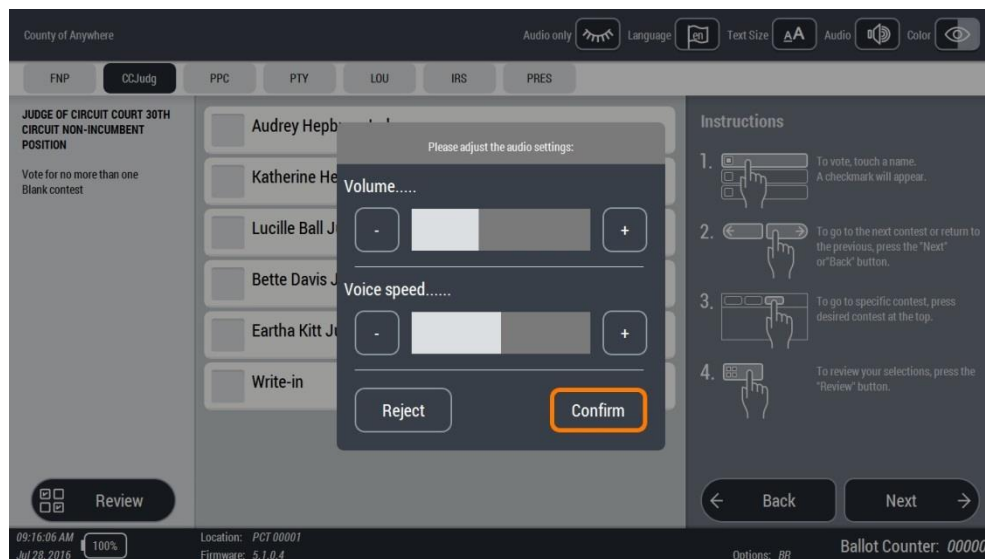
ImageCast Evolution Accessibility
The ImageCast Evolution exceeds accessibility standards of the Help America Vote Act (HAVA) of 2002, the Americans with Disabilities Act (ADA) of 1990, the Federal Rehabilitation Act of 1973, the Voting Rights Act of 1965, the California Elections Code, and the Elections Assistance Commission's VVSG 1.0.

The ImageCast Evolution features several accessible voting interfaces that allow voters with various disabilities to effectively vote, review and cast a paper ballot privately and independently. Voters who choose to cast their ballot through an accessible voting session have the option of having their ballot presented via audio and visual presentation on the screen, audio only, or visual presentation only.

The ImageCast Evolution presents the accessible voting session in a Contest-by-Contest mode displaying one contest after another. The contrast button allows the voter to display the screen image in high contrast (high contrast is a figure-to-ground ambient contrast ratio for text and informational graphics of at least 6:1). In Contest-by-Contest there are options to present the ballot in color, black and white, or white on black.

The text or size of the image can be increased or decreased in order to provide options for voters with visual impairments. The audio rate and volume can also be adjusted. Every voter configurable option is automatically rest to its default value with the initiation of each new voting session. Below is a screenshot of a voter adjusting the volume and voice speed of the audio ballot while in Contest-by-Contest mode:

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Additional Accommodations

In addition to the touchscreen functionality, the ImageCast X and the ImageCast Evolution are compatible with a range of accessibility devices that voters can use to navigate through the ballot and make their selections. Both configurations are compatible with a hand-held controller called the Audio Tactile Interface (ATI), sip and puff device, or paddle device. It is simple for a poll worker to make the unit accessible – simply connect headphones and the Audio Tactile Interface (ATI).
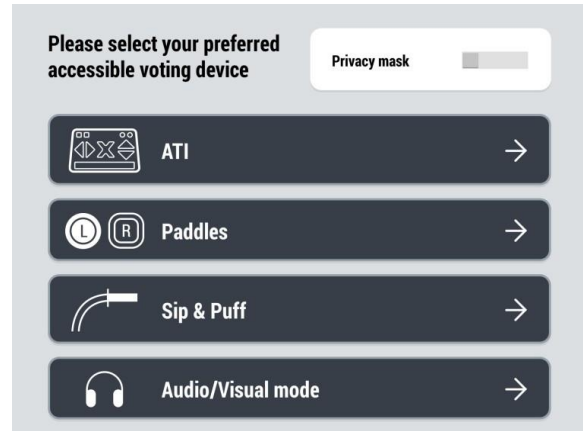
The Audio Tactile Interface (ATI) is the handheld device that is used by a voter during an Accessible Voting Session to navigate through and make selections to their ballot.

The ATI:

- Has raised keys that are identifiable tactilely without activation (i.e. raised buttons of different shapes and colors, large or Braille numbers and letters)
- Can be operated with one hand
- Includes a 3.5 mm headphone jack
- Includes a T-Coil coupling
- Has a T4 rating for interference
- Uses light pressure switches
- Can be equipped with a pneumatic switch, also known as a sip and puff device, or a set of paddles.

14) Have any third party groups vetted the accessibility and/or security features of your proposed solution? If so, please provide their assessments.

Yes. Dominion Voting works with accessibility experts and security experts as we are always seeking input from voters on ways to make our technology universally-inclusive, easy to use, and secure. Dominion Voting regularly consults with accessibility community stakeholders in the ongoing development of company products, including a longtime collaboration with the National Federation of the Blind (NFB). In fact, a Dominion Voting team conducted a demo of the ImageCast X system at NFB's national headquarters in May 2018, with overall positive reviews and feedback. Additional examples are included below:

Accessibility Experts

ImageCast X Usability Test Report

A usability test of the ImageCast X was conducted between July 27th and August 25th, 2016 in the Dominion offices and the Atlantis Community Center facility. The purpose of this test was to fulfill the requirements of the Voluntary Voting System Guidelines (VVSG) 1.0.

Testing took place in a simulated polling place with a registration desk, voting booths with the ImageCast X voting system, external printer, and accessibility peripherals. This configuration was set up at the Dominion offices in Denver, CO, and at the Atlantis Community Center in Denver, CO.

The results summary is below:

Results Summary	
Successful Completion	**94%**
Average Voting Time	3.11 min for general
	22.1 min for blind
	8.81 min for low vision
	9.21 min for limited dexterity
Minimum Voting Time	2 min
Maximum Voting Time	45 min
Voter Confidence	92% of the users had high confidence
Voter Satisfaction Score	86% of the users were satisfied with this system

After the user completed testing on the ImageCast X system, a post-session interview was conducted. The facilitator asked the user for insight on what problems they encountered, improvements they would make, whether they would use the system if available in the next election, if they had confidence in their vote being recorded accurately.

Vote Confidence Level of Participants	
Confidence Level	**Number of Participants**
100%	33
75%	1
25%	1
0%	1

System Preference	
Would use	89%
Would not use	11%

Accessibility, Usability, and Privacy Test Report

One of our trusted voting system certification laboratories, SLI, ran a compliance test report as a summary of the certification testing efforts for our Democracy Suite system in 2017.

Five volunteers were used to evaluate each device. Their physical concerns were varied, primarily by differing levels of fine motor control abilities. One volunteer had sight issues, which differed significantly from the others. Volunteer One was in a motorized wheel chair with movable desktop and had significant fine motor skill impediments. Volunteer Two was blind, but otherwise fully functioning. Volunteer Three was in a wheelchair, had no use of left arm, and pretty good coordination with right arm. Volunteer Four was in a wheelchair with near normal fine motor skills. Volunteer Five was in a motorized wheelchair, had some fine motor control impairment, but was able to use the touchscreen.

The sessions were a free form, ad-hoc test where the volunteer was able to vote a ballot in any manner that they chose. The volunteer provided feedback both in real-time as they were voting, as well as completing a survey after the ballot had been cast. Additionally, observations were made as each volunteer navigated their way through the process.

Michigan ADA Sessions
Working with the Michigan Bureau of Elections we facilitated a number of meetings and usability sessions to collect feedback on our ImageCast X product from December of 2017 to May of 2018. These sessions included advocates from the National Federation of the Blind, Michigan Protection and Advocacy Service, The Disability Network, and United Cerebral Palsy of Michigan as well as researchers from Michigan State University.

During the usability sessions, participants were given the opportunity to vote in mock elections using the ImageCast X and provide detailed feedback on how the products can be further developed to improve its accessibility. Many of these issues were communicated directly to our development team while others were documented for further exploration and inclusion in future releases.

Canadian National Institute for the Blind (CNIB)
By communicating with technical support staff and with institute members we are constantly working to get a better understanding of the latest technologies for vision-based accessibility and improve the usability of our products for all users.

In July and August of 2018, we worked with the CNIB to conduct a full usability study on our Internet Voting product to get a better understanding of how audio cues and button-based navigation can play a role in the voting process.

The ALS Society of Canada and March of Dimes
In June of 2018 we conducted a study with the help of the ALS Society of Canada and the March of Dimes to see how voters with limited mobility vote on the ImageCast X using a Sip and Puff device.

Security Experts
Dominions products undergo rigorous security testing as part of our EAC certification process and receive feedback through Voting System Testing Laboratories such as Pro V&V.

Other examples of third party security providers that provide feedback to Dominion includes:

SyleCop for Static Application Security Testing (SAST) – Dominion utilizes StyleCop, a static code analysis tool that helps ensure consistently formatted code is written in accordance with predefined rules. StyleCop analysis is performed daily (assessment is run against nightly builds), so the code is always up to date.

Kali Linux for Penetration Testing - Penetration testing performed with Kali Linux distribution includes: Port and Service Scans (Testing whether system remains stable during TCP port scan, UDP port scan, IP protocol scan, OS fingerprinting), Flooding Attacks (Testing whether system remains stable and retains administration during flooding attacks, SYN flood attacks, ESTABLISHED flood attacks, LAST_ACK flood attacks, FIN_WAIT flood attacks, CLOSING flood attacks), Fuzzing tests (Testing whether system endures malformed IPv4, IPv6, TCP, UDP, Ethernet, ICMP, ICMPv6 packets), Vulnerability scan (running Nessus scans), Credential strength testing (password cracking, searching for default credentials).

Nessus for Operating System Security Analysis – Benchmark compliance is achieved through application of Dominion Voting's custom scripts that harden the OS, which is then verified through Nessus scanning. Nessus is also used for scanning the system against all publicly known vulnerabilities. Found vulnerabilities are then patched using appropriate vendor and OS updates (since the system is not connected to the internet, the procedure for applying them is thoroughly documented and is performed manually by trained personnel).

15) **Does your solution include decommissioning of the existing voting system, including DREs, optical scanners, and electronic pollbooks? If so, please describe your decommissioning process.**

Dominion works with more than 1,300 jurisdictions throughout North America, including some clients that required decommissioning of the existing election systems and associated hardware components. Generally, decommissioning plans are developed during contract negotiations in order to capture the full scope of the work involved and account for any local, state or federal requirements (recycling, potential hazardous material handling, and proper disposal, among others).

As Dominion takes pride in our outstanding record of customer service, we would look forward to working with the state and individual jurisdictions to customize a plan that fully meets your needs.

16) **Provide a recommendation for a training plan that takes into account all stakeholders, which includes – at the minimum – state users, county election officials, voters, and voter advocacy entities.**

Dominion will work closely with the State to ensure that the training program is customized to meet your specific needs. Dominion will prepare and provide all needed

training material, which includes training manuals, quick reference guides, presentations, and technical reference manuals when necessary. Training and curriculum particular to the resources, staff and needs of the State will be developed as part of the implementation meetings and materials will be provided before implementation for both hardware and software functions.

Dominion takes pride in our ability to transfer to local officials the skills necessary to conduct even complex elections with autonomy. Our suite of training materials (quick reference guides, checklists, procedures, manuals, and user guides) all contribute to ensuring that the State election team is knowledgeable and comfortable with all aspects of the system and election equipment.

Poll Worker Training

Past implementations have proven that it is very important for all poll workers to have a chance to operate the machines "hands-on" in class, or at least participate in small group and review. This allows poll workers to operate equipment while others observe and ask questions. Dominion will assist the State in integrating the new voting system training into its current poll worker training program's content and format, as well as in the development of training materials, and providing "train the trainers" courses. The goal is to assist in training poll workers to comfortably and confidently operate voting machines and readily provide voters with simple instructions and assistance in voting on them.

Voter Outreach Support

Dominion's Voter Outreach and Voter Education Program is a customizable service. Dominion would work alongside the State in creating a scope of work tailored to the specific needs and desires of the jurisdiction regarding staff training, voter outreach and education. This collaborative approach to voter outreach could involve any form of voter outreach and educational items that the State believes would aid in familiarization of voters with Dominion's voting technology, such as public demonstrations of the new voting equipment, a mock election, and how-to-vote resources that can be distributed on the State website.

Sample Curriculum

Our standard course offerings include the fill range of Democracy Suite classes. Training agendas and curriculum particular to the resources, staff and needs of the State will be developed as part of the implementation meetings.

ImageCast X Training

This course provides an introduction to the Dominion Voting ImageCast X, used for in-person and accessible voting. Topics include:
- Setup of equipment
- Security, including safeguards to prevent and detect tampering
- Opening polls
- Processing ballots
- Accessible voting
- Closing polls
- Transmission of election results

- Acceptance testing
- Troubleshooting – Identifying and resolving basic problems (issues that do not require a service call)
- Performing Logic and Accuracy testing

ImageCast Central Training

This course provides an introduction to the ImageCast Central. Topics include:
- Setup of the equipment
- Security, including safeguards to prevent and detect tampering
- Opening polls
- Processing and scanning ballots
- Adjudicating ballots that may require review
- Processing write-in votes
- Closing polls
- Acceptance testing
- Troubleshooting – Identifying and resolving basic problems (issues that do not require a service call)
- Performing Logic and Accuracy testing

Democracy Suite EMS Training

This course introduces election programming and results accumulation and reporting in Democracy Suite EMS. Topics include:
- System security
- Creating and editing geopolitical data
- Creating and editing offices and contests
- Adding choices
- Creating and editing ballot layout
- Programming the ImageCast DREs and the ImageCast Central
- Creating audio files for accessible voting
- Records preservation
- Tabulating and consolidating results
- Election night reporting (Results Tally and Reporting, including customizing and printing reports)
- Checks and balances – methods for ensuring the accuracy of precinct results
- Full understanding of audit procedures
- Any special requirements related to conducting a recount

17) Describe the useable components (e.g., paper and ink) of your voting system solution, including whether or not they are proprietary, have to be replaced by purchasing directly from you, or can be replaced commercially through other vendors?

Below, we provide the consumable products associated with the solutions available to Georgia:

Product Category	Product Name
Proposed Configuration	**ImageCast X withVVPAT**
EMS Workstations	ICX Smart Card Reader/Writer - ACR38U
ImageCast X - VVPAT	ICX VVPAT Paper Roll (245')
ImageCast X	ICX Prime Poll Worker Smart Card - Customized
ImageCast X	ICX Prime Technician Smart Card - Customized
ImageCast X	ICX Prime Voter Smart Card - Customized
ImageCast X	USB Flash Drive - 16GB - 3.0
ImageCast X	USB Flash Drive - 8GB - 3.0
ImageCast X	ICX Prime Backup Battery
ImageCast X	ICX Prime Dual Bay Battery Charger
Audio Tactile Interface	Cable - USB Audio to ICX ATI - 6'
Other	Headphone Covers
Other	Seals - Pull Up/Pull Tight - Plastic - Red (25/pkg)

Product Category	Product Name
Proposed Configuration	**ImageCast X with Ballot Marking Device**
EMS Workstations	ICX Smart Card Reader/Writer - ACR38U
ImageCast X	ICX Prime Poll Worker Smart Card - Customized
ImageCast X	ICX Prime Technician Smart Card - Customized
ImageCast X	ICX Prime Voter Smart Card - Customized
ImageCast X	USB Flash Drive - 16GB - 3.0
ImageCast X	USB Flash Drive - 8GB - 3.0
ImageCast X - BMD Printer	HP 402DNE - LaserJet Pro Printer
Audio Tactile Interface	Cable - USB Audio to ICX ATI - 6'
Other	Headphone Covers
Other	Seals - Pull Up/Pull Tight - Plastic - Red (25/pkg)

Product Category	Product Name
Proposed Configuration	**ImageCast Precinct and Evolution**

EMS Workstations	IButton Reader/Writer
EMS Workstations	ICP CompactFlash Card Reader/Writer
ImageCast Precinct ImageCast Evolution	Ibutton Security Key
ImageCast Precinct ImageCast Evolution	CompactFlash Memory Card - 16GB
ImageCast Precinct ImageCast Evolution	Paper Roll
ImageCast Precinct ImageCast Evolution	External Power Supply
Audio Tactile Interface	Cable - USB Audio to ICX ATI - 6'
Other	Headphone Covers
Other	Seals - Pull Up/Pull Tight - Plastic - Red (25/pkg)

ImageCast Central

The ImageCast Central and the accompanying G1130 scanner requires minimal consumables. The ICC Scanner Roller Kit is usually replaced after scanning 450,000 pages. These consumables are not proprietary equipment, and Dominion will work with the State and election officials to provide the needed consumables as they require.

Cleaning products used for general upkeep like Microfiber cleaning cloths, Isopropyl alcohol, and distilled water are recommended for general maintenance and upkeep.

Replacement Materials

Generally, components and consumables are sold in pre-packages kits for use with the system. Dominion cannot assume responsibility for items procured by a customer that have not been tested with our systems. Paper rolls, smart cards, USB flash drives, printers, etc. are all tested rigorously by our engineering teams prior to qualification. Many items do not get qualified as they do not meet our minimum standards or simply fail our testing. Therefore, we work closely with the customers to assure the proper certified material and components are being used with the system.

18) For budget purposes, please provide an estimated cost of your voting system solution, including hardware, software, any necessary licenses, peripherals, implementation, decommissioning, training, and maintenance.

For budgeting purposes, we have attached list pricing for the State of Georgia as a separate attachment. We would be happy to discuss volume pricing and discounted pricing scenarios in response to a Request For Proposal (RFP) or upon request.

19) **For budget purposes, is there an option to lease equipment instead of purchasing equipment under your solution? If so, please provide an estimated cost to lease each component of your proposed solution where leasing is an option and whether the leasing option includes updates to the software.**

Yes. Dominion offers a Managed Service Agreement, which acts as a lease option. This option takes all of the applicable hardware, software, setup, implementation services, training, election setup and licensing and warranties and combines the costs into one single annual payment to be paid over a period of six to eight years. Any preventative maintenance will be included over the term of the contract. Under the MSA agreement, Dominion will fix or replace components of the system that are not third party or consumables. The pricing is calculated based on the final equipment and services that are chosen by the jurisdiction. Once complete, a finance charge is applied to the yearly MSA depending on the terms of the agreement.

20) **Describe your proposed solution's technical support system, including, but not limited to, how it will provide ongoing software and system support; conduct regular source code auditing and analysis; escrow source code; share information about source code auditing and reviews; share information about each code release; and offer security enhancements for state and local officials.**

Dominion's service organization will provide the coordination and supervision of all activities required to transition the State of Georgia to their new Democracy Suite voting system. We employ technical and project management experts who have demonstrated unmatched skill in understanding what resources are necessary to complete a project seamlessly and on time.

The proposed project team not only has considerable experience in providing ongoing support to election officials, but also in implementing new voting technology. Dominion has designed the State's project plan based on the following:

- Dominion's project plan adheres to PMBOK standards and practices.
- It is developed using MS Project and will be monitored/reported by using MS Project.
- It is designed with key milestones (clear tangible deliverables) that are designed to mitigate risk to the extent possible.
- Tasks are focused on accomplishing specific objectives.
- The work breakdown structure is a logical progression of steps, activities, and subtasks that lead to tangible work products or deliverables.
- Our plan provides the State with visibility into the tasks and schedule.
- Our plan incorporates Dominion's prior experience in successfully implementing voting systems.
- Our plan is achievable and will be used to manage to specific deadlines.

The draft project plan, for which we provide context and details below, is based on our current understanding of project requirements from the RFP and draws on our extensive, real world implementation experience.

This proposed project plan and schedule will be adjusted in consultation with key stakeholders to establish the "baseline" plan during Project Kick-Off.

Dominion subscribes to a collaborative management approach, where transparency, frankness, and open communications drive our projects. The key aspects to effective management are planning and control processes. We have developed tried and true project plans, and we implement controls to maintain schedules and quality standards.

Issue Management

During the normal course of implementing Democracy Suite, Dominion staff work closely with the State of Georgia to establish clear and timely information flow. This communication helps reduce the number of problems and support early identification of problems that require resolution through the Problem Escalation Procedure (PEP). Key to a successful PEP is ownership of a problem. The following table outlines the problem escalation path for the Dominion Team:
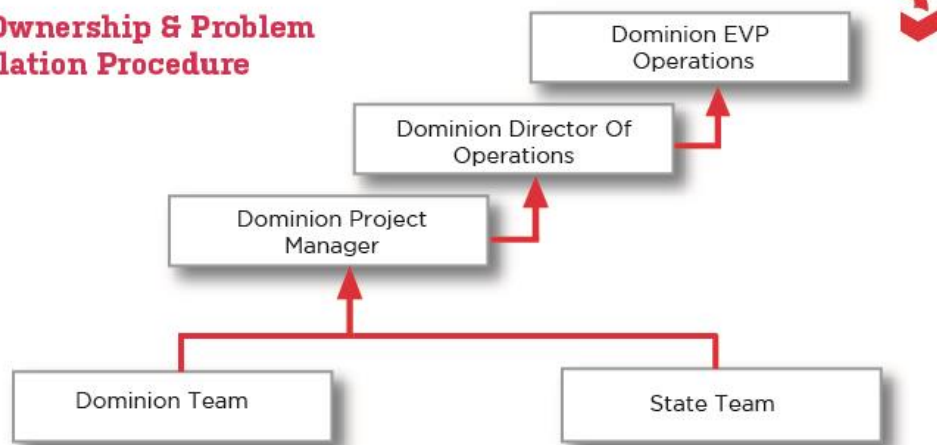
Another key to the PEP is process. The Dominion Project Manager will follow a well-defined and proven PEP process as depicted at a high level in the diagram below, Problem Escalation Procedure, and further detailed in this section.

Problem Escalation Procedure
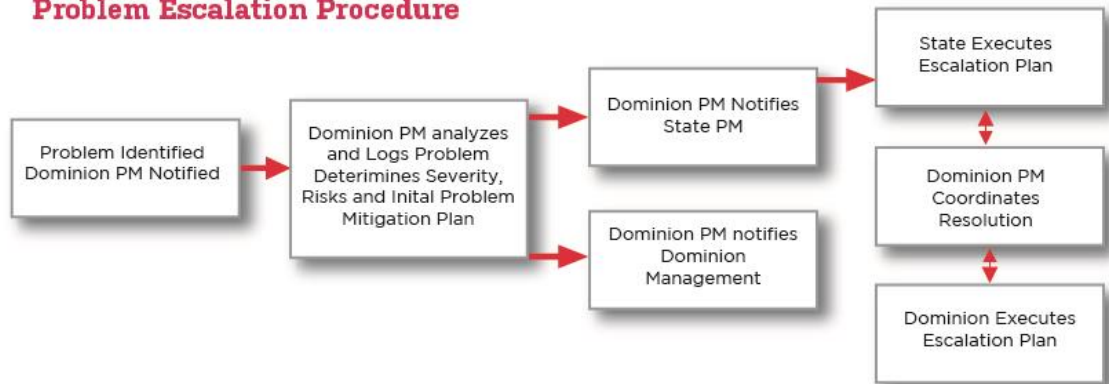
Problem Identification – Customer identifies a problem or Dominion proactively identifies a problem

Problem Analysis – The Dominion Project Manager will work with the individual that identified the problem and Dominion staff to clearly characterize the problem, assess its severity, and determine the initial mitigation strategy. The Dominion Project Manager will describe, document, and log the problem in Dominion's automated ticket tracking system. Dominion's Project Manager will notify appropriate Customer/Dominion staff of the severity and risk of the problem.

Problem Mitigation Plan (PMP) – The Dominion Project Manager will lead a team to identify the root cause, determine/document mitigation approach, and identify the management point of contact for approval of the PMP.

Mitigation Execution – The team will execute the approved PMP and track resolution.

Problem Escalation Process – The Dominion Project Manager will escalate a problem based on exceeding the resolution target time or at her discretion.

Problem Close-out – The Dominion Project Manager will document the problem, resolution, and lessons learned. The Dominion Project Manager will also close out the item on the problem and risk logs.

Since problems do not always occur during normal business hours, key stakeholders will be provided with emergency contact information that will allow our team to be reached outside of business hours (e.g., evenings, weekends, holidays, etc.) and on an emergency basis.

Our business is built on supporting customers to conduct elections in an error-free, secure, and on-time manner. The Dominion team designed our PEP to ensure that we address problems before they have an impact on an election. Higher-levels of service are

provided during critical periods. Escalation always takes place to a position with a wider and deeper pool of resources at his/her disposal, to assist in resolution.

Risk Management

In addition to the project schedule, project risk management strategy and contingency planning is a critical component of the overall implementation plan. Best practice in risk management involves reducing the likelihood of occurrence of an undesired event and mitigating its effects once the event has occurred.

An early project activity is to work with stakeholders to understand potential risks and to put in place measures to reduce the probability and potential impact of these uncertain events. This activity includes a methodical process by which the project team identifies, scores, and ranks the various risks. High, medium and low potential risks are identified, along with the action to be taken for each identified risk. This is to reduce the probability of a negative occurrence or reduce its impact on the project. A comprehensive, Georgia-specific risk management plan will be developed and finalized during the initial phases of the implementation.

A sample listing of risks is provided below:

Risk	Mitigation Strategies	
	Prevention	**Recovery**
Election Management - Errors in programming that are not uncovered prior to ballot scanning	- Ballot proofing before ballots sent to printer - Comprehensive pre-election Logic and Accuracy testing of each voting machine using the Election Project database. Results reported by each voting machine are compared with a known result to ensure accuracy.	- Dominion technicians are available throughout the election period to respond to any unforeseen challenges that could arise
Election Reporting - Reports produced do not meet requirements	- The Dominion Voting project manager works closely with officials from the beginning of the project to ensure that report templates meet their needs - Reports are produced following the pre-election test, providing officials with the opportunity to see	- Dominion Voting's election management system provides a high degree of flexibility in the design of election reports. When called upon Dominion engineers are able to customize reports extremely quickly ensuring the all

		reports of actual election results	requirements are met.
Logistics - Delays in supply chain result in a short-fall of critical election supplies prior to the election	- 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 officials to arrange delivery	- Preferred supplier arrangements allow immediate response for most items. - 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.
Ballot - Poor ballot printing results in rejected ballots	- Dominion Voting works to qualify printers prior to the election event. This includes more than just auditing their product quality - it includes training on required ballot parameters and ballot auditing procedures. - Qualification of paper vendors. The success of an optically tabulated election depends on the consistency of the ballots. Dominion has worked with paper suppliers to develop product specifications that provide the optimal paper for use in elections. - Dominion Voting conducts pre-election testing and the test election on ballots produced by the official ballot printer. This provides additional confidence that the Election Day ballots	- Where appropriate the Dominion Voting project manager works with officials to implement best practices in ballot handling and distribution, to ensure robust, expedient processes – in line with State or County regulations –so that failed ballots do not disrupt the election.

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	will meet necessary specifications.	
Unidentified Risks	- Ongoing collaboration with key stakeholders and within project team to update and revise risk register and to put in place risk mitigation strategies	- Defined during ongoing risk management processes

Schedule Management

Dominion has provided a preliminary project plan (schedule) as part of this RFP. This proposed project plan and schedule will be adjusted in consultation with key stakeholders to establish the "baseline" plan during Project Kick-Off. The project plan will be reviewed by the project team and any resources assigned to project tasks. The project team and resources must agree to the proposed assignments, durations, and schedule.

One of the essential components of our project management approach is regularly scheduled meetings with all key stakeholders from both the Dominion and the State's project teams. Dominion has proposed biweekly meetings, which can be held in person or on the phone depending on the project phase, which would include, at minimum, Dominion's Project Manager, Technical Lead and Executive Sponsor. These regular meetings are an opportunity to review progress against the baseline plan, and discuss any necessary changes, as well as address any other project issues or questions.

The biweekly meetings are in addition to ongoing weekly communication between the Dominion Project Manager and counterparts in the State, as required by the RFP. The biweekly meetings bring together key decision makers and stakeholders to ensure adequate project oversight.

Quality Assurance

Dominion uses multi-level quality assurance and quality control processes to ensure that all elements of our integrated voting system perform properly with every use. Independent reviews of election databases are conducted prior to Logic & Accuracy testing. We recommend (and support our customers to conduct) precinct-level pre-election testing.

In addition to this rigorous testing and control program designed to catch errors, Dominion Voting regularly conducts process audits of our acceptance testing, and programming processes to ensure that errors never occur.

Testing Phase Summary
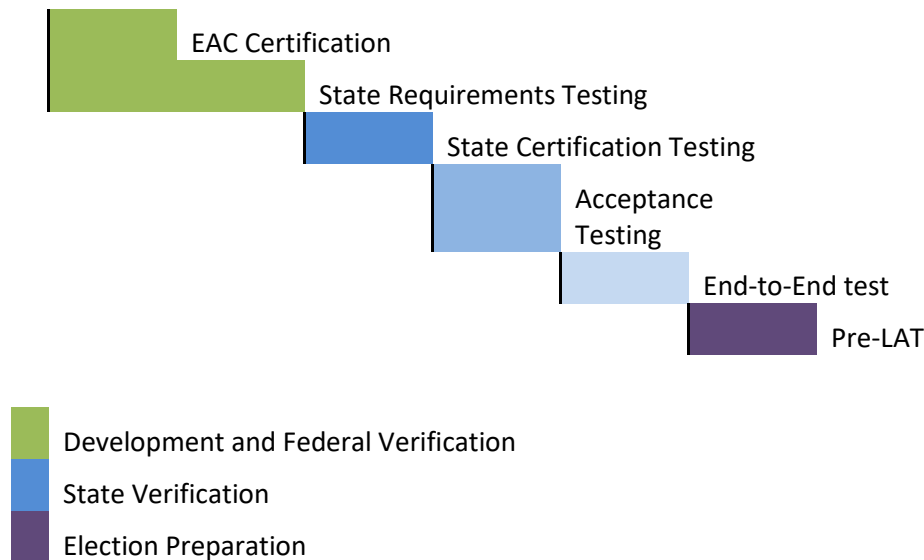
Dominion Voting tests its equipment to the highest standards in the industry. Our test plan is multi-layered and designed to complement State tests. Key attributes of the test plan are as follows:

1. EAC Certification – Dominion products are certified as EAC compliant. This is the highest certification standard in the industry and is your assurance that all products have undergone the highest level of testing.
2. State Requirements Testing – Dominion Engineers work to configure the EAC certified platform to meet the State of Washington's specific certification requirements.
3. State Certification Testing – Dominion's team works with the Secretary of State's office to demonstrate compliance of the system with state requirements.
4. Acceptance Testing – Each component of the system is tested for functionality at the customer site. Dominion will provide training and documentation to officials to assist them in undertaking this task.
5. End-to-End test – Dominion will work with the State to conduct end-to-end testing. We recommend that this test is completed following EMS training on a project reflecting Election Day requirements. In this test, an election project is created, and a representative sample of tabulators is programmed. Test ballots with known results are prepared and cast. Results are uploaded into the election management system and reports generated. The results are then compared to the

expected outcomes to verify the system is performing properly. This test is performed on site at the customer warehouse.

6. Pre-Election Logic & Accuracy Testing – In advance of all elections, Dominion Voting recommends that Logic & Accuracy Testing of each voting system is tested with final Election Day ballots. This complete end-to-end test provides certainty that the system will perform as planned on Election Day. This test is performed on site at the customer warehouse.

7. Automated Test Deck Creation – The creation of automated, comprehensive test decks is an optional service provided by Dominion to assist customers in conducting Logic & Accuracy testing. Using the Election Day database, a series of pre-marked ballots are generated based on a computer algorithm designed to provide the highest assurance of system accuracy. When scanned these decks create known outcomes that can be compared with tabulated results. The elimination of error due to mistakes in hand-marking provides a higher degree of confidence in test results.

Change Control

Once the State approves the baseline plan, changes, if any, will follow a formal change control process, where Dominion's Project Manager will update the plan as required in consultation with counterparts from the State.

The following steps comprise Dominion's organization change control process for all projects and will be used for the implementation:

1. Identify the need for a change (Any Stakeholder)
   Requestor will submit a completed Dominion change request form to the Project Manager.
2. Log the change in the change request register (Project Manager)
   The Project Manager will maintain a log of all change requests for the duration of the project.
3. Conduct an evaluation of the change (Project Manager, Project Team, Requestor)
   The Project Manager will conduct an evaluation of the impact of the change to cost, risk, schedule, and scope.
4. Submit change request to Project Sponsor (Project Manager)
   The Project Manager will submit the change request and analysis to the Sponsor for review.
5. Project Sponsor decision
   The Project Sponsor will evaluate and discuss the proposed change and decide whether it will be approved based on all submitted information
6. Implement change (Project Manager)

If a change is approved by the Project Sponsor, the Project Manager will update and re-baseline project documentation as necessary as well as ensure any changes are communicated to the team.

Updates and Upgrades

Any software changes, upgrades, modifications, updates, patches, etc. are typically included in upcoming full releases of the software. The State will have ongoing visibility

as to which future version of Democracy Suite will include any Washington-specific upgrades or updates; Dominion will devise an upgrade plan as required with the State.

The proposed voting system is supported by Dominion for the duration of the agreement with the State or individual Counties.

Dominion is constantly working with Commercial Off The Shelf equipment providers, such as Canon and Dell, to ensure visibility regarding End Of Life components and available replacements. This is done in conjunction with managing ongoing state and federal certification campaigns, to ensure that Democracy Suite remains fully operational and available to customers. Wherever possible Dominion, strives to integrate any new product offerings and enhancements to the currently certified system version to prevent having to replace certain infrastructure components. However, major upgrades often require the upgrade of dell/Microsoft related equipment and software.

Dominion understands 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.

21) **Describe the physical and power attributes of your Ballot Marking Devices, Digital Scanners & Tabulators, High Speed Scanners and Tabulators, and Statewide Electronic Pollbook System, including but not limited to:**

- **Dimensions;**
- **Weight;**
- **Battery backup system capabilities; and**
- **Power needs and ability to daisy chain equipment to a power source.**

Below we provide the requested attribute information for each hardware component associated with the solutions:

ICX with BMD

ImageCast X Prime 21" Tablet Specifications	BMD Printer Specs
Manufacturer: Avalue Model: HID-21V OS: Android 5.1.1. Processor: Intel Celeron J1900 Power: DC 19V input Weight: 19.5 lbs (including battery) Dimensions: 22" (H) x 13.5" (W) x 2.9" (D) Battery Backup Life: 2 hour minimum	Manufacturer: HP Model: Laser Printer M402DNE Power: DC 19V input Dimensions: 8.5 " (H) x 15" (W) x 14.06" (D) Weight: 19 lbs.

ICX with VVPAT

ImageCast X Prime 21" Tablet Specifications	VVPAT Printer Unit Specs
Manufacturer: Avalue Model: HID-21V OS: Android 5.1.1. Processor: Intel Celeron J1900 Power: DC 19V input Weight: 19.5 lbs (including battery) Dimensions: 22" (H) x 13.5" (W) x 2.9" (D) Battery Backup Life: 2 hour minimum	Manufacturer: KFI Model: VRP3 Power: DC 19V input Weight: 6 lbs Dimensions: 15" x 7" x 6.5"

ImageCast Central Kit

Includes Canon DR-G1130 scanner, Dell OptiPlex 7440 AIO computer, one 8GB flash memory card, one i-Button (black), one i-Button Programmer with USB Adapter, patch cable 25', Lexar LRW400CRBNA reader.

Dell OptiPlex 7440 AIO Computer Specs:
Processor: Intel® Core™ i3-6100 Processor (Dual Core, 3MB, 4T, 3.7GHz, 65W) ...
Operating System: (Dell recommends Windows 10 Pro.)
Monitor: 23.8" WLED Full-HD AIO Non-Touch Display.
Memory: 1 4GB2 DDR4 at 2133MHz. ...
Hard Drive: 2.5 inch 500GB 7200rpm Hard Disk Drive
Approximate weight: 15.9 lbs
Approximate Dimensions: 15.5" (W) x 22.6" (D) x 2.5" (H)

Scanner: Canon Model DR-G1130 Specs
Feeder Capacity: 48 mm stack or 500 sheets of 80 g/m² (20 lb bond)
Scanning Resolution: 150 x 150 dpi, 200 x 200 dpi, 240 x 240 dpi, 300 x 300 dpi, 400 x 400 dpi, 600 x 600 dpi
Scanning Speed: B&W 100 ppm Portrait/130 ppm Landscape
Power: AC 100V (50/60Hz), AC 120V (60Hz), AC220-240V (50/60Hz)
Approximate weight: 50.3 lbs
Approximate dimensions: 18.9" (W) x 21.1" ((D) x 12.4" (H)

ImageCast Evolution

Manufacturer: Dominion
Model number: PCOS-410A
Power: 19V AC
Operating System: Linux
Processor: NXP PowerPC (MPC8347EVVAJDB)
Modem: External Multi-Tech HSPA USB Modem
Approximate Weight: 45 lbs.
Approximate Dimensions: 19.7" (W) x 23.4" (D) x 5.9" (H)

The overall size of the ballot box with the lid on is 25" (W) by 38" (D) by 44" (H) and the weight is 85 pounds.

ImageCast Precinct

Manufacturer: Dominion?
Model number: PCOS-330A
Power: 16V AC
Operating System: Linux
Processor: NXP ColdFire (SCF5249VM140)
Modem: External Edeice CellGo Modem
Approximate Weight: 14 lbs.
Approximate Dimensions: 17" (W) x 13" (D) x 3.5" (H)

 The overall size of the ballot box with the lid on is 25" (W) by 38" (D) by 44" (H) and the weight is 85 pounds.

22) **Describe any special storage requirements associated with the components of your proposed solution including climate control specifications and stacking restrictions.**

Democracy Suite EMS Servers and Workstations, and ImageCast Central

For the EMS server and workstations, and central count system, normal office environmental conditions are required. This portion of the system relies on COTS hardware, designed for its robustness and resiliency. The City's IT policy around server room management, and other environmental precautions, should be followed.

Storage and Operating temperatures – EMS system:

- As cool as possible
- Maintain a storage temperature between 41 °F and 149 °F
- Maintain an operating temperature between 41 °F and 95 °F

Storage and operating temperatures - ImageCast Central Workstation and Canon Scanners:

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- As cool as possible
- Maintain a storage and operating temperature between 50 °F and 90.5 °F
- The humidity should be between 20% and 80% RH

ImageCast X

For best lifetime, follow the storage recommendations described below for the ImageCast X:

- Operating Temperature min/max: 0°C ~ 40°C
- Storage Temperature min/max: -20°C ~ 60°C
- Operating and/Storage Conditions (Relative Humidity): From 0% ~ 90% RH non-condensing
- Pack the ImageCast X tablet into its provided packaging box with foam inserts to provide vibration and impact protection.

The ImageCast X units should not be stacked on top of one another for storage unless they are in their respective carrying cases or packaging boxes (Maximum Stack = 5 Boxes High).

ImageCast Precinct and ImageCast Evolution

Storage facilities should provide protection from destructive environmental conditions – rain, high temperature, blowing dust, etc. Please follow the storage recommendations described below for the ImageCast Evolution:
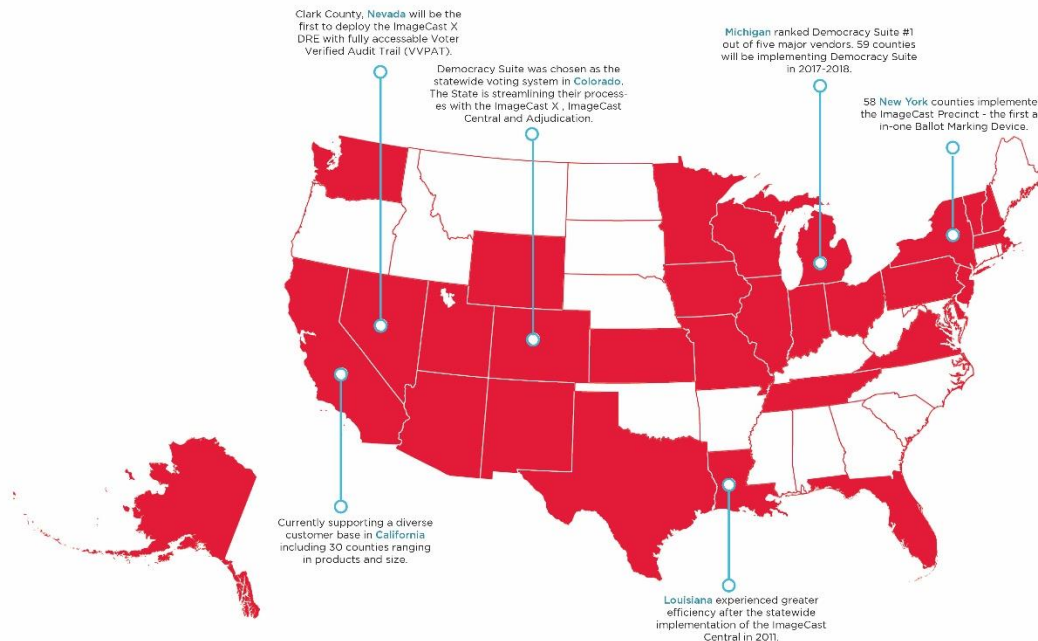
- Operating Temperature min/max: From 41 - 104°F (5°C - 40°C)
- Storage Temperature min/max: From 32 - 140°F (-25°C - 60°C)
- Operating and/Storage Conditions (Relative Humidity): From 20% - 80% RH non-condensing
- Place the tabulator inside the re-sealable bag into the provided packaging box with foam inserts to provide vibration and impact protection.
- Store the packaged tabulator box under conditions specified.
- Alternatively, leave the tabulator on the Ballot Box but place the Ballot Box dust cover over it to keep it free from environmental elements.
- Store the tabulator (and Ballot Box, if applicable) in a dust-free, clean environment.
- Perform periodic charging of the back-up battery module for 12 hours every 9 months.
- The tabulators should not be stacked on top of one another for storage unless they are in their respective carrying cases or packaging boxes (Maximum Stack
- = 4 Boxes High)

For delivery to the polling location, the ImageCast tabulator units can be mounted to the ballot box, and peripherals can be placed inside the ballot box.

23) **In what states and jurisdictions therein, has your proposed solution been installed?**

Dominion Voting Systems, Inc. is a company that has distinguished itself by pursuing excellence in customer service by implementing a technical culture focused on achieving the highest levels of accuracy, reliability and transparency in elections since 2003. As an established election provider in the United States, with a diverse customer base of 33 states, out of which jurisdictions in 19 states have successfully implemented our Democracy Suite system. We are providing a snapshot of the reach and diversity of our experience:

- Clark County, Nevada was the first to deploy the ImageCast X with fully accessible Voter Verified Paper Audit Trail (VVPAT).
- Currently supporting a diverse customer base in California of 30 counties, including 12 who have transitioned to Democracy Suite.
- Democracy Suite was chosen as the statewide voting system of choice in Colorado. The State is streamlining their processes with the ImageCast X, ImageCast Central, and Adjudication.
- The State of Michigan ranked Democracy Suite #1 out of 5 major vendors. Over 65 counties will be implementing Democracy Suite in 2017-2018.
- 52 counties in New York have implemented the ImageCast Precinct, the first all-in-one Ballot Marking Device.
- Louisiana experienced greater efficiency after the statewide implementation of the ImageCast Central in 2011.

Clark County, Nevada will be the first to deploy the ImageCast X DRE with fully accessable Voter Verified Audit Trail (VVPAT).

Democracy Suite was chosen as the statewide voting system in Colorado. The State is streamlining their processes with the ImageCast X , ImageCast Central and Adjudication.

Michigan ranked Democracy Suite #1 out of five major vendors. 59 counties will be implementing Democracy Suite in 2017-2018.

58 New York counties implemented the ImageCast Precinct - the first all-in-one Ballot Marking Device.

Currently supporting a diverse customer base in California including 30 counties ranging in products and size.

Louisiana experienced greater efficiency after the statewide implementation of the ImageCast Central in 2011.

Below is a representative list of election jurisdictions where the Democracy Suite system has been deployed or is scheduled to be deployed, including the key components used (ImageCast Central – ICC, ImageCast Evolution – ICE, ImageCast Precinct – ICP, ImageCast X – ICX, Adjudication – ADJ) and the year of signed business.

The State of Alaska
- City and Borough of Sitka (ICP-A, 2014)
- City of Valdez (ICP, 2015)
- The Municipality of Anchorage (ICX, ICC, ADJ, 2017)
- The City of Bethel (ICP, 2017)
- The City and Borough of Ketchikan (ICP, 2017)

The State of California
- Del Norte County (ICE, ICC, ADJ, 2015)
- Glenn County (ICE, ICC, ADJ, 2016)
- Imperial County (ICE, ICC, ADJ, 2015)
- Kern County (ICC, ADJ, 2015)
- Napa County (ICE, ICC, ADJ, 2015)
- Siskiyou County (ICE, ICC, ADJ, 2015)
- Tehama County (ICE, ICC, ADJ, 2016)
- Mono County (ICE, 2017)
- Monterey County (ICC, 2017)
- San Luis Obispo County (ICX, ICC, ADJ 2018)
- Sacramento County (ICX, ICC, ADJ 2018)
- Contra Costa County (ICX, ICC, ADJ 2018)

The State of Colorado
- Adams County (ICX, ICC, ADJ, 2016)
- Arapahoe County (ICX, ICC, ADJ, 2016)
- Chaffee County (ICX, ICC, ADJ, 2016)
- Gilpin County (ICX, ICC, ADJ, 2016)
- Gunnison County (ICX, ICC, ADJ, 2016)
- City and County of Denver (ICX, ICC, ADJ, 2016)
- Mesa County (ICX, ICC, ADJ, 2016)
- Moffat County (ICX, ICC, ADJ, 2016)
- Baca County (ICX, ICC, ADJ, 2016)
- Broomfield County (ICX, ICC, ADJ, 2016)
- Clear Creek County (ICX, ICC, ADJ, 2016)
- Eagle County (ICX, ICC, ADJ, 2016)
- Logan County (ICX, ICC, ADJ, 2016)

- Pitkin County (ICX, ICC, ADJ, 2016)
- Teller County (ICX, ICC, ADJ, 2016)
- Park County (ICX, ICC, ADJ, 2016)
- Pueblo County (ICX, ICC, ADJ, 2016)
- Sedgwick County (ICX, ICC, ADJ, 2016)
- Washington County (ICX, ICC, ADJ, 2016)
- Alamosa County (ICX, ICC, ADJ, 2017)
- Archuleta County (ICX, ICC, ADJ, 2017)
- Bent County (ICX, ICC, ADJ, 2017)
- Boulder County (ICX, ICC, ADJ, 2017)
- Conejos County (ICX, ICC, ADJ, 2017)
- Cheyenne County (ICX, ICC, ADJ, 2017)
- Crowley County (ICX, ICC, ADJ, 2017)
- Costilla County (ICX, ICC, ADJ, 2017)
- Delta County (ICX, ICC, ADJ, 2017)
- Dolores County (ICX, ICC, ADJ, 2017)
- Elbert County(ICX, ICC, ADJ, 2017)
- El Paso County (ICX, ICC, ADJ, 2017)
- Fremont County (ICX, ICC, ADJ, 2017)
- Grand County (ICX, ICC, ADJ, 2017)
- Huerfano County (ICX, ICC, ADJ, 2017)
- Jefferson County (ICX, ICC, ADJ, 2017)
- Kiowa County (ICX, ICC, ADJ, 2017)
- Kit Carson County (ICX, ICC, ADJ, 2017)
- Lake County (ICX, ICC, ADJ, 2017)
- La Plata County (ICX, ICC, ADJ, 2017)
- Las Animas County (ICX, ICC, ADJ, 2017)
- Lincoln County (ICX, ICC, ADJ, 2017)
- Otero County (ICX, ICC, ADJ, 2017)
- Ouray County (ICX, ICC, ADJ, 2017)
- Moffat County (ICX, ICC, ADJ, 2017)
- Montezuma County (ICX, ICC, ADJ, 2017)
- Montrose County (ICX, ICC, ADJ, 2018)
- Morgan County (ICX, ICC, ADJ, 2017)
- Phillips County (ICX, ICC, ADJ, 2017)
- Prowers County (ICX, ICC, ADJ, 2017)
- Rio Grande County (ICX, ICC, ADJ, 2017)
- Routt County (ICX, ICC, ADJ, 2017)
- San Miguel County (ICX, ICC, ADJ, 2017)
- Summit County (ICX, ICC, ADJ, 2017)

- Yuma County (ICX, ICC, ADJ, 2017)

The State of Florida
- Alachua County (ICE, ICC, 2015)
- Baker County (ICE, 2013)
- Columbia County (ICE-DD, ICC, 2017)
- Jefferson County (ICE, 2018)
- Hardee County (ICE, 2013)
- Hernando (ICE-DD, ICC, MBP, 2015)
- Leon County (ICE, ICC, 2014)
- Levy County (ICE, 2014)
- Madison County (ICE, 2013)
- Monroe County (ICE, 2013)
- Okeechobee County (ICE, 2016)
- St Lucie County (ICE, ICC, 2014)
- Dixie County (ICE, 2018)
- DeSoto County (ICE, 2018)
- Gilchrist County (ICE-DD, 2018)
- Taylor County (ICE, 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

(services provided by LHS Associates)

- Agawam (ICP, 2016)
- Amesbury (ICP, 2017)
- Andover (ICP, 2017)
- Ashland (ICP, 2016)
- Athol (ICP, 2017)
- Attleboro (ICP, 2016)
- Auburn (2016)
- Belchertown (ICP, 2017)
- Bellingham (ICP, 2016)
- Beverly (ICP, 2017)
- Blackstone (ICP, 2016)
- Boxford (ICP, 2016)
- Brimfield (ICP, 2016)
- Brockton (ICP, 2016)
- Cheshire (ICP, 2016)
- Clinton (ICP, 2015)
- Cohasset (ICP, 2016)
- Dartmouth (ICP, 2017)
- Dedham (ICP, 2016)
- Dover (ICP, 2017)
- Dracut (ICP, 2017)
- Duxbury (ICP, 2016)
- East Bridgewater (ICP, 2017)
- Eastham (ICP, 2014)
- Easton (ICP, 2016)
- Falmouth (ICP, 2016)
- Fitchburg (ICP, 2015)
- Georgetown (ICP, 2017)
- Granby (ICP, 2016)
- Great Barrington (ICP, 2016)
- Groton (ICP, 2016)
- Holden (ICP, 2017)
- Holliston (ICP, 2016)
- Hudson (ICP, 2014)
- Leominster (ICP, 2015)
- Longmeadow (ICP, 2016)
- Lynnfield (ICP, 2016)
- Manchester-by-the-Sea (ICP, 2017)

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- Mansfield (ICP, 2014)
- Methuen (ICP, 2017)
- Middleborough (ICP, 2016)
- Monson (ICP, 2017)
- Needham (ICP, 2015)
- Newbury (ICP, 2015)
- North Andover (ICP, 2017)
- Northfield (ICP, 2016)
- Norton (ICP, 2016)
- Orange (ICP, 2016)
- Pembroke (ICP, 2017)
- Pepperell (ICP, 2017)
- Plainville (ICP, 2014)
- Plymouth (ICP, 2017)
- Quincy (ICP, 2016)
- Reading (ICP, 2016)
- Rockport (ICP, 2015)
- Rutland (ICP, 2017)
- Sherborn (ICP, 2014)
- Shirley (ICP, 2015)
- South Hadley (ICP, 2015)
- Southborough (ICP, 2017)
- Uxbridge (ICP, 2016)
- Wales (ICP, 2016)
- Walpole (ICP, 2016)
- Wareham (ICP, 2016)
- Wellesley (ICP, 2016)
- Wenham (ICP, 2016)
- West Boylston (ICP, 2016)
- Westminster (ICP, 2016)
- Weston (ICP, 2015)
- Westwood (ICP, 2016)
- 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 Minnesota
- Dakota County (ICE, ICC, 2015)
- Scott County (ICE, ICC, 2015)
- Sherburne County (ICE, ICC, 2016)

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)

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- 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)

The State of Nevada
- Churchill County (ICX with VVPAT, ICC, ADJ, 2018)
- Clark County (ICX with VVPAT, ICC, ADJ, 2017)
- Douglas County (ICX with VVPAT, ICC, ADJ, 2018)
- Elko County (ICX with VVPAT, ICC, ADJ, 2018)
- Esmerelda County (ICX with VVPAT, ICC, ADJ, 2018)
- Eureka County (ICX with VVPAT, ICC, ADJ, 2018)
- Humboldt County (ICX with VVPAT, ICC, ADJ, 2018)
- Lander County (ICX with VVPAT, ICC, ADJ, 2018)
- Lincoln County (ICX with VVPAT, ICC, ADJ, 2018)
- Lyon County (ICX with VVPAT, ICC, ADJ, 2018)
- Mineral County (ICX with VVPAT, ICC, ADJ, 2018)
- Nye County (ICX with VVPAT, ICC, ADJ, 2018)
- Pershing County (ICX with VVPAT, ICC, ADJ, 2018)
- Story County (ICX with VVPAT, ICC, ADJ, 2018)
- Washoe County (ICX with VVPAT, ICC, ADJ, 2017)
- White Pine County (ICX with VVPAT, ICC, ADJ, 2018)

The State of New Jersey
- Burlington County (ICC, 2014)
- Camden County (ICC, 2013)
- Cape May County (ICC, 2013)
- Cumberland County (ICC, 2015)
- Essex County (ICC, 2013)
- Gloucester County (ICC, 2015)
- Hudson County (ICC, 2013)
- Hunterdon County (ICC, 2015)
- Mercer County (ICC 2013)
- Monmouth County (ICC, 2014)
- Morris County (ICC, 2015)
- Passaic County (ICC, 2015)
- Salem County (ICC, 2015)

- Union County (ICC, 2013)

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
- Amelia County (ICE, 2016)
- Bedford County (ICE, 2015)
- Buchanan County (ICE, 2015)
- Craig County (ICE, 2015)
- Caroline County (ICP-BMD, 2015)
- Dickenson County (ICE, 215)
- Franklin County (ICE, 2015)
- King George County (ICP-BMD, 2014)
- Lee County (ICE, 2015)
- Buena Vista City (ICE, 2017)
- Sussex County (ICE, 2017)
- Smyth County (ICE, 2017)
- Greensville County (ICE, 2017)
- Louisa County (ICE, 2015)
- Mecklenburg County (ICE, 2015)
- Nottoway County (ICE, 2015)
- Page County (ICP- BMD, 2016)
- Radford City (ICE, 2016)

- Russell County (ICE, 2015)
- Salem City (ICE, 2016)
- Suffolk City (ICE, 2015)
- Waynesboro City (ICE, 2016)

The State of Washington
- Franklin County (ICX, ICC, AADJ, 2017)

The State of Wisconsin
- Door County (ICE, 2015)
- Fond du Lac County (ICE, 2016)
- Green County (ICE, 2015)
- Ozaukee County (ICE, 2016)
- Vilas County (ICE, 2016)
- Washington County (ICE, 2016)
- Winnebago County (ICE, 2015)

The Commonwealth of Puerto Rico
(ICP, 2016)