2023

★ VIRGINIA ★
DEPARTMENT *of* ELECTIONS

Risk Limiting Audit

MANUAL

VIRGINIA DEPARTMENT OF ELECTIONS

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1. Introduction

1.1 Background on Risk Limiting Audits (RLA) in Virginia

1.1.1 Definition of an RLA

A Risk Limiting Audit (RLA) is a type of post-election audit that utilizes statistical methods and a manual review of paper ballots to confirm that the electronic voting system accurately reported the correct outcome of an election. RLAs analyze a random sample of hand-counted ballots to confirm election results. If the margin of an election is wide, fewer votes are audited; if the margin is narrow, more votes are audited until enough evidence can confirm the results of the contest.[1]

There are two RLA methods used in the Commonwealth of Virginia: *ballot-polling* and *batch-comparison*. Ballot-polling audits manually review a randomly selected, sufficiently large sample of ballots to determine if the overall outcome of an election contest was correctly reported. Batch-comparison audits manually review randomly selected physical batches of ballots, such as those cast in one precinct, and compare those results with corresponding machine counts.[2] In Virginia, the Virginia Department of Elections (ELECT), in accordance with the procedures prescribed by the State Board of Elections (SBE), has traditionally utilized the *ballot-polling* method to conduct statutorily required RLAs.

Since 2022, local electoral boards (EB) have the option to apply for RLAs for contested races that are wholly contained within the jurisdiction of the EB. Local electoral boards may choose to utilize either the ballot-polling or batch-comparison method for conducting their RLA, subject to the approval of the SBE.

1.1.2 History of RLAs in Virginia

RLAs provide strong statistical evidence that the declared winner of a contest received the most votes. In 2017, the Virginia General Assembly passed legislation that amended the Code of Virginia to include RLAs of ballot scanner machines in use in the Commonwealth and the changes went into effect on July 1, 2018**.** During the 2022 General Assembly Session, §24.2-671.1 was repealed and replaced with §24.2-671.2, which took effect on July 1, 2022. With these changes, the Code now requires that RLAs be performed by the EBs and general registrars (GR) under the supervision of ELECT and in accordance with the procedures prescribed by the SBE.

This document outlines the SBE procedures and includes guidance on the following:

- Randomly selecting contested races and determining the risk-limit;

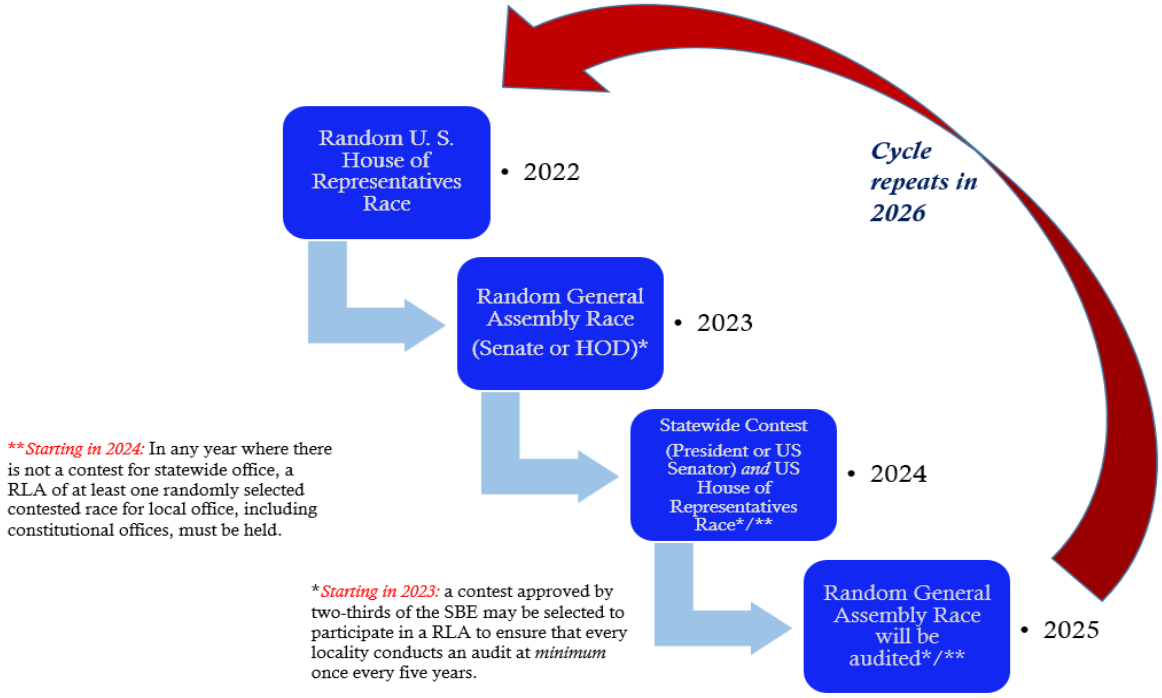
[1] *See* National Conference of State Legislatures, Risk-Limiting Audits
[2] *Id.*

- Preparing for an RLA, including guidelines for organizing ballots, selecting venues, and securing appropriate materials by EBs and GRs;
- Ballot custody, accounting, security, and written record retention procedures that ensure a complete and accurate collection of cast ballots from which samples are drawn;
- Hand counting of the audited ballots;
- Methods for conducting the RLA; *and*,
- Ensuring transparency and understanding of the process by participants and the public, including guidelines for direct observation by members of the public, representatives of the candidates involved in the RLA, and representatives of the political parties.

2. RLA Basics

2.1 RLA Selection and Notification Process

Pursuant to § 24.2-671.2, RLAs must be conducted **before** a race has been certified.[3] ELECT must ensure that an RLA is conducted for at least one randomly selected contest each year. The Code of Virginia provides the contests eligible for selection for an RLA depending on the election cycle, as outlined in §24.2-671.2(C) and illustrated in the graphic from 2022 below:



Additionally, §24.2-671.2(D) allows EBs to *request* a risk-limiting audit of a contested race within the EB's jurisdiction. Using an SBE-671.2(D) Form: Request for Risk Limiting Audit, a locality may submit their request to the SBE for approval.[4] Examples of races wholly contained within a locality's jurisdiction *may* include but are not limited to: mayoral, school board, city council, clerk of court, treasurer, or sheriff. Localities that have portions of House of Delegate, State Senate, U.S. Senate, or U.S. House of Representative races located within their localities are not able to request to audit just their portions of those races. Section 2.1.1 of this manual details how to apply for an RLA.

At least once every five years, every jurisdiction must participate in at least one RLA of a contest in its jurisdiction, either by random selection by the SBE or by opting into their own contest. As

[3] *See* Code of Virginia, § 24.2-671.2. Risk-limiting audits

[4] *See* ELECT, SBE-671.2(D) Form

of 2022, the SBE may, by two-thirds majority vote, direct that a locality conduct an RLA of a contest within its jurisdiction. The SBE defines participation in an RLA by the uploading of a ballot manifest. Every locality in the Commonwealth participated in a ballot-polling RLA of the 2020 Presidential and 2021 U.S. Senate races, which is explained in greater detail in the March 31, 2021 Risk-Limiting Audit Report found on ELECT's website.[5]



Applying for an RLA and the Yearly Random Selection of Races
If a locality opts for an RLA of a race wholly contained within its jurisdiction, it is not exempted from the required yearly, randomly selected RLA.

2.1.1 Applying for an RLA of a Local Contest

An EB may request SBE approval for an RLA of a contested local race wholly contained within the EB's jurisdiction. The SBE has promulgated both a regulation to guide EBs in selecting a race for an RLA (see Appendix) as well as the SBE-671.2(D) Form that localities must use to request a race for an RLA (see Appendix). As of March 2022, EBs may choose between utilizing the *ballot-polling* or *batch-comparison* method of conducting a Risk-Limiting Audit.

An electoral board must cast a majority vote at a public meeting to request an RLA for a particular contested local race, wholly contained within the jurisdiction of the electoral board. Further, an electoral board must sign and complete the current SBE-24.671.2(D) Form and identify the local race(s) subject to the requested RLA. All board members should sign and date the form. Once completed, the secretary of the electoral board must send the form to ELECT via the locality's Elections and Registration Specialist. An ideal time for electoral board members to select a race for audit is during the canvass. These forms must be submitted to ELECT no later than close of business the day prior to the publicly noticed RLA SBE meeting (the date will vary depending on the election cycle.)

The SBE will grant an RLA request if the form is properly completed, all statutory requirements are met, and the request is submitted in time. Finally, the regulation specifies that, as needed, the SBE will grant a two-week extension to an electoral board's certification deadline under § 24.2-671 to accommodate the completion of the RLA.[6]

2.1.2 Key Factors

When considering applying for an RLA of a race wholly contained within the jurisdiction of the electoral board, ELECT recommends considering several aspects:

[5] *See* ELECT, Risk-Limiting Audit Report, March 31, 2021
[6] *See* Code of Virginia, §24.2-671 Electoral board to Meet to Ascertain Results; conclusiveness of results

METHOD CHOICE

The SBE gives EBs the option to choose between the use of two RLA methods for applications submitted pursuant to §24.2-671.2(D): ballot-polling or batch-comparison.

Ballot-polling typically requires the smallest number of ballots to produce strong evidence that a reported outcome was correct. This method has been used by the Commonwealth since RLAs were first required by statute. It is the easiest method for the public to observe the interpretation of ballots. A ballot-polling audit is similar to an exit poll, where a statistically significant number voters are sampled to make inferences about the whole electorate. In the case of ballot-polling RLAs, a statistically significant number of ballots are sampled to infer the accuracy of the machines used in the election.

Batch-comparison is an audit where batches, such as precincts, are randomly selected, counted, and compared to the voting system's count. This method tends to use the most ballots of either method, causing a greater workload than ballot-polling and the need for more manpower and resources. Additionally, when Arlo, the RLA software, is set up for a batch-comparison audit it tends to select, although random, the precincts with more ballots. Localities should expect to review over a thousand ballots.



Tip

You can use the Arlo Planner Tool to create an *estimate* of the number of ballots or batches that may be required to conduct an RLA for your race. The Arlo Planner Tool can be found here: Arlo Planner Tool, by VotingWorks. This tool is available to the public and does not require a login to access.

AN EXAMPLE OF SAMPLE SIZES FOR BOTH METHODS

ELECT estimated the number of ballots that may have needed to be sampled for the 2022 General Election RLA, U.S. Congressional District 9, using both the ballot-polling method and the batch-comparison method, with the risk limit set to 10%, to provide a real-world example of the amount of work required for each method. This race had 248,792 ballots cast with a margin of 47% between the candidate with the most votes and the candidate with the second most votes.

Batch-comparison Estimate for District 9	Ballot-Polling Estimate for District 9
7 Batches or ~5,600 total ballots*	60 ballots



Note about Performing Both a Ballot-polling RLA and a Batch-comparison RLA
If your locality must perform both a ballot-polling RLA and a batch-comparison RLA, can you use the same ballot manifest for both? Yes, the ballot manifest for one may be used for the other. *However*, in this event, the batches listed in the ballot manifest ***must*** be the same as your precincts. For example, if 100 ballots were cast in Precinct 1, then Batch 1 would have 100 ballots. The candidate by batch file must match with the ballot manifest for a batch-comparison method RLA. This is discussed in greater detail in 5.2.2 Creating a Candidate Total by Batch File. You may also choose to create two separate ballot manifests for greater ease in locating ballots.



Reminder
ELECT reminds localities that should an EB choose to apply for an RLA the batches or ballots used to perform the RLA will be randomly chosen by Arlo, no matter which RLA method is chosen, and will not be chosen by the applying EB.

TIME

Pursuant to the Code of Virginia §24.2-671.2, ELECT is required to oversee that certain RLAs are done after the general election but before certification. The SBE announces those races, as well as approved applications requesting a local RLA, during an SBE meeting, typically held the second Wednesday following the November General Election. This creates a very tight timeline for the RLA, which must be completed before certification, that overlaps with the Thanksgiving holiday. This means localities will have 9.5 business days to complete the RLA process during a general elections.

This timeline may be further compounded during a November general election by choosing a *different* method than the SBE for an RLA of a local contest. For example, the SBE may choose to conduct an RLA using the ballot-polling method in a jurisdiction. If an EB chooses to utilize a batch-comparison method for a local race, then the EB would be running two different types of RLAs at the same time, which may take additional time to complete.

If an EB applies for an RLA of a primary, the timeline is even more compressed. For a June primary, an electoral board will have 3 business days from the time of approval of the RLA to the date for the SBE to declare a nominee. This timeline may also include the 4th of July, depending on the year. Given these time constraints, an RLA of a primary, while not prohibited by statute, is not recommended.

STAFFING

As part of the RLA, EBs must recruit audit review boards (see section 3.4 for more information about audit review boards). An audit review board is a two-person team assigned to review ballots and record a hand tally of the results. The required number of audit review boards is

based on the number of batches that are needed for an RLA. However, when a single batch contains a large number of ballots, additional audit review boards may be assigned to the batch to tally the ballots more effectively and efficiently. For example, a batch-comparison method RLAs must have batches that are the size of your precincts. Your locality may have only a few batches, but those batches may be large based on the number of ballots cast in a precinct. Thus, more audit review boards may be needed to tally those ballots effectively and efficiently.

- On average, an audit review board can pull 20-25 ballots per hour utilizing the ballot-polling method. If many ballot containers must be retrieved, this average decreases to about 15-20 ballots per hour. It may take longer to locate a specific ballot within a stack of ballots utilizing the ballot-polling method, which accounts for the additional time.
- On average, an audit review board utilizing the batch-comparison method could approximately audit about 510 ballots per hour. Auditing 100,000 ballots for one contest would take approximately 195 hours.[7] Batch-comparison audit review boards can work more quickly because they are not searching for specific, random ballots but instead working through all ballots in a "batch". That being said, they have substantially more ballots to review.

COST

As noted above, audit review boards will need to be recruited to process the ballots or batches that will be hand counted. Each audit review board consists of two individuals; if more ballots or batches are sampled, more people will need to be compensated to complete the RLA process on time.

2.2 RLA SBE Meeting

The SBE will meet electronically on the second Wednesday after a general election to select contests, set the "risk limit", and determine the random seed number for the RLA.

2.2.1 Selected Contests

ELIGIBILITY

For those contests eligible for an RLA as designated by the year in §24.2-671.2(C), the SBE will only consider races with margins greater than 1%.[8] All races that meet that threshold will be placed in the selection pool.

An EB may apply for an RLA pursuant to §24.2-671.2(D). The EB must fill out an SBE-671.2(D) Form, and the contested race must qualify pursuant to the criteria under 1VAC20-60-80.[9] If the

[7] *See* Pilot Implementation Study of Risk-Limiting Audit Method in the State of Rhode Island.
[8] *See* Administrative Code of Virginia, 1VAC20-60-80.
[9] *See* Administrative Code of Virginia, 1VAC20-60-80.

SBE-671.2(D) Form is properly filled out and the contested race qualifies under 1VAC20-60-80, then the SBE will approve the application. These contests will not be placed in a selection pool.

DRAWING

For those contests eligible for an RLA in a given year under 24.2-671.2(C), the SBE Chair or designated representative will randomly draw one race(s) to audit from this pool. Before the random selection takes place, a member of ELECT staff will explain the selection method. Examples of random selection methods may include drawing a contest from a bowl or rolling dice to determine the audited contest. The selection will be held and recorded during a public meeting to ensure that the chosen race is completely random.

2.2.2 Setting the Risk Limit

A *risk limit* is the maximum chance that the RLA will fail to correct an incorrectly reported outcome. For example, a 10% risk-limit means that there is a 90% chance that the RLA will correct an incorrect outcome. To date, every RLA in Virginia has used a 10% risk-limit. A 5% risk limit is also common in other jurisdictions, though has yet to be tested in Virginia. The SBE will set the *risk limit* of the RLA following industry best practices and will announce the risk limit of each RLA at the virtual SBE RLA meeting.

2.2.2 Generating the Random Seed Number

For each audited race, the RLA software uses a 20-digit random seed number to select ballots for retrieval. A random seed number specifies the starting point of a computer-generated random sequence of numbers. The 20-digit random seed number is generated at the SBE RLA meeting.

To create this random number, the SBE Chair or designated representative(s) rolls twenty, ten-sided dice (numbered zero through nine), one time each. As each dice is rolled, the resulting number is recorded on a whiteboard. Any person may be designated by the SBE Chair to roll the dice; it may be done by one person or multiple people.

If there are applications approved by the SBE from electoral boards pursuant to Title 24.2-671.2(D), a new, additional 20-digit seed number will be generated via the process explained above.

The 20-digit number generated by this activity will be inputted into the RLA software by the RLA *Administrator* on ELECT's staff. Once this number is inputted, the auditing software will randomly select and generate a list of ballots to be retrieved based on the sample size. For an illustrated example of this process, please review the *Random Seed Number Generation* video on ELECT's YouTube channel.[10]

[10] *See* ELECT YouTube Channel, Random Seed Number Generation.

3. RLA Preparation

3.1 Overview

Due to the compressed timeline for RLAs, localities can take actions before Election Day to set themselves up for a successful RLA should they be chosen or approved by the SBE, including:[11]

- Determining RLA location;
- Scheduling the public meeting;
- Recruiting Audit Review Boards; *and,*
- Reviewing ballot accounting and storage practices.

3.2 Determining the Location of the RLA

A locality must consider a space for the RLA that can accommodate the public and that is ADA-compliant. The facility where an RLA takes place must also have an internet connection to download and print retrieval lists, placeholder pages, RLA board credentials, and labels.

If only a few ballots are required for an RLA, it may be possible to conduct the RLA at the courthouse. If more space is needed or if no workspace is available, the RLA may take place in another suitable location, such as: the GR's office, a library, a firehouse, a school, etc. Localities should work with their Clerks of Court to consult on the physical space of the RLA.

3.3 Scheduling the Public Meeting

Pursuant to § 2.2-3707[12] and §24.2-671.2(G), an RLA must be conducted as a public meeting. An EB and the GR shall conduct an RLA within their jurisdiction. Once the electoral board has selected a location for the RLA, it must provide the location to ELECT; ELECT will select the date and time for the RLA to begin. ELECT will publish the list of contested races along with the date, time, and location of the RLA as soon as practical. Local party chairpersons must also be notified of the RLA public meeting.

Additionally, at least one member of the electoral board representing each party must participate in, and be present for the duration of, the RLA. [13] In addition to electoral board members and the GR, meeting attendees may include:

- Clerk of Court
- Audit Board members;
- General public;
- Representatives from political parties;
- Candidates;

[11] *See* the Appendix for an example of the timeline for the November General Election.

[12] *See* Code of Virginia, § 2.2-3707. Meetings to be public; notice of meetings; recordings; minutes,

[13] *See* Code of Virginia §24.2-641.2, Risk-Limiting Audit

- Campaign staff; *and*,
- Local party chairs.

Localities should plan for at least one full day to conduct the RLA. As a best practice, it is recommended that the public meeting begins in the morning so the afternoon may be free if a second round of ballot retrieval is required. Since the sample is random, there is no way to predetermine the number of ballots a locality must retrieve.

3.4 Recruiting RLA Audit Review Boards

An *Audit Review Board* is a two-person team that retrieves specified ballots, records the results of the ballot, and inputs the results into the ballot software. GRs and/or the electoral board determine the audit board(s). Audit board members can be: staff, officers of election, electoral board members, GRs, or representatives from each party and/or candidates. Audit boards do not have to declare a party affiliation. As a best practice, it is recommended the audit board consist of one Democrat and one Republican to ensure balanced representation.

The number of *Audit Review Boards* is based on the number of ballot storage containers that must be opened and not on the number of ballots to be retrieved. The average numbers for both the ballot-polling and the batch-comparison method are provided below.

- Ballot-polling: On average, an audit board can pull 20-25 ballots per hour. If many ballot containers must be retrieved, this average decreases to about 15-20 ballots per hour.
- Batch-comparison: an audit board could audit about 510 ballots per hour. Auditing 100,000 ballots for one contest would take approximately 195 hours.[14]

Since localities retrieve random ballots when utilizing the ballot-polling method, it can take audit boards longer to locate the appropriate ballot in a stack of ballots, which results in fewer ballots being retrieved per hour. Whereas in the batch-comparison method, every ballot in a stack is counted in a precinct. While this may be quicker than locating random ballots, more ballots need to be reviewed using the batch-comparison method.

3.5 Reviewing Ballot Accounting and Storage Practices

When preparing for an RLA, it is a good time to review ballot accounting practices, which include ballot tracking, ballot reconciliation, and chain of custody forms and procedures. Ballot accounting forms the basis of a ballot manifest by providing the number of ballots in an envelope/box/container (ballot manifests are explained in greater detail for *ballot-polling* in section 4.3 Creating a Ballot Manifest and for *batch-comparison* in section 5.2.1 Creating a Ballot Manifest.) It is imperative that the ballots remain organized and clearly marked within

[14] *See* Pilot Implementation Study of Risk-Limiting Audit Method in the State of Rhode Island

the contents of the box. It is important to consider both methods when storing your ballots, having a strategic plan for organizing ballots can save a lot of time when conducting an RLA.

ELECT has designed a sample chain of custody form to document the control, transfer, and disposition of ballots during an RLA. Localities may choose to utilize this form or design their own to suit their specific needs. This sample form can be found in Forms Warehouse under the RLA section.

3.6 Suggested Supplies

While not required, the following is a list of helpful supplies for a successful RLA:

- Table and chairs for each audit board;
- Bright colored paper;
- Bright-colored removable labels;
- Tally sheets;
- Pens;
- Rubber fingers;
- Device to open containers;
- Materials to reseal containers, if necessary;
- Device with Wi-Fi/cellular to enter ballot tallies (laptop, smartphone, etc.); *and*,
- Printer.

4. The Ballot-Polling Method of the Risk-Limiting Audit

4.1 Overview

Once a locality is selected for an RLA or the electoral board has requested an RLA, it must do the following:

- Notify the public and participants identified in section 3.2 and 3.4 of this manual;
- Submit an ELECT 659-Request to Inspect Sealed Election Material form;
- Create and upload the ballot manifest; *and,*
- Gather supplies.

For the purpose of this manual, a batch is a documented set of ballots created by a voting system, an officer of election, or other election official.

4.2 Submitting an ELECT 659-Request to Inspect Sealed Election Material Form

Pursuant to Va. Code § 24.2-659, a locality must receive permission from the ELECT to unseal ballots cast on Election Day for a post-election audit. Localities are required to submit an *ELECT 659-Request to Inspect Sealed Election Material* form to obtain permission. The form is submitted to ELECT for signature authorization and then presented to the Clerk of the Circuit Court to access ballots from the election. This form may be found in Forms Warehouse under the RLA section.

4.3 Creating a Ballot Manifest

A *ballot manifest* is a two-column Excel spreadsheet created by localities that includes a list of the "Batch Name" (Column A) and the "Number of Ballots" (Column B).

	A	B
1	Batch Name	Number of Ballots
2	Precinct 1	301
3	Precinct 2	302

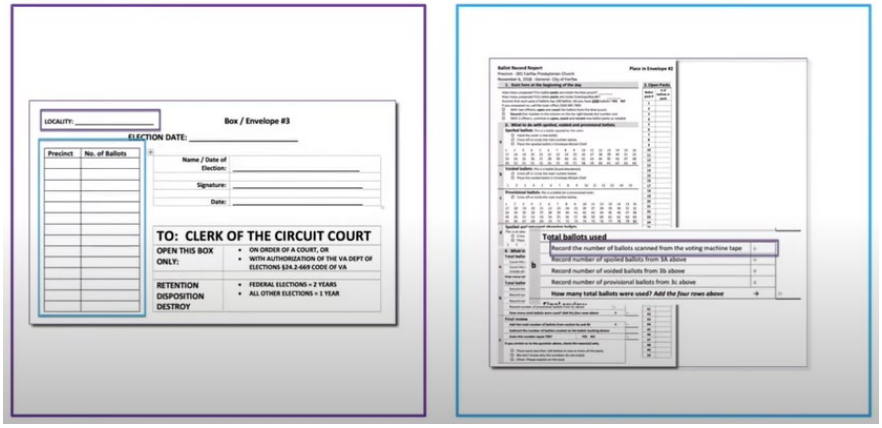
The ballot manifest creates an inventory of every ballot cast in a locality. Depending on the size of the locality, a ballot manifest should take one hour or less to complete. As a best practice, localities are encouraged to build their ballot manifest as they go. In order to select random ballots or batches, *all* participating localities must upload a ballot manifest before the audit can begin.

Note about Performing Both a Ballot-polling RLA and a Batch-comparison RLA
In the event that your locality has to perform *both* a ballot-polling RLA and a batch-comparison RLA, pay attention to the design of your ballot manifest for each method. While the ballot manifest for one may be used for the other, the batches listed in the ballot manifest ***must*** be the same as your precincts. For example, if 100 ballots were cast in Precinct 1, then Batch 1 would have 100 ballots. This is not only for consistency but also so that the candidate by batch file matches with the ballot manifest for a batch-comparison method RLA, discussed in 5.2.2 Creating a Candidate Total by Batch File. You may also choose to create two separate ballot manifests for each separate method for greater ease in locating ballots.

Batch information can be found on Ballot Record Reports or on Label #3. ELECT encourages localities to have discussions with their Clerk of Court prior to the election. During these conversations, localities should work with their Clerk of Court to discuss storage limitations, the location of the RLA, and chain of custody concerns.[15]

The number of ballots in each batch should be verified independent of the tabulator. The information to create a ballot manifest may be found in the following places:

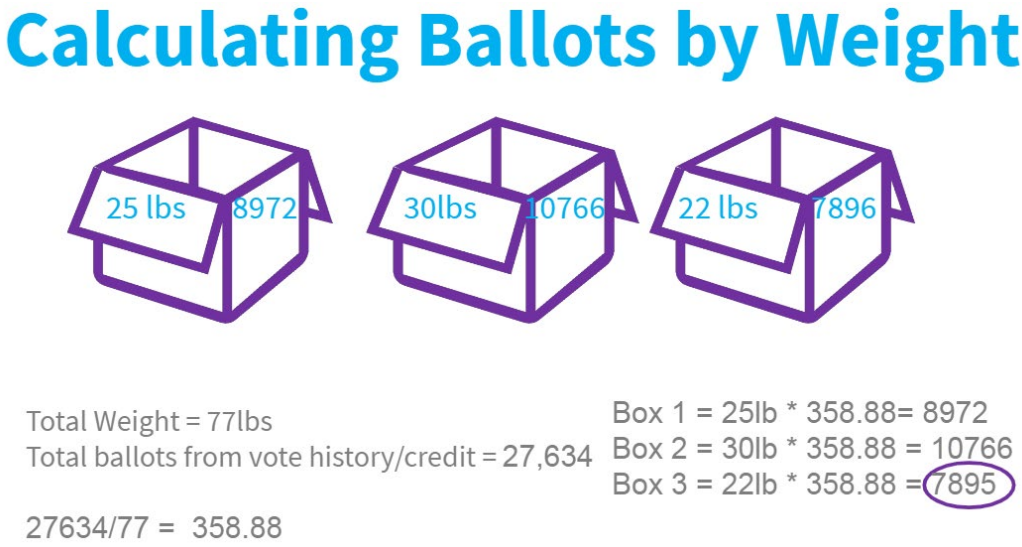
- Ballot Record Reports from precincts
- Inventory the ballot boxes at the Clerk of Court. Label #3 should contain the information needed.



- Electronic Pollbook Data
    - ***Reminder:*** Check Incident Reports or Officer of Election notes for occurrences of failing to check-in voters. This will allow the EPB number to be increased to the correct number.)

[15] *See* Democracy Fund, Knowing It's Right, Part Three, Planning and Conducting a Risk-Limiting Audit Pilot, Jennifer Morrell, June 2020.

- VERIS data from the Final Absentee Report
- Calculating the Number of Ballots in a container by weight.
    - If the number of ballots in a specific container is unknown, a locality can perform a simple equation to approximate the number of ballots in each box. To do this, each container box must be weighed. The weight of each box is added together. The total of this sum is then divided by the total number of ballots cast. The result of this equation is then multiplied by the weight of the corresponding box to get the number of ballots (see graphic.)



Helpful Tips and Reminders:

- All types of ballots are included (in-person, mail-in, provisional, etc.) in the manifest.
- Localities may label the "Batch Name" in any way that helps keep them organized (example: Precinct 101, Box 26, Container 8, etc.). Batch names are unique to each locality.
- Boxes/Containers/Envelopes that contain large amounts of ballots may be grouped into smaller units to ease the physical challenges of conducting the RLA, as long as it is reflected in the batch name (example of "batch names": Precinct 101 Unit 1; Box 26 Unit 2; Container 8 Unit 3 etc.).
- Keep the spreadsheet simple; avoid color coding and bold, so the ballot auditing software can read it.
- Run a quick equation in excel to check that all ballots have been accounted for in a locality. After performing this check, make sure to **delete** this sum before uploading the manifest into the RLA software.
- Build a ballot manifest as the ballots are being stored after an election in preparation for future RLAs.

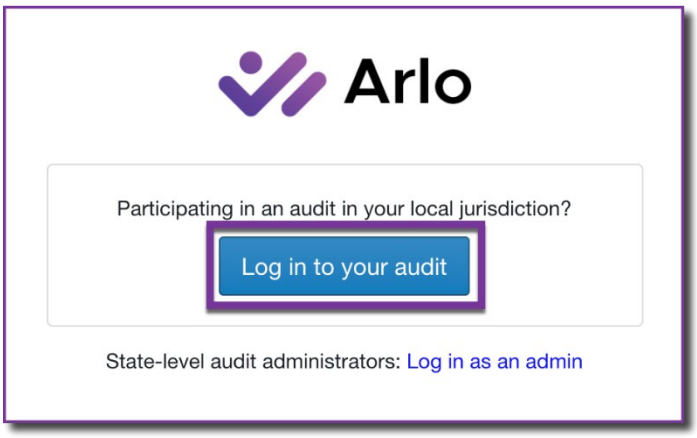
- ELECT staff is available to troubleshoot specific challenges and provide support.

4.4 Uploading a Ballot Manifest

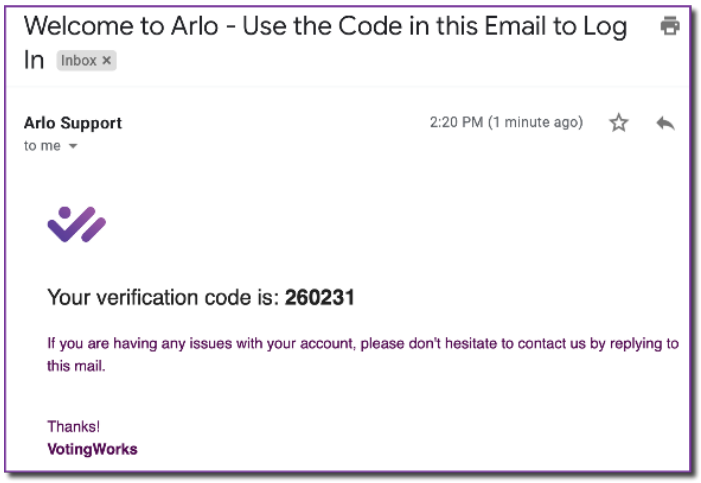
Once the ballot manifest is created, it is saved as a **.csv file (**CSV UTF-8, CSV (Macintosh) and CSV (MS-DOS) are all acceptable) and uploaded into the auditing software. The RLA software lets participants know if a mistake has been made when creating or uploading the manifest by generating an error message. Mistakes may include: empty rows, incorrect file formats (the manifest must be saved as a .csv file), or ballot totals in any rows or columns. All ballot manifests must be submitted by all participating localities to start the RLA.

Once the software receives all the ballot manifests, it will compile them into one large ballot list. This master list will be used to select random ballots across participating localities. Ballot manifests must be uploaded no later than the Thursday after the SBE's random draw. Once all ballot manifests are uploaded the RLA can begin. Detailed instructions, on how to upload a ballot manifest into the current auditing software, are listed below:

1. Using Google Chrome or Safari as your browser, go to this link: https://arlo.voting.works
2. Click Log in to your audit.



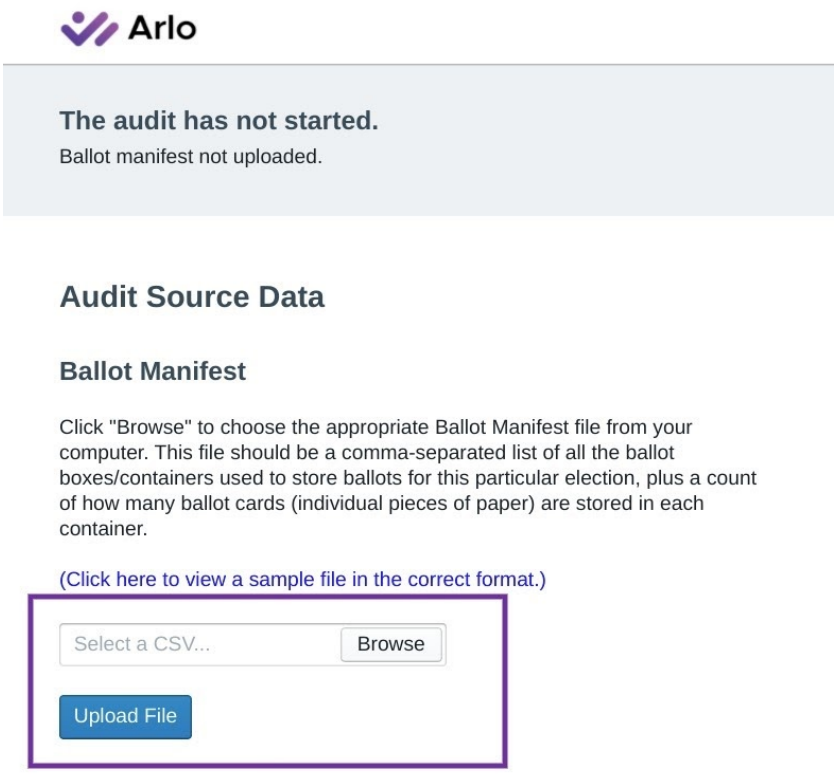
3. Enter your email address.
4. Check your email for a new email with the subject "Welcome to Arlo - Use the Code in this Email to Log In" - enter the verification code.



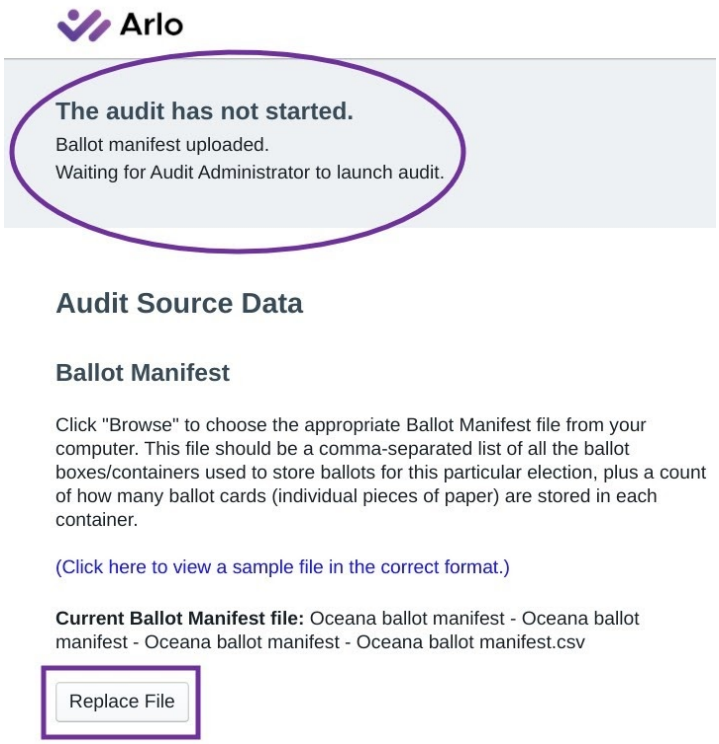
5. Click on the button with the locality name.



6. Click the Browse button and navigate to the ballot manifest .csv file that was created. Once selected, click Upload File.



7. When the upload is successful, a message will appear at the top of the screen that says “Ballot manifest uploaded.” If a mistake is found after a ballot manifest has been uploaded, participants have the option to log back in and use the **Replace File** button to update the file.



8. Once the steps for uploading your ballot manifest have been completed, log out before exiting the screen.

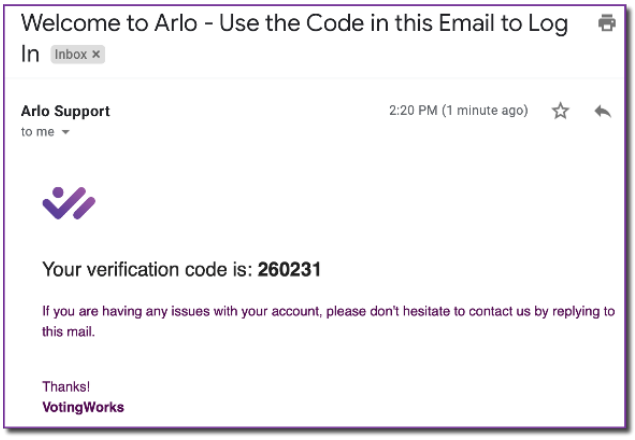
4.6 The Public Meeting

4.6.1 Ballot Retrieval Process

4.6.1.1 Log In to RLA Software

Once the list of ballots to be audited has been generated by the RLA software, participants will log into the RLA software to review the list of ballots they must retrieve to complete the RLA.

1. Using Google Chrome or Safari as your browser, go to this link: https://arlo.voting.works
2. Click Log in to your RLA.
3. Enter email address.
4. Check your email for a new email with the subject "Welcome to Arlo - Use the Code in this Email to Log In" - enter the verification code.

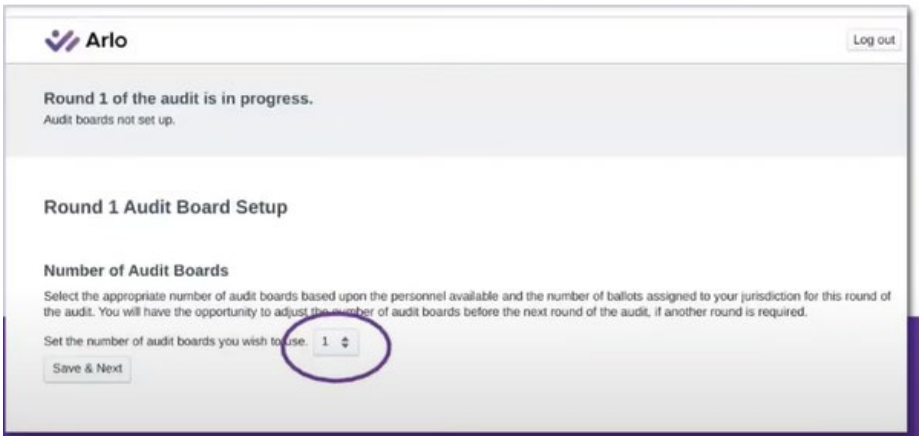


5. Click on the button with the locality name.



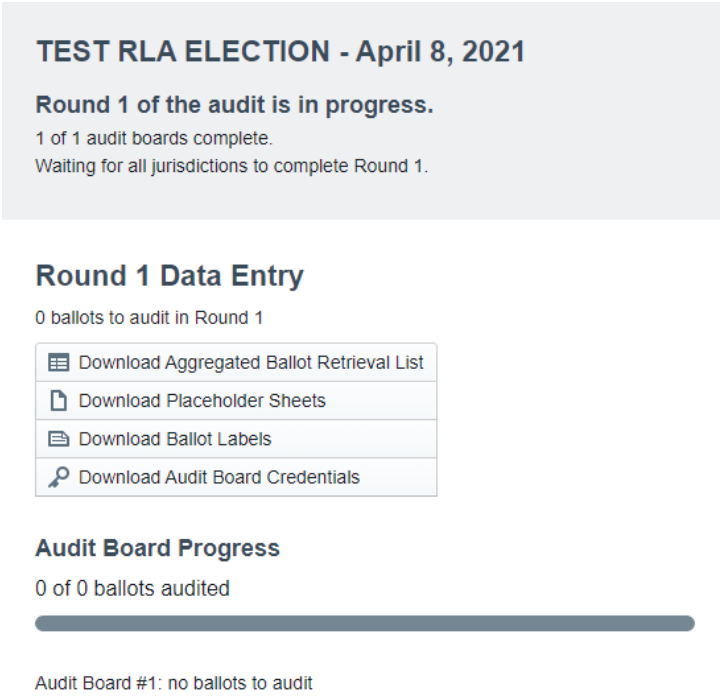
4.6.1.2 Audit Boards

The RLA software will ask how many audit boards will be participating in the RLA.



4.6.1.3 Download and Print

The RLA software will sort ballot retrieval lists, placeholder sheets, ballot labels, and audit board credentials for every audit board. Print each item for each audit board.



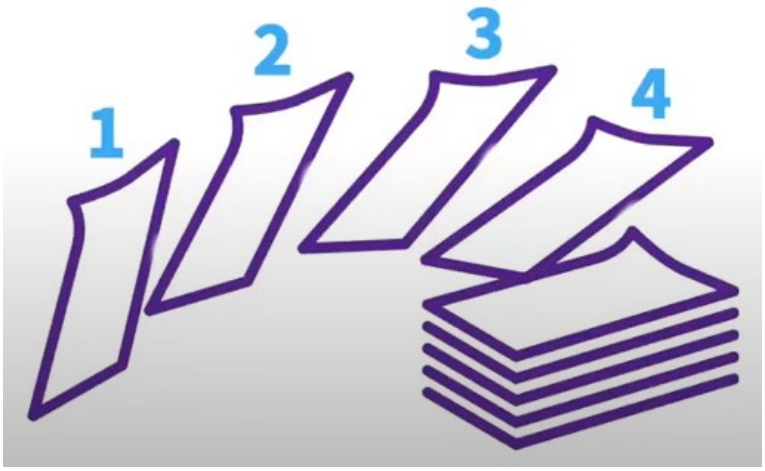
- **Ballot Retrieval List:** A ballot retrieval list is a list of ballots to be retrieved by a locality. The "Batch Name" will be the naming convention used in the ballot manifest. Since the selection is random, precincts may have multiple ballots to be retrieved and some precincts may have none.

	A	B
1	Batch Name	Ballot Number
2	Precinct 1	90
3	Precinct 2	2
4	Precinct 2	197
5	Precinct 4	27
6	Precinct 5	313
7	Precinct 5	578
8	Precinct 5	587

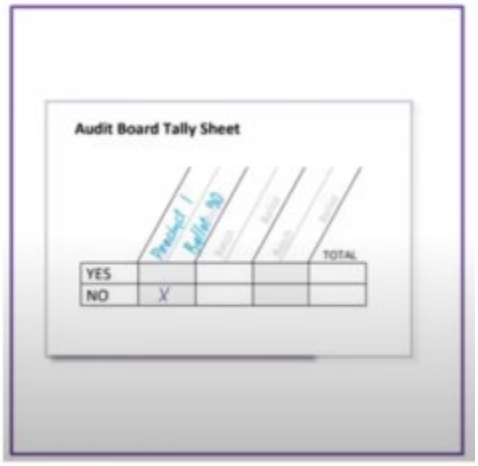
    - The ballot number reflects the numerical order of a specific ballot. To audit ballot number 90 in Precinct 1, for example, a member of the audit board must count from the top, each stored ballot until they reach the 90th ballot in the batch.
- **Placeholder sheets:** Placeholder sheets are individual sheets that contain each batch name and number (ex. Precinct 1, Ballot Number 90). They come in the form of a pdf and are printed on brightly colored paper. These sheets will be used to mark the place of the ballot that is being retrieved in the stack of ballots.
- **Ballot Labels:** Ballot Labels should be placed on ballots when retrieved. A bright-colored removable label is recommended but not required.
- **Audit Board Credentials for Data**: The RLA software will create a username and password for the audit board members. The link at the bottom of the audit board credentials or QR code will direct audit board members to the site to enter in the ballot totals.

4.6.2 Retrieving and Tallying Ballots

1. Review the list of ballots and retrieve the necessary containers.
2. Perform any change of custody that may be required by the Clerk of Court. The chain of custody needs to be documented. ELECT has a sample form that may be used to document the chain of custody, or a locality may design their own form.
3. Remove ballots from the box and place them in a neat stack.
4. Review the *Ballot Retrieval List* to determine what ballot to select.
5. Starting at the top of the stack, count ballots until the desired ballot is reached.



6. Once the ballot needed to be retrieved is reached, pull it out of the stack and insert the placeholder sheet in the stack to mark its position. Place the removable label on the ballot. The placeholder sheets and ballot labels are generated by the RLA software.
7. Once all ballots have been pulled from the containers, the audit board will use the procedures established by ELECT for conducting hand counts of ballots.[16] These procedures are outlined in Forms Warehouse under Election Management, Election Day Instruction and Forms, *Hand Counting-Ballots-Examples*. Include the batch name, ballot number, and the vote on the tally sheet. ELECT has sample tally sheets available for use during an RLA, but a locality may choose to create their own.



8. Localities may return ballot(s) to the appropriate container(s) or keep all the ballots from the RLA in a designated envelope/container.

[16] *See* ELECT, Commonwealth of Virginia, Ballot Examples, Hand Counting Printed Ballots for Virginia Elections or Recounts

9. The containers should be resealed and returned to the Clerk of the Circuit Courts following the Chain of Custody procedures.

4.6.2.1 Alternative Methods to "Counting Down the Stack"

If a locality has a batch that is too large to locate a single ballot efficiently by counting down the stack of ballots, the locality may perform the **K-Cut Method** to locate the ballot or utilize a **Commercial Scale.** The methods are explained in more detail below:

K-Cut Method

To make a k-cut of a given stack of ballots:

- Cut the stack into two parts at *random*, designated a "top" part and a "bottom" part.
- Switch the order of the parts by moving the "bottom" part to the top and the "top" part to the bottom.
- The two parts are placed together.
- Cut the stack at least five times.
- The ballot at the top of the new stack is selected.[17]

A locality must perform a k-cut five times before selecting the top ballot. A random number must be used to dictate the percentage of the cut. One way to randomize the percentage of the cut is to utilize a random number generator set to 1-100.[18] The number generated then becomes the percentage of the cut (*example* 23=23% of the stack is moved to the bottom.) After performing the cut five times the top ballot becomes the retrieved ballot.

Commercial Scale

Localities may utilize a commercial scale to locate a ballot. Using a ballot scale is highly accurate, saves time, and places less stress on a locality's audit board. By calculating the average weight of the ballots, a scale can easily identify the corresponding ballot in a ballot retrieval list.[19]

Helpful Tips and Reminders:

- ELECT has a limited number of counting scales to loan. Localities may send an email to their Elections and Registration Specialist to request the use of a scale.
- ELECT has sample Chain of Custody forms and Tally Sheets available for use in Forms Warehouse.

[17] *See* k-Cut: A Simple Approximately-Uniform Method for Sampling Ballots in Post-Election Audits, Mayuri Sridhar and Ronald L. Rivest, Massachusetts Institute of Technology

[18] *See* Sample Random Number Generator

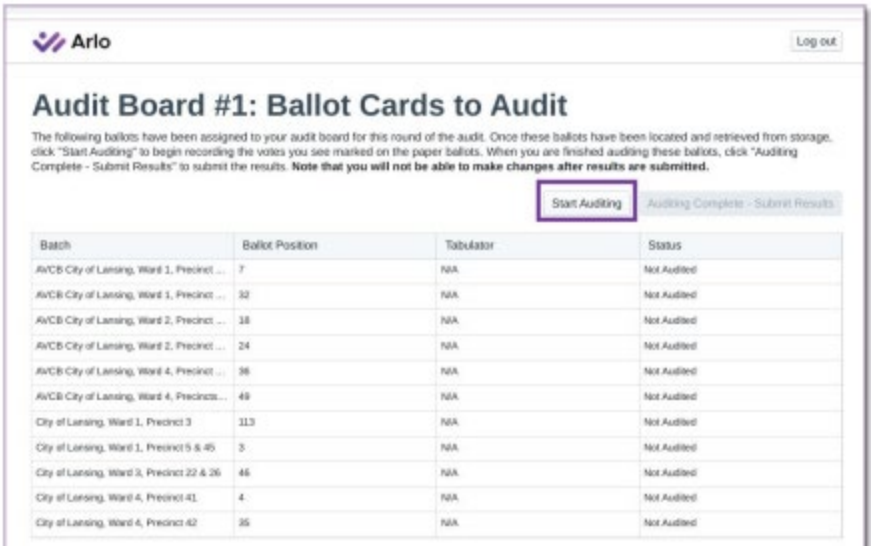
[19] *See* Weight, Weight, Don't Tell Me: Using Scales to Select Ballots for Auditing, Cynthia Sturton, Eric Recorla, and David Wanger, University California Berkeley

4.7 Ballot Entry into the RLA Software

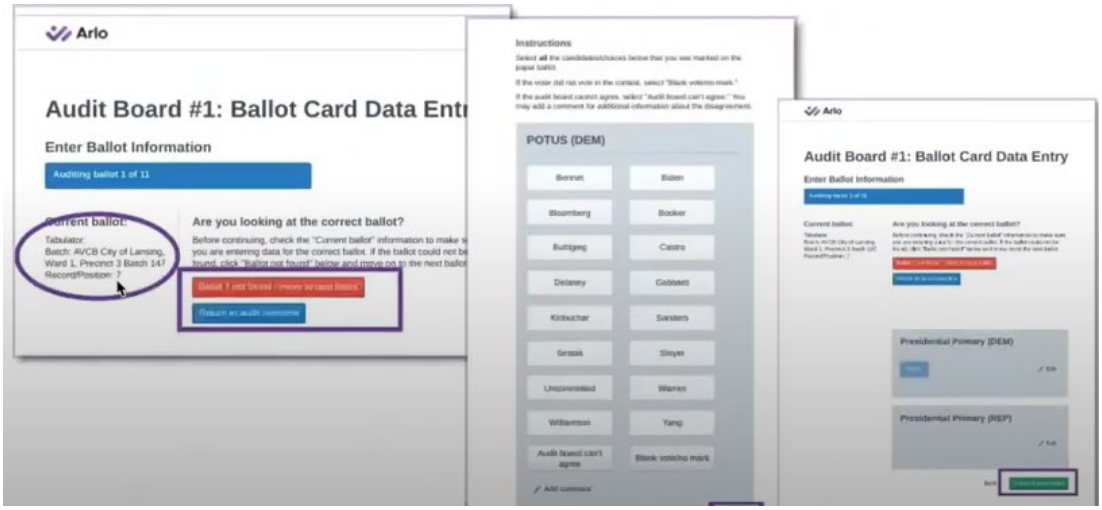
The link and/or QR code found at the bottom of the audit board credentials will take audit board members to the data entry portal to input the results of the RLA. A device with a Wi-Fi connection is needed to record the paper tally sheet. This may include a laptop or a smartphone. If using a smartphone, scan the QR code or type in the URL into the web browser.



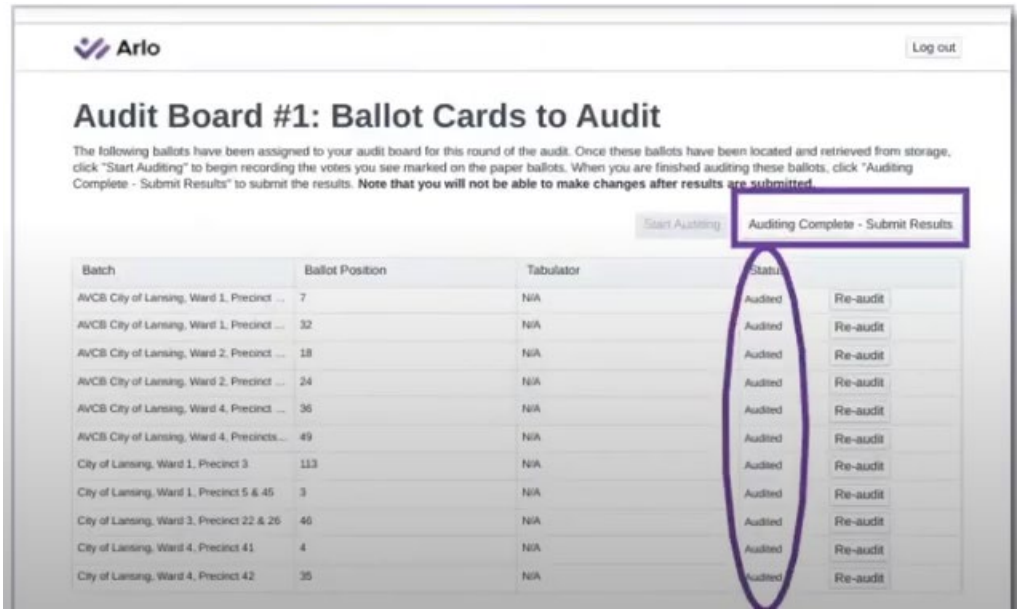
1. The audit board members will be prompted to sign in. The audit board will see the list of ballots. Audit board members will "key in" results from the list of ballots. If a locality has 22 ballots to retrieve, there will be 22 separate fields to record each ballot. ELECT recommends both audit board members participate with one audit board member reading the results and one audit board member entering the results. Audit board members must **both** agree on the results of each ballot.
2. Click the **Start Auditing** button to begin.



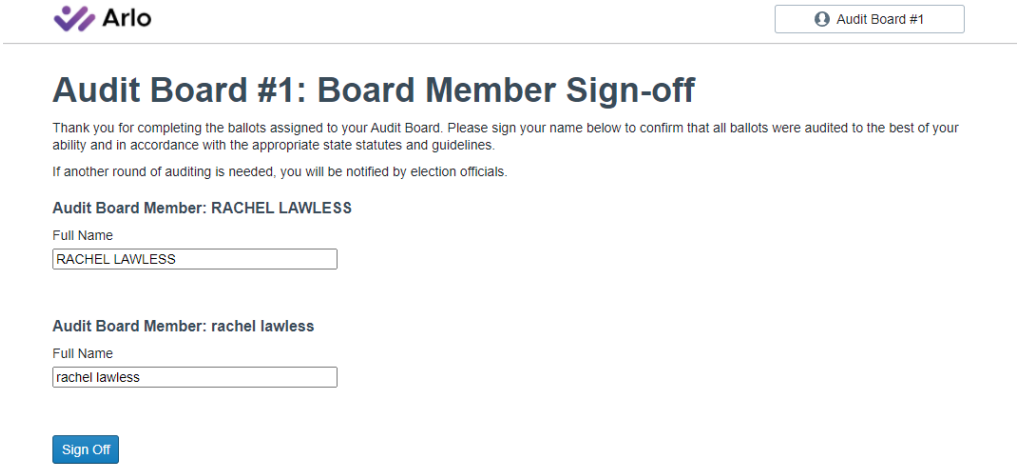
3. Go through the ballots in order.
4. Select the candidate marked on the ballot, both audit board members need to agree with the results. Click Review. Verify accuracy before clicking Submit & Next Ballot button.



5. When all ballots have been inputted, audit boards should return to the audit overview screen to verify every ballot has been entered into the audit software. Once everything has been verified, click the **"Auditing Complete-Submit Results**" button.



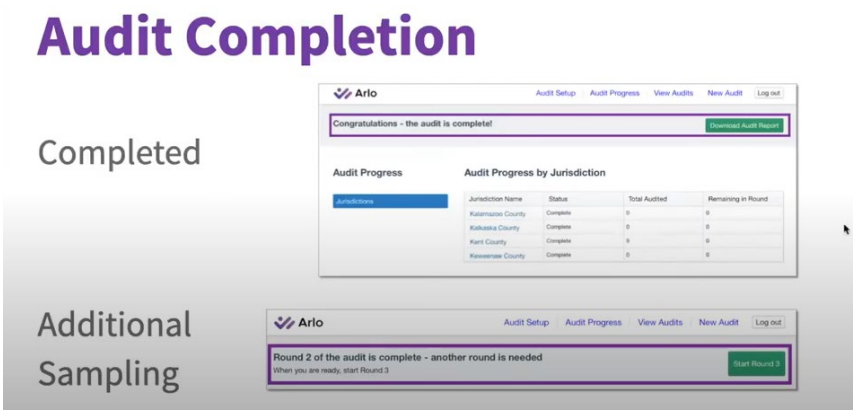
6. Audit board members will sign off. Names must be keyed in exactly how the audit board member signed in. For example, if the caps lock was on when the audit board member signed in, then the caps lock must be on when the audit board member signs out.



4.8 Completion of the Ballot-Polling RLA

When all audit boards have completed their ballot entry and the risk limit has been met, the *Audit Progress* screen will display the message "Congratulations - the audit is complete!"

If the risk limit was not met after all the ballots have been audited for the contest, the audit software will initiate another round of sampling. A new ballot retrieval list, placeholders, labels, and audit board credentials will be generated for an additional round of ballot retrieval. If more than one locality is auditing for the same office, both localities must complete before the software will determine the need for the second round and subsequently generate the new retrieval list(s).



Pursuant to § 24.2-671.2 (I), if an RLA of a contested race escalates to a full hand count, the results of the hand count shall be used to certify the election in lieu of the tabulation of the unofficial results obtained prior to the conduct of the RLA.[20] After a certain number of rounds of RLA and the risk limit has yet to be met, Arlo will indicate that a full hand count is required if it finds the sample size needed is the same as the actual amount of ballots.

[20] *See* Code of Virginia, §24.2-671.2 Risk-Limiting Audits

5. The Batch-comparison Method of the Risk-Limiting Audit

Once a locality has been approved for a batch-comparison RLA, it must do the following:

- Notify the public and participants identified in section 3.2 and 3.4 of this manual;
- Submit an ELECT 659-Request to Inspect Sealed Election Material form;
- Create and upload the ballot manifest as described in section 5.2.1;
- Create and upload the candidate totals by batch file as described 5.2.2; and,
- Gather Supplies for the RLA

5.1 Submitting an ELECT 659-Request to Inspect Sealed Election Material Form

Pursuant to Va. Code § 24.2-659, a locality must receive permission from the ELECT to unseal ballots cast on Election Day for a post-election audit. Localities are required to submit an *ELECT 659-Request to Inspect Sealed Election Material* form to obtain permission. Once submitted, the form is sent to ELECT for signature authorization and then presented to the Clerk of the Circuit Court to access ballots from the election. This form may be found in Forms Warehouse under the RLA section.

5.2 Create the RLA Documents

For a batch-comparison RLA, Arlo requires two documents, a *Ballot Manifest* and a *Candidate Totals by Batch* file. Both documents are discussed below. For the purpose of this manual, a batch is a documented set of ballots created by a voting system, an officer of election, or other election official. In Virginia, a batch is the equivalent of a precinct when utilizing the batch-comparison RLA Method.

5.2.1 Creating a Ballot Manifest

The ballot manifest is an inventory of every ballot cast in a locality for a particular race. A ballot manifest is a two-column Excel spreadsheet created by localities that includes a list of the “Batch Name” (Column A) and the “Number of Ballots” (Column B). Unlike in a ballot-polling ballot manifest, the batches listed in the ballot manifest for a batch comparison audit must be the size of your precincts. For example, if precinct 1 had 100 ballots cast then precinct 1 would be entered under Column A and 100 would be entered under Column B (*see below).*

	A	B
1	Batch Name	Number of Ballots
2	Precinct 1	301
3	Precinct 2	302

Note about Performing Both a Ballot-polling RLA and a Batch-comparison RLA
In the event that your locality has to perform both a ballot-polling RLA and a batch-comparison RLA, the ballot manifest for one may be used for the other. However, in this event, the batches listed in the ballot manifest ***must*** be the same as your precincts. For example, if 100 ballots were cast in Precinct 1, then Batch 1 would have 100 ballots. This is not only for consistency but also so that the candidate by batch file matches with the ballot manifest for a batch-comparison method RLA, discussed in 5.2.2 Creating a Candidate Totals by Batch File. You may also choose to create two separate ballot manifests for each separate method for greater ease in locating ballots.

5.2.2 Creating a Candidate Totals by Batch File

Unlike a ballot-polling method RLA, a batch-comparison RLA needs the amount of ballots cast for each candidate from each batch. Due to various voting systems capabilities and for the purposes of uniformity across the Commonwealth, the size of a batch must be the size of a precinct as that is the only way to get the total number of ballots cast for any candidate. The total number of ballots cast for any candidate must, then, be placed into a spreadsheet called the *Candidate Totals by Batch File*, which outlines each batch of ballots and how many ballots were cast for each candidate in a particular batch.

To create a *Candidate Totals by Batch File*, open a spreadsheet program to create a simple spreadsheet.

- Column A labeled “Batch Name” is for your batch name. The batch names in column A must match the batch names in your ballot manifest.
- Additional columns should be labeled with the names of the candidates. You should use the names on the ballot. Write-ins may be lumped together unless they have reached the threshold for a write-in certification.

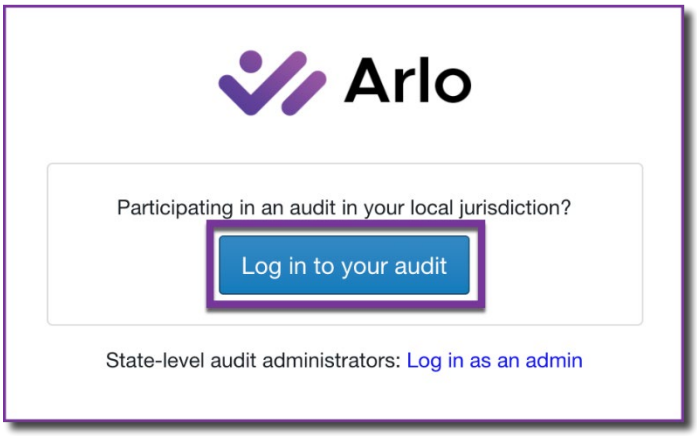
	A	B	C	D
1	Batch Name	John Doe	Jane Smith	Write-in
2	Precinct 1	100	200	1
3	Precinct 2	200	100	2

Enter the data for your locality from your statements of results. When you're finished, review the spreadsheet to ensure the total number of batches matches the number of batches in your ballot manifest and that the candidate totals are correct. Then, save the file as a .csv file.

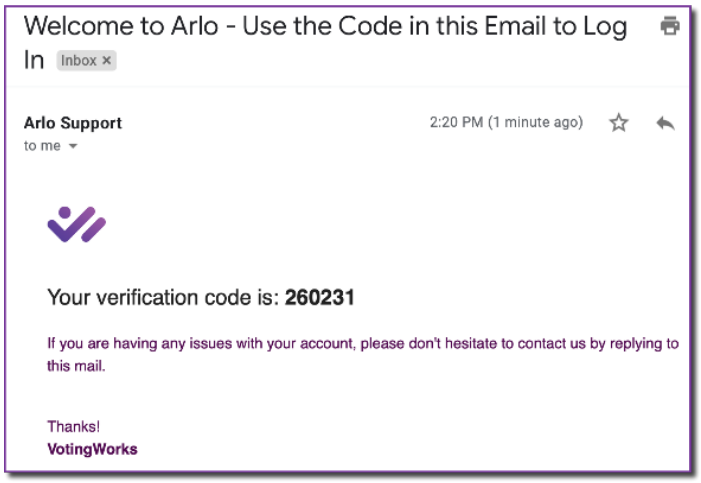
5.3 Uploading the Ballot Manifest and Candidate Totals by Batch files

Once the ballot manifest and the candidate totals by batch files are created, participants will save the ballot manifest and candidate totals by batch files as .**csv files (**CSV UTF-8, CSV (Macintosh) or CSV (MS-DOS) are all acceptable) and upload the spreadsheets into the auditing software. The RLA software will let participants know if a mistake has been made when creating or uploading the files by generating an error message. Mistakes can include: empty rows, incorrect file formats (the manifest must be saved as a .csv file), or ballot totals in any rows or columns. The ballot manifest and the candidate total by batch files must be uploaded no later than the Thursday after the SBE's random draw. Once the files are uploaded the RLA can begin. Detailed instructions, on how to upload a ballot manifest and the candidate totals by batch into the current auditing software, are listed below:

1. Using Google Chrome or Safari as your browser, go to this link: https://arlo.voting.works
2. Click Log in to your audit.



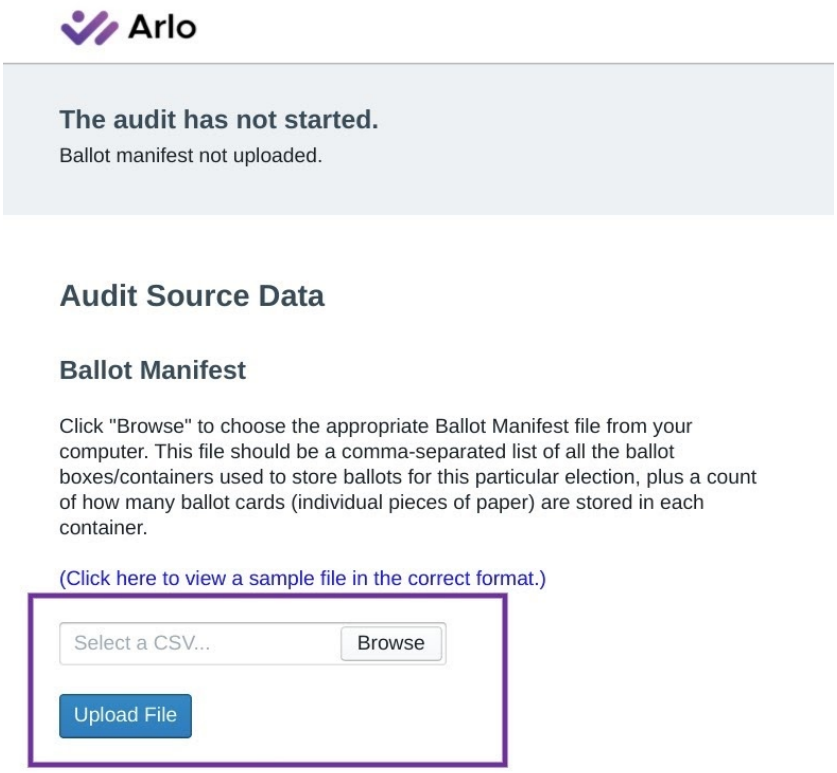
3. Enter email address.
4. Check your email for a new email with the subject "Welcome to Arlo - Use the Code in this Email to Log In" - enter the verification code.



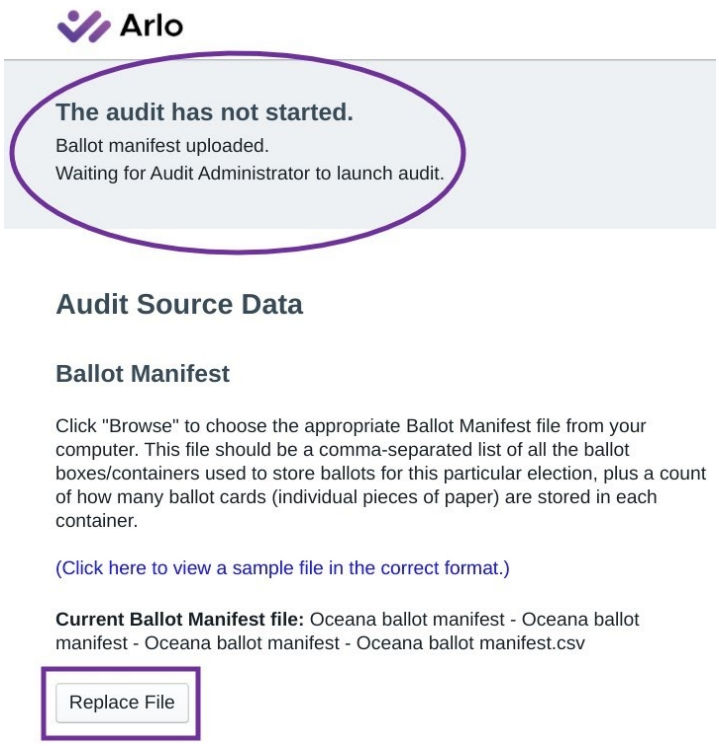
5. Click on the button with the locality name.



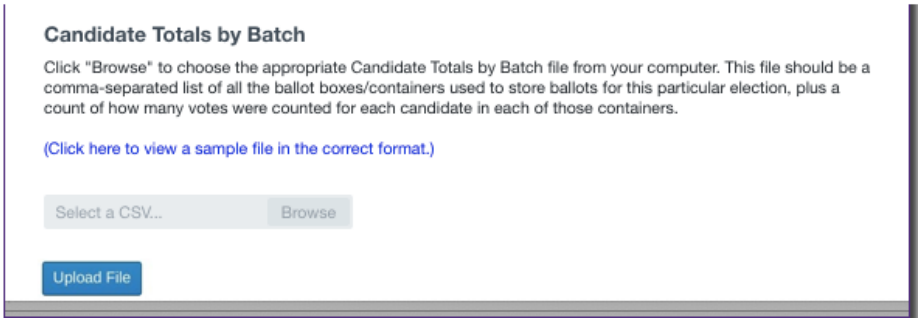
6. Click the Browse button and navigate to the ballot manifest .csv file that was created. Once selected, click Upload File.



7. When the upload is successful, a message will appear at the top of the screen that says “Ballot manifest uploaded.” If a mistake is found after a ballot manifest has been uploaded, participants have the option to log back in and use the **Replace File** button to update the file.



7. Next, a prompt will appear below the Ballot Manifest section to upload the Candidate Totals by Batch. click the Browse button to navigate to the candidate totals by batch .csv file. Once selected, click the Upload File button. Remember, the batch names in the Candidate Totals by Batch file must match the batch names in the ballot manifest and the totals listed in the Candidate Totals by Batch match your statements of results.



5.4 Retrieving and Tallying

After the audit begins, the locality will receive a batch retrieval list. To retrieve batches, refer to your batch retrieval list to determine what batches are needed. Each batch retrieval list will show the batch name and the audit board selected to tally the batch.

	A	B
1	Batch Name	Audit Board
2	Precinct 1	Audit Board 1
3	Precinct 2	Audit Board 2

- Retrieve the correct container(s) using the required chain of custody verification steps.
- Pull the entire batch of ballots out of the storage container and organize it into a neat stack of ballots. If the container contains more than 1000 ballots, ballots should be removed from the container and sorted in manageable stacks, leaving the rest of the ballots in the container until the previous stack is tallied.[21]

5.4.1 Methods for Retrieving Ballots

There are two methods for retrieving and tallying during a batch-comparison RLA. For larger batches, multiple audit review boards may be assigned. Audit review boards should be encouraged to prioritize accuracy over speed; it is better to have the correct count the first time and it take more time than to have to redo the count.

The Sort-and-Stack Method[22]

a. For each ballot: one audit board member picks up a single ballot from the stack and reads the vote for the contest being audited aloud, then hands the ballot to the second audit board member.
    i. The second audit board member verifies the vote that is on the ballot is indeed what the first audit board member read, then places the ballot in the "stack" that corresponds to the vote.
    ii. The first audit board member should watch to make sure the ballot is placed in the correct stack.
    iii. A stack should be created for each contest choice (including write-in), overvoted/blank/undervoted ballots, duplicated ballots, and ballots where the audit board cannot agree on the voter's intent.
b. Count the ballots in each stack by having one member of the audit board verbally count the ballot while handing it to the other member for verification.
    i. Count the ballots in groups of 10, stacking the groups at right angles to each other, so you can easily count the complete groups when you are

[21] *See* VotingWorks, Batch Retrieval & Tally
[22] *Id.*

done. For instance, if you have seven groups of 10 ballots each plus an extra 3 ballots, the total tally would be 73.

ii. Record the total tally for each candidate on the Audit Board Batch Tally Sheet.

The Hashmarking Method[23]

a. Prepare a Tally Sheet

iii. For this method, a tally sheet should be prepared. The tally sheet should:

1. be organized in the same order as the ballot.
2. list each contest and associated choices (including write-ins when applicable) to be audited.
3. include a space for overvotes and blank/undervotes for each contest.
4. have space for tally marks after each choice.

b. Tally the Votes: One audit board member reads the choice for the first contest being audited to the second audit board member who makes a tally mark on the tally sheet. Repeat for all contests being audited. Ideally, a third audit board member should observe the ballot marks and tally sheet tallies.

i. Completing this process in groups of 20, 50, 100, or some other set number allows for verification checks throughout the process. Once the set number is completed, add up the tally marks to ensure the same number was tallied for each contest.

c. Complete Audit Board Batch Tally Sheet: When all ballots are tallied, total the tally marks and complete the Audit Board Batch Tally Sheet.

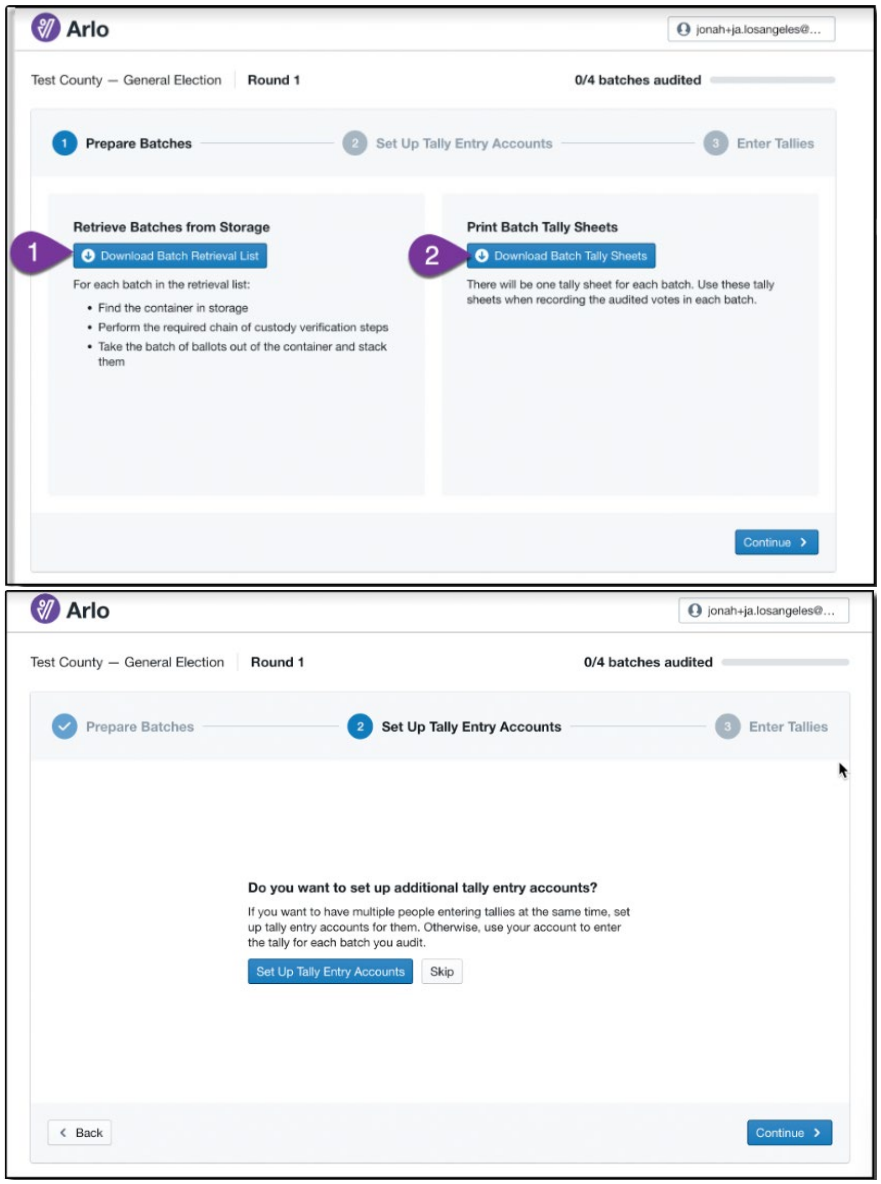
5.5 Batch Tally Entry into Arlo

All tallies from the batches selected must be uploaded into Arlo; the audit will remain open until all tallies have been uploaded. Tallies can be entered by audit boards, a specified member of the staff, an electoral board member, or the GR.

To create tally entry accounts for audit boards or for a specified individual, select Set Up Tally Entry Accounts on the Set Up Tally Entry Accounts screen. If only one designated participant will be entering tallies, select Skip.[24]

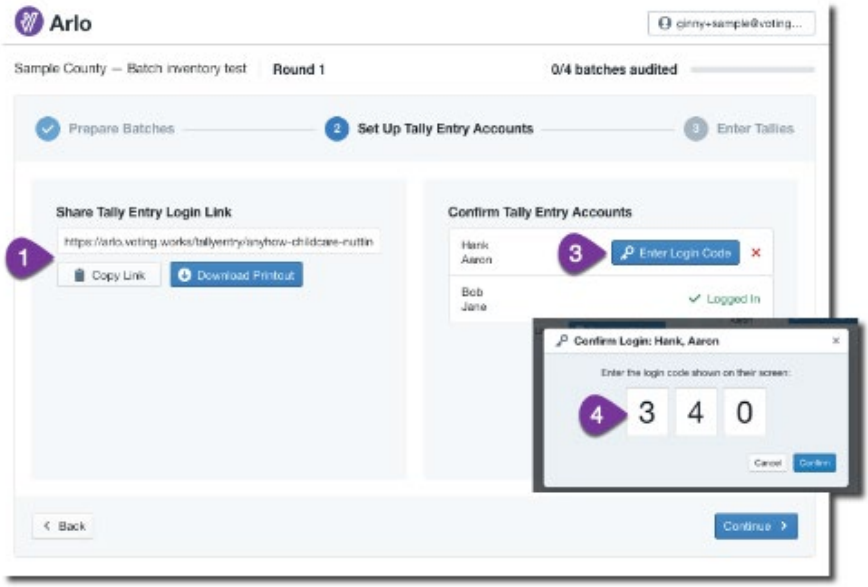
[23] *Id.*

[24] *See* VotingWorks, Batch Tally Entry into Arlo, Voting Works

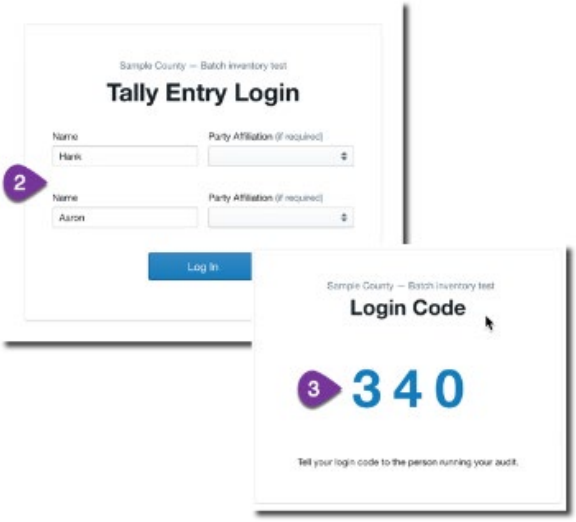


A designated participant should provide the audit boards or the specified individual with the login link displayed on the screen (each link is unique). Then, the audit board or specified individual should Log In by entering their name(s) and party affiliation, if provided. A login code will be provided, the participants enter that code to authenticate the Tally Entry User(s) by selecting Enter Login Code, entering the code, and selecting Confirm to complete the login process.[25]

[25] *Id.*



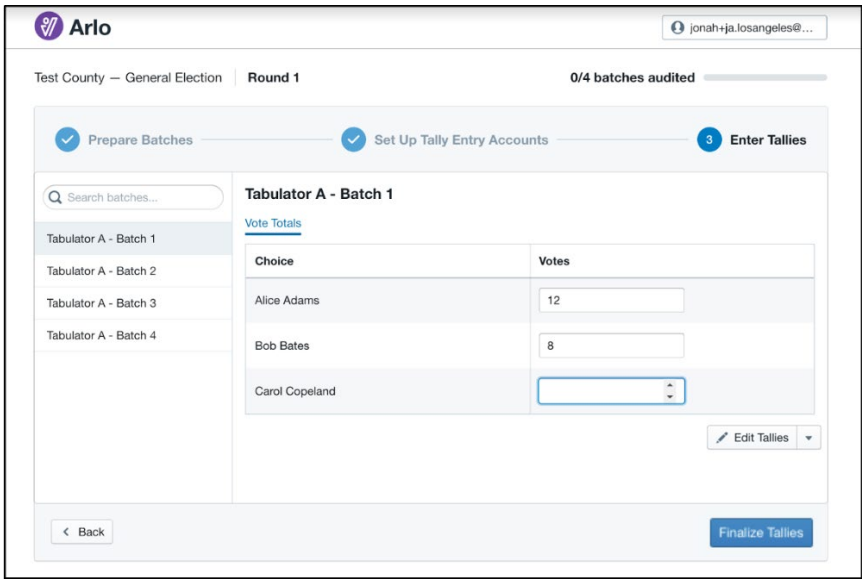
Jurisdiction Manager



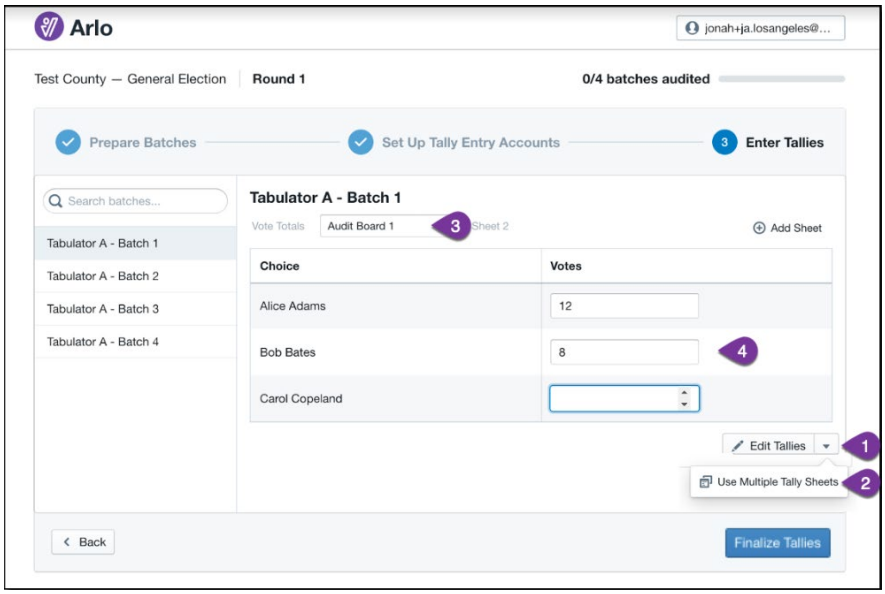
Tally Entry User

To enter the candidate totals for a batch, select the batch from the list on the left-hand side of the Enter Tallies screen or use the search batches function, and, then, click Edit Tallies, enter the vote totals from the Batch Tally Sheet, and select Save Results.[26] Once all batches have been entered and reviewed, a designated participant can select Finalize Tallies.[27]

[26] *Id.*
[27] *Id.*



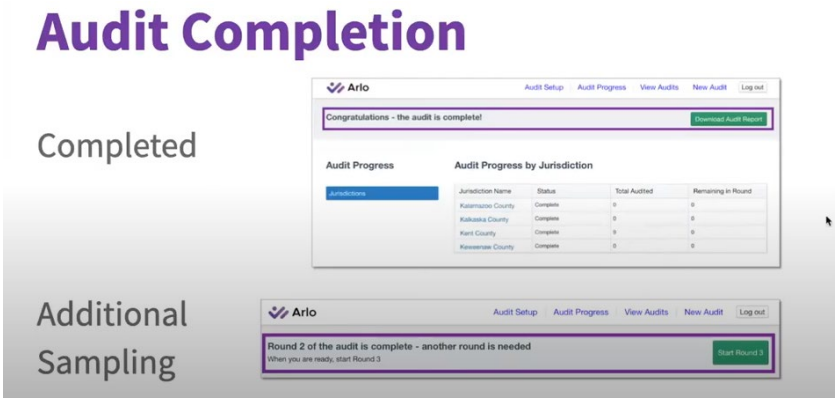
If multiple Audit Board Batch Tally Sheets were used to tally a batch, select the drop-down next to Edit Tallies and select Use Multiple Tally Sheets to enter more than one tally sheet. The individual who enters the tally sheet should edit the name at the top to identify who completed the entry of the Batch Tally Sheet; this helps keep a chain of custody for the data entered. Next, enter the votes, and select Save Sheet (the Edit Tallies button changes to Save Sheet after selection).[28] Select Sheet 2 to add another Batch Tally Sheet, and Select +Add Sheet to add another Tally Sheet as needed.[29] The Vote Totals tab is the sum of votes for all sheets entered.[30]



[28] *Id.*
[29] *Id.*
[30] *Id.*

5.6 Completion of a Batch-comparison RLA

When all audit boards have completed their tally entry and the risk limit has been met, the *Audit Progress* screen will display the message "Congratulations - the audit is complete!"
If the risk limit was not met after all the batches have been audited for the contest, the audit software will initiate another round of sampling. A new batch retrieval list, placeholders, labels, and audit board credentials will be generated for an additional round of batch retrieval.



Pursuant to § 24.2-671.2 (I), if an RLA of a contested race escalates to a full hand count, the results of the hand count shall be used to certify the election in lieu of the tabulation of the unofficial results obtained prior to the conduct of the RLA.[31] After a certain number of rounds of RLA and the risk limit has yet to be met, Arlo will indicate that a full hand count is required if it finds the sample size needed is the same as the actual amount of ballots.

6. Results

At the conclusion of the RLA, ELECT will submit a report to the SBE on the findings of the RLA. If your locality is participating in an RLA and would like to provide feedback to be included in the report, contact your RLA Administrator from ELECT with your findings. The report will include the results of the RLA as well as an analysis of any detected discrepancies. ELECT has also created a sample press release template that localities may utilize. This press release is found in the RLA section in Forms Warehouse.

[31] *See* Code of Virginia, §24.2-671.2 Risk-Limiting Audits

7. APPENDIX

7.1 Code

7.1.1 § 24.2-671.2. Risk Limiting Audits

A. For the purposes of this section:

"Contested race" means an election for an office where more names appear on the ballot then there are vacancies to be filled or a statewide referendum or proposed constitutional amendment.

"Risk limit" means the largest probability that the Risk Limiting Audit will fail to correct an election outcome that differs from the outcome that would be found by a full manual tabulation of the votes on all ballots cast in the contested race.

"Risk Limiting Audit" means an audit protocol conducted after an election and prior to the certification of the election results with a pre-specified minimum probability of requiring a full hand count of votes cast if the outcome reported by the voting system differs from the outcome that would be found by a full hand count of the votes in a contested race. A "Risk Limiting Audit" requires a hand count of randomly sampled printed ballots that continues until there is either strong statistical evidence that the reported outcome is accurate or, in the absence of such evidence, a full hand count of all ballots cast in the contested race that determines the outcome.

B. Risk Limiting Audits conducted pursuant to this section shall be performed by the local electoral boards and general registrars under the supervision of the Department and in accordance with the procedures prescribed by the State Board, including:

1. Processes for randomly selecting contested races and determining the risk limit.

2. Procedures for preparing for a Risk Limiting Audit, including guidelines for organizing ballots, selecting venues, and securing appropriate materials by local electoral boards and general registrars.

3. Procedures for ballot custody, accounting, security, and written record retention that ensure that the collection of cast ballots from which samples are drawn is complete and accurate throughout the audit.

4. Procedures for hand counting of the audited ballots.

5. Processes and methods for conducting the Risk Limiting Audit.

6. Procedures for ensuring transparency and understanding of the process by participants and the public, including guidelines for direct observation by members of the public, representatives of the candidates involved in the Risk Limiting Audit, and representatives of the political parties.

C. The Department shall provide that the following Risk Limiting Audits be conducted:

1. In the year of a general election for members of the United States House of Representatives, a Risk Limiting Audit of at least one randomly selected contested race for such office;

2. (Effective July 1, 2023) In the year of a general election for members of the General Assembly, a Risk Limiting Audit of at least one randomly selected contested race for such office;

3. (Effective July 1, 2024) In any year in which there is not a general election for a statewide office, a Risk Limiting Audit of at least one randomly selected contested race for a local office, including constitutional offices, for which certification by the State Board is required under § 24.2-680; and,

4. (Effective July 1, 2023) In any year, any other Risk Limiting Audit of a contested race that is necessary to ensure that each locality participates in a Risk Limiting Audit of an office within its jurisdiction at least once every five years or that the State Board finds appropriate. Such audits must be approved by at least a two-thirds majority vote of all members of the Board.

D. A local electoral board may request that the State Board approve the conduct of a Risk Limiting Audit for a contested race within the local electoral board's jurisdiction. The state board shall promulgate regulations for submitting such requests. The State Board shall grant an extension of the local electoral board's certification deadline under § 24.2-671 as necessary to accommodate the conduct of a Risk Limiting Audit conducted pursuant to this subsection. The Department may count a Risk Limiting Audit conducted pursuant to this subsection toward the requirement in subdivision C 4.

E. Notwithstanding the provisions of subsections C and D, no contested race shall be selected to receive a Risk Limiting Audit if the tabulation of the unofficial result for the contested race shows a difference of not more than one percent of the total vote cast for the top two candidates.

F. Upon the tabulation of the unofficial results of an election, the State Board shall determine, in accordance with subsection C, all the contested races for that election that will receive a Risk Limiting Audit and shall set the risk limit to be applied in such audits. As soon as practicable after selection of the contests to be audited, the Department shall publish a notice of the contested races in accordance with the requirements for public meetings in § 2.2-3707. The Department shall provide support to local electoral boards and general registrars in preparing to hold the Risk Limiting Audits.

G. The local electoral board and general registrar shall conduct a Risk Limiting Audit within their jurisdiction at the date, time, and location noticed by the Department. At least one member of the EB representing each party shall participate in the Risk Limiting Audit and be present for the duration of the Risk Limiting Audit when ballots are being selected and counted and calculations are being made. All Risk Limiting Audits shall be conducted in a place and manner that is open to the public. At the conclusion of a Risk Limiting Audit, all audit materials, including ballots and any records generated during the course of the audit, shall be delivered to the clerk of the circuit court and retained as election materials pursuant to § 24.2-668.

H. The local electoral board in coordination with the general registrar shall promptly report the results of a Risk Limiting Audit of any contested races subject to § 24.2-680 in their jurisdiction to the Department. The results of any Risk Limiting Audit for a local contested race shall also be retained by the local electoral board. At the conclusion of each Risk Limiting Audit requiring certification by the State Board, the Department shall submit to the State Board a report, which shall include all data generated by the Risk Limiting Audit and all information required to confirm that the Risk Limiting Audit was conducted in accordance with the procedures adopted by the State Board. The Department shall publish the results of all Risk Limiting Audits pursuant to this section on the Department's website.

I. If a Risk Limiting Audit of a contested race escalates to a full hand count, the results of the hand count shall be used to certify the election in lieu of the tabulation of the unofficial results obtained prior to the conduct of the Risk Limiting Audit. A full hand count conducted pursuant to this section shall not be construed as a recount under Chapter 8 (§ 24.2-800 et seq.). Nothing in this section shall be construed to limit the rights of a candidate under Chapter 8.
2022, cc. 443, 444.

7.1.2 § 24.2-669. Clerk to keep ballots; inspection; destruction.

The clerk to whom the counted and uncounted ballots are delivered shall, without breaking the seal, deposit them in a secure place in his office, where they shall be kept for the time required by this section. He shall not allow the ballots to be inspected except (i) by an authorized representative of the State Board or by the electoral board at the direction of the State Board to ensure the accuracy of the returns or the purity of the election, (ii) by the officers of election, and then only at the direction of the electoral board in accordance with § 24.2-672 when the provisions of § 24.2-662 have not been followed, (iii) on the order of a court before which there is pending a proceeding for a contest or recount under Chapter 8 (§ 24.2-800 et seq.) of this title or before whom there is then pending a proceeding in which the ballots are necessary for use in evidence, or (iv) for the purpose of conducting an audit as part of a post-election pilot program pursuant to § 24.2-671.1. In the event that ballots are inspected under clause (i), (ii), or (iv) of this paragraph, each political party and each independent candidate on the ballot, or each primary candidate, shall be entitled to have a representative present during such inspection. The representatives and observers lawfully present shall be prohibited from interfering with the officers of election in any way. The State Board or local electoral board shall provide such parties and candidates reasonable advance notice of the inspection.

After the counted ballots for a federal election have remained in the clerk's office for two years, if no election contest or other proceeding is pending in which such ballots may be needed as evidence, the clerk shall destroy such ballots. After the counted ballots for any other election have remained in the clerk's office for one year, if no election contest or other proceeding is pending in which such ballots may be needed as evidence, the clerk shall destroy such ballots. After the unused ballots have remained in the clerk's office and the time has expired for initiating a recount, contest, or other proceeding in which such ballots may be needed as

evidence and no such contest or proceeding is pending, the clerk may then destroy the unused ballots other than punchcard ballots, which shall be returned to the electoral board.

7.1.3 §24.2-671 Electoral Board to Meet and Ascertain Results; Conclusiveness of Results

Each electoral board shall meet at the clerk's or general registrar's office of the county or city for which they are appointed at or before 5:00 p.m. on the day after any election. The board may adjourn to another room of sufficient size in a public building to ascertain the results, and may adjourn as needed, not to exceed seven calendar days from the date of the election unless an extension has been granted to accommodate a Risk Limiting Audit conducted pursuant to § 24.2-671.2. Written directions to the location of any room other than the clerk's or general registrar's office where the board will meet shall be posted at the doors of the clerk's and general registrar's offices prior to the beginning of the meeting.
The board shall open the returns delivered by the officers.

If the electoral board has exercised the option provided by § 24.2-668 for delivery of the election materials to the office of the general registrar on the night of the election, the electoral board shall meet at the office of the general registrar at or before 5:00 p.m. on the day after any election.

The board shall ascertain from the returns the total votes in the county or city, or town in a town election, for each candidate and for and against each question and complete the abstract of votes cast at such election, as provided for in § 24.2-675. For any office in which no person was elected by write-in votes, and for which the total number of write-in votes for that office is less than (i) 10 percent of the total number of votes cast for that office and (ii) the total number of votes cast for the candidate receiving the most votes, the electoral board shall ascertain the total votes for each write-in candidate for the office within one week following the election. For offices for which the electoral board issues the certificate of election, the result so ascertained, signed and attested, shall be conclusive and shall not thereafter be subject to challenge except as specifically provided in Chapter 8 (§ 24.2-800 et seq.).
Once the result is so ascertained, the secretary of the electoral board shall deliver one copy of each statement of results to the general registrar to be available for inspection when his office is open for business. The secretary shall then return all pollbooks, any printed inspection and return sheets, and one copy of each statement of results to the clerk.

Beginning with the general election in November 2007, a report of any changes made by the local electoral board to the unofficial results ascertained by the officers of election or any subsequent change to the official abstract of votes made by the local electoral board shall be forwarded to the State Board of Elections and the explanation of such change shall be posted on the State Board website.

Each political party and each independent candidate on the ballot, or each primary candidate, shall be entitled to have representatives present when the local electoral board meets to ascertain the results of the election. Each such party and candidate shall be entitled to have at least as many representatives present as there are teams of officials working to ascertain the

results, and the room in which the local electoral board meets shall be of sufficient size and configuration to allow the representatives reasonable access and proximity to view the ballots as the teams of officials work to ascertain the results. The representatives and observers lawfully present shall be prohibited from interfering with the officials in any way. It is unlawful for any person to knowingly possess any firearm as defined in § 18.2-308.2:2 within 40 feet of any building, or part thereof, used as a meeting place for the local electoral board while the electoral board meets to ascertain the results of an election, unless such person is (a) any law-enforcement officer or any retired law-enforcement officer qualified pursuant to subsection C of § 18.2-308.016; (b) occupying his own private property that falls within 40 feet of a polling place; or (c) an armed security officer, licensed pursuant to Article 4 (§ 9.1-138 et seq.) of Chapter 1 of Title 9.1, whose employment or performance of his duties occurs within 40 feet of any building, or part thereof, used as a meeting place for the local electoral board while the electoral board meets to ascertain the results of an election.

7.1.4 § 2.2-3707. Meetings to be public; notice of meetings; recordings; minutes.

A. All meetings of public bodies shall be open, except as provided in §§ 2.2-3707.01 and 2.2-3711.

B. No meeting shall be conducted through telephonic, video, electronic or other electronic communication means where the members are not physically assembled to discuss or transact public business, except as provided in § 2.2-3708.2 or as may be specifically provided in Title 54.1 for the summary suspension of professional licenses.

C. Every public body shall give notice of the date, time, and location of its meetings by:

1. Posting such notice on its official public government website, if any;

2. Placing such notice in a prominent public location at which notices are regularly posted; and

3. Placing such notice at the office of the clerk of the public body or, in the case of a public body that has no clerk, at the office of the chief administrator.

All state public bodies subject to the provisions of this chapter shall also post notice of their meetings on a central, publicly available electronic calendar maintained by the Commonwealth. Publication of meeting notices by electronic means by other public bodies shall be encouraged.

The notice shall be posted at least three working days prior to the meeting.

D. Notice, reasonable under the circumstance, of special, emergency, or continued meetings shall be given contemporaneously with the notice provided to the members of the public body conducting the meeting.

E. Any person may annually file a written request for notification with a public body. The request shall include the requester's name, address, zip code, daytime telephone number, electronic mail address, if available, and organization, if any. The public body receiving such request shall provide notice of all meetings directly to each such person. Without objection by

the person, the public body may provide electronic notice of all meetings in response to such requests.

F. At least one copy of the proposed agenda and all agenda packets and, unless exempt, all materials furnished to members of a public body for a meeting shall be made available for public inspection at the same time such documents are furnished to the members of the public body. The proposed agendas for meetings of state public bodies where at least one member has been appointed by the Governor shall state whether or not public comment will be received at the meeting and, if so, the approximate point during the meeting when public comment will be received.

G. Any person may photograph, film, record or otherwise reproduce any portion of a meeting required to be open. The public body conducting the meeting may adopt rules governing the placement and use of equipment necessary for broadcasting, photographing, filming, or recording a meeting to prevent interference with the proceedings, but shall not prohibit or otherwise prevent any person from photographing, filming, recording, or otherwise reproducing any portion of a meeting required to be open. No public body shall conduct a meeting required to be open in any building or facility where such recording devices are prohibited.

H. Minutes shall be recorded at all open meetings. However, minutes shall not be required to be taken at deliberations of (i) standing and other committees of the General Assembly; (ii) legislative interim study commissions and committees, including the Virginia Code Commission; (iii) study committees or commissions appointed by the Governor; or (iv) study commissions or study committees, or any other committees or subcommittees appointed by the governing bodies or school boards of counties, cities and towns, except where the membership of any such commission, committee or subcommittee includes a majority of the governing body of the county, city or town or school board.

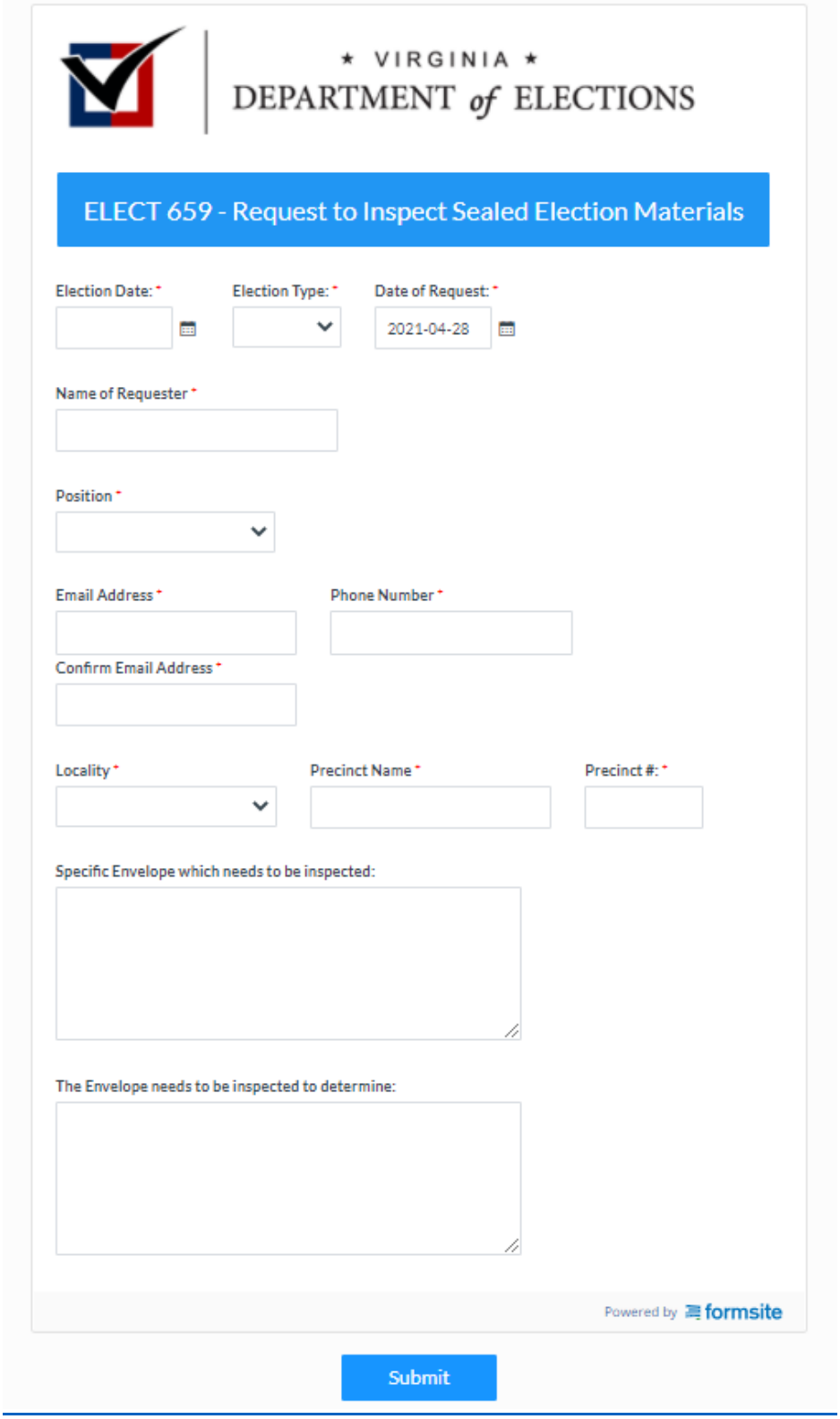
Minutes, including draft minutes, and all other records of open meetings, including audio or audio/visual records shall be deemed public records and subject to the provisions of this chapter.

Minutes shall be in writing and shall include (a) the date, time, and location of the meeting; (b) the members of the public body recorded as present and absent; and (c) a summary of the discussion on matters proposed, deliberated, or decided, and a record of any votes taken. In addition, for electronic communication meetings conducted in accordance with § 2.2-3708.2, minutes of state public bodies shall include (1) the identity of the members of the public body at each remote location identified in the notice who participated in the meeting through electronic communication means, (2) the identity of the members of the public body who were physically assembled at the primary or central meeting location, and (3) the identity of the members of the public body who were not present at the locations identified in clauses (1) and (2) but who monitored such meeting through electronic communication means.

1968, c. 479, § 2.1-343; 1973, c. 461; 1976, c. 467; 1977, c. 677; 1982, c. 333; 1989, c. 358; 1990, c. 538; 1993, c. 720; 1995, c. 562; 1999, cc. 696, 703, 726; 2000, c. 227; 2001, c. 844;

2004, cc. 730, 768; 2005, c. 352; 2007, c. 300; 2009, c. 628; 2010, c. 309; 2015, c. 131; 2017, c. 616; 2018, c. 55.

7.2 ELECT 659-Request to Inspect Sealed Election Material



★ VIRGINIA ★
DEPARTMENT of ELECTIONS

ELECT 659 - Request to Inspect Sealed Election Materials

Election Date: *
Election Type: *
Date of Request: *
2021-04-28

Name of Requester *

Position *

Email Address *
Phone Number *
Confirm Email Address *

Locality *
Precinct Name *
Precinct #: *

Specific Envelope which needs to be inspected:

The Envelope needs to be inspected to determine:

Powered by formsite

Submit

7.3 RLA Chain of Custody Log

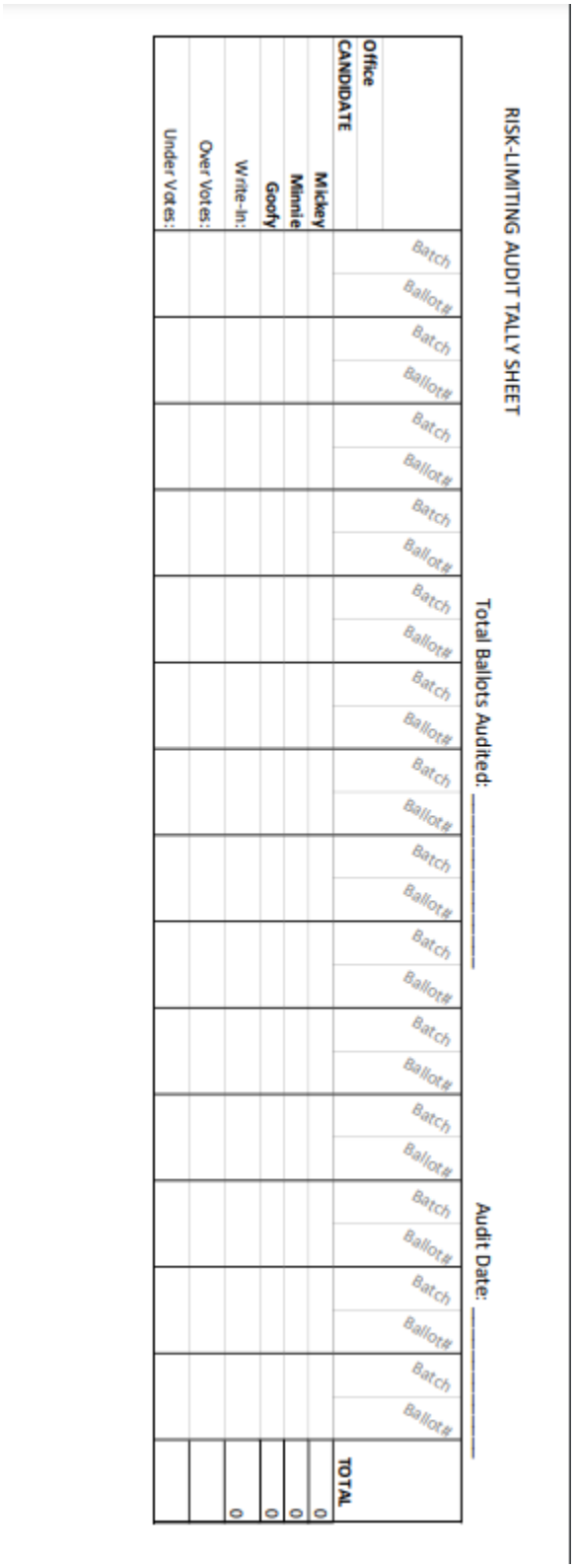
RLA Chain of Custody Log **Jurisdiction Name:**

Election Date: _____ **Audit**

Date(s):_____

Date	Name (Please sign)	Title	Precinct Box/Envelope being checked out or back in	Time Out	Time In

7.4 Tally Sheet



RISK-LIMITING AUDIT TALLY SHEET

Total Ballots Audited: _____ Audit Date: _____

Office																									
CANDIDATE																									
Mickey																									
Minnie																									
Goofy																									
Write-In:																									
Over Votes:																									
Under Votes:																									
	Batch																								
	Ballot#																								
TOTAL	0	0	0	0																					

7.5 Sample Press Release

[For Immediate Release (unless embargoed)]
[Organization Name]
[Date]

[Headline, use Times New Roman or Arial font]

[Insert Sub header, Keep font sizes standard, and 1 point apart in size. For example, if your headline is 14, your sub header should be 13, and your body should be 12]

[CITY] **–** Provide general news release content. For example, begin by naming official who announced the results and summarize the results.

Here you can include 1-2 paragraphs explaining some of the details about the audit.

[Quote from the Director of Elections/GR]

Include any additional information or resources related to the audit, which can include links to the audit report, voter registration website, etc.

Media Contact:
[Name]
[Job Title]
[Email address]
[Phone number]
[Website]

###

7.6 Glossary

Administrator: a member of ELECT staff that adds elections to be audited, sets the risk-limit, adds participants, inputs the random seed number, and reviews the progress of the RLA.

Arlo: the RLA software supported by VotingWorks and leased by ELECT to administer the RLA
Audit Review Boards: a two-person team that retrieves specific ballots, records the results on a tally sheet, and uploads the results into the auditing software.

Ballot Manifest: a two-column Excel spreadsheet that creates an inventory of every ballot cast in a locality during a contest.

Ballot-Polling: one of two methods for conducting an RLA that relies on manually reviewing a random sample of ballots across localities to determine if the overall outcome of an election was correctly reported.

Batch: a documented set of ballots created by a voting system, an officer of election, or other election official.

Batch-comparison: one of two methods for conducting an RLA that relies on manually counting all ballots in a random selection of precinct batches to determine if the overall outcome of an election was correctly reported. This method is only available to those RLAs applied for pursuant to §24.2-671.2(D).

Candidate Totals by Batch: a file that outlines each batch of ballots and how many votes were cast for each candidate in a particular batch.

Participants: a GR or appointed person that will be responsible for coordinating the audit in their locality. Participants are responsible for uploading a ballot manifest, entering audit review boards, and downloading ballot retrieval lists from the audit software.

Random Seed Number: a 20-digit number randomly generated by the rolling of 20 ten-sided dice once each during the SBE RLA Selection Meeting. This number is used to generate the ballot or batch retrieval list by Arlo.

Risk Limit: the maximum chance that the audit will fail to correct an incorrectly reported outcome. For example, a 10% risk limit means there is a 90% chance that the audit will correct an incorrectly reported outcome.

Risk Limiting Audit: a type of post-election audit that utilizes statistical methods and a manual review of paper ballots to check that the voting equipment accurately reported the correct outcome of an election.

7.7 1VAC20-60-80 Request for Risk Limiting Audit Race within a Jurisdiction

A. For purposes of this section, “contested race” means a contested race wholly contained within the jurisdiction of the county or city for which an electoral board requesting a risk-limiting audit serves.

B. Pursuant *to §* 24.2-671.2 D of the Code of Virginia, a local electoral board shall follow the process in this section to request a risk-limiting audit of a contested race within its jurisdiction:

1. At the public canvass meeting following the election, an electoral board may elect to request a risk-limiting audit of a contested race, or multiple contested races, by a majority vote.

2. If a question to request a risk-limiting audit achieves a majority vote, an electoral board must submit a completed SBE 671.2(D) Request for Risk-Limiting Audit form to request SBE (SBE) approval of the audit. If requesting audits of multiple contested races, an electoral board must submit a completed SBE 671.2(D) Request for Risk-Limiting Audit form for each race. If risk-limiting audits are requested for multiple contested races, the electoral board must request the same method of conducting the audit for each race.

3. The SBE will grant a request for a risk-limiting audit of a contested race if:

a. The submitted SBE 671.2(D) Request for Risk-Limiting Audit form contains sufficient information for the SBE to determine that the local electoral board members cast a majority vote in favor of the audit request;

b. The submitted SBE-671.2(D) Request for Risk-Limiting Audit form contains sufficient information for the SBE to determine the method of conducting the risk-limiting audit chosen by a majority vote of the electoral board and, in the event that risk-limiting audits are requested for multiple contested races, the requested method of conducting the risk-limiting audit is the same for each race;

c. The submitted SBE 671.2(D) Request for Risk-Limiting Audit form contains sufficient information for the State Board of Elections to determine which contested races are subject to the requested audit and that those contested races are in fact wholly contained within the jurisdiction of the city or county for which the local electoral board serves;

d. The State Board of Elections concludes that the audit is permissible under § 24.2-671.2 of the Code of Virginia and all other relevant provisions of law; and

e. The margin of the candidate with the most votes and the second most votes is equal to or greater than 1.0%

4. Upon granting an electoral board's request for a risk-limiting audit, the State Board of Elections may grant an extension not to exceed two weeks of the local electoral board's certification deadline pursuant to § 24.2-671 of the Code of Virginia if necessary for the conduct of the audit.

Statutory Authority
§ 24.2-103 of the Code of Virginia.

7.8 ELECT §24.2-671.2 (D) Form: Request for Risk Limiting Audit

★ VIRGINIA ★
DEPARTMENT *of* ELECTIONS

REQUEST FOR RISK-LIMITING AUDIT

PURPOSE OF THIS FORM

Under Code of Virginia § 24.2-671.2(D), "A local electoral board may request that the State Board approve the conduct of a risk-limiting audit for a contested race within the local electoral board's jurisdiction." The local electoral board may request an audit of such a local race wholly contained within the jurisdiction of the local electoral board by completing and submitting this form to their Election Services Registrar Liaison prior to the State Board of Elections meeting to choose races to audit. Please review 1VAC20-60-80 for details on qualifying for a risk-limiting audit request.

COMPLETE THE FOLLOWING:

Locality: _____

Date of Public Meeting: _____

Local Contested Race: _____

Town Name/District Number: _____

Date of RLA: _____

Location of RLA: _____

Was Ranked-Choice Voting Used? ☐ Yes ☐ No

RLA Method Requested: ☐ Ballot-polling ☐ Batch-comparison

Preliminary Vote Totals: _____

Candidate A: _____

Candidate B: _____

Candidate C (if applicable): _____

Candidate D (if applicable): _____

On the lines below, please include any other relevant information

_____

_____

**ELECT reserves the right to ask additional questions on behalf of the SBE, if necessary.*

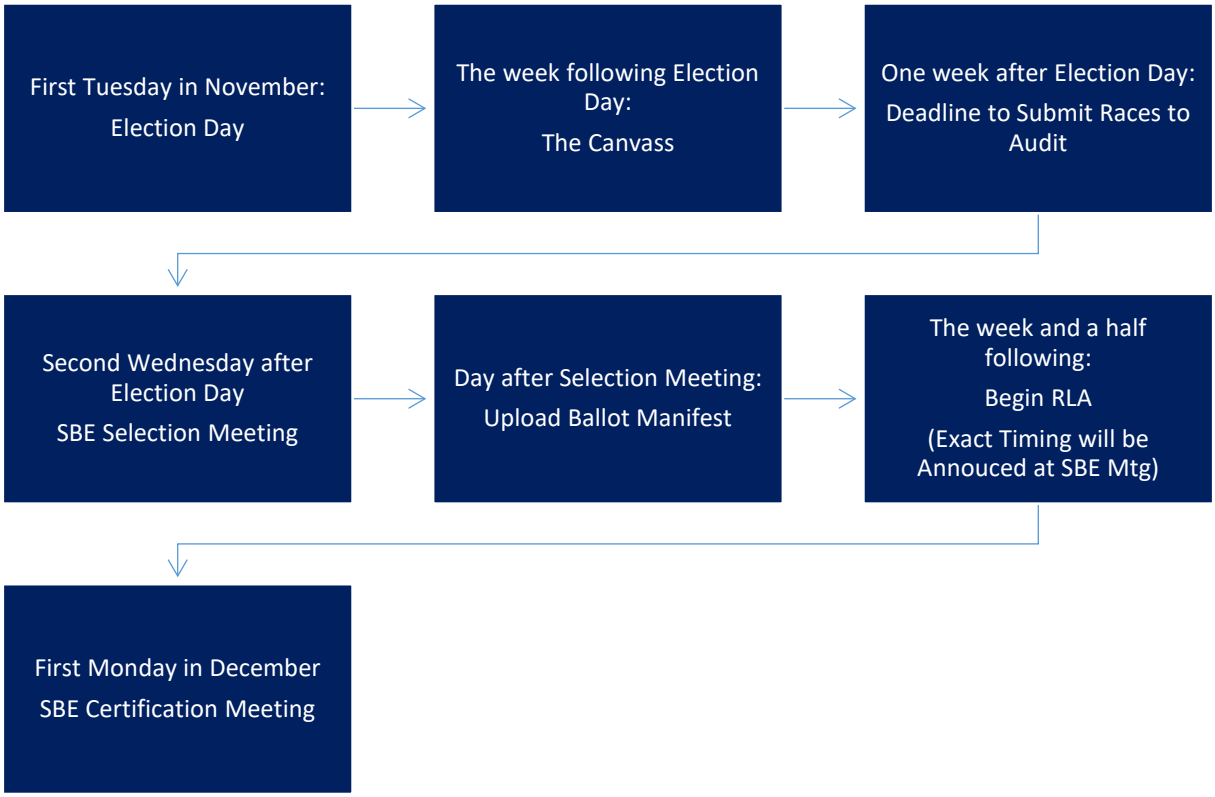
***Please submit a form for each local contested race your locality is requesting to have audited. If multiple races are being submitted, the RLA method requested must be the same for all races requested.*

We, the members of the electoral board, request an audit of the above contested race(s), *being wholly contained* within our jurisdiction:

Printed name of Chairperson	Signature	Date	Vote (Yay or Nay)
Printed name of Vice-Chairperson	Signature	Date	Vote (Yay or Nay)
Printed name of Secretary	Signature	Date	Vote (Yay or Nay)

If your audit request is approved by the State Board of Elections, then the Board may grant an extension of up-to two weeks to your certification deadline under §24.2-671.2 of the Code of Virginia for the audited race.

7.9 General Timeline for a Risk-Limiting Audit after a General Election



Detrani, Terri (ELECT)

From: Alvis-long, Georgia (ELECT)
Sent: Wednesday, August 2, 2023 9:05 AM
Subject: Fw: Loudoun Batch Comparison RLA for Democratic Primary June 20, 2023

From: Alvis-long, Georgia (ELECT) <Georgia.Alvis-Long@elections.virginia.gov>
Sent: Saturday, July 22, 2023 9:56 AM
To: Shelley Oberlander <shelleynoberlander@gmail.com>
Subject: Re: Loudoun Batch Comparison RLA for Democratic Primary June 20, 2023

Shelley,

Thank you for your time and effort here.

Georgia

From: Shelley Oberlander <shelleynoberlander@gmail.com>
Sent: Wednesday, July 19, 2023 2:41 PM
To: Alvis-long, Georgia (ELECT) <Georgia.Alvis-Long@elections.virginia.gov>
Subject: Fwd: Loudoun Batch Comparison RLA for Democratic Primary June 20, 2023

Enclosed and attached are several documents that may help explain the Batch Comparison Method RLA process that we conducted in Loudoun on June 28, 2023.

Shelley

---------- Forwarded message ---------
From: **Shelley Oberlander** <shelleynoberlander@gmail.com>
Date: Wed, Jul 19, 2023 at 1:57 PM
Subject: Loudoun Batch Comparison RLA for Democratic Primary June 20, 2023
To: Shelley Oberlander <shelleynoberlander@gmail.com>, <shelley.oberlander@loudoun.gov>

Ballot Examples

Hand Counting Printed Ballots for Virginia Elections or Recounts

Department of Elections
Commonwealth of Virginia

(Adopted at the 10/6/2015 meeting of the State Board of Elections)

For any printed ballot that can and is to be counted manually, the following guidelines shall be used in determining the voter's intent.

(1) As used below, the "target area" of the official ballot is the square, oval, or incomplete arrow next to the candidate's name on the printed ballot. The "candidate area" is the area between the lines separating candidate names, if the ballot includes such lines, or the area that is clearly closer to one candidate's name than another. The "candidate area" includes the candidate's name and party affiliation if listed, or "I" for any independent using that designation. These instructions only deal with marks that are under the office being recounted, except as provided in items 10 and 11.

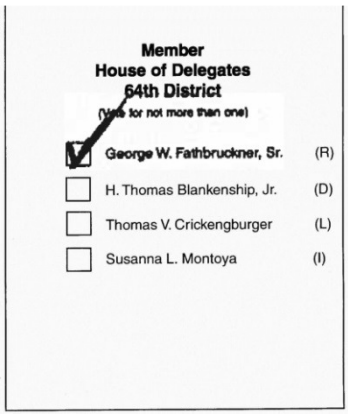
(2) These instructions assume that the recount is for a single-seat office. That is, the voter was only permitted to vote for one candidate for the office. For multi-seat offices, the ballot shall be counted pursuant to the guidelines below so long as the voter has not voted for more candidates for that office than he is allowed to vote (in which case no votes are to be counted for the office).

(3) Any ballot that is properly marked (as specified for the type of ballot) in the target area for one candidate only for the office shall be designated as a vote for that candidate.

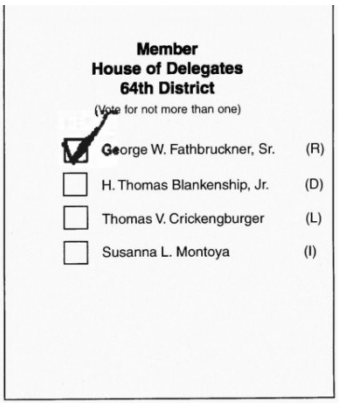
BALLOT EXAMPLES

Votes to be counted:

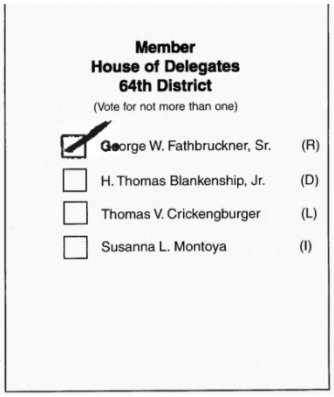
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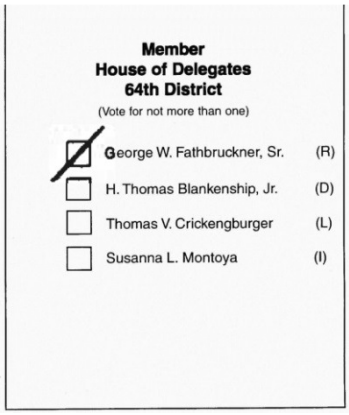
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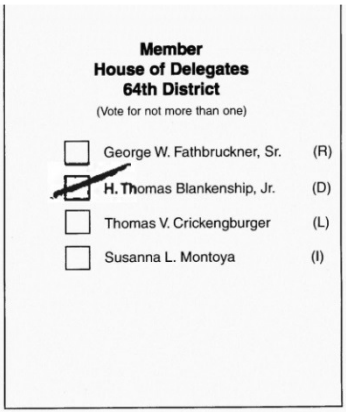
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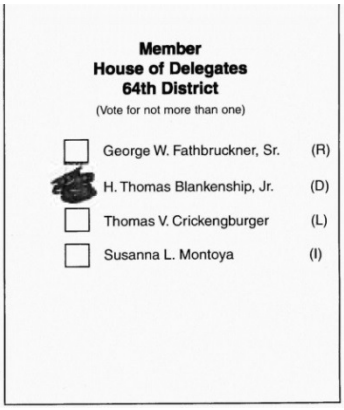
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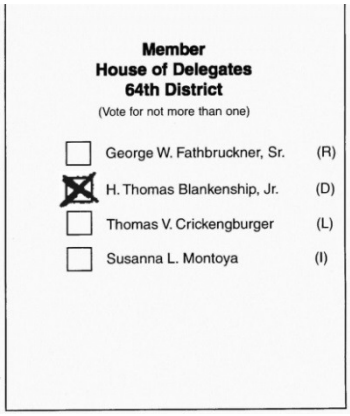
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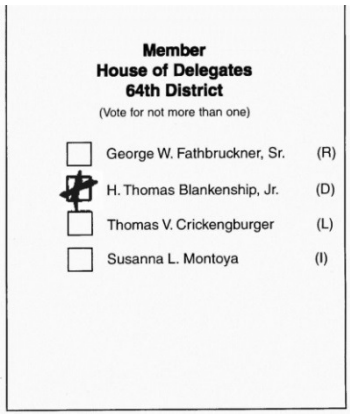
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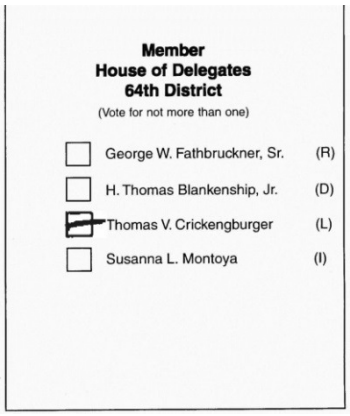
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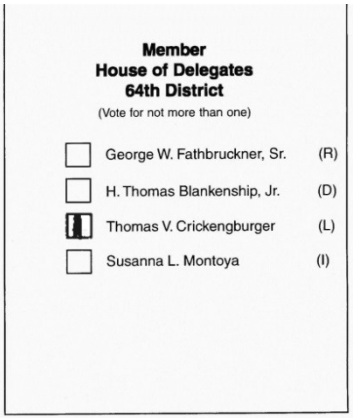
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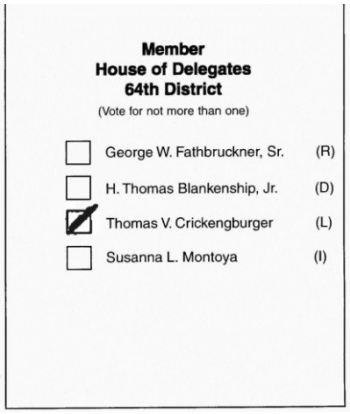
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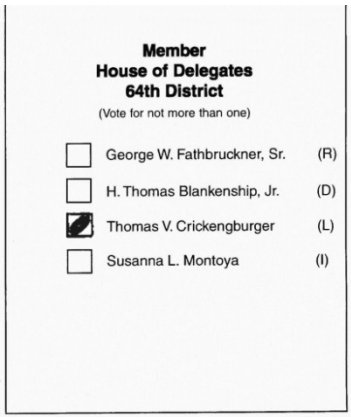
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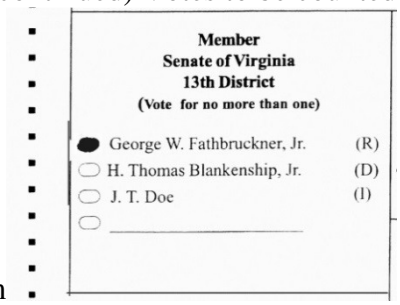


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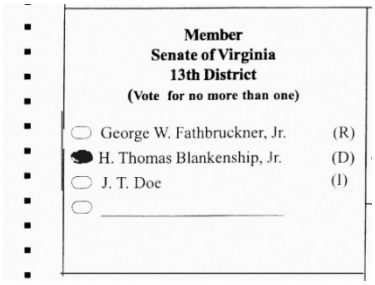


(3 continued) Votes to be counted:

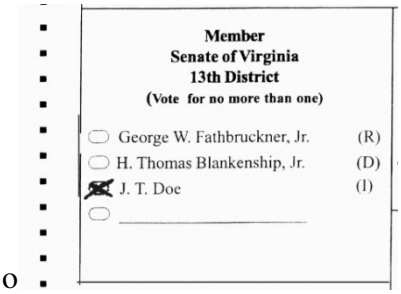
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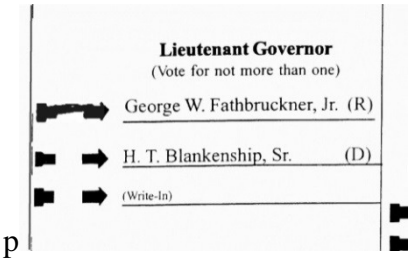
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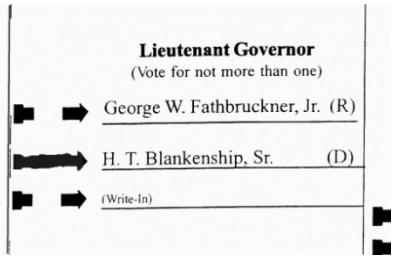
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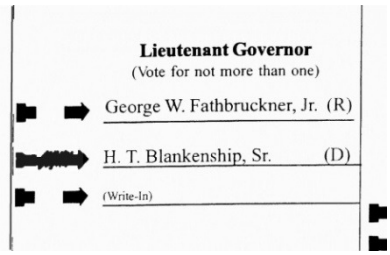
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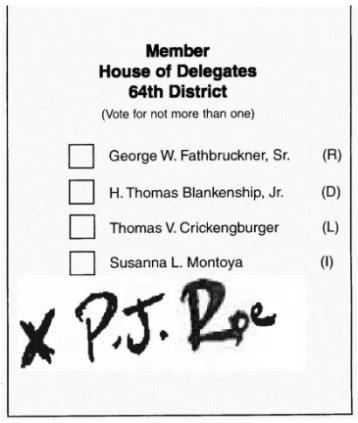
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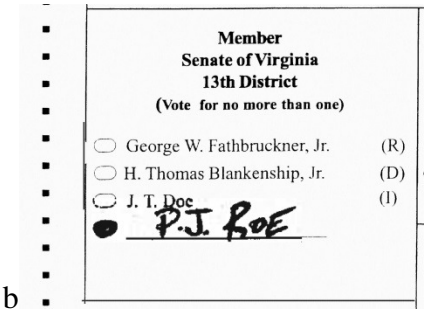
(4) If a write-in candidate is a party to the recount, a vote shall be counted for the write-in candidate if his name is written on the ballot under that office, even if the write-in square, oval or arrow is not marked, and provided that no other candidate is marked for that office.

Votes to be counted:

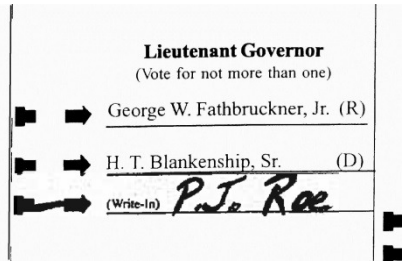
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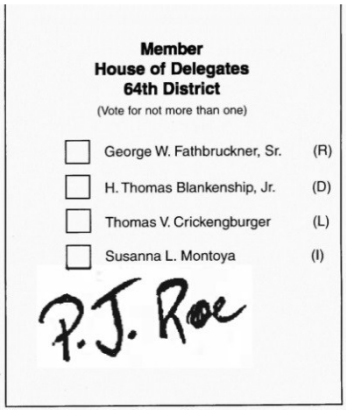
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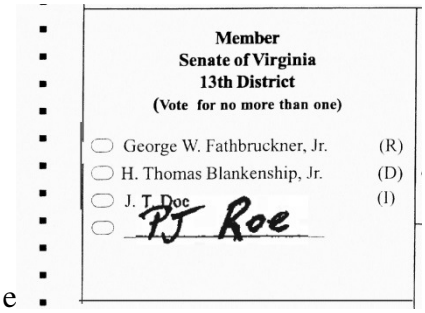
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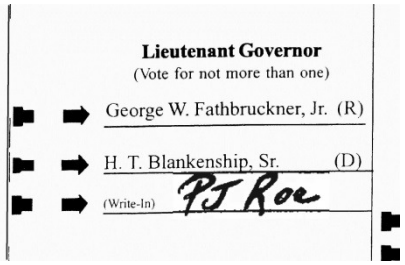
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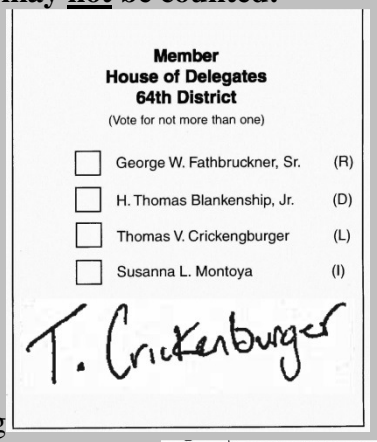
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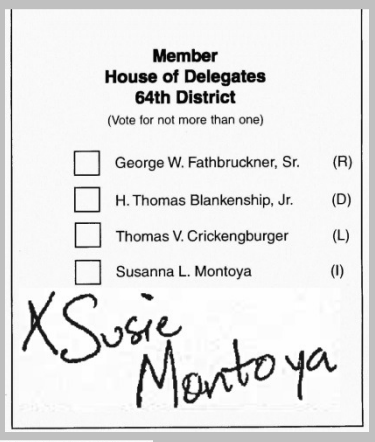
(4 continued) A write-in vote for a candidate whose name appears on the ballot for the same office may not be counted.

Votes may not be counted:

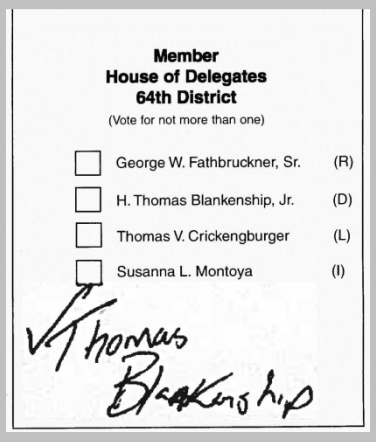
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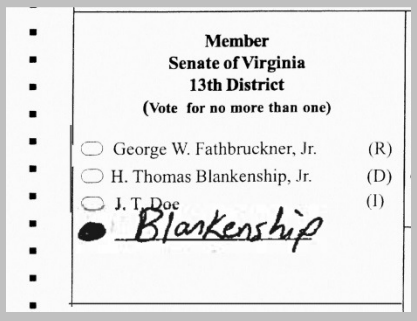
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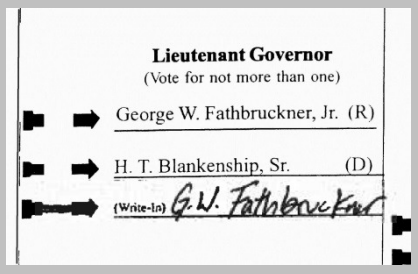
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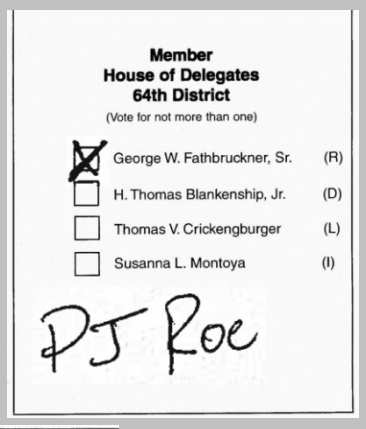
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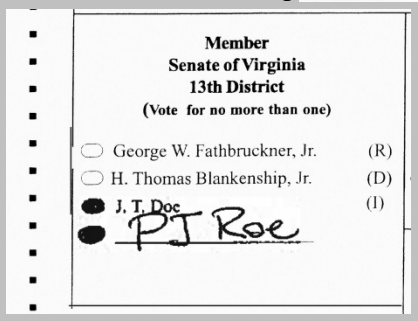
A write-in vote in addition to a vote for a candidate for the office is an overvote and no vote shall be counted.

Votes may not be counted:

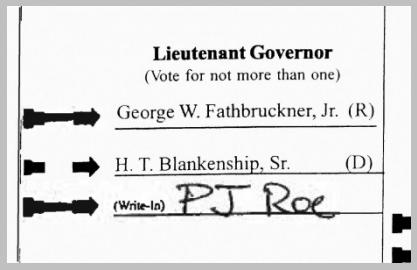
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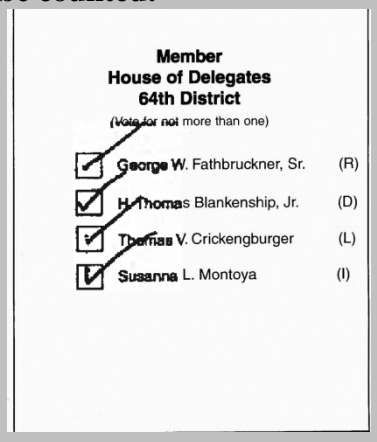
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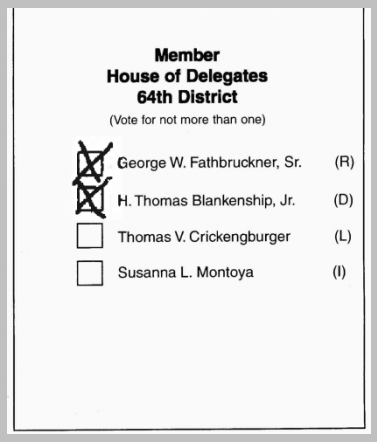
(5) Any ballot which is marked for more than one candidate for the office shall be deemed an overvote and no vote shall be counted except as provided in this section.

Votes may <u>not</u> be counted:

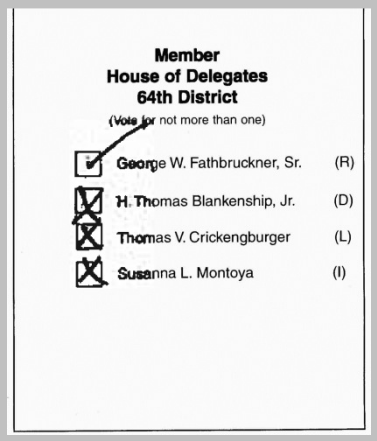
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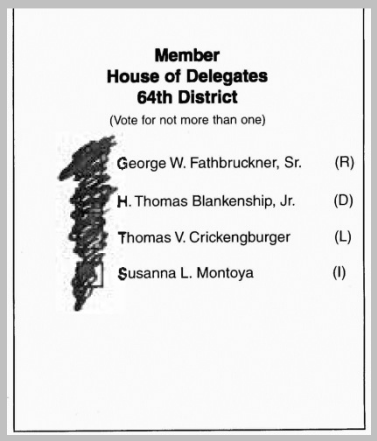
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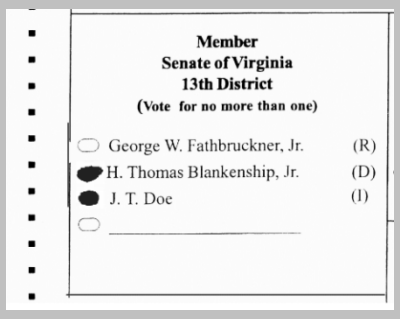
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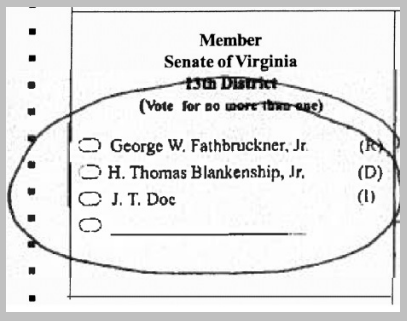
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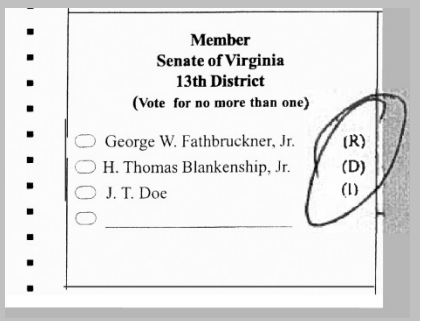
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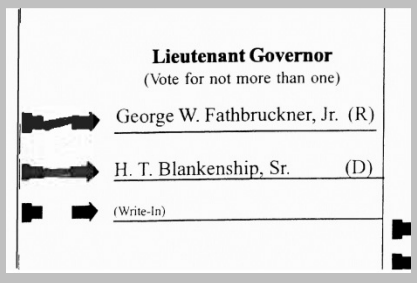
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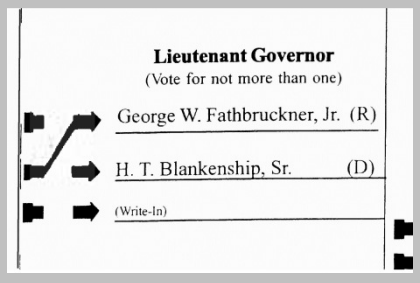
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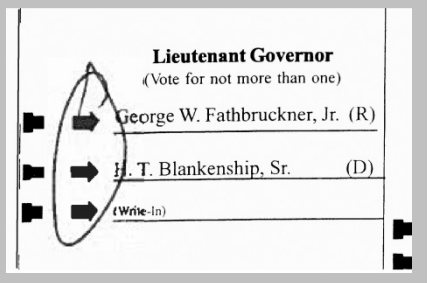
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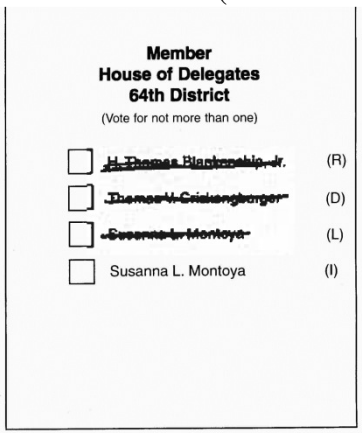
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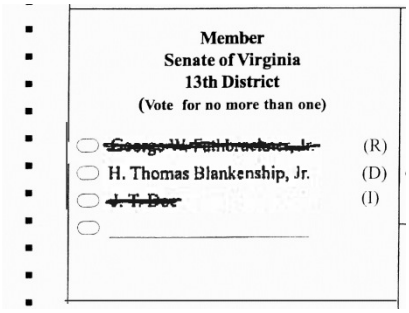
(5 continued) However, if more than two candidates had their names printed on the ballot for the office, and the names of all but one candidate are stricken through, that ballot shall be counted for the one candidate whose name was not stricken through.

Votes to be counted (for candidate not stricken through):

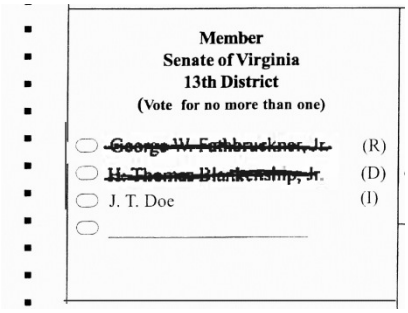
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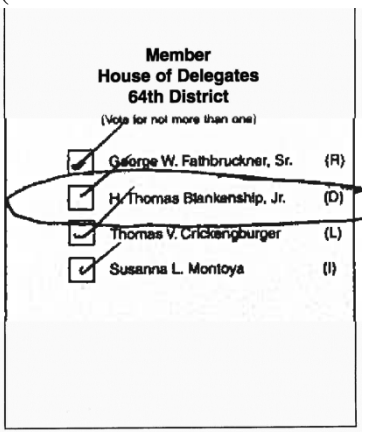
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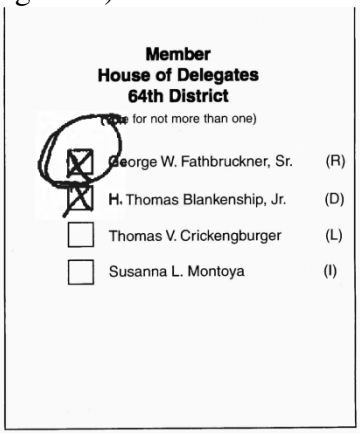
If there are identical marks for two or more candidates, clarified by an additional mark or marks that appear to indicate support, the ballot shall be counted as a vote for the candidate with the additional, clarifying marks.

Votes to be counted (for candidate with additional clarifying mark):

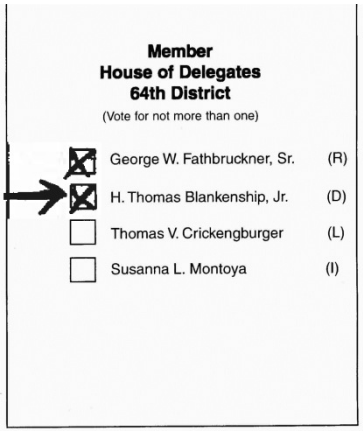
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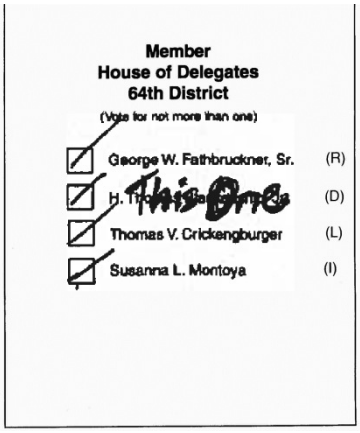
o



p

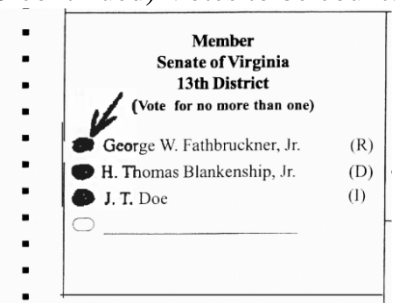


q

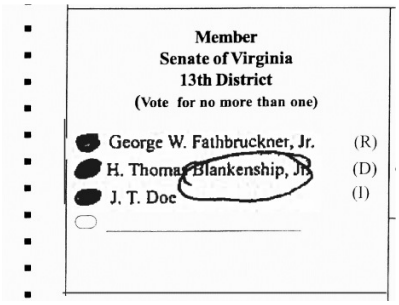


(5 continued) Votes to be counted (for candidate with additional clarifying mark):

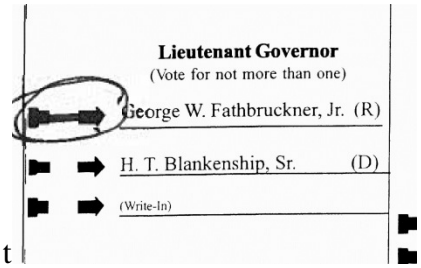
r



s



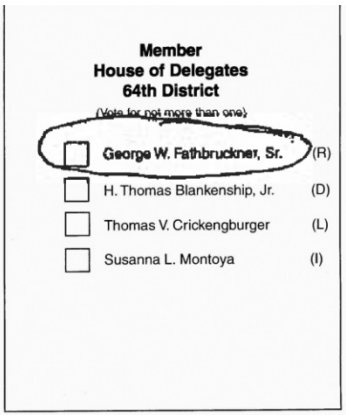
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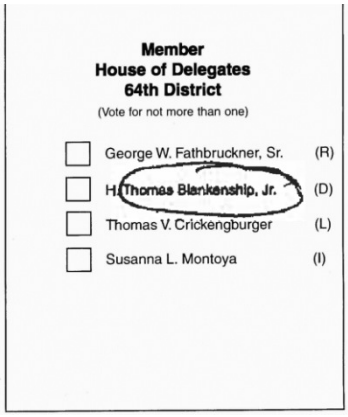
(6) Any ballot that has any other mark or marks in the target area or candidate area for one candidate only, including circling the target area and/or the candidate's name or making a mark through the target area or candidate's name, provided no other candidate for that office is similarly marked, shall be counted as a vote for that candidate

Votes to be counted:

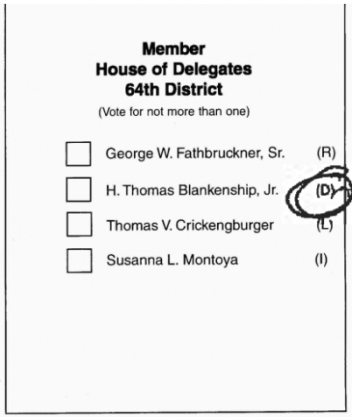
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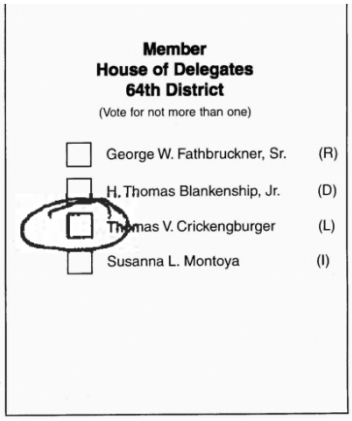
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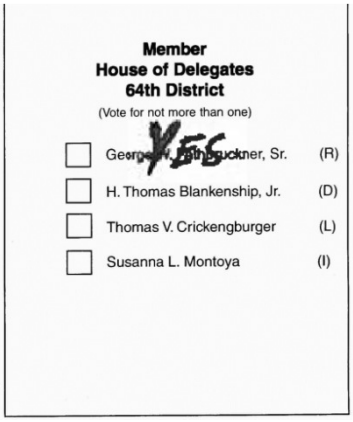
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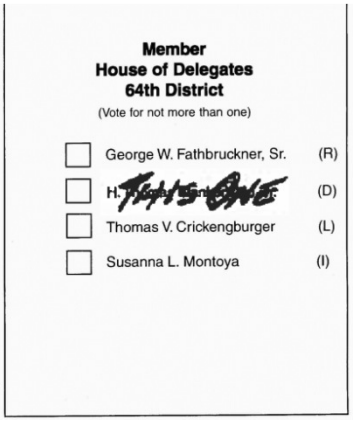
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e

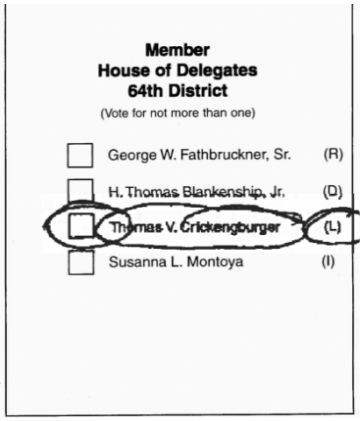


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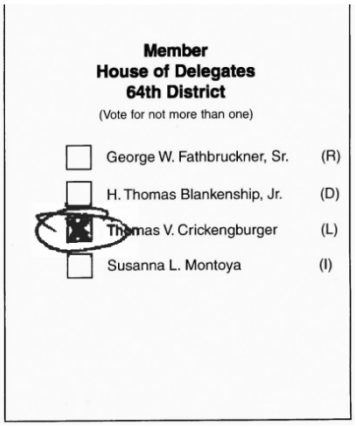


(6 continued) Votes to be counted:

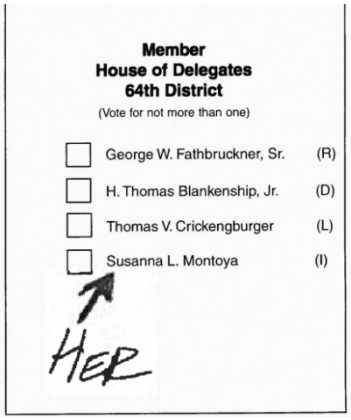
g



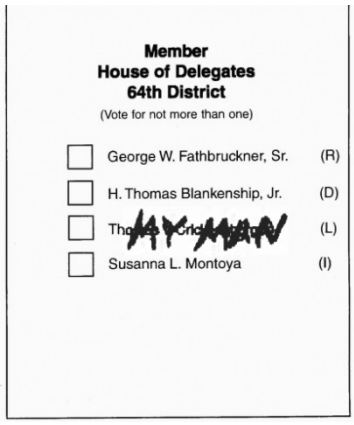
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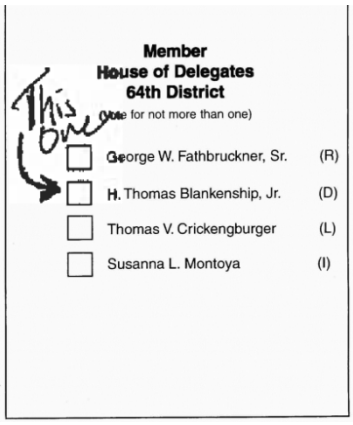
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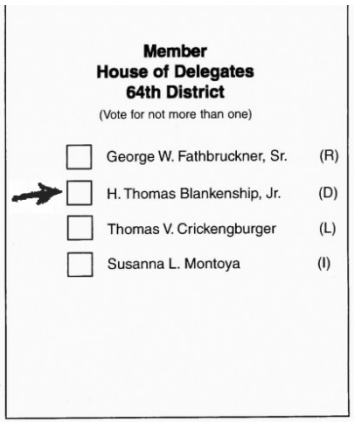
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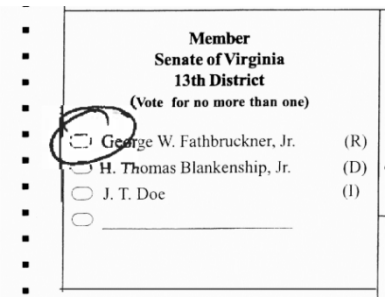
k



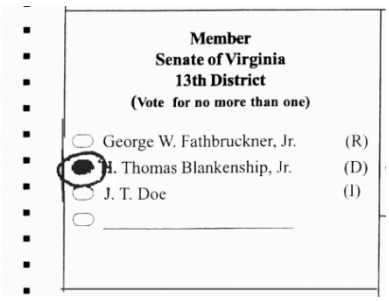
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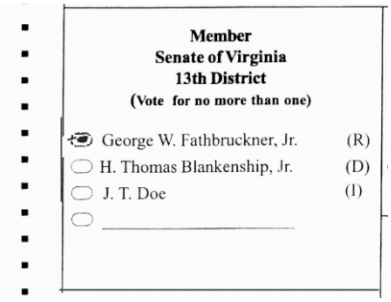
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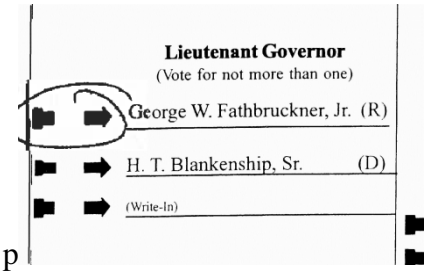
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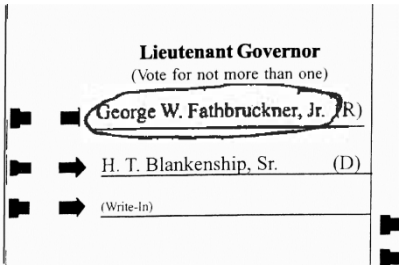
o



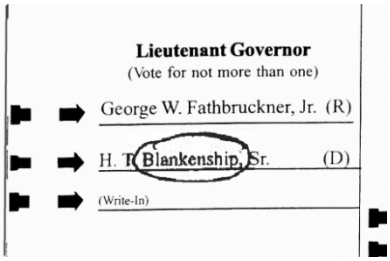
p



q



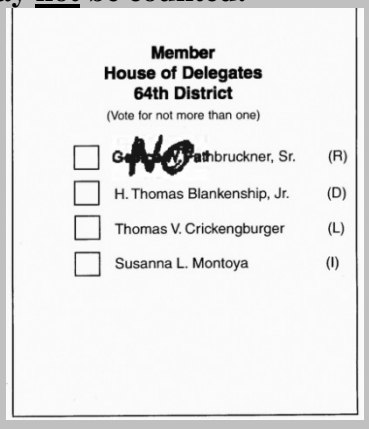
r



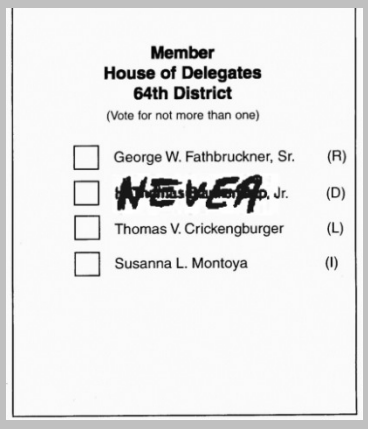
(6 continued) Unless the mark is a clearly negative or extraneous comment

Votes may <u>not</u> be counted:

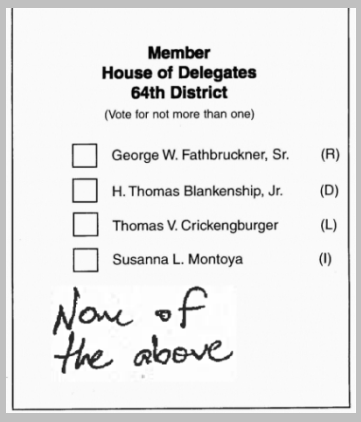
s



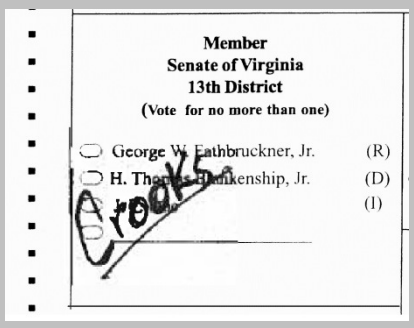
t



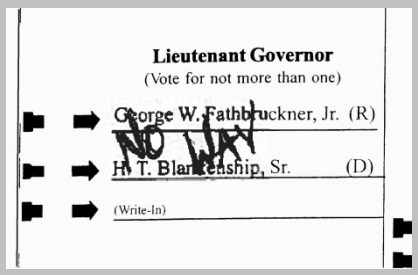
u



v



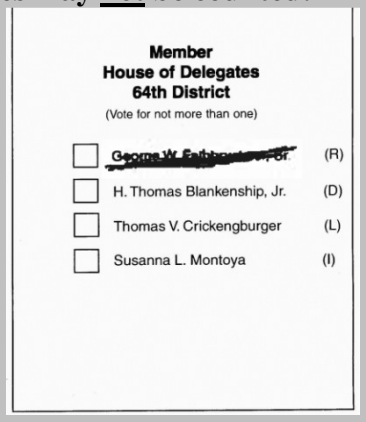
w



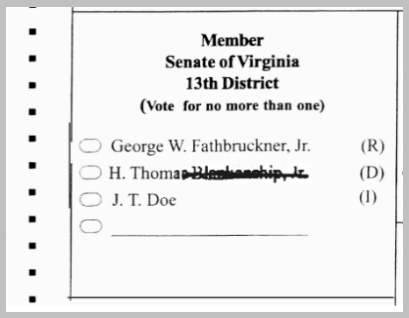
[Or unless] a substantial part of the candidates name is crossed through or stricken out.

Votes may <u>not</u> be counted:

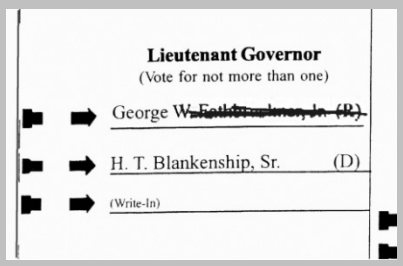
x



y



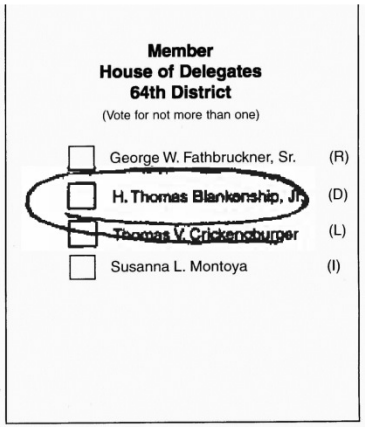
z



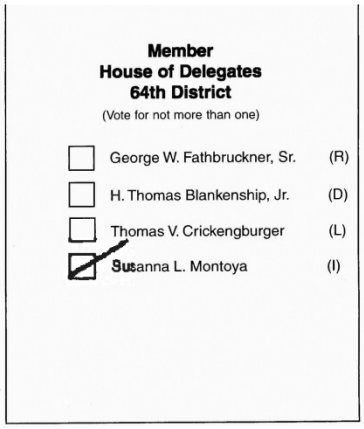
(7) Any ballot that has a mark or marks in the target area or candidate area for one candidate, which extends partially into one or more other target areas or candidate areas, shall be counted as a vote for the candidate so marked only if it is readily apparent that at least 3/4ths of the mark is in that candidate's area or target area, and no other candidate is similarly marked.

Votes to be counted:

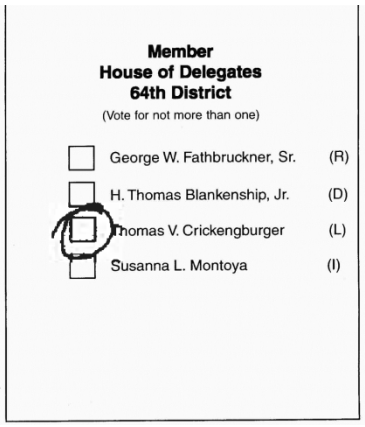
a



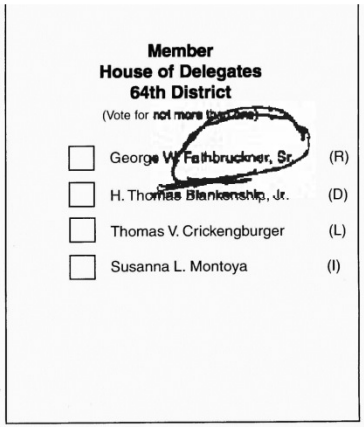
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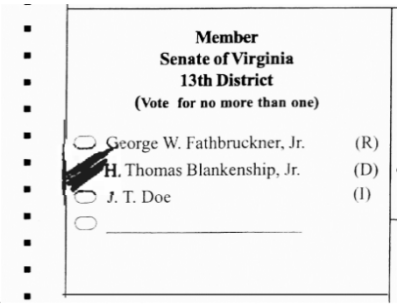
c



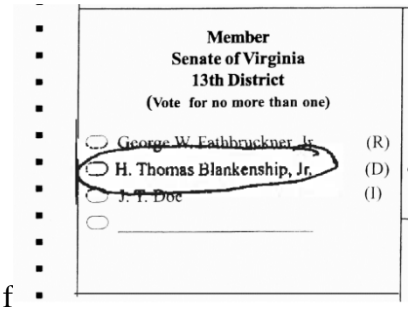
d



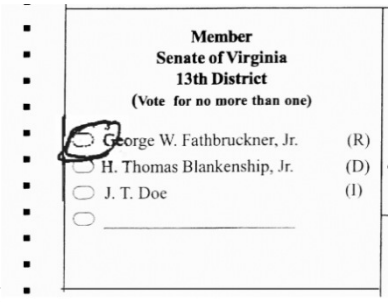
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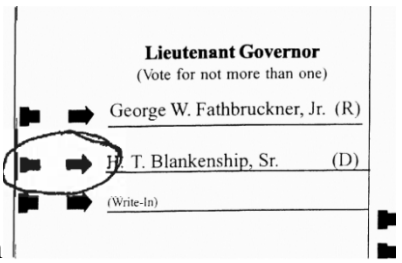
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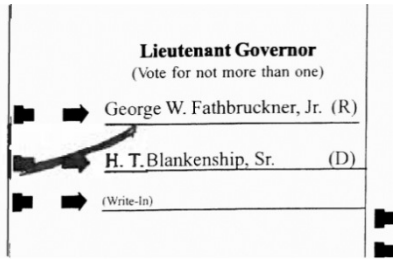
g



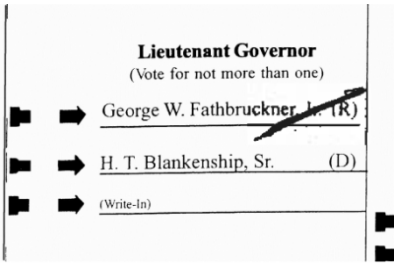
h



i



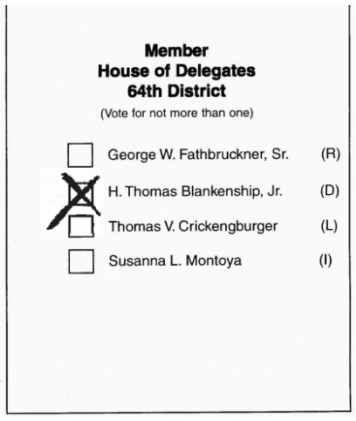
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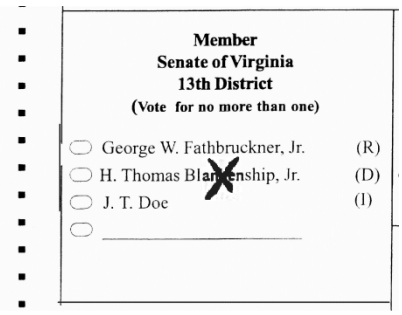
(7 continued) Other such marks, extending across more than one candidate's area, may be counted if the lines of the "x" or the bottom point of the check mark (√) clearly lie inside the box or on top of the name or party affiliation or candidate area of one candidate, and no other candidate is similarly marked.

Votes to be counted:

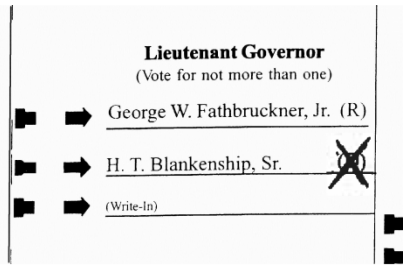
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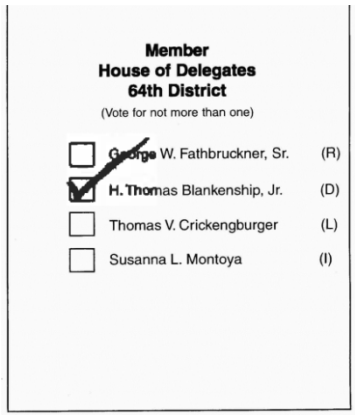
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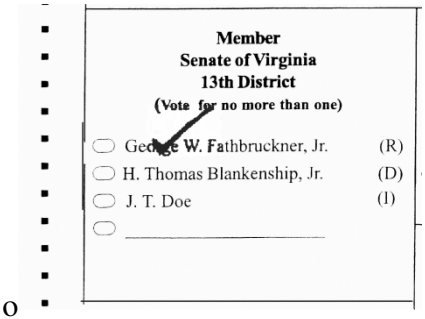
m



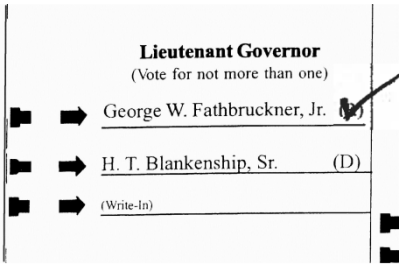
n



o



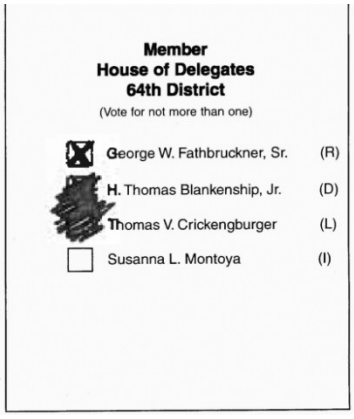
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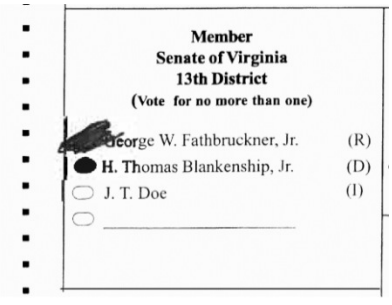
(8) Any ballot that has any mark, as above, in the target area or candidate area for one candidate, and on which other marks in the target areas or candidate areas for any other candidates have been partially erased, scratched out, or otherwise obliterated, shall be counted as a vote for the candidate for which the mark was not erased, scratched out, or otherwise obliterated, provided no other candidate is similarly marked.

Votes to be counted:

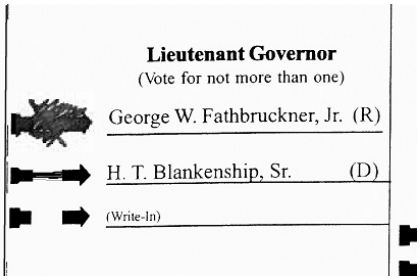
a



b

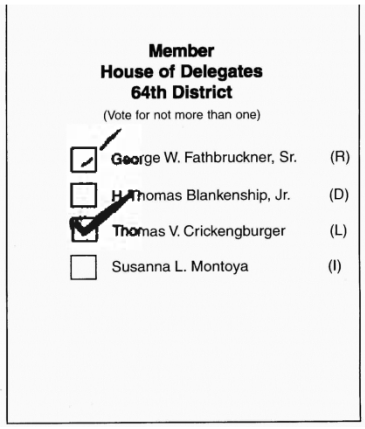


c

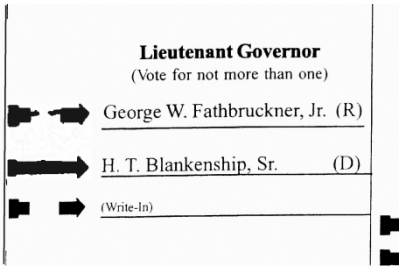


(8 continued) Votes to be counted:

d



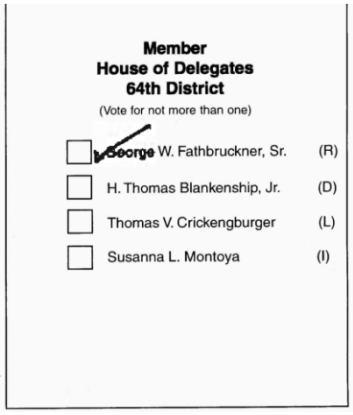
e



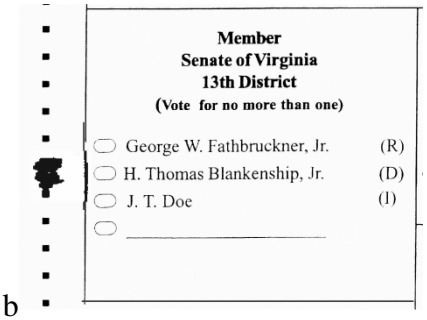
(9) Any ballot that has a mark that is clearly next to (either before or after) a candidate's name, or across the name, shall be recognized as a mark under items 1-6 above. Similarly, a mark between or over the "timing marks" of the ballot, that are clearly opposite or next to one candidate's name and not near another candidate's name, shall be recognized as a mark. (The "timing marks" are the small lines or boxes running down the right and/or left sides of certain electronically read or scanned ballots, which line up the ballot in the reader.)

Votes to be counted:

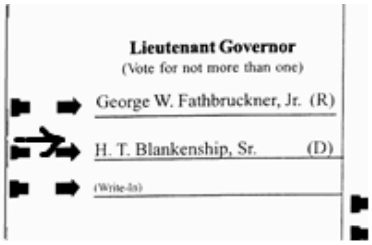
a



b



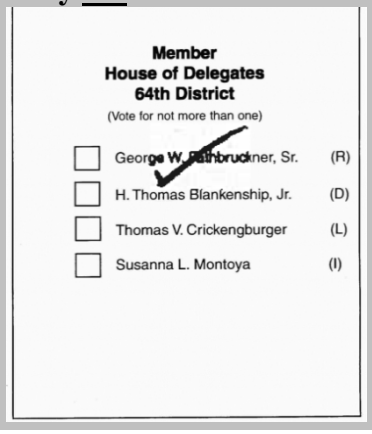
c



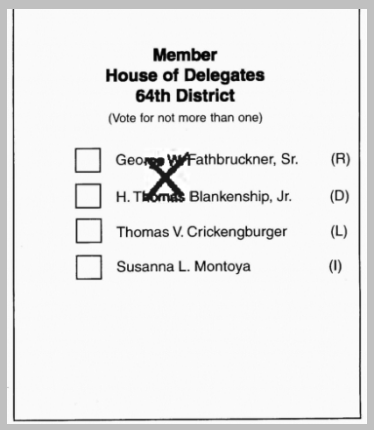
A mark that is between or across more than one candidate's name, candidate area, or target area shall not be recognized as a mark except under items 5 and 6 above.

Votes may <u>not</u> be counted:

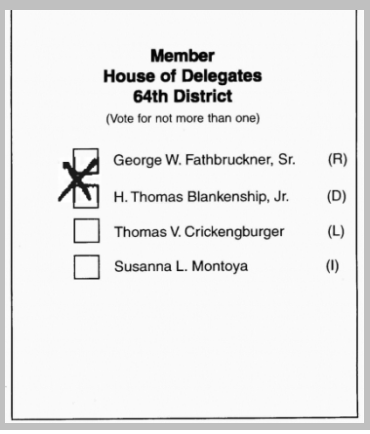
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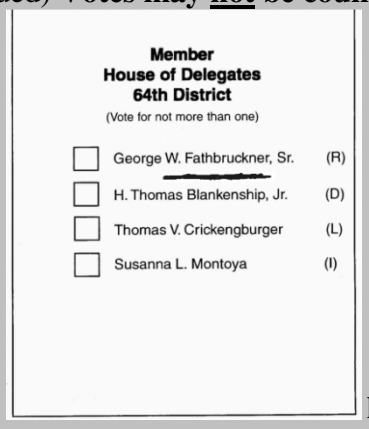


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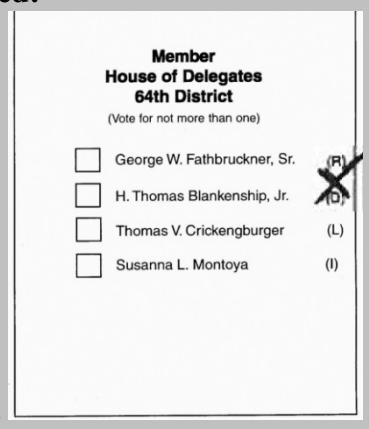


(9 continued) **Votes may <u>not</u> be counted:**

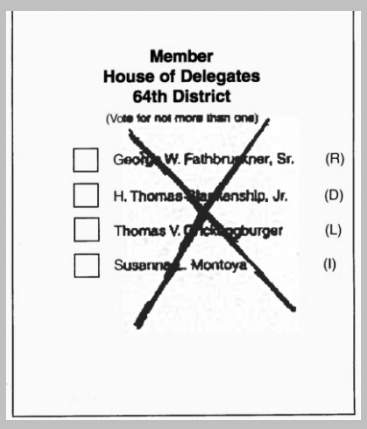
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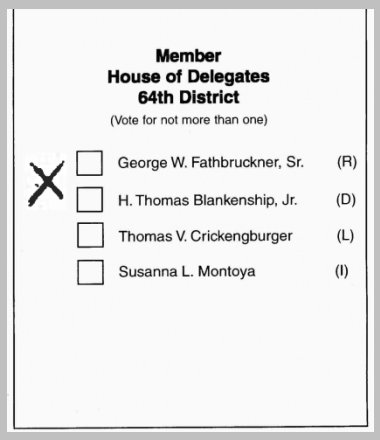
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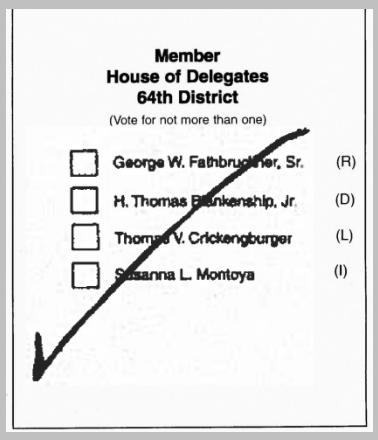
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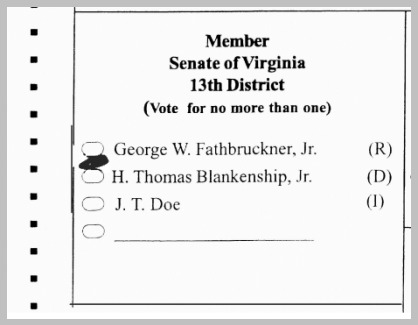
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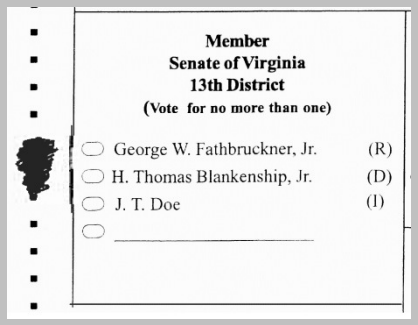
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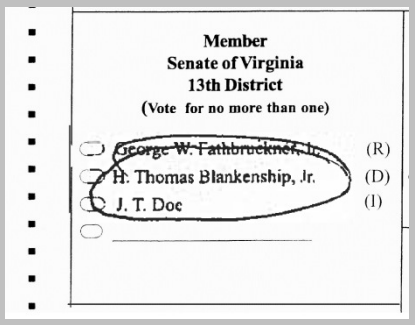
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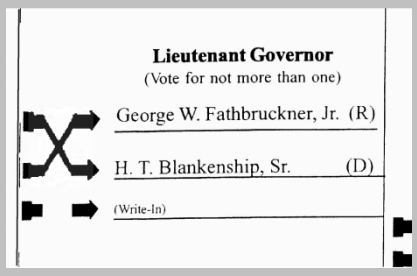
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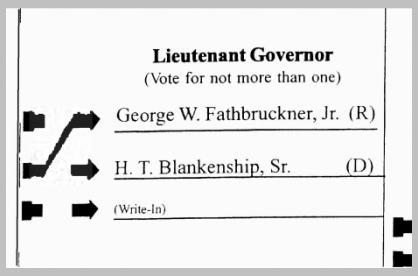
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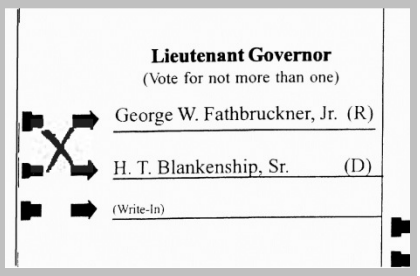
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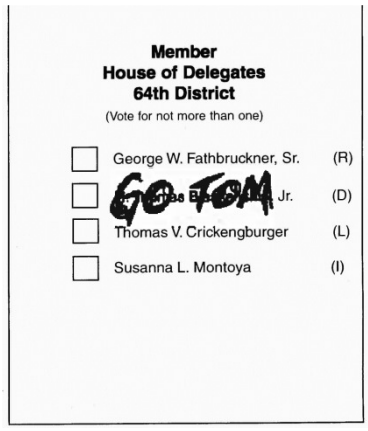
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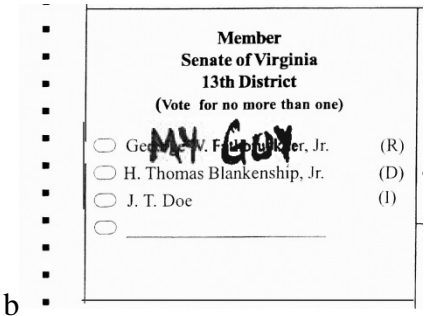
(10) Any other writing or remark on the ballot (other than a write-in unless a write-in candidate is a party to the recount) that clearly indicates the voter's support for one and only one candidate for the office that is the subject of the recount, and that cannot be interpreted as a remark in favor of any other candidate in that election, shall be counted as a vote for that candidate.

Votes to be counted:

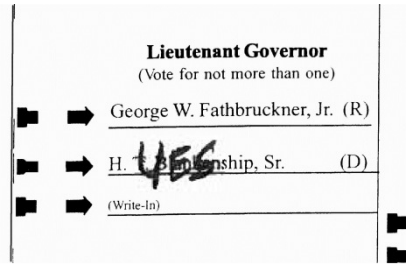
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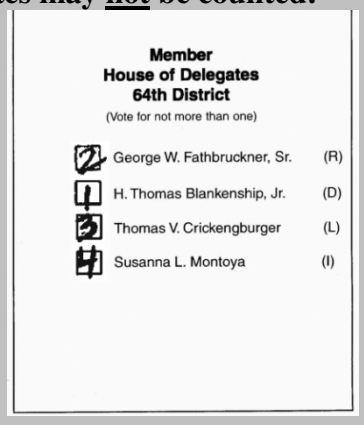
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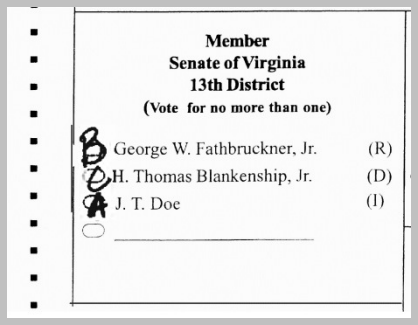
Writings or remarks which appear to be ranking the candidates (letters, numbers, +/-, etc.) shall not be considered valid marks unless only one candidate is marked and no other candidate is similarly marked.

Votes may <u>not</u> be counted:

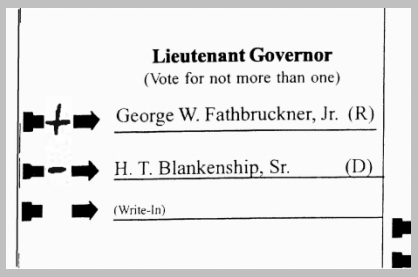
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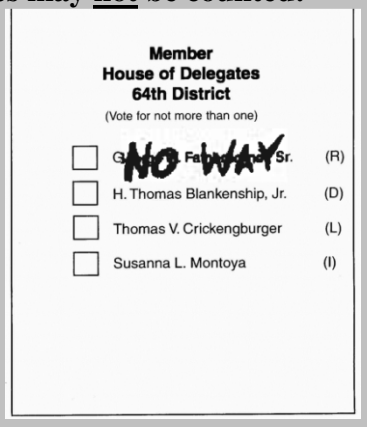
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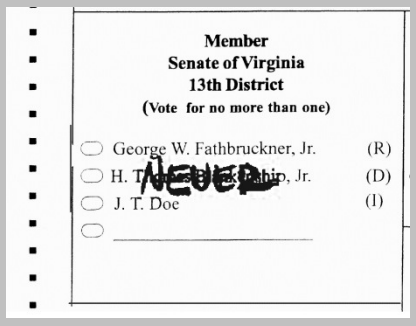
(11) Any other writing or remark on the ballot which indicates the voter's opposition to one or more candidates, provided the ballot is not so marked as to indicate which candidate the voter supports, shall not be counted as a vote for any candidate.

Votes may not be counted:

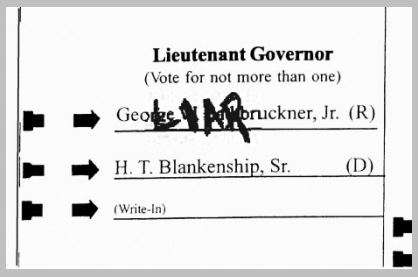
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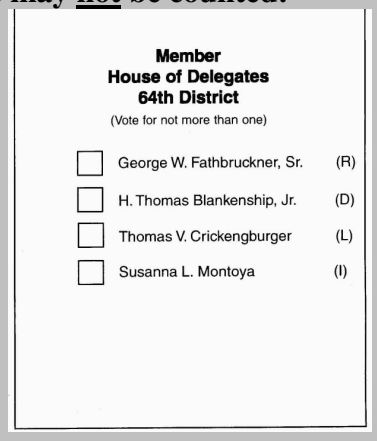
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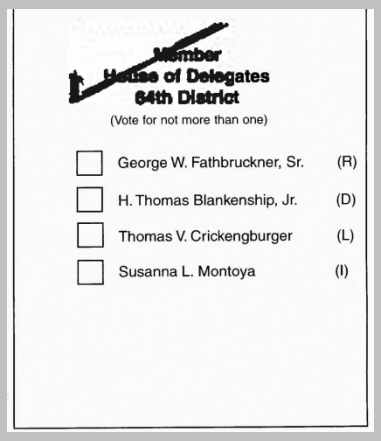
(12) Any ballot on which there is no mark under the office, or any other remark indicating support for a candidate for the office, shall not be counted as a vote for any candidate.

Votes may not be counted:

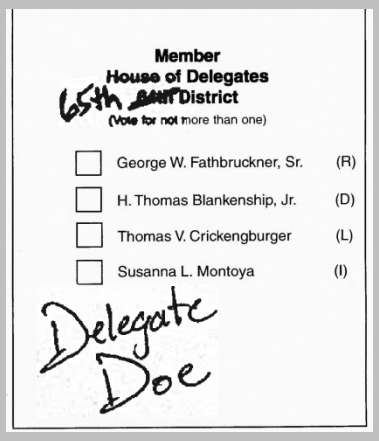
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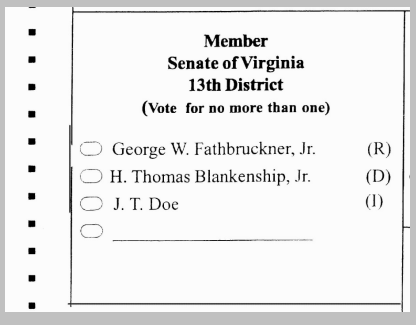
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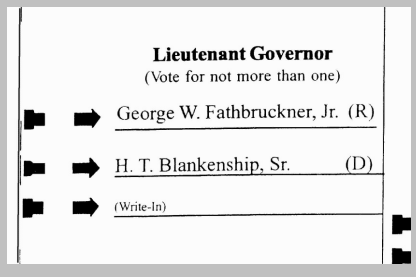
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From: Oberlander, Shelley
To: Obannon, John (ELECT)
Subject: EXIT ERIC
Date: Tuesday, April 11, 2023 12:37:24 AM

Dear Chairman O'Bannon,

Thank you for your efforts towards improving the integrity of Virginia's Elections.

Thank you for your work to expand the Risk Limiting Audit options and allow the Batch Comparison Method. Many in the public are encouraged that this option is available and these improvements are increasing Voter confidence in Virginia.

I also appreciate you allowing for public comment during the State Board of Election meetings and for listening to the election concerns of the citizens of the Commonwealth.

I am writing to you today because I am concerned about Virginia's participation in ERIC. After over a decade of participating as a member of ERIC the disadvantages appear to outweigh the advantages of Virginia staying a member. I am sure you are aware of the problems and concerns with ERIC. My understanding is that several Secretary of States and Election Directors have made recommendations for changes and improvements to ERIC, but they have been ignored. This has caused some of those states, after waiting over a year or more, to finally withdraw their membership from ERIC. I have followed the efforts to improve ERIC and reasons for leaving ERIC, by the Ohio Secretary of State Frank LaRose and the West Virginia Secretary of State, Mac Warner. Some of these are:

1. $25,000 -$116,000 dollars of tax payer money paid in annual dues in addition to millions of dollars in costs for the ERIC dictated Voter Registration Projects. Apparently, a previous Kansas State Cross Check system shared voter data among member states without charging fees or requiring other services.

2. David Becker, founder and former Executive Director of ERIC is also the founder of CEIR (Center for Election Innovation and Research), which appears to be a partisan organization. I have read that, the Voter data and Motor Vehicle Data from member states is regularly shared by ERIC with 3rd party groups like CEIR. Virginia Voters trust the state to keep their data private, however as a member of ERIC, it appears that the personal data of Virginia Voters, and even the data of children 15 years old and not yet eligible to vote, is being shared with whoever ERIC authorizes.

3. The purpose of ERIC was supposed to be a cross state voter check program to prevent Voter's from registering to vote and voting in multiple states. This happens to some degree at the initiation of a state, but the focus of ERIC has been required Voter Registration projects. Voter Registration does need to occur, but Virginia's Voter Registration programs should be created by Virginia and not dictated by a 3rd party organization, like ERIC.

4. According to the Secretary of State of Alabama, ERIC has an address but does not have a physical HQ Office, nor servers, nor computers, nor employees.

5. Only about half of the 50 states participate in ERIC and now 2 states that border Virginia, West Virginia and North Carolina, are not members of ERIC. Virginia has Memorandums of Agreement with some states not in ERIC to compare Voter Lists.
Strict disclosure restrictions can be included in the MOA's to protect the Voter's personal information. I think MOA's with individual states is a better option for Virginia than continuing to participate in ERIC.

6. Finally,Virginia can obtain cross state Voter information by acquiring the National Change of Address lists (NCOA) directly from the United States Postal Service to find Voters who have moved out of the state and county. The VA Voter List can also be compared with Social Security Administration data to find deceased citizens who may have died in another state other than Virginia. These cross state Voter List Checks can be conducted by the Virginia Department of Elections without having to participate in ERIC. Virginia could get the cross state check information these other ways and avoid paying costly ERIC dues, risking the disclosure of the personal information

of VA Voter's to anyone ERIC authorizes and without being required to fulfill ERICs Voter Registration projects every 60-90 days.

The more I have read about ERIC, I have become convinced that Virginia should exit ERIC. I ask you, as the Commissioner of Elections for the Commonwealth of Virginia, to please withdraw Virginia's membership from ERIC as soon as possible.

For Election Integrity,

Shelley Oberlander
Vice-Chairman Loudoun County Electoral Board (on behalf of myself)

From: Oberlander, Shelley
To: Alvis-long, Georgia (ELECT)
Subject: EXIT ERIC
Date: Tuesday, April 11, 2023 12:50:06 AM

Dear Georgia,

It was so nice to meet you at the VEBA meeting in Roanoke last month. As I mentioned when we talked, thank you for your work to expand the Risk Limiting Audit options and allow the Batch Comparison Method. Many in the public are encouraged that this option is available and these improvements are increasing Voter confidence in Virginia.

I also appreciate the State Board of Elections allowing for public comment during the State Board of Election meetings and for listening to the election concerns of the citizens of the Commonwealth.

I am writing to you today because I am concerned about Virginia's participation in ERIC. After over a decade of participating as a member of ERIC the disadvantages appear to outweigh the advantages of Virginia staying a member. I am sure you are aware of the problems and concerns with ERIC. My understanding is that several Secretary of States and Election Directors have made recommendations for changes and improvements to ERIC, but they have been ignored. This has caused some of those states, after waiting over a year or more, to finally withdraw their membership from ERIC. I have followed the efforts to improve ERIC and reasons for leaving ERIC, by the Ohio Secretary of State Frank LaRose and the West Virginia Secretary of State, Mac Warner. Some of these are:

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3. The purpose of ERIC was supposed to be a cross state voter check program to prevent Voter's from registering to vote and voting in multiple states. This happens to some degree at the initiation of a state, but the focus of ERIC has been required Voter Registration projects. Voter Registration does need to occur, but Voter Registration programs should be created by Virginia and not dictated by a 3rd party organization, like ERIC.

4. According to the Secretary of State of Alabama, ERIC has an address but does not have a physical HQ Office, nor servers, nor computers, nor employees.

5. Only about half of the 50 states participate in ERIC and now 2 states that border Virginia, West Virginia and North Carolina, are not members of ERIC. Virginia has Memorandums of Agreement with some states not in ERIC to compare Voter Lists.
Strict disclosure restrictions can be included in the MOA's to protect the Voter's personal information. I think MOA’s with individual states is a better option for Virginia than continuing to participate in ERIC.

6. Finally, Virginia can obtain cross state Voter information by acquiring the National Change of Address lists (NCOA) directly from the United States Postal Service to find Voters who have moved out of the state and county. The VA Voter List can also be compared with Social Security Administration data to find deceased citizens who may have died in another state other than Virginia. These cross state Voter List Checks can be conducted by the Virginia Department of Elections without having to participate in ERIC. Virginia could get cross state check information these other ways and avoid paying costly ERIC dues, risking the disclosure of the personal information

of VA Voter's to anyone ERIC authorizes and without being required to fulfill ERICs Voter Registration projects every 60-90 days.

The more I have read about ERIC, I have become convinced that Virginia should exit ERIC. I ask you, as a member of the Virginia State Board of Elections to please do what you can to help withdraw Virginia's membership from ERIC.

Thank you,

Shelley Oberlander
Vice-Chairman Loudoun County Electoral Board (on behalf of myself)

From: Oberlander, Shelley
To: Merricks, Donald (ELECT)
Subject: EXIT ERIC
Date: Tuesday, April 11, 2023 12:59:29 AM

Dear Virginia State Board of Elections Member Merricks,

Thank you for your efforts to improve Election Integrity in Virginia. Thank you for your work to expand the Risk Limiting Audit options and allow the Batch Comparison Method. Many in the public are encouraged that this option is available and these improvements are increasing Voter confidence in Virginia.

I also appreciate the State Board of Elections allowing for public comment during the State Board of Election meetings and for listening to the election concerns of the citizens of the Commonwealth.

I am writing to you today because I am concerned about Virginia's participation in ERIC. After over a decade of participating as a member of ERIC the disadvantages appear to outweigh the advantages of Virginia staying a member. I am sure you are aware of the problems and concerns with ERIC. My understanding is that several Secretary of States and Election Directors have made recommendations for changes and improvements to ERIC, but they have been ignored. This has caused some of those states, after waiting over a year or more, to finally withdraw their membership from ERIC. I have followed the efforts to improve ERIC and reasons for leaving ERIC, by the Ohio Secretary of State Frank LaRose and the West Virginia Secretary of State, Mac Warner. Some of these are:

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2. David Becker, founder and former Executive Director of ERIC is also the founder of CEIR (Center for Election Innovation and Research), which appears to be a partisan organization. I have read that Voter data and Motor Vehicle Data from member states is regularly shared by ERIC with 3rd party groups like CEIR. Virginia Voters trust the state to keep their data private, however as a member of ERIC, it appears that the personal data of Virginia Voters, and even the data of children 15 years old and not yet eligible to vote, is being shared with whoever ERIC authorizes.

3. The purpose of ERIC was supposed to be a cross state voter check program to prevent Voter's from registering to vote and voting in multiple states. This happens to some degree at the initiation of a state, but the focus of ERIC has been required Voter Registration projects. Voter Registration does need to occur, but Voter Registration programs should be created by Virginia and not dictated by a 3rd party organization, like ERIC.

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Strict disclosure restrictions can be included in the MOA's to protect the Voter's personal information. I think MOA's with individual states is a better option for Virginia than continuing to participate in ERIC.

6. Finally, Virginia can obtain cross state Voter information by acquiring the National Change of Address lists (NCOA) directly from the United States Postal Service to find Voters who have moved out of the state and county. The VA Voter List can also be compared with Social Security Administration data to find deceased citizens who may have died in another state other than Virginia. These cross state Voter List Checks can be conducted by the Virginia Department of Elections without having to participate in ERIC. Virginia could get cross state check information these other ways and avoid paying costly ERIC dues, risking the disclosure of the personal information of VA Voter's to anyone ERIC authorizes and without being required to fulfill ERICs Voter Registration projects

every 60-90 days.

The more I have read about ERIC, I have become convinced that Virginia should exit ERIC. I ask you, as a member of the Virginia State Board of Elections to please do what you can to help withdraw Virginia's membership from ERIC.

Thank you,

Shelley Oberlander
Vice-Chairman Loudoun County Electoral Board (on behalf of myself)

From: Obannon, John (ELECT)
To: Beals, Susan (ELECT)
Subject: Fw: EXIT ERIC
Date: Wednesday, April 12, 2023 3:19:21 PM

FYI

From: Oberlander, Shelley <Shelley.Oberlander@loudoun.gov>
Sent: Tuesday, April 11, 2023 12:37 AM
To: Obannon, John (ELECT) <John.OBannon@elections.virginia.gov>
Subject: EXIT ERIC

Dear Chairman O'Bannon,

Thank you for your efforts towards improving the integrity of Virginia's Elections.

Thank you for your work to expand the Risk Limiting Audit options and allow the Batch Comparison Method. Many in the public are encouraged that this option is available and these improvements are increasing Voter confidence in Virginia.

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Strict disclosure restrictions can be included in the MOA's to protect the Voter's personal information. I think MOA's with individual states is a better option for Virginia than continuing to participate in ERIC.

6. Finally,Virginia can obtain cross state Voter information by acquiring the National Change of Address lists (NCOA) directly from the United States Postal Service to find Voters who have moved out of the state and county. The VA Voter List can also be compared with Social Security Administration data to find deceased citizens who may have died in another state other than Virginia. These cross state Voter List Checks can be conducted by the Virginia Department of Elections without having to participate in ERIC. Virginia could get the cross state check information these other ways and avoid paying costly ERIC dues, risking the disclosure of the personal information of VA Voter's to anyone ERIC authorizes and without being required to fulfill ERICs Voter Registration projects every 60-90 days.

The more I have read about ERIC, I have become convinced that Virginia should exit ERIC. I ask you, as the Commissioner of Elections for the Commonwealth of Virginia, to please withdraw Virginia's membership from ERIC as soon as possible.

For Election Integrity,

Shelley Oberlander
Vice-Chairman Loudoun County Electoral Board (on behalf of myself)

From: Alvis-long, Georgia (ELECT)
To: chris@chrisrunion.com
Subject: Fw: Loudoun Batch Comparison RLA for Democratic Primary June 20, 2023
Date: Wednesday, August 2, 2023 9:07:39 AM
Attachments: Sort and Stack Method.pdf
Virginia"s Guide to Hand Counting Ballots.pdf
HOD District 26 RLA 10 Batches.pdf
SBE Agenda May 30, 2023.pdf
Request to Inspect Sealed Election Materials for a Post Election Audit.docx
2023-RLA-Manual_FINAL.pdf
SBE-671.2(D)-Form-Request-for-Risk-Limiting-Audit_March-2023_FINAL.pdf
RLA-Tally-Sheet-Template.xlsx
Chain-of-Custody-Log-Template-(1).docx
ExamplesforHandcounting.pdf
Report on June 28, 2023 Loudoun County Batch Comparison, Risk Limiting Audit.docx
General Timeline for a RLA Batch Comparison.docx
Request for Risk-Limiting Audit - Amended.pdf

From: Shelley Oberlander <shelleynoberlander@gmail.com>
Sent: Wednesday, July 19, 2023 2:41 PM
To: Alvis-long, Georgia (ELECT) <Georgia.Alvis-Long@elections.virginia.gov>
Subject: Fwd: Loudoun Batch Comparison RLA for Democratic Primary June 20, 2023

Enclosed and attached are several documents that may help explain the Batch Comparison Method RLA process that we conducted in Loudoun on June 28, 2023.

Shelley

---------- Forwarded message ---------
From: **Shelley Oberlander** <shelleynoberlander@gmail.com>
Date: Wed, Jul 19, 2023 at 1:57 PM
Subject: Loudoun Batch Comparison RLA for Democratic Primary June 20, 2023
To: Shelley Oberlander <shelleynoberlander@gmail.com>,
<shelley.oberlander@loudoun.gov>

From: Alvis-long, Georgia (ELECT)
To: chris@chrisrunion.com
Subject: Fw: Report on Loudoun Batch Comparison RLA June 28, 2023
Date: Wednesday, August 2, 2023 9:05:03 AM

Hi, Chris.

Please let me know that you get this!

Georgia

From: Alvis-long, Georgia (ELECT) <Georgia.Alvis-Long@elections.virginia.gov>
Sent: Saturday, July 22, 2023 9:57 AM
To: Oberlander, Shelley <Shelley.Oberlander@loudoun.gov>
Subject: Re: Report on Loudoun Batch Comparison RLA June 28, 2023

Shelley,

You have done an extraordinary job with this.

Thank you for all that you do!

Georgia

From: Oberlander, Shelley <Shelley.Oberlander@loudoun.gov>
Sent: Wednesday, July 19, 2023 2:25 PM
To: Alvis-long, Georgia (ELECT) <Georgia.Alvis-Long@elections.virginia.gov>
Subject: Report on Loudoun Batch Comparison RLA June 28, 2023

Hello Georgia,

Below is my unofficial report on the Loudoun Batch Comparison Method RLA held on June 28, 2023. I will send a following email with several attachments that I am planning to use as visuals later for a presentation.

I welcome your feedback and input. There are a few areas below with question marks because I need further information about them.

Thank you for your support and all the work you do to help with the integrity and excellence of Virginia Elections.

With kind regards,

Shelley Oberlander
Vice-Chairman Loudoun County Electoral Board

Unoffical Report on Loudoun County Batch Comparison Risk Limiting Audit, June 28, 2023

Shelley Oberlander, Loudoun County Electoral Board Member

Batch Comparison Method Risk Limiting Audit an Option in Virginia, March 2023:

On March 7, 2023 the VA State Board of Elections voted unanimously to allow local VA Electoral Boards the option to choose the Batch Comparison Method for their Risk Limiting Audit or they could use the already approved Ballot Polling Method. At the May 30th, 2023 VA SBE meeting, ELECT presented an updated Risk Limiting Audit Chapter for the 2023 GREB manual, which includes the procedures and details for conducting a Batch Comparison Method RLA. The May 30, 2023 SBE Agenda contains the updated procedures and details for conducting a Batch Comparison Risk Limiting Audit. The Updated 2023 RLA Procedures are located on ELECT's Forms Warehouse and include how to conduct a Batch Comparison Method, RLA. A glossary of Risk Limiting Audit terms is also located in the 2023 RLA Procedures manual on page 52.

Loudoun County Requests a Batch Comparison Method RLA for the June 20, 2023 Democratic Primary:

Following the June 20, 2023 Democratic Primary Election in Loudoun County, the new Bipartisan Electoral Board voted unanimously (during the Canvass meeting) on Wednesday, June 21, 2023 to request a Batch Comparison Method Risk Limiting Audit for the House of Delegates District 26 race, which is wholly contained under the jurisdiction of the Loudoun Electoral Board (VA Code 12.2-671.2(D)).

The request by the local EB to conduct an RLA must to be submitted by 5:00 pm on the Tuesday following the election, which is the day before the State Electoral Board is scheduled to meet.The SBE is required to meet on the second Wednesday following the Election, to approve any local RLA requests and to choose an RLA to be conducted annually on behalf of the SBE.

The Loudoun EB Secretary filled in the Request Form (SBE Form 671.2(D)) and it was signed by each member of the Electoral Board, with their vote indicated. The majority of the EB must vote to request the RLA, but for Loudoun the vote to request the Batch Comparison RLA was unanimous. The Loudoun General Registrar submitted the completed form to our Region 5 (Northern Region) ELECT Liaison, Phoenicia Hill.

Logistical Decisions Made by Electoral Board and Staff Prior to Submitting the RLA Request:

To be able to fill in the RLA request form, certain decisions and considerations need to be made in advance by the EB and Staff.

1. The RLA must be done on a contested race. (At least 2 opposing candidates).
2. The requested race has to be wholly under the jurisdiction of the local Electoral Board. Examples: School Board, Board of Supervisors, Commonwealth Attorney, Sheriff, some House of Delegates, etc.
3. The margin of victory must be greater than >1%, so there is not a chance for a recount ofthe race.
4. A separate Request form needs to be submitted for each race being audited.
5. The same RLA method needs to be used for all the RLA's being conducted in that locality, unless a locality is being asked to do a RLA by the SBE and they also requested to conduct their own RLA.
6. Lists of bipartisan Election Officers that served in the Election need to be made by the EB and GR and asked if they are available to work to be part of the Audit Teams to conduct a Risk Limiting Audit. Loudoun had 6 Audit Teams comprised of 12 Bipartisan Election Officers. 2 Election Officers were on each Audit Team, 1 Republican and 1 Democrat. We asked some Election Officers during the Canvass if they could serve during the Audit.
7. A location for the RLA needs to be chosen that is large enough for several Audit Teams,the Electoral Board and Staff, Authorized Observers and the Public.
8. Loudoun requested the SBE grant the allowed extension for certifying the race being audited. Our Election Abstracts were all signed and submitted as required by Monday, June 26th, except for the race being audited. Up to a 2 week certification extension can be granted to the locality by the SBE. However, due to the SBE's plan to certify the Primary elections by Wed. July 5, 2023, (*using literal calendar days to count the 14 days after the Election to certify the election rather than business days*). Loudoun was granted a shorter extension.
9. Choose a date or several possible dates and a time and location that is available for the RLA and that works for the Election Officers to come and conduct the RLA. The date must be within the parameters of certification requirements by the SBE. The updated GREB manual section on RLA's does not recommend doing an RLA for a Primary due to the few dates available for the RLA to be conducted, especially, so close to the July 4thholiday. There were only 2 days that Loudoun could conduct the RLA and so those dates were requested on the form. It is also recommended to start the RLA in the morning, so there is time for a second round of tabulating if needed.
10. The General Registrar also checked with the Clerk of Circuit Courts to see if he and his staff were available to deliver the ballots needed on the day of the RLA and stay to guard the ballots and return the ballots to the office of the Clerk of Circuit Courts after the RLA. Unfortunately, the Clerk of Circuit Courts said many members of his staff were on vacation and he would not have the staff available to deliver and retrieve the ballots on either of the 2 dates the

Loudoun EB had requested the RLA. He said he would have staff available the 2 days before that.

11. The Registrar amended the RLA request form to request the Audit for one day earlier, Wednesday June 28th, 2023 and since Loudoun was the only RLA request received, the SBE decided to meet one day earlier and they approved the RLA request.
12. The RLA date and time has to be publically posted and announced 3 days prior to the RLA. Loudoun posted the several possible RLA dates and times as soon as the RLArequest form was submitted on Wednesday, June 21, 2023 and added to the post (pending SBE approval), until the specific date and time were decided and approved by the SBE.
13. The General Registrar made sure the Unit Chairmen of each major political party and each candidate in the race being audited, were notifed about the RLA date, time and location and were invited to each send one authorized observer.
14. Besides making the RLA open to the Public, Loudoun also Live streamed the RLA(with no audio, as was done with the February 2021 Ballot Polling RLA).
15. Loudoun Batch Comparison RLA Room Set-Up: Two, six foot multi-purpose tables with 4 chairs were provided for each of the 6 Audit Team's to work on to sort, hand-count and tabulate the ballots. Tables and chairs were provided to the Electoral Board and another area of tables and chairs for staff and members from ELECT that attended the Audit. A row of tables and chairs were provided for the public and also served as a barrier to keep the Public contained from direct contact with the ballots. Authorized observers had special identification badges and were allowed to walk through the audit area to observe, while following authorized observer rules and not interfering with the audit and asking questions only to the GR and EB members.

16. Useful RLA Materials: Tables, chairs, Pens, Tabulation sheets, Sort and Stack Method Instructions, Virginia Hand-Count Instructions, rubber bands, sticky notes, rubber thumbs, Election Officer labels for the #3 envelope boxes and packing tape to re-seal #3 ballot boxes after completion of Audit and Lunch.

17. June 28, 2023 Loudoun RLA Attendees: All 3 Loudoun Electoral Board Members (although only 2 bipartisan EB members are required to attend), Members of ELECT: (Rachel Lawless, confidential policy analyst, Claire Scott, policy Analyst and ……Security and IT). The Loudoun General Registrar, Loudoun Deputy Registrar, 12 bipartisan Loudoun Election Officers who comprised the 6 Audit Teams, Authorized Observers from one of the major political parties, all 3 members of the Orange County Electoral Board, the press/media, periodically some Loudoun Election staff, and the Loudoun Clerk of Circuit Courts security staff person.

The Batch Comparison, Risk Limiting Audit Process:

1. At the SBE meeting on Tuesday, June 27, 2023 at 1:00 pm, the VA State Board of Elections approved the Batch Compariosn method RLA requested by Loudoun County for the HOD District 26 race. Then ELECT chose a 20 digit random seed number, by rolling 20 ten-sided dice once each. This random seed number number was put into the RLA software called ARLO to randomly select the RLA batches.

   ARLO: is the RLA software supported by VotingWorks and leased by ELECT to administer the RLA.
   A Batch: is defined as a documented set of ballots created by a voting system, an officer of election, or other election official. Examples of a Batch are all the ballots from a Precinct, all the CAP ballots (Central Absentee Precinct), all of the ballots from an Early Voting Satellite Location, etc.

2. Loudoun County also had to upload its ballot manifest into the ARLO software.
   A Ballot Manifest: is a two column Excel spreadsheet that creates an inventory of every ballot cast in a locality during a contest. (race, election? (copies of all the ballots? Why 2 columns? 2 sides of the ballot?).

3. Then ELECT ran the ARLO software which is set to determine a risk limit of 10%.
   (The updated GREB manual indicates that ARLO has a tendency to choose larger Precincts to audit.)

   ARLO chose 10 batches for Loudoun to Audit:
   1. Precinct 120
   2. Precinct 124
   3. Precinct 322
   4. Precinct 630

5. Precinct 712
6. Precinct 714
7. EV1-Leesburg
8. EV2-Sterling
9. CAP
10. Post-Election

4. ELECT sent a form to the Loudoun Clerk of Circuit Courts instructing his office to deliver the boxes of ballot s randomly selected for the Audit to the Loudoun Election Office on the Audit day by a certain time.
5. A total of 9,703 ballots were opened by the Audit Team Election Offciers. Each Audit Team was assigned one batch to retrieve, open , sort and hand tabulate. Only the ballots that had the HOD District 26 race on them were pulled out to be hand tablulated.
6. The ballots were sorted and stacked using the Sort and Stack Method. The ballots designated as not having the HOD District 26 race on them were double checked and labeled with a sticky note saying, "double checked" on them and signed by the person who double checked them. They also had a rubber band around them and were put to one side of the table.
7. The ballots with the HOD District 26 race on them were then sorted by the vote cast for each candidate.
8. *It is recommended that when the ballot box is opened, that the ballots be removed and both Election Officers verify that the ballot box is empty and all the ballots are on the table. The empty ballot box should remain at one end of the table with the lid opened, so anyone walking by can see that the box is empty while the ballots are being sorted, stacked and tabulated*.
9. The Ballots with the HOD District 26 race on them were sorted into piles by the labelstaped on top of each table for each candidate. There was also a labeled pile for Under- votes, Over- votes and an Undecided pile, if the 2 bipartisan Election Officers could not agree on the clear intent of the voter from the ballot. If the Election Officers could not agree in determining the voter's intent, the GR or someone from the Electoral Board could decide on the vote or the ballot was not counted. *Although, most of the ballots could clearly be decided by the 2 bipartisan Election Officers, I think the Adjudication Process should be more clearly spelled out and maybe involve a vote from the Electoral Board*. There are 2 sheets attached that give instructions for Hand-counting Ballots in Virginia and what makings on the ballot can be counted as a vote.
10. A total of 5583 votes/ballots were cast in this entire election for the House of Delegates District 26 race. The final vote for the entire HOD District 26 race was: 3,784 votes for Srinivasan and 1,799 Votes for Kompalli. For the Batch Comparison RLA, 10 batches of ballots were randomly selected to be audited and 9,703 ballots were retrieved.The Audit Team for each Batch sorted the ballots for just the HOD District 26 race and2,602 House District 26 ballots were Audited. The Audit results were: 1,802 votes forSrinivasan and 800 votes for Kompalli. The results for each Batch matched the Statement of Results Tape numbers from the corresponding Voting machine, with the exception of 5 extra Votes. The 5 additional votes were counted because during the Hand Counting, the 2 bipartisan Election Officers could clearly determine the intent of the Voter, even though for various reasons the voting machine had not been able to determine that vote.
(*Note that, during the Ballot Polling Method RLA in February 2021 for the 2020 Presidential race, only 63 ballots were pulled and audited in Loudoun County out of approximately 230,000 ballots cast. As well, that audit was for a Presidential race which was on every ballot in the election. Because so few ballots are pulled and audited in the February 2021 Ballot Polling RLA, it is not regarded by some as an effective Audit. The Batch Comparison method is often preferred because many more ballots are audited. The Batch Comparison audit also verifies the accuracy of the voting machine results in the Precinct when the hand tabulation results are compared to the SOR results from the voting machines.)*
11. The sort and stack Method was used to separate the ballots for each candidate, by both Election Officers and the ballots for each candidate were put in stacks of 10, at right angles, to easily count/tabulate them.
12. The total number of votes cast for each candidate was written by each Audit Team on the RLA Tally Sheet. This tally sheet is input into ARLO by the Election Officers or the RLA Administrator. The tabulation results from the Batch Comparison RLA arecompared to the Tabulation results from the Statement of Results tapes from the Precinct Voting machines from Election night. The ARLO software compares the RLA results to the original voting machine SOR results to verify the accuracy of the voting machines.
13. Loudoun had a 99% Accuracy rating in the Audit Results compared to the Voting machine results for the June 20,2023 Democratic Primary.
14. Five more votes were added to the tabulation of this race from the Audit. The HOD District 26 winner, Kannan Srinivassan received 4 more votes and the opponent, SirishaKompalli received 1 more vote. These

additional votes were due to the human Election Officers on the Audit Review Teams being able to clearly identify the intent of the voter and counting those ballots, which had not been counted by the voting machine, maybe due to the voter circling their choice or putting a dot or writing too lightly for the machine to read the vote.

15. After auditing each batch, the Audit Team of Election Officers placed all the ballots from that Precinct back into the #3 Envelope Ballot box and sealed the ballot box with tape and placed a new seal on the box, signed by both bipartisan Election Officers of that Audit Team. Then they returned the #3 Envelope Ballot box(es) to the secure storage area and retrieved another batch of ballots from another randomly selected Precinct and began the Batch Comparison Audit process again.
16. The Loudoun County Batch Comparison Method, Risk Limiting Audit of 10 batches of ballots (totaling 9,703 ballots) was completed in 3 hours and 15 minutes. The Audit began at 10:00 am and concluded at 1:15 pm.
17. An Audit report was created through the ARLO software and the Loudoun Deputy Registrar presented the Audit results up on a big screen to everyone present in the room.
18. An Audit Report was also sent to ELECT?
19. An Abstract of the results of the House of Delegates District 26 race was created by the Loudoun General Registrar, which included the 5 additional votes determined by the Audit.
20. The Loudoun Electoral Board signed the Abstract to certify the results of the HOD District 26 race and the Abstract was sent to ELECT, so the SBE could also certify the race on July 5. 2023.
21. After the completion of the entire RLA the Clerk of Circuit Courts staff, again took custody of the sealed ballots and returned them to secure storage at the Clerk of Circuit Courts office.

In Conclusion:

The Loudoun County Batch Comparison Method Risk Limiting Audit for the June 20, 2023 Democratic primary went very well. This was the first Batch Comparison Method, RLA ever conducted in Virginia. A fairly small race was chosen and yet because the CAP and Early Voting Batches were chosen for the Audit, 9,703 ballots were audited. Surprisingly, auditing this many ballots only took 3 hours and 15 minutes. The Ballot Polling Method used for the February 2021 RLA took much longer and only retrieved 63 ballots to Audit. The Batch Comparison Method RLA, gives voters more confidence in the accuracy of the election results because many more ballots are audited and by auditing an entire batch of ballots, the voting machine result tabulations are also verified. The Loudoun County Election Office did a fantastic job in preparing in advance for the Audit, which helped everything run smoothly on the day of the Audit. The Audit results showed 99% Accuracy, which gives the public much confirmation as to the accurate results of Loudoun elections and the good election processes and good staff being used to conduct Loudoun Elections. It is excellent and important that the Audit is transparent and open to the Public and that bipartisan Election Officers and Authorized Observers were part of this Audit process.

Recommendations:

1. I recommend the 10 batches chosen for the Batch Comparison Method, RLA, should be truly randomly chosen, without using any computer software, and the names of all the precincts put into film canisters, mixed up and then 10 batches randomly drawn out.
2. Although, most of the ballots could clearly be decided by the 2 bipartisan Election Officers, I recommend that the Adjudication Process be more clearly defined and maybe involve a vote from the Electoral Board.
3. It might be best for the 2 Bipartisan Audit Team members to be randomly paired.
4. Pros and Cons should be discussed about having the Audit Teams enter the Batch Tally results into ARLO or an RLA Administrator staff member.
5. It is recommended that when the ballot box is opened by the Audit Team, that the ballots be removed and both Election Officers verify that the ballot box is empty and all the ballots are on the table. The empty ballot box should remain at one end of the table with the lid opened, so anyone walking by can see that the box is empty while the ballots are being sorted, stacked and tabulated.

Additional History: After the November 2022 general Election, the Loudoun County bipartisan Electoral Board voted unanimously to request approval from the SBE to conduct a Batch Comparison, Risk Limiting Audit for 2 contested races (The Michael Rivera- Leesburg School Board race and the Hung Coa- US House of Representatives 10th District race). ELECT denied Loudoun permission to do the Batch Comparison RLA, saying ELECT was not yet prepared with procedures for a Batch Comparison RLA. ELECT also said Loudoun could not do an RLA on the Hung Coa, US House of Representatives race, because that race was not wholly under the Loudoun Electoral Board's jurisdiction. The Loudoun Electoral Board could have done a Ballot Polling method RLA for the Rivera local School Board race, but chose not to. The Loudoun EB had already participated in a Ballot Polling RLA in February of 2021, following the 2020 Presidential Election, which they did not find beneficial. So, no RLA occurred in Loudoun following the November 2022 General Election.

Shelley Oberlander
Vice-Chairman Loudoun County Electoral Board

From: cbwhandsur@aol.com
To: Obannon, John (ELECT)
Subject: Fwd: Failure Notice
Date: Tuesday, March 2, 2021 9:38:48 PM
Attachments: mime-attachment.msq
state board of elections.docx

-----Original Message-----
From: Diana Wilkins-Mitchell <ironik4bstone@yahoo.com>
To: cbwhandsur@aol.com
Sent: Mon, Mar 1, 2021 7:50 pm
Subject: Fwd: Failure Notice

Sent from my iPhone

Begin forwarded message:

> **From:** MAILER-DAEMON@yahoo.com
> **Date:** March 1, 2021 at 7:46:32 PM EST
> **To:** ironik4bstone@yahoo.com
> **Subject: Failure Notice**
>
> Sorry, we were unable to deliver your message to the following address.
>
> <John.O'Bannon@elections.virginia.gov>:
> 550: 5.1.1 The email account that you tried to reach does not exist. Please try
> 5.1.1 double-checking the recipient's email address for typos or
> 5.1.1 unnecessary spaces. Learn more at
> 5.1.1 https://support.google.com/mail/?p=NoSuchUser o8si10540572qtx.376 - gsmtp
>
> --- Below this line is a copy of the message.

Thank you for taking the time to review the attached letter I have submitted for your consideration. Unfortunately the local board had a meeting on the 26th of February in which the secretary was unable to attend. The board met despite not having both republican and democratic parties presenT, with the local DNC chair acting as secretary. I was told I could not speak and given a code that was specific to the General Assembly. The Chair and Vice Chair of Nottoway's board continue to behave in a way that are contradictory to the Virginia codes concerning the board and its behavior. I am just a citizen who inadvertently got caught in the crosshairs of a personal battle....I can not stand by and watch a mockery made out of the election process. We are not a fiefdom and I owe no allegiance to a group of individuals who do not have the knowledge or desire to act on my behalf. I was unable to obtain the minutes from the first meeting on February the 9th and no recording devise or official secretary was present so I taped the meeting. I am happy to send you the voice recording. I respectfully request that this matter be brought up at the next SBE meeting.

Sent from my iPhone

From: cbwhandsur@aol.com
To: Brink, Robert (ELECT); Obannon, John (ELECT)
Subject: Fwd: Meeting for Nottoway County
Date: Monday, March 15, 2021 6:18:53 PM

-----Original Message-----
From: cbwhandsur@aol.com
To: ironik4bstone@yahoo.com <ironik4bstone@yahoo.com>; jamilah.lecruise@elections.virginia.gov <jamilah.lecruise@elections.virginia.gov>
Cc: bstabb@outlook.com <bstabb@outlook.com>; govote135@gmail.com <govote135@gmail.com>
Sent: Mon, Mar 15, 2021 6:17 pm
Subject: Re: Meeting for Nottoway County

Thank you, Mrs. Mitchell,

As you will remember, when the previous State Board of Elections heard matters of irregular activity by Electoral Boards or General Registrars those cases were presented and discussed in open, public meetings.

All voters in Virginia should be made aware of problems and the solutions within our election community.

Clara Belle Wheeler, MD
past Vice Chairman, Virginia State Board of Elections

-----Original Message-----
From: Diana Wilkins-Mitchell <ironik4bstone@yahoo.com>
To: jamilah.lecruise@elections.virginia.gov
Cc: Barbara Tabb <bstabb@outlook.com>; Angela Stewart <govote135@gmail.com>; Clarabelle Wheeler <cbwhandsur@aol.com>
Sent: Mon, Mar 15, 2021 12:30 pm
Subject: Meeting for Nottoway County

I am requesting a open, public meeting to address these issues. It is imperative that this process remain transparent and I am requesting to be on the agenda.

Sent from my iPhone

Batch Name	Number of Ballots	Kannan Srinivasan	Sirisha Kompalli	Write-In
Pct 108	200	118	67	0
Pct 112	154	102	45	0
Pct 119	223	134	75	0
Pct 120	256	166	85	0
Pct 121	166	109	49	0
Pct 122	252	154	83	0
Pct 124	163	103	55	0
Pct 126	155	97	50	0
Pct 312	149	85	57	0
Pct 314	379	217	142	0
Pct 321	196	131	57	0
Pct 322	195	139	53	0
Pct 324	109	84	22	0
Pct 325	321	216	94	0
Pct 628	119	75	40	0
Pct 630	273	205	60	0
Pct 712	190	116	66	0
Pct 713	79	14	1	0
Pct 714	355	227	113	0
EV1-Leesburg	2449	150	51	0
EV2-Sterling	639	19	5	0
EV3-South Riding	846	404	194	0
EV4-Purcellville	114	1	0	0
CAP	4708	577	274	0
Post-Election	474	97	37	0
Provisional	267	44	24	0
Totals	**13431**	**3784**	**1799**	**0**

From: Diana Wilkins-Mitchell
To: John.O"Bannon@elections.virginia.gov
Subject: Nottoway County Board of Electors
Date: Monday, March 1, 2021 7:46:31 PM
Attachments: state board of elections.docx

Thank you for taking the time to review the attached letter I have submitted for your consideration. Unfortunately the local board had a meeting on the 26th of February in which the secretary was unable to attend. The board met despite not having both republican and democratic parties presenT, with the local DNC chair acting as secretary. I was told I could not speak and given a code that was specific to the General Assembly. The Chair and Vice Chair of Nottoway's board continue to behave in a way that are contradictory to the Virginia codes concerning the board and its behavior. I am just a citizen who inadvertently got caught in the crosshairs of a personal battle....I can not stand by and watch a mockery made out of the election process. We are not a fiefdom and I owe no allegiance to a group of individuals who do not have the knowledge or desire to act on my behalf. I was unable to obtain the minutes from the first meeting on February the 9th and no recording devise or official secretary was present so I taped the meeting. I am happy to send you the voice recording. I respectfully request that this matter be brought up at the next SBE meeting.

Sent from my iPhone

From: Obannon, John (ELECT)
To: Beals, Susan (ELECT)
Subject: Re: Thank You
Date: Friday, March 10, 2023 9:56:29 AM

Good job.
John

From: Beals, Susan (ELECT) <Susan.Beals@elections.virginia.gov>
Sent: Wednesday, March 8, 2023 9:14 PM
To: Obannon, John (ELECT) <John.OBannon@elections.virginia.gov>
Subject: Fwd: Thank You

Chairman O'Bannon,

I wanted to pass along this thank you note.

Thanks,
Susan

Susan Beals
Commissioner
Virginia Department of Elections

From: Shelley Oberlander <shelleynoberlander@gmail.com>
Sent: Wednesday, March 8, 2023 4:25 PM
To: Beals, Susan (ELECT)
Subject: Thank You

Dear Susan,

Thank you and your staff for presenting to the State Board of Elections yesterday the option for the Batch Comparison Method to be used for Risk Limiting Audits in Virginia. Thank you for the preparation work that you and your team did to change the policy and reformat the RLA request form. I also want to thank the VA State Board of Elections, who voted unanimously to accept the proposed policy changes and allow the option for the Batch Comparison Method to be used for Risk Limiting Audits.

There are many people all over Virginia who are excited and encouraged that this meaningful Audit option was passed at yesterday's State Board of Elections meeting. The Virginia localities that choose to use the Batch Comparison Method for their Risk Limiting Audit will be able to verify the accuracy of a sampling of their Voting machines. With a variety of voting machine models and manufacturers being used in Virginia, all of these will have an opportunity to be verified. I am hopeful these audits will help increase Voter confidence throughout the Commonwealth.

As well, thank you for the recent Guidance from ELECT (February 24, 2023) allowing

Registrars to use several sources to verify deceased voters and remove them from their Voter Rolls. Thank you for updating the Guidance to align with the law (24.2-427). This new Guidance also helps the Registrars do the job of Voter List Maintenance better and more easily.

The option of the Batch Comparison Method for Risk Limiting Audits and the new Guidance from ELECT allowing Registrars to use several sources to verify the death of registered voters in their jurisdictions, are both improvements in Election Integrity and help assure the public that actions are being taken to strengthen the integrity of Elections in Virginia.

Thank you,

Shelley Oberlander
Loudoun County Electoral Board Member
703-431-2443

From:	Oberlander, Shelley
To:	Obannon, John (ELECT)
Cc:	Kalina, Kristen; Heald, Ellen; Brown, Judy; Keech, Richard
Subject:	Request for Extension of Election Abstract Certification upon Approval of Risk Limiting Audit
Date:	Thursday, June 22, 2023 9:07:48 PM

Chairman O'Bannon,

The Loudoun County Electoral Board has requested a Risk Limiting Audit using the Batch Comparison Method for the House District 26 Primary race.

Could we also be granted an extension for submitting our Election Abstract Certification, until Thursday or Friday next week (June 29 or June 30), if the Audit is approved? Our understanding of the RLA process is that the locality can be granted an extension for certification of the Election Abstract.

We had planned to complete our Election this Friday and conduct the Audit at the end of next week. However, the Registrar was notified by ELECT that we cannot complete the Provisional Ballot Hearing until ELECT sends the Same Day Registration Comparison report on Saturday and the Election Abstract certification submission deadline is Monday, June 26th. This will require our Electoral Board to convene twice next week, Monday for the Election Abstract certification and Thursday for the Risk Limiting Audit. With some on vacation, we ask that our certified Election Abstract submission date be extended until next Thursday or Friday, after the completion of the Risk Limiting Audit, so the Electoral Board can meet just once next week.

Thank you for considering this request for an extension for the Election Abstract certification until next Thursday or Friday and for considering the approval of our Risk Limiting Audit.

Respectfully,

Shelley Oberlander
Vice-Chairman Loudoun County Electoral Board

★ VIRGINIA ★
DEPARTMENT *of* ELECTIONS

REQUEST FOR RISK-LIMITING AUDIT

AMENDED - ADD ADDITIONAL DATE FOR RLA TO OCCUR

PURPOSE OF THIS FORM

Under Code of Virginia § 24.2-671.2(D), "A local electoral board may request that the State Board approve the conduct of a risk-limiting audit [RLA] for a contested race within the local electoral board's jurisdiction." The local electoral board may request an audit of such a race wholly contained within the jurisdiction of the local electoral board by completing and submitting this form to their Election Services Registrar Liaison prior to the State Board of Elections (SBE) meeting to choose races to audit. *If a request is made of a race that is not wholly contained within a locality's jurisdiction, this request will be denied. Please review 1VAC20-60-80 for details on qualifying for a risk-limiting audit request.*

COMPLETE THE FOLLOWING:

Locality: LOUDOUN

Date of Public Meeting: Board met 6/21/23

Contested Race: SRINIVASAN / KOMPALLI

Town Name/District Number: HOD 26

Date of RLA: @ 6/28 or OPTION: 6/29 or 6/30

Location of RLA: LOUDOUN ELECTION OFFICE

Was Ranked-Choice Voting Used? ☐ Yes ☒ No

RLA Method Requested: ☐ Ballot Polling ☒ Batch Comparison

Preliminary Vote Totals:

Candidate A: SRINIVASAN 3643

Candidate B: KOMPALLI 1738

Candidate C (if applicable): —

Candidate D (if applicable): —

On the lines below, please include any other relevant information:

214 undervotes

★ VIRGINIA ★
DEPARTMENT *of* ELECTIONS

REQUEST FOR RISK-LIMITING AUDIT

**ELECT reserves the right to ask additional questions on behalf of the SBE, if necessary.*

***Please submit a form for each contested race your locality is requesting to have audited.*

**** If multiple races are being submitted, the RLA method requested must be the same for all races requested.*

We, the members of the electoral board, request an audit of the above contested race(s), being wholly contained within our jurisdiction:

Printed name of Chairperson	Signature	Date	Vote (Yay or Nay)
Kristen Kalina	Kristen Kalina	6/21/23	(Yay)
Printed name of Vice-Chairperson	Signature	Date	Vote (Yay or Nay)
Shelley N. Oberlander	Shelley N. Oberlander	6/21/23	(Yay)
Printed name of Secretary	Signature	Date	Vote (Yay or Nay)
ELLEN HEALD	Ellen Heald	6/21/23	(Yay)

If your audit request is approved by the State Board of Elections, then the Board may grant an extension of up-to two weeks to your certification deadline under §24.2-671.2 of the Code of Virginia for the audited race.

From:	Oberlander, Shelley
To:	Beals, Susan (ELECT); Brink, Robert (ELECT); Obannon, John (ELECT); Chiang, Angela (ELECT); Merricks, Donald (ELECT); Alvis-long, Georgia (ELECT)
Cc:	Kalina, Kristen; Heald, Ellen; Oberlander, Shelley; Brown, Judy; Keech, Richard
Subject:	Request SBE to Include Batch Comparison Method for RLA's
Date:	Tuesday, January 17, 2023 6:14:45 PM

Dear Commissioner Beals and Members of the Virginia State Board of Elections,

Following the November 8, 2022 Election, the previous Loudoun County Electoral Board unanimously voted to request a Risk Limiting Audit (RLA) of two contests in the election using the Batch Comparison Method. Your office replied that the current SBE policy only allows for the Ballot Polling Method for RLA's.

In following the lead of the previous Loudoun Electoral Board, the newly appointed Loudoun County Electoral Board asks that the VA State Board of Elections include in its policy the Batch Comparison Method as an RLA option. We understand that procedures for conducting this type of RLA in Virginia would need to be formulated.

Loudoun's Deputy Registrar, Richard Keech is an Election Technology expert and believes that working with the experts at ELECT, batches can easily be obtained from Precincts and Early Voting thumb drives, as well as from the high speed scanner. The Registrar, Judy Brown and Deputy Registrar, Richard Keech, as well as this Board, are willing to be a pilot program for an RLA of the June Primary Election, using the Batch Comparison Method, as sanctioned by ELECT.

A Risk Limiting Audit using the Batch Comparison Method would provide a check of the tabulation results for a random sampling of voting machines and increase voter confidence in our elections. The leadership of your office to include the Batch Comparison Method as an option for conducting RLA's would be much appreciated and viewed favorably in Loudoun.

Thank you for considering expanding the current SBE policy to include the Batch Comparison Method for RLA's in Virginia.

Very Respectfully,

The Loudoun County Electoral Board
Kristen Manos Kalina -Chairman
Ellen Heald- Secretary
Shelley Oberlander-Vice Chairman

Sent from my iPad

★ VIRGINIA ★
STATE BOARD of ELECTIONS

BOARD MEETING

Tuesday, May 30, 2023
Pocahontas Building
Senate Room A
Richmond, VA
Video and Teleconference

Videoconference:

https://covaconf.webex.com/covaconf/j.php?MTID=m3752f42507534818db3ce32b76a9adb

Meeting password: x3H5U2uBFGJ

Teleconference:

1-517-466-2023 US Toll

1-866-692-4530 US Toll-Free

Access Code: 2431 345 0471

1:00 P.M.

STATE BOARD OF ELECTIONS
AGENDA

***DATE*: Tuesday, May 30, 2023**
***LOCATION:* 900 E. Main St.**
Pocahontas Building – Senate Room A
Richmond, VA 23219
TELECONFERENCE:
+1-517-466-2023 US Toll
+1-866-692-4530 US Toll Free
Access code: 2431 345 0471
VIDEO CONFERENCE:
https://covaconf.webex.com/covaconf/j.php?MTID=m37521f42507534818db3ce32b76a9adb
Password: x3H5U2uBFGJ
***TIME*: 1:00 P.M.**

I. CALL TO ORDER — *John O'Bannon, Chairman*

II. APPROVAL OF MINUTES — *Georgia Alvis-Long, Secretary*
- **A. April 11, 2023**
- **B. April 14, 2023**

III. COMMISSIONER'S REPORT — *Susan Beals, Commissioner*

IV. PRESIDENTIAL PRIMARY CANDIDATE/PARTY SCHEDULE — *Paul Saunders, Elections and Registration Services Supervisor*

V. SPLIT PRECINCT — *Claire Scott, ELECT Policy Analyst*
- **A. City of Chesapeake**

VI. LEGISLATIVE UPDATES PURSUANT TO ABSENTEE BALLOTS — *Ashley Coles, ELECT Policy Analyst*
- **A. Amendments to 1VAC20-45-40**
- **B. Amendments to 1VAC20-70-20**
- **C. Repeal of 1VAC20-70-80**

VII. RANKED CHOICE VOTING UPDATE — *Rachel Lawless, Confidential Policy Advisory; John Cronin, EPMO Project Manager*
- **A. Amendments to 1VAC20-100**
- **B. Handcounting Standards**

VIII. OFFICER REMOVAL PETITIONS AND PETITION SIGNATURE QUALIFICATIONS
A. New 1VAC20-60-90
B. Petition for the Removal of an Officer

Ashley Coles
ELECT Policy Analyst

IX. RLA MANUAL UPDATE

Rachel Lawless
Confidential Policy Advisor
Claire Scott
ELECT Policy Analyst

X. PUBLIC COMMENT

XI. CLOSED SESSION

XII. ADJOURNMENT

NOTE: https://townhall.virginia.gov/L/ViewMeeting.cfm?MeetingID=37226

Re. Entrance to the Pocahontas Building
All members of the public will be required to show his/her driver's license, passport or other government issued ID to enter the building. All State employees must have on his/her state ID badge on at all times while in the building.

Re. public comment
Public comment will first be heard from those persons participating in person as per the sign-up list. Next, we will hear from the persons who requested to speak via chat on the WebEx. Last, we will hear from persons who provided their name and phone number to FOIA@elections.virginia.gov.

Re. limitation on individual participation in public comment
Due to the large number of persons who may wish to speak, we encourage you to be as brief as possible, with a maximum of THREE minutes per person. We also ask that you be prepared to approach the podium or unmute yourself if you hear your name announced as the next participant.

Re. individual requests for additional information
Citizens seeking additional information related to matters on this agenda may submit questions to info@elections.virginia.gov

Re. How to Participate in Public Comment
If you are a member of the public and wish to participate, you must sign up in order to be recognized to speak. Please note the following:
If you are attending in person, please ensure your name is on the sign-up list at the front door.
If you are participating virtually using WebEx, sign up using the chat feature, located on the bottom right part of the WebEx application, to add your participant name.
If you are participating virtually using a phone and cannot access WebEx's chat feature, please send an email with your name and your phone number to FOIA@elections.virginia.gov. You will need to provide your first and last name and the phone number you've used to call in.

★ VIRGINIA ★
STATE BOARD *of* ELECTIONS

Approval of Minutes

BOARD WORKING PAPERS

The State Board of Elections ("the Board") meeting was held on Tuesday, April 11, 2023 in Senate Room 3 of the Virginia State Capitol in Richmond, Virginia. The meeting also offered public participation through electronic communication so the remote public could view and hear the meeting. In attendance: John O'Bannon, Chairman; Rosalyn R. Dance, Vice Chair; Georgia Alvis-Long, Secretary; and Matthew Weinstein, member represented the State Board of Elections ("the Board"). Delegate Donald Merricks member of the Board joined the meeting electronically. Susan J. Beals, Commissioner, represented the Department of Elections ("ELECT"), and Travis Andrews and Flora Hezel represented the Office of the Attorney General ("OAG"). Chairman O'Bannon called the meeting to order at 1:00 P.M.

The first item of business was the approval of the minutes presented by Secretary Alvis-Long. Vice Chair Dance moved *that the Board approve the minutes.* Mr. Weinstein seconded the motion and the motion passed unanimously. A roll call vote was taken:

Chairman O'Bannon – Aye

Vice Chair Dance – Aye

Secretary Alvis-Long – Aye

Mr. Weinstein – Aye

Delegate Merricks – Aye

The second item of business was the Commissioner's Report presented by Commissioner Beals. Commissioner Beals expressed her appreciation to the General Registrars ("GR"), Electoral Boards, and Officers of Elections for their work on the March 7th, March 28th, April 4th, and April 11th Special Elections in King William County, Henrico County, the City of

Richmond, Charles City County, Hanover County, Greene County, and Frederick County. The Commissioner stated that Election Services and the GRs have been processing candidate paperwork for State and local candidates. Commissioner Beals stated that due to General Assembly members retiring, and changes in the district due to redistricting, ELECT has seen an increase in first time candidates and incumbents running for office. The Commissioner informed the Board that ELECT had some issues receiving candidates' filings through the mail, and therefore, requested the Board approve the candidate filing extensions request added to the agenda.

The third item of business was the Certification of the March 28th Special Election presented by Paul Saunders, Elections and Registrations Services Supervisor. *This memo is in the Working Papers for the April 11, 2023 Meeting.* ELECT suggested the Board certify the Election. A roll call vote was taken:

Chairman O'Bannon – Aye

Vice Chair Dance – Aye

Secretary Alvis-Long – Aye

Mr. Weinstein – Aye

Delegate Merricks – Aye

The fourth item of business was the Candidate Filing Extension presented by Paul Saunders, Elections and Registrations Services Supervisor. *This memo is in the Working Papers for the April 11, 2023 Meeting.* Vice Chair Dance moved *that the Board grant an extension pursuant to Virginia Code § 24.2-503 for candidates to file the Certificate of Candidate Qualification and/or Statement of Economic Interests in relation to the June 2023 Primary*

Elections. Mr. Weinstein seconded the motion and the motion passed unanimously. A roll call vote was taken:

Chairman O'Bannon – Aye

Vice Chair Dance – Aye

Secretary Alvis-Long – Aye

Mr. Weinstein – Aye

Delegate Merricks – Aye

The fifth item of business was the Split Precinct Waiver Request presented by Claire Scott, ELECT Policy Analyst. Fairfax County requested the first precinct waiver. *These documents are in the Working Papers for the April 11, 2023 Meeting.* Martin Desjardins addressed the Board. Vice Chair Dance moved *to approve the split precinct waiver for Fairfax County.* Mr. Weinstein seconded the motion and the motion passed unanimously. A roll call vote was taken:

Chairman O'Bannon – Aye

Vice Chair Dance – Aye

Secretary Alvis-Long – Aye

Mr. Weinstein – Aye

Delegate Merricks – Aye

The second split precinct request was from Loudoun County. Richard Keech addressed the Board. *These documents are in the Working Papers for the April 11, 2023 Meeting.* Vice

Chair Dance moved *to approve the split precinct waiver for precinct 321 and 326 of Loudoun County.* Mr. Weinstein seconded the motion and the motion passed unanimously. A roll call vote was taken:

Chairman O'Bannon – Aye

Vice Chair Dance – Aye

Secretary Alvis-Long – Aye

Mr. Weinstein – Aye

Delegate Merricks – Aye

Vice Chair Dance moved t*o defer review of the split precinct waiver request for precinct 713 of Loudoun County for the Friday, April 14, 2023 meeting.* Mr. Weinstein seconded the motion and the motion passed unanimously. A roll call vote:

Chairman O'Bannon – Aye

Vice Chair Dance – Aye

Secretary Alvis-Long – Aye

Mr. Weinstein – Aye

Delegate Merricks – Aye

The third split precinct request was from Prince William County. *These documents are in the Working Papers for the April 11, 2023 Meeting.* Vice Chair Dance moved *to approve the split precinct waiver for Prince William County.* Mr. Weinstein seconded the motion and the motion passed unanimously. A roll call vote was taken:

Chairman O'Bannon – Aye

Vice Chair Dance – Aye

Secretary Alvis-Long – Aye

Mr. Weinstein – Aye

Delegate Merricks – Aye

The sixth item of business was the Voter Registration Application update presented by Ashley Coles, ELECT Policy Analyst. *This memo is in the Working Papers for the April 11, 2023 Meeting.* Vice Chair Dance moved *to defer review of the Voter Registration Application for the Friday, April 14, 2023 meeting*. Mr. Weinstein seconded the motion and a motion passed unanimously. A roll call vote was taken:

Chairman O'Bannon – Aye

Vice Chair Dance – Aye

Secretary Alvis-Long – Aye

Mr. Weinstein – Aye

Delegate Merricks – Aye

The seventh item of business was the KnowInk Pollbook Certification presented by Johnathan Barbett, Director of Information Security. *These documents are in the Working Papers for the April 11, 2023 Meeting.* Chairman O'Bannon opened the floor to public comment. Ann Grigorian addressed the Board. Vice Chair Dance moved *to defer the KnowInk Pollbook Certification until the Friday, April 14, 2023 meeting*. A roll call vote was taken:

Chairman O'Bannon – Aye

Vice Chair Dance – Aye

Secretary Alvis-Long – Aye

Mr. Weinstein – Aye

Delegate Merricks – Aye

Chairman O'Bannon opened the floor to Public Comment. Jeff McVey, Shelly Oberlander, Ann Grigoriann, Lauren Moore, and Andi Bayer addressed the Board.

At 1:45 P.M., Vice Chair Dance stated Pursuant to Virginia Code Section 2.2-3711(A)(7), I move *that the Board go into closed session for the purpose of discussing pending and threatened litigation. In accordance with Section 2.2-3712(F), Susan Beals, Commissioner of Elections, and Flora Hezel and Travis Andrews of the Office of the Attorney General, will attend the closed session because their presence will reasonably aid the Board in its consideration of the subject of the meeting.* Mr. Weinstein seconded the motion and the motion passed unanimously. A roll call vote was taken:

Chairman O'Bannon – Aye

Vice Chair Dance – Aye

Secretary Alvis-Long – Aye

Mr. Weinstein – Aye

Delegate Merricks – Aye

At 2:07 P.M., Vice Chair Dance moved *to reconvene the meeting in open session, and take a roll call vote certifying that to the best of each member's knowledge (i) only such public business matters lawfully exempted from open meeting requirements under this chapter and (ii) only such public business matters as were identified in the motion by which the closed meeting was convened were heard or discussed by the State Board of Elections.* Mr. Weinstein seconded the motion and the motion passed unanimously. A roll call vote was taken:

Chairman O'Bannon – Aye

Vice Chair Dance – Aye

Secretary Alvis-Long – Aye

Mr. Weinstein – Aye

Delegate Merricks – Aye

The meeting adjourned at 2:08 P.M.

_____
Chairman

_____
Vice-Chair

_____
Secretary

_____
Board Member

_____
Board Member

The State Board of Elections ("the Board") meeting was held by electronic communication Friday, April 14, 2023. In attendance: John O'Bannon, Chairman; Rosalyn R. Dance, Vice Chair; Georgia Alvis-Long, Secretary; Matthew Weinstein, and Delegate Donald Merricks members; represented the State Board of Elections ("the Board"). Susan J. Beals, Commissioner, represented the Department of Elections ("ELECT"), and Travis Andrews represented the Office of the Attorney General ("OAG"). Chairman O'Bannon called the meeting to order at 1:00 P.M.

The first item of business was the Voter Registration Application presented by Ashley Coles, ELECT Policy Analyst. *This memo is in the Working Papers for the April 14, 2023 Meeting.* Mr. Weinstein moved *that the State Board of Elections approve the amended Virginia Voter Registration Application, pursuant to 1VAC20-40 and the 2023 Session of the General Assembly, pending final enactment of House Bill 2024 and Senate Bill 1310, to be effective July 1, 2023.* Vice Chair Dance seconded the motion and the motion passed unanimously. A roll call vote was taken:

Chairman O'Bannon – Aye

Vice Chair Dance – Aye

Secretary Alvis-Long – Aye

Mr. Weinstein – Aye

Delegate Merricks – Aye

The second item of business was the KnowInk Electronic Pollbook Certificate presented by Johnathan Barbet, Director of Information Security. *This memo is in the Working Papers for*

the April 14, 2023 Meeting. Delegate Merricks moved *that the Board certify the use of Knowink Poll Pad Plus version 3.4 for elections in the Commonwealth of Virginia, pursuant to the State Certification of Electronic Pollbooks: Requirements and Procedures.* Mr. Weinstein seconded the motion and the motion passed unanimously. A roll call vote was taken:

Chairman O'Bannon – Aye

Vice Chair Dance – Aye

Secretary Alvis-Long – Aye

Mr. Weinstein – Aye

Delegate Merricks – Aye

The third item of business was the Drawing for Candidate Ballot Order presented by Paul Saunders, Elections and Registration Services Supervisor. *This memo is in the Working Papers for the April 14, 2023 Meeting.* Mr. Saunders and Commissioner Beals conducted the drawing of the names. The ballot order for Democrat Member, House of Delegates, 7th District is as follows:

1. Paul D. Berry
2. Karen A. Keys-Gamarra
3. Shyamali Roy Hauth

The ballot order for Democrat Member, House of Delegates, 19th District is as follows:

1. Rozia A. "J.R." Henson, Jr.
2. Makya R. Little

The ballot order for Republican Member, House of Delegates, 21st District is as follows:

1. John T. Stirrup
2. Joshua J. Quill

The ballot order for Republican Member, House of Delegates, 39th District is as follows:

1. Ron J. Jefferson
2. William P. Davis

The ballot order for Republican Member, House of Delegates, 47th District is as follows:

1. Marie E. March
2. Wren M. Williams

The ballot order for Democrat Member, House of Delegates, 55th District is as follows:

1. Amy J. Laufer
2. Kellen J. Squire

The ballot order for Democrat Member, House of Delegates, 57th District is as follows:

1. Susanna S. Gibson
2. Robert C. “Bob” Shippee

The ballot order for Republican Member, House of Delegates, 59th District is as follows:

1. H.F. “Buddy” Fowler, Jr.
2. Graven W. Craig

The ballot order for Republican Member, House of Delegates, 73rd District is as follows:

1. Mark L. Earley, Jr.
2. Ryan M. Harter

The ballot order for Democrat Member, House of Delegates, 79th District is as follows:

1. Rae C. Cousins
2. Richard W. Walker

The ballot order for Democrat Member, House of Delegates, 82nd District is as follows:

1. Victor K. McKenzie, Jr.
2. Kimberly Pope Adams

The ballot order for Democrat Member, House of Delegates, 92nd District is as follows:

1. Kim Y. Sudderth
2. Bonita Grace Anthony

The ballot order for Democrat Member, House of Delegates, 96th District is as follows:

1. Brandon C. Hutchins
2. Sean R. Monteiro

The ballot order for Republican Member, Senate of Virginia, 1st District is as follows:

1. Brandon H. Monk
2. Dave A. LaRock
3. Timmy F. French
4. James E. Bergida

The ballot order for Democrat Member, Senate of Virginia, 11th District is as follows:

1. Sally L. Hudson
2. R. Creigh Deeds

The ballot order for Republican Member, Senate of Virginia 12th District is as follows:

1. Glen H. Sturtevant, Jr.
2. Amanda Freeman Chase
3. Tina M. Ramirez

The ballot order for Democrat Member, Senate of Virginia 18th District is as follows:

1. L. Louise Lucas
2. Lionell Spruill, Sr.

The ballot order for Democrat Member, Senate of Virginia 21st District is as follows:

1. Angelia Williams Graves
2. Andria P. McClellan

The ballot order for Democrat Member, Senate of Virginia 27th District is as follows:

1. Benjamin “Ben” Litchfield
2. Luke Wright

The ballot order for Democrat Member, Senate of Virginia 29th District is as follows:

1. Elizabeth R. Guzman
2. Jeremy S. McPike

The ballot order for Democrat Member, Senate of Virginia 35th District is as follows:

1. David W. Marsden
2. Heidi Marie Drauschak

The ballot order for Democrat Member, Senate of Virginia 36th District is as follows:

1. Stella G. Pekarsky
2. George Lincoln Barker

The ballot order for Democrat Member, Senate of Virginia 37th District is as follows:

1. J.C. "Chap" Peterson
2. Saddam Azlan Salim

The ballot order for Democrat Member, Senate of Virginia 40th District is as follows:

1. James A. DeVita
2. Barbara A. Favola

The ballot order for the Shared Constitutional Office Commonwealth's Attorney for Falls Church City and Arlington County is as follows:

1. Josh Katcher
2. Parisa Dehghani-Tafti

Vice Chair Dance moved *that the Board certify the determinations by lot of the order of candidates on the ballot for primary elections to be held on June 20, 2023.* Mr. Weinstein seconded the motion and the motion passed unanimously. A roll call vote was taken:

Chairman O'Bannon – Aye

Vice Chair Dance – Aye

Secretary Alvis-Long – Aye

Mr. Weinstein – Aye

Delegate Merricks – Aye

Chairman O'Bannon opened the floor to public comment. Susan Swecker and Christopher Woodfin addressed the Board.

The meeting adjourned at 1:45 P.M.

_____
Chairman

_____
Vice-Chair

_____
Secretary

_____
Board Member

_____
Board Member

★ VIRGINIA ★
STATE BOARD *of* ELECTIONS

Commissioner's Report

BOARD WORKING PAPERS
Susan Beals
Commissioner

★ VIRGINIA ★
STATE BOARD *of* ELECTIONS

Presidential Primary Candidate/ Party Schedule

BOARD WORKING PAPERS
Paul Saunders
Elections and Registration Supervisor

★ VIRGINIA ★
STATE BOARD of ELECTIONS

Memorandum

To: Chairman O'Bannon, Vice Chair Dance, Secretary Alvis-Long, Del. Merricks, and Mr. Weinstein

From: Paul G. Saunders, III, Elections and Registration Services Supervisor

Date: May 30, 2023

Re: 2024 Presidential Primary Candidate Forms

Suggested motion for a Board member to make:

"I move to adopt both the proposed short and long forms of the Petition of Qualified Voters for the Presidential Primary and the proposed Declaration of Candidacy for President of the United States."

Applicable Code Sections: Va. Code §§ 24.2-505, 24.2-520 and 24.2-545

Attachments:

Your Board materials include the following:

- Petition of Qualified Voters for Presidential Primary (short form)
- Petition of Qualified Voters for Presidential Primary (long form)
- Declaration of Candidacy (SBE-505/520)
- Party Certification of Presidential Primary Candidates (ELECT-545(B2))
- Statement of Petition Signatures for Presidential Candidate (ELECT-545(B))

Background:

Va. Code § 24.2-545 requires candidates in a party presidential primary to file petitions signed by at least 5,000 qualified voters (minimum of 200 from each Congressional district) in order to qualify to have their name printed on the ballot. The attached forms include changes only to relevant dates to make them applicable to the 2024 primary and consistent with the 2024 candidate bulletin.

Va. Code § 24.2-520 requires primary candidates for any office (including President) to file a Declaration of Candidacy (form SBE-505/520). In the past, the Board has adopted a separate SBE-505/520 specifically for candidates for president.

Two additional forms are attached: (1) Party Certification of Presidential Primary Candidates, and (2) Statement of Petition Signatures for Presidential Candidate. Parties and candidates have

the option to use these two forms. Based on communications from past Presidential Primary Elections in which parties and candidates asked about the best way and format to communicate the information in these forms, ELECT determined providing a form and format the candidates could use (but are not required to) would assist both parties and candidates in providing the information required by law. Neither of these forms require approval by the SBE. They are included here for informational purposes and to provide the Board members with a greater understanding and knowledge of the entire suite of Presidential Primary forms.

ELECT staff recommendation:

ELECT staff recommends the Board adopt the proposed short and long form of the Petition of Qualified Voters for Presidential Primary.

ELECT staff recommends the Board adopt the proposed Declaration of Candidacy for President of the United States (SBE-505/520(P)) for all candidates for President of the United States.

When a congressional district includes more than one county or city, it is suggested that you use a separate petition form for qualified voters in each county or city. It also is suggested that you file petitions in county/city order to facilitate the processing of the filing.
If you track the number of signatures by congressional district, enter district number: _____

COMMONWEALTH OF VIRGINIA

PETITION OF QUALIFIED VOTERS FOR PRESIDENTIAL PRIMARY

We, the qualified voters of _____ in the Commonwealth of Virginia signed
ENTER COUNTY OR CITY NAME
below or on the reverse side of this page, do hereby petition that the name of _____, a person who is
ENTER CANDIDATE NAME
seeking the nomination for President of the United States of the (CHECK ONE)

☐ DEMOCRATIC PARTY OR ☐ REPUBLICAN PARTY

be placed on the ballot in the Presidential Primary Election to be held on March 5, 2024. We further attest that we intend to participate in the primary of the same political party as the above-named candidate.

Petitions may be filed by the above-named candidate, his\her designated representative, or by a group organized in Virginia on behalf of the above-named candidate. They must be filed with the Department of Elections, 1100 Bank Street, 1st Floor, Richmond, VA 23219 no later than **5:00 p.m. on Thursday, December 14, 2023** and must be accompanied by the declaration form signed, under oath, by the candidate.

Circulator: You **must** complete the Circulator Affidavit. The Circulator Affidavit must be completed and signed **in front of** the Notary.

Signer: Your signature on this petition must be your own; it indicates intent to participate in the primary of the same political party as the above-named candidate but does not signify intent to vote for the candidate. You may sign petitions for more than one candidate.

Office use only ▼		SIGNATURE OF REGISTERED VOTER Print name in space below signature	RESIDENT ADDRESS House number and street name **or** rural route and box number and city/town **Post office boxes are not acceptable**	DATE SIGNED Must be on or after 7/3/23	LAST 4 DIGITS OF SOCIAL SECURITY NUMBER Optional*
	1.	SIGN PRINT	RESIDENCE CITY/TOWN		
	2.	SIGN PRINT	RESIDENCE CITY/TOWN		
	3.	SIGN PRINT	RESIDENCE CITY/TOWN		
	4.	SIGN PRINT	RESIDENCE CITY/TOWN		
	5.	SIGN PRINT	RESIDENCE CITY/TOWN		
	6.	SIGN PRINT	RESIDENCE CITY/TOWN		
	7.	SIGN PRINT	RESIDENCE CITY/TOWN		

Continue additional signatures and complete circulator affidavit on reverse side.

***Privacy Notice:** The last four digits of the social security number is part of each voter's official record and is requested only to make it possible to check this petition more quickly and with greater accuracy. It is not mandatory that it be provided and you may sign the petition without doing so.

All signatures required by law need not be on the same page of the petition. Numerous pages may be circulated. The circulator must swear or affirm the affidavit on each page.

Continued from reverse side: Candidate Name: _____. Nomination Sought: President of the United States

Circulator: You **must** complete the Circulator Affidavit. The Circulator Affidavit must be completed and signed **in front of** the Notary.

Signer: Your signature on this petition must be your own; it indicates intent to participate in the primary of the same political party as the above-named candidate but does not signify intent to vote for the candidate. You may sign petitions for more than one candidate.

Office use only ▼		SIGNATURE OF REGISTERED VOTER Print name in space below signature	RESIDENT ADDRESS House number and street name **or** rural route and box number and city/town **Post office boxes are not acceptable**	DATE SIGNED Must be on or after 7/3/23	LAST 4 DIGITS OF SOCIAL SECURITY NUMBER Optional*
		SIGN	RESIDENCE		
	8.	PRINT	CITY/TOWN		
		SIGN	RESIDENCE		
	9.	PRINT	CITY/TOWN		
		SIGN	RESIDENCE		
	10.	PRINT	CITY/TOWN		
		SIGN	RESIDENCE		
	11.	PRINT	CITY/TOWN		
		SIGN	RESIDENCE		
	12.	PRINT	CITY/TOWN		
		SIGN	RESIDENCE		
	13.	PRINT	CITY/TOWN		
		SIGN	RESIDENCE		
	14.	PRINT	CITY/TOWN		

- CIRCULATOR AFFIDAVIT -

I, _____, swear or affirm that (i) my full residential address is (include city/state/zip_____; (ii) I am a legal resident of the United States of America in the State/Commonwealth of _____; (iii) I am not a minor nor a felon whose voting rights have not been restored, (iv) I personally witnessed the signature of each person who signed this page or its reverse side; and (v) I consent to the jurisdiction of the courts of Virginia in resolving any disputes concerning the circulation of petitions, or signatures contained therein. I understand that falsely signing this affidavit is a felony punishable by a maximum fine up to $2,500 and/or imprisonment up to ten years.

_____
CIRCULATOR'S DRIVER'S LICENSE NUMBER

_____
STATE WHERE DRIVER'S LICENSE WAS ISSUED

PLACE PHOTOGRAPHICALLY REPRODUCIBLE NOTARY SEAL/STAMP HERE

_____
SIGNATURE OF PERSON CIRCULATING THE PETITION AND DATE SIGNED

_____
LAST 4 DIGITS OF CIRCULATOR'S SOCIAL SECURITY NUMBER

State of _____ County/City of _____

The foregoing instrument was subscribed and sworn before me this _____ day of _____ , 20 ____ , by _____ .

PRINT NAME OF PERSON CIRCULATING THE PETITION

_____ _____ _____
SIGNATURE OF NOTARY OR OTHER PERSON AUTHORIZED TO ADMINISTER OATHS | NOTARY REGISTRATION NUMBER** | NOTARY COMMISSION EXPIRATION**

***Privacy Notice:** The last four digits of the social security number is part of each voter's official record and is requested only to make it possible to check this petition more quickly and with greater accuracy. It is not mandatory that it be provided and you may sign the petition without doing so.

** If not included in seal/stamp.

SPECIAL NOTE REGARDING
PETITION OF QUALIFIED VOTERS FORM

This SBE-545 Petition of Qualified Voters for Presidential Primary form is a one page document, with a front and back side, printed on one piece of 8½" x 11" paper. When you print this form, it should be printed front and back on one 8 ½" x 11" sheet of paper. If you are unable to print a double-sided print job, you may print two separate pages. However, you must then reproduce/copy the two pages into one page. The front of the petition contains line numbers 1 through 7; the back of the form contains line numbers 8 through 14 followed by the CIRCULATOR AFFIDAVIT. If you are unable to print or reproduce this form on 8 ½" x 11" printed back and front, then call our office at 800-552-9745 or 804-864-8901 and we will be glad to send you a form.

When a congressional district includes more than one county or city, it is suggested that you use a separate petition form for qualified voters in each county or city. It also is suggested that you file petitions in county/city order to facilitate the processing of the filing.
If you track the number of signatures by congressional district, enter district number: _____

COMMONWEALTH OF VIRGINIA

PETITION OF QUALIFIED VOTERS FOR PRESIDENTIAL PRIMARY

We, the qualified voters of _____ in the Commonwealth of Virginia signed
ENTER COUNTY OR CITY NAME
below or on the reverse side of this page, do hereby petition that the name of _____, a person who is
ENTER CANDIDATE NAME
seeking the nomination for President of the United States of the (CHECK ONE)

☐ DEMOCRATIC PARTY OR ☐ REPUBLICAN PARTY

be placed on the ballot in the Presidential Primary Election to be held on March 5, 2024. We further attest that we intend to participate in the primary of the same political party as the above-named candidate.

Petitions may be filed by the above-named candidate, his\her designated representative, or by a group organized in Virginia on behalf of the above-named candidate. They must be filed with the Department of Elections, 1100 Bank Street, 1st Floor, Richmond, VA 23219 no later than **5:00 p.m. on Thursday, December 14, 2023** and must be accompanied by the declaration form signed, under oath, by the candidate.

Circulator: You **must** complete the Circulator Affidavit. The Circulator Affidavit must be completed and signed **in front of** the Notary.

Signer: Your signature on this petition must be your own; it indicates intent to participate in the primary of the same political party as the above-named candidate but does not signify intent to vote for the candidate. You may sign petitions for more than one candidate.

Office use only ▼		**SIGNATURE OF REGISTERED VOTER** Print name in space below signature	**RESIDENT ADDRESS** House number and street name **or** rural route and box number and city/town **Post office boxes are not acceptable**	**DATE SIGNED** Must be on or after 7/3/23	**LAST 4 DIGITS OF SOCIAL SECURITY NUMBER** Optional*
	1.	SIGN PRINT	RESIDENCE CITY/TOWN		
	2.	SIGN PRINT	RESIDENCE CITY/TOWN		
	3.	SIGN PRINT	RESIDENCE CITY/TOWN		
	4.	SIGN PRINT	RESIDENCE CITY/TOWN		
	5.	SIGN PRINT	RESIDENCE CITY/TOWN		
	6.	SIGN PRINT	RESIDENCE CITY/TOWN		
	7.	SIGN PRINT	RESIDENCE CITY/TOWN		
	8.	SIGN PRINT	RESIDENCE CITY/TOWN		
	9.	SIGN PRINT	RESIDENCE CITY/TOWN		
	10.	SIGN PRINT	RESIDENCE CITY/TOWN		

Continue additional signatures and complete circulator affidavit on reverse side.

***Privacy Notice:** The last four digits of the social security number is part of each voter's official record and is requested only to make it possible to check this petition more quickly and with greater accuracy. It is not mandatory that it be provided and you may sign the petition without doing so.

All signatures required by law need not be on the same page of the petition. Numerous pages may be circulated. The circulator must swear or affirm the affidavit on each page.

Continued from reverse side: Candidate Name: _____. Nomination Sought: President of the United States

Circulator: You **must** complete the Circulator Affidavit. The Circulator Affidavit must be completed and signed in front of the Notary.

Signer: Your signature on this petition must be your own; it indicates intent to participate in the primary of the same political party as the above-named candidate but does not signify intent to vote for the candidate. You may sign petitions for more than one candidate**.**

Office use only ▼		SIGNATURE OF REGISTERED VOTER Print name in space below signature	RESIDENT ADDRESS House number and street name **or** rural route and box number and city/town **Post office boxes are not acceptable**	DATE SIGNED Must be on or after 7/3/23	LAST 4 DIGITS OF SOCIAL SECURITY NUMBER Optional*
	11.	SIGN PRINT	RESIDENCE CITY/TOWN		
	12.	SIGN PRINT	RESIDENCE CITY/TOWN		
	13.	SIGN PRINT	RESIDENCE CITY/TOWN		
	14.	SIGN PRINT	RESIDENCE CITY/TOWN		
	15.	SIGN PRINT	RESIDENCE CITY/TOWN		
	16.	SIGN PRINT	RESIDENCE CITY/TOWN		
	17.	SIGN PRINT	RESIDENCE CITY/TOWN		
	18.	SIGN PRINT	RESIDENCE CITY/TOWN		
	19.	SIGN PRINT	RESIDENCE CITY/TOWN		
	20.	SIGN PRINT	RESIDENCE CITY/TOWN		
	21.	SIGN PRINT	RESIDENCE CITY/TOWN		
	22.	SIGN PRINT	RESIDENCE CITY/TOWN		

- CIRCULATOR AFFIDAVIT -

I, _____, swear or affirm that (i) my full residential address is (include city/state/zip _____; (ii) I am a legal resident of the United States of America in the State/Commonwealth of _____; (iii) I am not a minor nor a felon whose voting rights have not been restored, (iv) I personally witnessed the signature of each person who signed this page or its reverse side; and (v) I consent to the jurisdiction of the courts of Virginia in resolving any disputes concerning the circulation of petitions, or signatures contained therein. I understand that falsely signing this affidavit is a felony punishable by a maximum fine up to $2,500 and/or imprisonment up to ten years.

_____
CIRCULATOR'S DRIVER'S LICENSE NUMBER

_____
STATE WHERE DRIVER'S LICENSE WAS ISSUED

PLACE PHOTOGRAPHICALLY REPRODUCIBLE NOTARY SEAL/STAMP HERE

_____
SIGNATURE OF PERSON CIRCULATING THE PETITION AND DATE SIGNED

_____
LAST 4 DIGITS OF CIRCULATOR'S SOCIAL SECURITY NUMBER

State of _____ County/City of _____

The foregoing instrument was subscribed and sworn before me this _____ day of _____ , 20 ____ , by _____ .

PRINT NAME OF PERSON CIRCULATING THE PETITION

_____ _____ _____
SIGNATURE OF NOTARY OR OTHER PERSON AUTHORIZED TO ADMINISTER OATHS | NOTARY REGISTRATION NUMBER** | NOTARY COMMISSION EXPIRATION**

***Privacy Notice:** The last four digits of the social security number is part of each voter's official record and is requested only to make it possible to check this petition more quickly and with greater accuracy. It is not mandatory that it be provided and you may sign the petition without doing so.
** If not included in seal/stamp.

SPECIAL NOTE REGARDING
PETITION OF QUALIFIED VOTERS FORM

This SBE-545 Petition of Qualified Voters for Presidential Primary form is a one page document, with a front and back side, printed on one piece of 8½" x 14" paper. When you print this form, it should be printed front and back on one 8 ½" x 14" sheet of paper. If you are unable to print a double-sided print job, you may print two separate pages. However, you must then reproduce/copy the two pages into one page. The front of the petition contains line numbers 1 through 10; the back of the form contains line numbers 11 through 22 followed by the CIRCULATOR AFFIDAVIT. If you are unable to print or reproduce this form on 8 ½" x 14" printed back and front, then call our office at 800-552-9745 or 804-864-8901 and we will be glad to send you a form.

Declaration of Candidacy for President of the United States

Things to know before you sign: This form must be notarized or signed by 2 witnesses. See below for more details.
Submit this to the Department of Elections with your Petitions of Qualified Voters.

A. Tell us about the candidate

Candidate name

Last Name _____ First Name _____

Middle Name _____ Suffix _____

Address where you live

Street number _____

City _____ State _____ Zip Code _____

Address where the campaign gets mail

Address _____

City _____ State _____ Zip Code _____

Campaign contact information

Email Address _____ ( ) - Phone Number

B. What election do you want to participate in?

Date and type

☐ Primary Election on March 5, 2024 OR ☐ General Election on November 5, 2024

Party affiliation

☐ Democratic ☐ Republican ☐ Independent

C. In the presence of a notary or 2 witnesses, sign and date the declaration

Sign and date

I do hereby declare myself to be a candidate for President of the United States. Furthermore, if I am a primary candidate and am defeated in the primary, I understand that my name is not to be printed on the ballots to be used in the succeeding general election for the same office.

X _____ / /

Candidate Signature Date

D. Have notary/authorized officer OR 2 registered, qualified voters witness the signature.

Notary only

Notary Stamp/ Seal

State of _____ County/City of _____

The foregoing instrument was subscribed and sworn before me by:

this _____ day of _____ , 20_____.

X _____ _____ _____

Signature of Notary or authorized Officer Registration Number Commission Expiration Date

Witness 1 (Must be a qualified voter in Virginia)

Name _____

Full Address _____

Witness signature X _____

Witness 2 (Must be a qualified voter in Virginia)

Name _____

Full Address _____

Witness signature X _____

Party Certification of Presidential Primary Candidates

Virginia March 5, 2024 Presidential Primary

Party Chair: Complete this page. Use the next page to list qualified candidates.

Who uses this form	Democratic and Republican State Party Chairs.
What is this form for	State Party Chairs must submit to the Department of Elections the names of all candidates who have satisfied the requirements of Va. Code § 24.2-545.
How is this form submitted	You may submit this form via email, mail, or fax: Email: EA@Elections.Virginia.gov Mail: VA Department of Elections Attn: Elections Administration 1100 Bank Street, 1st Floor Richmond, VA 23219
When must this form be submitted	Must be received by the Department of Elections no later than 5 p.m., December 19, 2023.

State Party Chair Information

Party Affiliation	☐ Democratic ☐ Republican
Name	Last Name _____ First Name _____ Middle Name _____ Suffix _____
Contact information	Email Address _____ ( ) - Phone Number

Number of Candidates

How many candidates are listed on the following pages	Enter the total number of candidate names you are certifying on this form: _____

Statement of Certification

Sign Here:	I certify that the listed candidates have filed their required Declaration of Candidacy and Petitions of Qualified Voters. I further certify that a review of the filed petitions found the required minimum number of signatures of qualified voters for office of President. X _____ / / State Party Chair Signature Date

Party Certification of Presidential Primary Candidates

Virginia March 5, 2024 Presidential Primary

Party Chair: List certified candidates in any order below. Copy or reprint blank page if additional names are required.

Last Name	First Name	
Middle Name	Suffix	
Last Name	First Name	
Middle Name	Suffix	
Last Name	First Name	
Middle Name	Suffix	
Last Name	First Name	
Middle Name	Suffix	
Last Name	First Name	
Middle Name	Suffix	
Last Name	First Name	
Middle Name	Suffix	
Last Name	First Name	
Middle Name	Suffix	
Last Name	First Name	
Middle Name	Suffix	
Party chair sign here	X _____ Party Chair Signature	_____ Number of candidates listed on this page

Statement of Petition Signatures for Presidential Candidate

Commonwealth of Virginia

March 5, 2024 Presidential Primary

Instructions

Who uses this form?	Primary candidates running for President.
How is this form submitted?	Attach to the outside of each sealed container of petitions (SBE-545) submitted to the Department of Elections.
When must this form be submitted?	Must be received by the Department of Elections no later than 5:00 p.m., December 14, 2023.

Container _____ of _____ **Submitted on** ___ / __ / _____

Candidate Information

Candidate name	Last Name _____ First Name _____ Middle Name _____ Suffix _____
Party affiliation	☐ Democratic ☐ Republican

Petition and Signature Information

Number of pages delivered	_____
Number of signatures delivered	_____

Candidate Signature

Sign Here	**X** _____ Candidate Signature / / Date

★ VIRGINIA ★
STATE BOARD of ELECTIONS

Memorandum

To: Chairman O'Bannon, Vice Chair Dance, Secretary Alvis-Long, Del. Merricks, and Mr. Weinstein

From: Paul G. Saunders, III, Elections and Registration Services Supervisor

Date: May 30, 2023

Re: 2024 Presidential Primary Candidate Bulletin

Suggested motion for a Board member to make:

"I move to adopt the 2024 Presidential Primary candidate and party bulletin titled How to Run for Office for Candidates and Party Representatives."

Applicable Code Sections: Va. Code §§ 24.2-520, 24.2-544(B), and 24.2-545

Attachments:

Your Board materials include the following:

- 2024 How to Run for Office for Candidates and Party Representatives (candidate bulletin)

Background:

Va. Code § 24.2-544 requires the State Board of Elections to provide "a schedule for the notices and filing deadlines" for the March Presidential Primary by August 1 of this year. This requirement is represented in the attached candidate bulletin.

One of the deadlines in the bulletin is set in Code. The Democratic and Republican parties have to submit their method of selecting delegates for their respective national convention by 90 days before the primary date – December 6, 2023. Other deadlines in the bulletin are set by the State Board of Elections:

Start of candidate and party filing – July 3, 202 3
Deadline for candidates to file paperwork – Dec. 14, 2023
Deadline for parties to certify their list of candidates to the SBE – Dec. 19, 2023

ELECT staff has continued the practice as required by § 24.2 – 612.2 on withdrawing candidacy. The proposed version provides a deadline for candidates to withdraw from the primary and have their names removed from the ballot as well as instructions for how to withdraw.

All hyperlinks to presidential suite documents will be updated prior to posting.

ELECT staff recommendation:

ELECT staff recommends the Board adopt the proposed 2024 Presidential Primary candidate and party bulletin titled How to Run for Office for Candidates and Party Representatives.

★ VIRGINIA ★
STATE BOARD *of* ELECTIONS

How to Run for Office
For Candidates and Party Representatives

Requirements for the
March 5, 2024 Presidential Primary Election

Who is this document for?

For candidates who want to file to run for President in the Primary, go to page 4.

For political party representatives, go to page 9.

Important definitions and key icons

Follow these instructions to **get on the ballot for President in the Presidential Primary Election on Tuesday March 5, 2024.**

Independent candidate – an individual who is seeking to run in a General Election without running as a Republican or Democrat (may include a recognized party or no party)

Political party – An organization that, at either of the two preceding statewide general elections, received at least 10 percent of the total vote cast for any statewide office filled in that election (currently only Democratic and Republican)

Primary candidate – an individual who is seeking the nomination of a political party by running in a primary

Qualified voter – A person who is entitled to vote under the Virginia Constitution and is properly registered to vote (*see* definition here)

Recognized political party – An organization that meets the requirements set out in Va. Code § 24.2-612

Va. Code – Virginia Code

- Notes where to find information in the Code of Virginia or Virginia Administrative Code.

- Indicates beginning and/or ending deadlines for filing documents.

- Indicates information on where to file documents.

- Indicates additional information that may be helpful.

Only the Republican and Democratic parties run a presidential primary on March 5, 2024.

The Democratic Party of Virginia and the Republican Party of Virginia are the only organizations currently recognized as political parties under § 24.2-101 of the *Code of Virginia*. Therefore, they are the only political parties permitted to select a presidential primary in connection with the respective national conventions in 2024.

The deadlines provided below apply only to those political parties and candidates who wish to participate in either party's presidential primary. They do not apply to independent candidates or candidates for a recognized political party.

Election deadlines for voters 2024

Type of election	Candidates: last day to file	Parties: last day to file	Last day to register to vote	Last day to apply for an absentee ballot	Election Date
Primary for Nov 5 general.	Thursday Dec 14th, 2023 at 5pm	Tuesday Dec 19th, 2023 at 5pm	Monday, Feb 12th, 2024 •In-person:5:00 pm •Online:11:59 pm	Online, fax, or mail: Friday February 23, 2024 at 5 pm. In-person: Saturday Mar 2, 2024 at 5:00 pm.	Tuesday March 5, 2024
Find in code	Va. Code §24.2-544	Va. Code § 24.2-544	Va. Code §§ 24.2-414 and 24.2-416	Va. Code § 24.2-701	Va. Code § 24.2-515

I want to run in my party's primary.

Use this table to learn what, when, and where to file. Find more information below this table.

	What do I need to file?	Notes or other information	Where do I file this form?	When does filing open?	What is the deadline to file?
	The following 3 forms are required by all candidates filing for this election.				
1	Declaration of Candidacy	File with the Petitions of Qualified Voters (2) and Petition Statement (3).	Must be in the possession of the Department of Elections by the deadline.	Monday , July 3, 2023	Thursday December 14, 2023 at 5:00 p.m.
2	Petition of Qualified Voters	Do not collect signatures before July 3, 2023. File these in a sealed container. File with the Consent/ Declaration (1) and the Petition Statement (3).	Must be in the possession of the Department of Elections by the deadline.	Monday, July 3, 2023	Thursday, December 14, 2023 at 5:00 p.m.
3	Petition Statement	File with Declaration of Candidacy (1) and must be attached to the outside of the Petitions of Qualified Voters (2).	Must be in the possession of the Department of Elections by the deadline.	Monday, July 3, 2023	Thursday, December 14, 2023 at 5:00 p.m.
	The following documents may be required depending on your party's rules. Check with your party to know if these forms are required.				
	List of National Convention Delegates and Alternates	File list of delegates and alternates if the party's delegates are selected at the primary. File with (1), (2), and (3).	With the Department of Elections. If required, must be in the possession of the Department of Elections by the deadline.	Monday, July 3, 2023	Thursday, December 14, 2023 at 5:00 p.m.
	Primary Filing Fee	No filing fee is required for the presidential primary.			
	Campaign Finance Reports	Candidates for President do not file reports with the Department of Elections.	With the Federal Election Commission (FEC).		

The following three steps are required for your candidacy:

☐ 1. Fill out and submit Declaration of Candidacy (SBE-505/520(P)).

Find in Virginia Code § 24.2-520.

Presidential Primary candidates

File starting **July 3rd, 2023.**

File ending **December 14th, 2023 at 5 pm.**

This form must be in the possession of the Department of Elections by the deadline. Forms postmarked by the deadline, but received after the deadline will not be accepted.

Submit this form to the Department of Elections.

File along with the Petitions of Qualified Voters and the Petition Statement.

- Fill the form out completely.
- Make sure the witness or notary statement is completed.

After you submit this form:

- The Department of Elections puts your information into the Virginia Election and Registration Information System (VERIS).
- The Department of Elections posts your contact information on the Department website.

☐ 2. Collect petition signatures and submit the Petitions of Qualified Voters (SBE-545).

Find in Va. Code §§ 24.2-505(D), 24.2-506, 24.2-507, 24.2-521, 24.2-522, and 24.2-545.

Find in Virginia Administrative Code 1 VAC 20-50-20 and 1 VAC 20-50-30.

Contact your attorney for guidance.

Do not collect signatures before	You can collect signatures between	You can submit signatures:
July 3, 2023.	Monday, July 3rd, 2023 through Thursday, December 14th, 2023.	Monday, July 3rd, 2023 through Thursday, December 14th, 2023 at 5:00pm

File the original petition pages with the Department of Elections.

File along with the Declaration of Candidacy and the Petition Statement.

Number of petition signatures you need from qualified voters
Total: 5,000 signatures
From each of the 11 Congressional Districts: 200 signatures

Things to remember about petitions:

Petition Pages must…

- be on the form from the State Board of Elections, and you cannot alter it in any way
- be either letter or legal size. Both are available on the Department of Elections website.
- be one page printed on the front and back. You can make as many copies as you need.
- contain the signature, printed full name, and full residence address of each qualified voter and the date the voter signed. The last four (4) digits of the qualified voter's Social Security number are helpful, but not required.

The petition circulator…

- must be a resident of the United States and must sign the affidavit for each page in front of a notary.
- cannot be the circulator of the page on which they sign the petition.

When filing your petition pages…

- Each page should contain signatures from only one locality and congressional district. It is helpful to track signatures by congressional district, and there is a place on the page to enter that information.
- Please file the pages in ascending order by congressional district to facilitate processing.
- Deliver the Petitions for the Presidential Primary to the Department of Elections in a sealed container. The Department of Elections will deliver the sealed container to the state chair of the candidate's political party. The state chair is the only person who can open the sealed container(s).

When collecting your petition signatures, it is helpful to remember that…

- Because people who are not registered to vote often sign petitions for candidates, we recommended you collect at least 7,500 signatures with at least 300 from each congressional district.

☐ 3. Fill out and submit the Petition Statement (ELECT-545B).

Find in Virginia Code § 24.2-545.

File starting **July 3rd, 2023.**

File ending **December 14th, 2023 at 5 pm.**



Submit this form to the Department of Elections.



File along with the Declaration of Candidacy and Petitions of Qualified Voters.
Attach this form to the first sealed container of petitions.

The Department of Elections provides the ELECT-545B for your use, but you may use your own form. If you use your own form, make sure it contains the following pieces of information:

- Name of the presidential candidate
- Total number of signatures on petitions in the container(s)

Check with your party to see if the following steps are required for your candidacy:

☐ List of national convention delegates and alternates.



Find in Virginia Code § 24.2-545.



File starting **July 3rd, 20223.**
File ending **December 14th, 2023 at 5 pm.**



Submit this information to the Department of Elections.



Submit along with the Declaration of Candidacy, Petitions of Qualified Voters, and Petition Statement.

ONLY submit these lists if your political party has determined that delegates to the National Convention will be selected based on the results of the primary.

There is no official form for this list.

How do I withdraw my candidacy?

Submit by **Wednesday, December 20, 2023 at 5:00 pm** to have your name removed from the ballot.

If you submit any time after December 20 at 5:00 pm, your name will not be removed from the ballot, but you will no longer be a candidate.

Submit your written withdrawal to your state party chair.

To be withdrawn from the ballot you must submit a signed written notice declaring your intent to withdraw from the primary.

I am the state chair of the Democratic or Republican Party. What, when, and where do I file?

Use this table to learn what, when, and where to file. Find more information below this table.

	What do I need to file?	Notes or other information	Where do I file this form?	When does filing open?	What is the deadline to file?
	The following 2 items are required to be filed by the State Party Chair.				
1	Notice of Nomination Method § 24.2-545(A)	Notify the State Board of Elections of choice of primary or other method of nomination. Include any rules for participation in a primary (if applicable).	Must be in the possession of the Department of Elections by the deadline. Will be accepted if sent via email from the party chair.	Monday , July 3, 2023	Wednesday December 6th, 2023 at 5:00 p.m.
2	Certification of Presidential Primary Candidates § 24.2-545(B)	List all certified by the party as candidates for the presidential primary.	Must be in the possession of the Department of Elections by the deadline. Will be accepted if sent via email from the party chair.	Friday, December 15th, 2023	Tuesday, December 19th, 2023 at 5:00 p.m.

Follow these steps to file your party's paperwork:

☐ 1. Submit Notice of Nomination Method.

Find in Virginia Code § 24.2-545(A).

File starting **July 3rd, 2023.**
File ending **December 6th, 2023 at 5 pm.**

This notice must be in the possession of the Department of Elections by the deadline. Notices postmarked by the deadline, but received after the deadline will not be accepted. The notice can be emailed to the Department (ea@elections.virginia.gov) by the party chair.

There is no form for this notice. A letter to the State Board of Elections with all required information is sufficient.

Submit this to the Department of Elections.

Include this required information:

- The method the party will use to determine its delegates to the National Convention (primary or other method);
- If the party chooses a primary, any voter in the Commonwealth may participate. The party may also add additional requirements to participate. If the party adds additional requirements, include those in the notice letter.

☐ 2. File the Certification of Presidential Primary Candidates (SBE-545(B2)).

Find in Va. Code § 24.2-545(B).

File starting **Friday, December 15th, 2023.**
File ending **Tuesday, December 19th, 2023 at 5 pm.**

This form must be in the possession of the Department of Elections by the deadline. Forms postmarked by the deadline, but received after the deadline will not be accepted. The form can be emailed to the Department (ea@elections.virginia.gov) by the party chair.

Submit this form to the Department of Elections.

The candidate filing deadline is Thursday, December 14th, 2023 at 5:00pm. Immediately after the deadline, the Department of Elections will provide all candidate material to the state party chair.

The state party chair is the only person permitted by law to open the sealed candidate petitions.

After evaluating the candidates' materials, list on the form all individuals who have met the requirements to be a candidate in your party's Presidential Primary Election.

On December 20th, The State Board of Elections will conduct a drawing to determine the order the candidates' names will be listed on the ballot.

What do I do when a candidate withdraws?

Candidate must submit by **Wednesday, December 20, 2023 at 5:00 pm** to have their name removed from the ballot.

Candidates who submit any time after December 20 will not be removed from the ballot, but they will no longer be a candidate.

Submit the written withdrawal to the Department of Elections as soon as possible after your receive it. The letter can be emailed to ea@elections.virginia.gov from the party chair's email address.

To be withdrawn from the ballot, a candidate must submit a signed written notice declaring their intent to withdraw from the primary.

If a withdrawal is received close to or at the 5:00 pm deadline on December 20th, please follow up immediately by phone ((804)-864-8901) to ensure the withdrawal was received by the Department.

General Disclaimer

The electronic version of this Candidate Bulletin can be found on the Department of Elections website: https://www.elections.virginia.gov/candidatepac-info/candidate-bulletins/index.html

Candidates are responsible for complying with all current applicable local, state, and federal laws and regulations.

This Candidate Bulletin provides an overview of Virginia electoral requirements only. It does not purport to provide legal advice or binding statements of official policy. Rather, the Candidate Bulletin describes election law found in the Code of Virginia. Applicable laws and regulations are subject to change in content and interpretation.

★ VIRGINIA ★
STATE BOARD of ELECTIONS

Split Precinct Waivers

BOARD WORKING PAPERS
Claire Scott
ELECT Policy Analyst

★ VIRGINIA ★
STATE BOARD of ELECTIONS

Memorandum

To: Chairman O'Bannon, Vice Chair Dance, Secretary Alvis-Long, Delegate Merricks, Mr. Matthew Weinstein

From: Claire Scott, Policy Analyst

Date: May 30, 2023

Re: Split Precinct Waiver Request for the City of Chesapeake

Suggested Motion:

"I move that the State Board of Elections approve the split precinct waiver for the City of Chesapeake."

Applicable Code Sections:

§24.2-307 Requirements for county and city precincts

Split Precinct Background

The Code of Virginia authorizes the State Board of Elections (SBE) to grant a waiver to administer a split precinct, if the governing body of a locality is unable to establish a precinct with the minimum number of registered voters without splitting the precinct, pursuant to §24.2-307.

Waivers must be requested by the governing body of a locality. This is often accomplished by a formal resolution passed by the governing body or by documenting the approval to request a waiver in the governing body's signed meeting minutes. These documents are submitted to ELECT by the general registrar of the locality along with the *SBE-307 Split Precinct Waiver* form. A locality may only administer a split precinct for elections held in the year the waiver is granted; therefore, a new waiver is required each calendar year.

Attachments:

Split Precinct Waiver Request from the City of Chesapeake
Split Precinct Waiver Resolution from the City Council of the City of Chesapeake

ELECT Staff Recommendation:

Staff recommends the approval of the split precinct waiver for the City of Chesapeake.

★ VIRGINIA ★
STATE BOARD of ELECTIONS

Waiver to Administer a Split Precinct

Pursuant to Virginia Code § 24.2-307, split precincts must be eliminated in any congressional district, Senate district, House of Delegates district, and election district used for the election of one or more members of the governing body or school board for the county or city, unless a waiver is granted by the State Board.

A locality may only administer a split precinct for elections held in the year the waiver is granted (i.e. you must request a new waiver each year), and the governing body of the locality must approve to apply for a waiver to administer a split precinct.

Please type the information below. **Requests must be received at least two (2) weeks before the next scheduled State Board meeting to be heard at that meeting.**

Locality: _____Chesapeake_____ Date: _____04/25/2023_____

Contact Name/Title: _Mary Lynn Pinkerman/General Registrar_____Phone Number: ___757-277-9797_____

Email Address:
____mlpinkerman@cityofchesapeake.net_____

Date the Governing Body's Meeting Occurred: _____02/22/2022_____

Supporting Documentation (Please Attach):

☒ Governing Body's Resolution

☐ Governing Body's Meeting Minutes

Any Previous Waiver Requests Submitted? ☒Yes ☐ No

If Yes, When? ____02/24/2022_____

Was it Granted? ☒ Yes ☐ No

Precinct #	Precinct Name/District	Please explain the reason for the waiver request and include the number of voters impacted.
0054	Pughsville	Split Congressional, Senate, and House cannot be healed as it sits on the Suffolk city line – approximately 275 voters

**You may add additional pages/rows if more space is required.*

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info@elections.virginia.gov

Telephone: (804) 864-8901
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Fax: (804) 371-0194

22-O-019

AN ORDINANCE APPROVING CHANGES TO CERTAIN VOTING PRECINCT BOUNDARY LINES TO RESOLVE CONGRESSIONAL PRECINCT SPLITS DUE TO REDISTRICTING, NAMELY, THE BOUNDARY LINE BETWEEN PRECINCT 0005 – CRESTWOOD AND PRECINCT 0039 – LAKE DRUMMOND, THE BOUNDARY LINE BETWEEN PRECINCT 0019 – JOLLIFF AND PRECINCT 0028 – SUNRAY I, THE BOUNDARY LINE BETWEEN PRECINCT 0045 – SUNRAY II AND PRECINCT 0011 – GENEVA PARK, AND THE BOUNDARY LINE BETWEEN PRECINCT 0045 – SUNRAY II AND PRECINCT 0048 – JOLLIFF MIDDLE SCHOOL; APPROVING THE DIVISION OF PRECINCT 0053 – FAIRWAYS, TO CREATE A NEW PRECINCT 0066 – FAIRWAYS II; APPROVING SUBMISSION OF AN APPLICATION FOR A CERTIFICATION OF NO OBJECTION FROM THE OFFICE OF CIVIL RIGHTS OF THE ATTORNEY GENERAL OF VIRGINIA, AND AUTHORIZING THE CHESAPEAKE ELECTORAL BOARD AND GENERAL REGISTRAR TO APPLY FOR A WAIVER TO ADMINISTER A SPLIT PRECINCT IN PRECINCT 0054 – PUGHSVILLE FROM THE DEPARTMENT OF ELECTIONS DUE TO REDISTRICTING.

WHEREAS, the Final Order establishing voting districts for the Senate of Virginia, the House of Delegates of Virginia, and Virginia's Representatives to the United States House of Representatives and approving and adopting the Final Redistricting Maps was entered by the Supreme Court of Virginia on December 28, 2021. The Virginia Department of Elections provided general registrars with the required information to effect changes necessitated by the redistricting on February 1, 2022. Upon approval by the City Council, an application will be submitted to the Office of the Attorney General of Virginia for preclearance. All changes must be made in the Virginia Election and Registration System by March 21, 2022, in preparation for the beginning of early voting on April 22, 2022, for the June primaries; and

WHEREAS, with the passage of House Bill 1890 and Senate Bill 1395, the Virginia Voting Rights Act, by the General Assembly, there are additional steps to change polling places or precinct boundary lines in certain circumstances, including, but not limited to, changes to boundaries related to redistricting. Pursuant to Virginia Code Section 24.2-129, any such change is considered a covered practice and must either be precleared through the Office of the Attorney General of Virginia or meet specific public comment requirements. To

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satisfy preclearance requirements in lieu of the required public comment period and public hearing mandated in Virginia Code Section 24.2-129, the City Council may request a Certification of No Objection from the Office of Civil Rights of the Attorney General of Virginia; and

WHEREAS, Virginia Code Section 24.2-307 states that there shall be no precinct not wholly contained within a single congressional district, Senate district, House of Delegates district, and election district used for the election of one or more members of the governing body or school board for the county or city (hereafter, a "split precinct" or "congressional split"), unless a waiver is granted by the State Board of Elections; and

WHEREAS, due to the foregoing time restraints, the Chesapeake Electoral Board and General Registrar are only requesting changes to voting precinct boundaries that are necessary to avoid split precincts and update the registration system with the district changes; and

WHEREAS, the Chesapeake Electoral Board met on February 4, 2022, and approved changes to the following precinct boundaries to resolve congressional splits due to redistricting:

A. The boundary line between Precinct 0005 – Crestwood and Precinct 0039 – Lake Drummond;
B. The boundary line between Precinct 0019 – Jolliff and Precinct 0028 – Sunray I;
C. The boundary line between Precinct 0045 – Sunray II and Precinct 0011 – Geneva Park;
D. The boundary line between Precinct 0045 – Sunray II and Precinct 0048 – Jolliff Middle School;
E. Using the congressional lines drawn by the Court as boundaries, separate Precinct 0053 – Fairways into two separate precincts (Precinct 0053 – Fairways, and Precinct 0066 – Fairways II); and

WHEREAS, the splits in Precinct 0054 – Pughsville cannot be resolved as the boundary line is the Suffolk and Chesapeake city line. Virginia Code Section 24.2-307 does not allow the two sections to be separated (as is being proposed herein for the Fairways

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Precinct), as there are not enough voters to meet the minimum requirement to create a new precinct. Therefore, the Chesapeake Electoral Board and General Registrar are seeking authorization to apply to the Virginia Department of Elections for a waiver to administer a split precinct.

NOW, THEREFORE, BE IT ORDAINED by the Council of the City of Chesapeake, Virginia as follows:

1. That the boundary line between Precinct 0005 – Crestwood and Precinct 0039 – Lake Drummond, shall be changed as described below, to resolve congressional splits due to redistricting, subject to receipt of a Certification of No Objection from the Office of Civil Rights of the Attorney General of Virginia.

   a. Precinct 0005 – Crestwood. The voting place for all voters who reside within the following boundaries shall vote at Crestwood Middle School, 1420 Great Bridge Boulevard, Chesapeake, Virginia 23320:

      Beginning at the intersection of the center line of South Military Highway and the center line of Interstate 464 Expressway; thence along the center line of Interstate 464 Expressway in a southerly direction to its intersection with the center line of Dominion Boulevard, North; thence along the center line of Dominion Boulevard, North in a southwesterly direction to its intersection with the center line of Mains Creek; thence along the center line of Mains Creek in a northwesterly direction, thence an easterly direction to its intersection with the center line of Bainbridge Boulevard; thence along the center line of Bainbridge Boulevard in a northerly direction to its intersection with the center line of Booker Street; thence along the center line of Booker Street in an easterly direction to its intersection with the center line of Laura Street; thence along the center line of Laura Street in a northerly direction to its intersection with the center line of Dunn Street; thence along the center line of Dunn Street in a westerly direction to its intersection with the center line of Pile Avenue; thence along the centerline of Pile Avenue in a southerly direction to its intersection with the center line of Carver Street; thence along the center line of Carver Street in a westerly direction to its intersection with the center line of Bainbridge Boulevard; thence along the center line of Bainbridge Boulevard in a northerly direction to its intersection with the center line of Precon Drive; thence along the center line of Precon Drive in a westerly direction to its intersection with the center line of Norfolk and

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Portsmouth Beltline; thence along the center line of Norfolk and Portsmouth Beltline in a southerly direction to its intersection with the center line of Interstate 64; thence along the center line of Interstate 64 in a westerly direction to its intersection with the Southern Branch of the Elizabeth River; thence along the center line of the Southern Branch of the Elizabeth River in a northerly direction to its intersection with the center line of the Norfolk Southern Railroad; thence along the center line of the Norfolk Southern Railroad in an easterly direction to its intersection with the center line of South Military Highway; thence along the center line of South Military Highway in an easterly direction to its intersection with the center line of Interstate 464 Expressway, the point of beginning.

b. Precinct 0039 – Lake Drummond. The voting place for all voters who reside within the following boundaries shall vote at Lake Drummond Masonic Lodge #178, 509 George Washington Highway, North, Chesapeake, Virginia 23323:

Beginning at the intersection of the center line of Moses Grandy Trail and the center line of George Washington Highway, North; thence along the center line of George Washington Highway, North in a northerly direction to its intersection with the center line of Interstate 64; thence along the center line of Interstate 64 in an easterly direction to its intersection with the center line of the Norfolk and Portsmouth Beltline; thence along the center line of the Norfolk and Portsmouth Beltline in a northerly direction to its intersection with the center line of Precon Drive; thence along the center line of Precon Drive in an easterly direction to its intersection with the center line of Bainbridge Boulevard; thence along the center line of Bainbridge Boulevard in a southerly direction to its intersection with the center line of Carver Street; thence along the center line of Carver Street in an easterly direction to its intersection with the center line of Pile Avenue; thence along the center line of Pile Avenue in a northerly direction to its intersection with the center line of Dunn Street; thence along the center line of Dunn Street in an easterly direction to its intersection with the center line of Laura Street; thence along the center line of Laura Street in a southerly direction to its intersection with the center line of Booker Street; thence along the center line of Booker Street in a westerly direction to its intersection with Bainbridge Boulevard; thence along the center line of Bainbridge Boulevard in a southerly direction to its intersection with the center line of Mains Creek; thence along the center line of Mains Creek in a westerly direction, then a southeasterly direction to its intersection with the center line of Dominion Boulevard, North; thence along the center line of Dominion Boulevard, North in a southwesterly direction to its intersection with the center line of the Southern Branch of the Elizabeth River; thence along the center line of the Southern Branch of the Elizabeth River in a northerly direction to its intersection with the center line of the Deep Creek Canal; thence along the center line of the Deep Creek Canal in a southwesterly direction to its intersection with the Trailsend Lane ingress/egress; thence along the center line of the Trailsend Lane ingress/egress in a southerly direction to its intersection with the center line

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of Shipyard Road; thence along the center line of Shipyard Road in a westerly direction to its intersection with the center line of Wallace Lane; thence along the center line of Wallace Lane in a southerly direction to the center line of Moses Grandy Trail; thence along the center line of Moses Grandy Trail in a westerly direction to its intersection with the center line of George Washington Highway, North, the point of beginning.

2. That the boundary line between Precinct 0019 – Jolliff and Precinct 0028 – Sunray I, shall be changed as described below, to resolve congressional splits due to redistricting, subject to receipt of a Certification of No Objection from the Office of Civil Rights of the Attorney General of Virginia.

   a. Precinct 0019 – Jolliff. The voting place for all voters who reside within the following boundaries shall vote at Alexander Baptist Church, 4316 Pamela Court, Chesapeake, Virginia 23321:

      Beginning at the intersection of the center line of Portsmouth Boulevard and the center line of the Chesapeake – Suffolk city line; thence along the center line of the Chesapeake – Suffolk city line in a southerly direction to its intersection with the northern boundary of the Hampton Roads Executive Airport (KPVG); thence along the northern boundary of the Hampton Roads Executive Airport (KPVG) in a northeasterly direction, then a southeasterly direction to its intersection with the center line of West Military Highway; thence along the center line of West Military Highway in a northeasterly direction to its intersection with Jolliff Road; thence along the center line of Jolliff Road in a northwesterly direction to its intersection with the center line of Portsmouth Boulevard; thence along the center line of Portsmouth Boulevard in a westerly direction to its intersection with the center line of the Chesapeake – Suffolk city line, the point of beginning.

   b. Precinct 0028 – Sunray I. The voting place for all voters who reside within the following boundaries shall vote at Sunray Community Center, 353 Hertz Road, Chesapeake, Virginia 23321:

      Beginning at the intersection of the center line of the Chesapeake – Suffolk city line and the center line of West Military Highway; thence along the center line of the Chesapeake – Suffolk city line in a northerly direction to its intersection with the northern boundary of the Hampton Roads Executive Airport (KPVG); thence along the northern boundary of the Hampton Roads Executive Airport

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(KPVG) in a northeasterly direction, then a southeasterly direction to its intersection with the center line of West Military Highway; thence along the center line of West Military Highway in a northeasterly direction to its intersection with the center line of Jolliff Road; thence along the center line of Jolliff Road in a southerly direction to its intersection with the center line of West Military Highway; thence along the center line of West Military Highway in a southerly direction to its intersection with the center line of Interstate 664 Expressway Ramp, North; thence along the center line of Interstate 664 Expressway Ramp, North in an easterly direction to its intersection with the center line of Ridgeway Avenue; thence along the center line of Ridgeway Avenue in a southwesterly direction to its intersection with the center line of Interstate 664 Expressway, South; thence along the center line of Interstate 664 Expressway, South in a westerly direction to its intersection with the center line of CSX Railroad; thence along the center line of CSX Railroad in a southwesterly direction to its intersection with the center line of South Military Highway; thence along the center line of South Military Highway in a southeasterly direction to its intersection with the center line of the Old Norfolk & Western Railroad right-of-way; thence along the center line of the Old Norfolk & Western Railroad right-of-way in a westerly direction to its intersection with the center line of Homestead Road; thence along the center line of Homestead Road in a southwesterly direction to its intersection with the center line of East Road; thence along the center line of East Road in a southeasterly direction to its intersection with the center line of Biernot Avenue; thence along the center line of Biernot Avenue in a southerly direction to its intersection with the center line of Peach Road; thence along the center line of Peach Road in a southwesterly direction to its intersection with the center line of Homestead Road; thence along the center line of Homestead Road in a northerly direction, then a northeasterly direction to its intersection with the center line of Sunray Avenue; thence along the center line of Sunray Avenue in a westerly direction to its intersection with the center line of Compaz Road; thence along the center line of Compaz Road in a southerly direction to its intersection with the center line of Danberry Street; thence along the center line of Danberry Street in a westerly direction to its intersection with the center line of Truitt Road; thence along the center line of Truitt Road in a southerly direction to its intersection with the center line of Apple Road; thence along the center line of Apple Road in an easterly direction to its intersection with the center line of a right-of-way; thence along the center line of the right-of-way in a southerly direction to its intersection with the center line of the Norfolk Southern Railroad; thence along the center line of the Norfolk Southern Railroad in a westerly direction to its intersection with the center line of the Chesapeake – Suffolk city line in a northerly direction to its intersection with West Military Highway, the point of beginning.

3. That the boundary line between Precinct 0045 – Sunray II and Precinct 0011 – Geneva Park, shall be changed as described below, to resolve congressional splits due to

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redistricting, subject to receipt of a Certification of No Objection from the Office of Civil Rights of the Attorney General of Virginia.

a. Precinct 0045 – Sunray II. The voting place for all voters who reside within the following boundaries shall vote at St. Mary's Catholic Church, 540 Homestead Road, Chesapeake, Virginia 23321:

Beginning at the intersection of the center line of Interstate 64 Expressway, East and the center line of South Military Highway; thence along the center line of South Military Highway in an easterly direction to its intersection with the center line of Butler Street; thence along the center line of Butler Street in a southerly direction to its intersection with the center line of Conrad Avenue; thence along the center line of Conrad Avenue in a westerly direction, then a southwesterly direction to its intersection with the center line of Old George Washington Highway, North; thence along the center line of Old George Washington Highway, North in a southerly direction to its intersection with the center line of George Drive; thence along the center line of George Drive in an easterly direction to its intersection with the center line of Custis Avenue; thence along the center line of Custis Avenue in a southerly direction to its intersection with the center line of Martha Drive; thence along the center line of Martha Drive in a westerly direction to its intersection with the center line of Old George Washington Highway, North; thence along the center line of Old George Washington Highway, North to its intersection with the center line of Dandridge Way; thence from the intersection of the center line of Old George Washington Highway, North and the center line of Dandridge Way in a southerly direction across the Norfolk Southern Railroad to the center line of the northern terminus of Fenway Avenue; thence along the center line of Fenway Avenue in a southern direction to its intersection with the center line of Trade Street; thence along the center line of Trade Street in a westerly direction to its intersection with George Washington Highway, North; thence along the center line of George Washington Highway, North in a southerly direction to its intersection with the center line of Interstate 64 Expressway; thence along the center line of Interstate 64 Expressway in a northwesterly direction to its intersection with the center line of the Norfolk Southern Railroad; thence along the center line of the Norfolk Southern Railroad in a southwesterly direction to its intersection with the center line of a 50-foot right-of-way; thence along the center line of the 50-foot right-of-way in a northerly direction to its intersection with the center line of Apple Road; thence along the center line of Apple Road in a westerly direction to its intersection with the center line of Truitt Road; thence along the center line of Truitt Road in a northerly direction to its intersection with the center line of Danberry Street; thence along the center line of Danberry Street in an easterly direction to its intersection with the center line of Compaz Road; thence along the center line of Compaz Road in a northerly direction to its intersection with the center line of Sunray Avenue; thence along the center line of

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Sunray Avenue in an easterly direction to its intersection with the center line of Homestead Road; thence along the center line of Homestead Road in a southwesterly direction, then a southerly direction to its intersection with the center line of Peach Road; thence along the center line of Peach Road in an easterly direction to its intersection with the center line of Biernot Avenue; thence along the center line of Biernot Avenue in a northerly direction to its intersection with the center line of East Road; thence along the center line of East Road in a northwesterly direction to its intersection with the center line of Homestead Road; thence along the center line of Homestead Road in a northeastern direction to its intersection with the Old Norfolk & Western Railroad right-of-way; thence along the center line of the Old Norfolk & Western Railroad right-of-way in a northeasterly direction to its intersection with the center line of South Military Highway; thence along the center line of South Military Highway in a northwesterly direction to its intersection with the center line of the CSX Railroad; thence along the center line of the CSX Railroad in a northeasterly direction to its intersection with the center line of Interstate 664 Expressway Ramp, North; thence along the center line of Interstate 664 Expressway Ramp, North in an easterly direction to its intersection with the center line of Ridgeway Avenue; thence along the center line of Ridgeway Avenue in a southwesterly direction to its intersection with the center line of Interstate 664 Expressway Ramp, South; thence along the center line of Interstate 664 Expressway Ramp, South in a northeasterly direction to its intersection with the center line of Interstate 664 Expressway Ramp, North; thence along the center line of Interstate 664 Expressway Ramp, North in a southeasterly direction to its intersection with the center line of Interstate 264 Expressway Ramp, West; thence along the center line of Interstate 264 Expressway Ramp, West in a southerly direction to its intersection with Rotunda Avenue; thence along the center line of Rotunda Avenue in an easterly direction to its intersection with the center line of Interstate 64 Expressway, East; thence along the center line of Interstate 64 Expressway, East in a southwesterly direction to its intersection with the center line of South Military Highway, the point of beginning.

b. Precinct 0011 – Geneva Park. The voting place for all voters who reside within the following boundaries shall vote at G. A. Treakle Elementary School, 2500 Gilmerton Road, Chesapeake, Virginia 23323:

Beginning at the intersection of the center line of St. Julian Creek and the center line of the Southern Branch of the Elizabeth River; thence along the center line of St. Julian Creek in a northwesterly direction, then a southwesterly direction to its intersection with the center line of Old Deep Creek Boulevard; thence along the center line of Old Deep Creek Boulevard in a southerly direction to its intersection with the center line of Gilmerton Road; thence along the center line of Gilmerton Road in a southeasterly direction to its intersection with the center line of George Washington Highway, North; thence along the center line of George

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Washington Highway, North in a southwesterly direction to its intersection with the center line of South Military Highway; thence along the center line of South Military Highway in an easterly direction to its intersection with the center line of Butler Street; thence along the center line of Butler Street in a southerly direction to its intersection with the center line of Conrad Avenue; thence along the center line of Conrad Avenue in a westerly direction, then southwesterly direction to its intersection with the center line of Old George Washington Highway, North; thence along the center line of Old George Washington Highway, North in a southerly direction to its intersection with the center line of George Drive; thence along the center line of George Drive in an easterly direction to its intersection with the center line of Custis Avenue; thence along the center line of Custis Avenue in a southerly direction to its intersection with the center line of Martha Drive; thence along the center line of Martha Drive in a westerly direction to its intersection with Old George Washington Highway, North; thence along the center line of Old George Washington Highway, North in a southerly direction to its intersection with the Norfolk Southern Railroad; thence along the center line of the Norfolk Southern Rail road in a northeasterly direction to a point due north of the western terminus of Faulk Street; thence from the point due north of the western terminus of Faulk Street in a southeasterly direction to the center line of the western terminus of Faulk Street; thence along the center line of Faulk Street in a northeasterly direction, then a southeasterly direction to its intersection with the center line of Shell Road; thence along the center line of Shell Road in a northeasterly direction to its intersection with the center line of the Norfolk Southern Railroad; thence along the Norfolk Southern Railroad in a northeasterly direction to its intersection with the center line of the Southern Branch of the Elizabeth River; thence along the center line of the Southern Branch of the Elizabeth River in a northwesterly direction to its intersection with the center line of St. Julian Creek, the point of beginning.

4. That the boundary line between Precinct 0045 – Sunray II and Precinct 0048 – Jolliff Middle School, shall be changed as described below, to resolve congressional splits due to redistricting, subject to receipt of a Certification of No Objection from the Office of Civil Rights of the Attorney General of Virginia.

   a. Precinct 0045 – Sunray II. The voting place and new boundaries for Precinct 0045 – Sunray II are described in section 3.a above.

   b. Precinct 0048 – Jolliff Middle School. The voting place for all voters who reside within the following boundaries shall vote at Jolliff Middle School, 1021 Jolliff Road, Chesapeake, Virginia 23321:

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Beginning at the intersection of the center line of the Western Branch of the Elizabeth River and the center line of the Chesapeake – Portsmouth city line; thence along the center line of the Chesapeake – Portsmouth city line in a southeasterly direction, then a northeasterly direction to its intersection with the center line of Cavalier Boulevard; thence along the center line of Cavalier Boulevard in a southerly direction, then a southeasterly direction to its intersection with the center line of South Military Highway; thence along the center line of South Military Highway in an easterly direction to its intersection with the center line of Interstate 64 Expressway, East; thence along the center line of Interstate 64 Expressway, East in a northwesterly direction to its intersection with the center line of Rotunda Avenue; thence along the center line of Rotunda Avenue in a westerly direction to its intersection with the center line of Interstate 264 Expressway Ramp, West; thence along the center line of Interstate 264 Expressway Ramp, West in a northerly direction to its intersection with the center line of Interstate 664 Expressway Ramp, North; thence along the center line of Interstate 664 Expressway Ramp, North in a northwesterly direction to its intersection with the center line of the Interstate 664 Expressway, South; thence along the center line of the Interstate 664 Expressway, South in a westerly direction to its intersection with the center line of Ridgeway Avenue; thence along the center line of Ridgeway Avenue in a northeasterly direction to its intersection with the center line of Interstate 664 Expressway, North; thence along the center line of Interstate 664 Expressway, North in a westerly direction to its intersection with the center line of West Military Highway; thence along the center line of West Military Highway in a northerly direction to its intersection with the center line of Jolliff Road; thence along the center line of Jolliff Road in a northwesterly direction to its intersection with the center line of Goose Creek; thence along the center line of Goose Creek in a northeasterly direction, then a southeasterly direction to its intersection with the center line of the Western Branch of the Elizabeth River; thence along the center line of the Western Branch of the Elizabeth River in a northeasterly direction to its intersection with the center line of the Chesapeake – Portsmouth city line, the point of beginning.

5. Using the congressional lines drawn by the Court as boundaries, Precinct 0053 – Fairways shall be divided into two separate precincts (to be known as Precinct 0053 – Fairways, and Precinct 0066 – Fairways II), as described below, subject to receipt of a Certification of No Objection from the Office of Civil Rights of the Attorney General of Virginia.

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City of Chesapeake
Municipal Center
306 Cedar Road
Chesapeake, Virginia
23322
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a. Precinct 0053 – Fairways. The voting place for all voters who reside within the following boundaries shall vote at Greenbrier Intermediate School, 1701 River Birch Run, North, Chesapeake, Virginia 23320:

Beginning at the intersection of the center line of Volvo Parkway and the center line of Kempsville Road; thence along the center line of Volvo Parkway in a northwesterly direction to its intersection with the center line of Fairways Reach; thence along the center line of Fairways Reach in a southerly direction to its intersection with the center line of Fairway Drive; thence along the center line of Fairway Drive in a southwesterly direction to its intersection with the center line of Cross Creek Quay; thence along the center line of Cross Creek Quay in a northwesterly direction to the center line of Greenbrier Parkway; thence along the centerline of Greenbrier Parkway in a northerly direction to its intersection with the center line of a 120-foot power easement; thence along the center line of the 120-foot power easement in an easterly direction to its intersection with the center line of Fairways Reach; thence along the center line of Fairways Reach in a northerly direction to its intersection with the center line of Volvo Parkway; thence along the center line of Volvo parkway in a northwesterly direction to its intersection with the center line of Eden Way, North; thence along the center line of Eden Way, North in a northerly direction to the center line of an 80-foot drainage easement; thence along the 80-foot drainage easement in an easterly direction, then a northeasterly direction to an impoundment easement; thence along the impoundment easement in an easterly direction to the fairway at Greenbrier Country Club; thence along the fairway at Greenbrier Country Club in a southeasterly direction to its intersection with the Chesapeake – Virginia Beach city line; thence along the Chesapeake – Virginia Beach city line in a southeasterly direction to its intersection with Kempsville Road; thence along the center line of Kempsville Road in a southerly direction to its intersection with Volvo Parkway, the point of beginning.

b. Precinct 0066 – Fairways II. The voting place for all voters who reside within the following boundaries shall vote at Greenbrier Primary School, 1551 Eden Way, South, Chesapeake, Virginia 23320:

Beginning at the intersection of the center line of Eden Way, North and the center line of Volvo Parkway; thence along the center line of Volvo Parkway in a southeasterly direction to its intersection with the center line of Fairways Reach; thence along the center line of Fairways Reach in a southerly direction to its intersection with the center line of a 120-foot power easement; thence along the center line of the 120-foot power easement in a southwesterly direction to its intersection with the center line of Greenbrier Parkway; thence along the center line of Greenbrier Parkway in a southerly direction to its intersection with the

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center line of Cross Creek Quay; thence along the center line of Cross Creek Quay in a southeasterly direction to its intersection with the center line of Fairway Drive; thence along the center line of Fairway Drive in a southwesterly direction to its intersection with the center line of Greenbrier Parkway; thence along the center line of Greenbrier Parkway in a northerly direction to the center line of an 80-foot drainage easement; thence along the 80-foot drainage easement in an easterly direction to its intersection with the center line of Eden Way, North; thence along the center line of Eden Way, North in a southerly direction to its intersection with the center line of Volvo Parkway, the point of beginning.

6. That the splits created in Precinct 0054 – Pughsville cannot be resolved as the boundary line is the Suffolk – Chesapeake city line. Virginia Code Section 24.2-307 does not allow the two sections to be separated, as there are not enough voters to meet the minimum requirement to create a new precinct. Therefore, the Chesapeake Electoral Board and General Registrar are **AUTHORIZED** to apply for a waiver to administer a split precinct from the State Department of Elections due to redistricting.
7. That due to time constraints to create the changes necessitated by redistricting, the Chesapeake Electoral Board and General Registrar are **AUTHORIZED** to submit an application for a Certification of No Objection from the Office of Civil Rights of the Attorney General of Virginia.

Pursuant to Section 3.07 of the City Charter, an emergency is deemed to exist to protect the City from imminent liability, and this ordinance shall become effective upon its adoption.

ADOPTED by the Council of the City of Chesapeake, Virginia, this 22nd day of February, 2022.

City Attorney's Office
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APPROVED:

Mayor

ATTEST:

Clerk of the Council

APPROVED AS TO FORM:

Deputy City Attorney

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City of Chesapeake
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STATE BOARD of ELECTIONS

Legislative Updates Pursuant to Absentee Ballots

BOARD WORKING PAPERS
Ashley Coles
ELECT Policy Analyst

★ VIRGINIA ★
STATE BOARD of ELECTIONS

Memorandum

To: Chairman O'Bannon, Vice Chair Dance, Secretary Alvis-Long, Delegate Merricks, and Mr. Matthew Weinstein

From: Ashley Coles, Policy Analyst

Date: May 30, 2023

Re: Proposed Amendments to 1VAC20-45-40, 1VAC20-70-20, and 1VAC20-70-80

Suggested Motions:

"I move that the Board approve the proposed amendments to regulatory action 1VAC20-45-40."

"I move that the Board approve the proposed amendments to regulatory action 1VAC20-70-20."

"I move that the Board repeal regulatory action 1VAC20-70-80."

Applicable Code Section:

§24.2-103(A) Powers and Duties in general

§24.2-702.1 Federal write-in absentee ballots

§24.2-704 Applications and ballots for persons requiring assistance in voting; penalty

§24.2-706 Duty of general registrar on receipt of application; statement of voter

§24.2-707 How ballots marked and returned

Acts of Assembly Chapter 785

Background:

Pursuant to the Code of Virginia §24.2-103(A), the State Board of Elections "shall make rules and regulations and issue instructions and provide information consistent with the election laws to the electoral boards and registrars to promote the proper administration of election laws." 785 of the Governor's Acts of Assembly removes the witness signature requirement for absentee ballots and applications as well as the witness signature requirement for Federal write-in absentee ballots and applications and replaces it with the voter's year of birth and the last four digits of their social security number *or* a unique identifier, if the voter was never issued one. As a result of these changes, 1VAC20-45-40 and 1VAC20-70-20 of Virginia Administrative Code, will need to be amended to be in compliance with these amendments. 1VAC20-70-80 of Virginia Administrative Code will have to be repealed, in order to be in compliance with these changes to the Code of Virginia.

Attachments:

- Proposed amendments to 1VAC20-45-40, 1VAC20-70-20, and 1VAC20-70-80

ELECT Staff Recommendation:

ELECT staff recommends the State Board of Elections approve the proposed amendments to 1VAC20-45-40 and 1VAC20-70-20 and repeal 1VAC20-70-80.

Agency: The State Board of Elections

Virginia Administrative Code (VAC) citation: 1VAC20-45-40

Regulation Title: Material omissions from Federal Write-In Absentee Ballots

Date before State Board of Elections: May 30, 2023

Brief Summary:

The proposed amendments bring 1VAC20-45-40 into compliance with the Acts of Assembly Chapter 785 by removing language regarding witness signatures, dates of the witness signature, and the addresses of the witness. The amendments also add the requirement for the applicant to provide the last four digits of their social security number or, if the applicant was not issued a social security, the unique identifier assigned to the applicant in the voter registration system.

Regulation Text:

1VAC20-45-40. Material omissions from Federal Write-In Absentee Ballots *(FWAB)*.

A. Pursuant to the requirements of §§ 24.2-467, 24.2-702.1, and 24.2-706 of the Code of Virginia, a timely received write-in absentee ballot on a Federal Write-In Absentee Ballot (FWAB) (Form SF-186) should not be rendered invalid if it contains an error or omission not material to determining the eligibility of the applicant to vote in the election in which the applicant offers to vote.

B. If the applicant is not registered, the FWAB may not be accepted as timely for registration unless the applicant has met the applicable registration deadline. Section §24.2-419 of the Code of Virginia extends the mail registration deadline for certain military applicants. All applications requesting mailed ballots are subject to the mail absentee application deadline in §§ 24.2-459 and 24.2-701 of the Code of Virginia.

C. The following omissions are always material and any FWAB containing such omissions should be rendered invalid if on the declaration/affirmation any of the following, or combination thereof, exists:

1. The applicant has omitted the signature of the voter or the notation of an assistant in the voter signature box that the voter is unable to sign;

2. ~~The applicant has omitted the signature of the witness, except during a declared state of emergency related to a communicable disease of public health threat pursuant to § 24.2-707 of the Code of Virginia~~ *The voter did not provide the voter's birth year*;

3. The applicant did not provide the last four digits of their social security number or, if the applicant's voter registration includes a statement of affirmation that he has never been issued a social security number, the unique identifier assigned to the applicant in the voter registration system pursuant to subdivision A. 1. of § 24.2-404 of the Code of Virginia;

~~3.~~*4.* The applicant did not include the declaration/affirmation page; or

~~4.~~*5.* The applicant omitted from the declaration/affirmation information required by § 24.2-702.1 of the Code of Virginia needed to determine identity or eligibility including current military or overseas address.

D. The ballot should not be rendered invalid if on the FWAB any of the following, or combination thereof, exists:

1. The applicant has not listed the names specifically in the order of last, first, and middle name;

2. The applicant has listed a middle initial or maiden name, instead of the full middle name;

3. The applicant has omitted the street identifier, such as the term "road" or "street," when filling in the legal residence;

4. The applicant has omitted the county or city of registration if the county or city is clearly identifiable by the residence address information provided;

5. The applicant has omitted the zip code;

6. The applicant has omitted the date of the signature of the voter;

~~7. The applicant has omitted the address of the witness;~~

~~8. The applicant has omitted the date of signature of the witness;~~

~~9.~~*7.* The applicant did not seal the ballot within the security envelope so long as the outside envelope containing the ballot and the voter's declaration/affirmation page arrived sealed; or

~~10.~~*8.* The applicant has submitted a ballot containing offices or issues for which the applicant is not eligible.

Agency: The State Board of Elections

Virginia Administrative Code (VAC) citation: 1VAC20-70-20

Regulation Title: Material omissions from absentee ballots

Date before State Board of Elections: May 30, 2023

Brief Summary:

The proposed amendments brings 1VAC20-70-20 into compliance with the Acts of Assembly Chapter 785 by removing language regarding witness signatures, dates of the witness signature, and the addresses of the witness. The amendments also add the requirement for the applicant to provide the last four digits of their social security number or, if the applicant was not issued a social security, the unique identifier assigned to the applicant in the voter registration system.

Regulation Text:

1VAC20-70-20. Material omissions from absentee ballots.

A. Pursuant to the requirements of § 24.2-706 of the Code of Virginia, a timely received absentee ballot contained in an Envelope B shall not be rendered invalid if it contains an error or omission not material to its proper processing.

B. The following omissions are always material and any Envelope B containing such omissions shall be rendered invalid if any of the following exists:

1. Except as provided in subdivisions C 2 and C 3 of this section, the voter did not include his full first name;

2. The voter did not provide his last name;

3. The voter omitted his generational suffix when one or more individuals with the same name are registered at the same address, and it is impossible to determine the identity of the voter;

4. The voter did not provide his house number and street name or his rural route address;

5. The voter did not provide either his city or zip code;

6. The voter did not sign Envelope B; ~~or~~

7. ~~The voter's witness did not sign Envelope B, except during a declared state of emergency related to a communicable disease of public health threat pursuant to § 24.2-707 of the Code of Virginia.~~ *The voter did not provide his birth year; or*

8. The voter did not provide the last four digits of his social security number or, if the voter's registration includes a statement of affirmation that he has never been issued a social security number, the unique identifier assigned to the voter in the voter registration system pursuant to subdivision A 1 of § 24.2-404 of the Code of Virginia.

C. The ballot shall not be rendered invalid if on the Envelope B:

1. The voter included his full name in an order other than "last, first, middle";

2. The voter used his first initial instead of his first full name, so long as the voter provided his full middle name;

3. The voter provided a derivative of his legal name as his first or middle name (e.g., "Bob" instead of "Robert");

4. If the voter provided his first name and last name, the voter did not provide a middle name or a middle initial;

5. The voter did not provide his residential street identifier (Street, Drive, etc.);

6. The voter did not provide a zip code, so long as the voter provided his city;

7. The voter did not provide his city, so long as the voter provided his zip code;

8. The voter omitted the date, or provided an incorrect or incomplete date on which he signed Envelope B; ~~or~~

9. The ballot is imperfectly sealed within Envelope B, provided that the outer envelope with Envelope B and the ballot arrived sealed~~.~~*; or,*

10. The ~~illegibility of a~~ voter's ~~or witness'~~ signature on an Envelope B *is illegible* ~~shall not be considered an omission or error~~.

D. For the purposes of this regulation, "city" may include the voter's locality, town, or any acceptable mailing name for the five-digit zip code of the voter's residence.

E. Whether an error or omission on an Envelope B not specifically addressed by this regulation is material and shall render the absentee ballot invalid shall be determined by a majority of the officers of the election present.

F. If a ballot is received by the general registrar's office by noon on the third day after the election pursuant to § 24.2-709 of the Code of Virginia but the return envelope has a missing or illegible postmark, the General Registrar shall refer to the Intelligent Mail barcode on the return envelope to determine whether the ballot was mailed on or before the date of the relevant election.

1. If there is evidence from the Intelligent Mail barcode that the ballot was mailed after the close of polls for the relevant election, the ballot shall be rendered invalid.

2. If there is no evidence from the Intelligent Mail barcode that the ballot was mailed after the close of polls for the relevant election, but the return envelope has an illegible postmark, the General Registrar shall refer to the date on which the oath on Envelope B was signed to determine whether the ballot was cast on or before the date of the relevant election.

3. If there is no evidence from the Intelligent Mail barcode that the ballot was mailed after the close of polls for the relevant election and if the return envelope has a missing postmark, the ballot shall be rendered invalid.

Agency: The State Board of Elections

Virginia Administrative Code (VAC) citation: 1VAC20-70-80

Regulation Title: Repeal of Absentee ballot witness signatures during qualifying state of emergency

Date before State Board of Elections: May 30, 2023

Brief Summary:

1VAC20-70-80 no longer is compliant with the Acts of Assembly Chapter 785 and should be repealed.

Regulation Text:

~~1VAC20-70-80. Absentee ballot witness signatures during qualifying state of emergency.~~

~~A. "Declared state of emergency related to a communicable disease of public health threat" or "state of emergency" means a state of emergency declared by the Governor of Virginia pursuant to the Governor's authority under Article V, Section 7 of the Constitution of Virginia in response to a communicable disease of public health threat, as defined in § 44-146.16 of the Code of Virginia.~~

~~B. If such a state of emergency is declared prior to the start of in-person absentee voting under § 24.2-701.1 of the Code of Virginia for an election and is ongoing at the beginning of the in-person absentee voting period, then a witness signature is not required on any absentee ballot otherwise validly submitted for that election. This rule applies to all absentee ballots submitted for that election, including any absentee ballot submitted after the state of emergency has ended.~~

~~C. If the Governor of Virginia declares such a state of emergency during the in-person absentee voting period preceding Election Day, no absentee ballot returned after such declaration of state of emergency requires a witness signature. This rule applies to any absentee ballots submitted after the state of emergency has ended.~~

COMMONWEALTH *of* VIRGINIA

Office of the Attorney General

Jason S. Miyares
Attorney General

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800-828-1120

TO: John O'Bannon, Chairman
State Board of Elections

Susan Beals, Commissioner
Department of Elections

FROM: Travis Andrews TJAndrews
Assistant Attorney General

Date: May 10, 2023

Subject: Letter of Assurance for Proposed Amendments to Regulation 1VAC20-45-40

I have reviewed the proposed amendments to regulation 1VAC20-45-40, regarding material omissions from federal write-in absentee ballots. In my view as counsel to the State Board of Elections, the Board has the authority to promulgate this regulation pursuant to Virginia Code § 24.2-103. The proposed amendments do not appear to conflict with the Constitution of the United States or the Constitution of the Commonwealth of Virginia, or any federal or state law currently in effect. This regulatory action is exempt from the Administrative Process Act pursuant to Virginia Code § 2.2-4002(B)(8) because it relates to the conduct of elections.

This memorandum addresses legal matters only and is not intended to serve, nor should it be construed, as a comment for or against the merits of the proposed amendment.

COMMONWEALTH *of* VIRGINIA

Office of the Attorney General

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Attorney General

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TO: John O'Bannon, Chairman
State Board of Elections

Susan Beals, Commissioner
Department of Elections

FROM: Travis Andrews
Assistant Attorney General

Date: May 10, 2023

Subject: Letter of Assurance for Proposed Amendments to Regulation 1VAC20-70-20

I have reviewed the proposed amendments to regulation 1VAC20-70-20, regarding material omissions from absentee ballots. In my view as counsel to the State Board of Elections, the Board has the authority to promulgate this regulation pursuant to Virginia Code § 24.2-103. The proposed amendments do not appear to conflict with the Constitution of the United States or the Constitution of the Commonwealth of Virginia, or any federal or state law currently in effect. This regulatory action is exempt from the Administrative Process Act pursuant to Virginia Code § 2.2-4002(B)(8) because it relates to the conduct of elections.

This memorandum addresses legal matters only and is not intended to serve, nor should it be construed, as a comment for or against the merits of the proposed amendments.

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STATE BOARD *of* ELECTIONS

Ranked Choice Voting Update

BOARD WORKING PAPERS
Rachel Lawless
Confidential Policy Advisor

John Cronin
EMPO Project Manager

★ VIRGINIA ★
DEPARTMENT of ELECTIONS

Ranked Choice Voting Tabulation Software Approval

May 2023

Executive Summary

Pursuant to 1VAC20-100-50, the Virginia Department of Elections (ELECT) approves the use of the Universal RCV Tabulator v1.0.1 (RCTab) in Ranked Choice Voting (RCV) contests in the Commonwealth. ELECT has reviewed this software as part of a continuing effort to improve the administration and security of Virginia elections. This memorandum provides a summary of the review of the ELECT Information Security Team completed to ensure the validity of RCTab for use in the Commonwealth.

Background

In the 2020 Virginia General Assembly Session, RCV was established as an optional method for the election of county board of supervisors and city council members.[1] The legislation provided authority to the State Board of Elections (SBE) to promulgate regulations for the proper administration of elections determined by RCV.[2] The SBE passed RCV regulations at its September 14, 2021 SBE meeting.[3] The Arlington County Board of Supervisors adopted an ordinance in December of 2022 approving RCV for use in its primary election in June 2023, the first use of RCV in a local contest.

Voting Systems

RCV allows voter to rank candidates in order of preference. To accommodate this, localities must have the necessary technological capabilities related to their voting systems, which consists of two functions. First, voting systems must have the capability to read ballots with RCV races. After scanning the ballots, voting systems in RCV races must then produce a cast vote record (CVR) of the rankings assigned to candidates on each ballot. Currently, ELECT has approved voting systems from four vendors with these functionalities: Unisyn Voting, Hart Intercivic, ES&S, and Dominion.

Tabulation Software

After a CVR is created by the voting system, additional software is required to tabulate the votes displayed on the CVR based upon the rules prescribed in the RCV regulations. Such software exists both from some voting system vendors and third-party organizations. Currently, voting equipment vendors in Virginia range in their abilities to tabulate results for RCV contests in this second phase. As ELECT was in the process of building policies and procedures to conduct RCV contests throughout the state and evaluating available options for this software, it became imperative to procure the use of a standardized third-party tabulator.

After extensive research into the software best able to provide a uniform method of tabulating RCV contests, ELECT decided to procure the use of RCTab created by the Ranked Choice Resource Center (RCVRC), a division of the Election Administration Resource Center, a nonpartisan 501 (c)(3) nonprofit organization.[4] ELECT purchased the use of RCTab in January of 2023.

Overview of ELECT's Approval Process

RCTab is a federally tested open-source software that meets the Voluntary Voting System Guidelines (VVSG) established by the U.S. Elections Administration Commission and is the first open-source

[1] Acts of Assembly, Chapter 1054, 2020 Session
[2] § 24.2-673.1 C
[3] 1VAC20-100-10 through 1VAC20-100-80
[4] RCV Resource Center, https://www.rcvresources.org/organization

software to meet VVSG standards.[5] While the software is open-source, ELECT purchased USB drives containing RCTab directly from the RCVRC. This process aligned with ELECT's security requirements.

In determining whether RCTab was suitable for use in RCV contests, ELECT evaluated the software in three phases:

1. Pro V&V Test Report of Universal RCV Tabulator (RCTab)
2. Review of RCVRC RCTab Security Documentation Package
3. ELECT Test Elections

Pro V&V Test Report of Universal RCV Tabulator (RCTab)

Pro V&V is a voting systems test laboratory accredited by the U.S. Election Assistance Commission for the testing of voting systems to the Voluntary Voting System Guidelines (VVSG 1.0, 1.1 & 2.0).[6] Pro V&V conducted a test of the Universal RCV Tabulator with voting system vendors to evaluate the certification requirements found in the Voluntary Voting System Guidelines Version 1.0 (VVSG 1.0).[7]

Various operating systems were used in Pro V&V's test. Hash values were recorded to ensure the software version being used matched the original. RCVRC's technical data package (TDP) contained the information needed to conduct the tests. Of note, "[t]he security testing evaluated the effectiveness of the Universal RCV Tabulator in detecting, preventing, recording, reporting, and recovering from security threats. To evaluate the integrity of the Universal RCV Tabulator attempts were made to defeat the access controls and security measures documented in the system TDP."[8] All tests were passed.

Review of RCVRC RCTab Security Documentation Package

ELECT 's next reviewed the RCVRC security documentation package to verify that it aligned with ELECT's pre-established security procedures. ELECT's Security Division reviewed a collection of documents provided by the RCVRC in preparation for ELECT's RCTab approval. The documents reviewed are summarized as follows and included in the Appendix:

- **Secure USB Processes.**[9] The Secure USB Process explains RCVRC's flash drive security features and attributes such as AES 256 bit encryption, FIPS 140-2, level 3 standard and PIN authenticated hardware encryption. These meet federal government standards.[10] Thorough instructions are included to set and update the security PIN preventing tampering or alteration of the program.

- **System Hardening Procedures.**[11] System hardening procedures are focused on hardening a machine to run the software. Like most security procedures, removing unnecessary programs is

[5] Ranked Choice Voting Resource Center, RCTab, https://www.rcvresources.org/rctab
[6] *See* Appendix 1
[7] *See* Appendix 2
[8] *Id.* at 6
[9] *See* Appendix 3
[10] NIST Digital Identity Guidelines – Authentication and Lifecycle Management, https://pages.nist.gov/800-63-3/sp800-63b.html
[11] *See* Appendix 4

important to reduce the attack surface. Software that is loaded includes: Windows 10 with latest service pack, antivirus, Windows updates, Windows Defender, Excel and limited drivers. Since the machine is offline, the software is installed and updated via a separate USB. Step by step instructions are provided to complete all the updates. All physical ports are sealed except for power and one USB. Additional hardening settings are given which further block potential hardware and software gaps. The result is a system secured far beyond standards that never goes online. An uninterruptible power supply (UPS) is connected to ensure no power loss occurs during processing. Lastly, the system is only accessible to authorized users and stored in secured area.

- **Software Design and Specifications.**[12] The Software Design and Specifications explais the code used to run the application. RCVRC software design and coding standards are based on the VVSG 1.0 VOL 1: 5.2. Additionally, they use Google Checkstyle to check code quality. The tabulator runs on Java. The code is open source for transparency. Java classes run the needed functions for the various election system vendors. There are also 3rd party modules that meet VVSG requirements. They are original, unmodified and again open source. Several scenarios are coded to ensure accurate outcomes. Logging captures exceptions. All of this is done offline on the tabulation system.

- **System Test and Verification Specification.**[13] The System Test and Verification Specification outlines the battery of tests RCTab goes through. Testing must meet V.2:2.7.2 National Certification Test Specifications and benchmarks for Acceptance criteria, Processing accuracy, Data quality assessment and maintenance, Ballot interpretation logic, Exception handling, Audit and Security.

- **RCTab Logic & Accuracy (L&A) Test Procedures.**[14] The RCTab Logic & Accuracy (L&A) Test Procedures verify the application is correctly configured and operating. L&A is always performed conducted prior to use in an election. A secure USB and laptop frame this testing. From there it's a step by step. User are instructed to create hash files for the results. This is best practice to ensure integrity (no alterations were made to the files).

- **Quality Assurance Plan.**[15] The Quality Assurance Plan outlines the processes and procedures of the RCTab software. The system must meet the prerequisites (including no wireless). The components were chosen in accordance with VVSG Volume 2:2:12.1 as it refers to Volume 1:8.5 and Volume 1:8.6. Test data storage process has been updated to meet the specifications outlined in the VVSG Volume 1:8.5c. Quality testing includes: defects, regression, various voting system vendors, large contests and various "Real life" scenarios. Defects are mitigated according to criticality and can be tracked at the Brightspots/RCV Github site. This tracking keeps transparency and helps the community stay informed.

[12] *See* Appendix 5
[13] *See* Appendix 6
[14] *See* Appendix 7
[15] *See* Appendix 8

ELECT Test Elections

Testing was conducted by ELECT using various sample scenarios in mock elections to confirm the compatibility of RCTab with voting systems currently approved in Virginia. Further, ELECT will require validation testing and confirmation prior to each RCV contest. The mock elections were conducted on the following dates:

Dominion	1/23/2023
ESS	1/13/2023
Hart	1/23/2023
Unisyn	2/22/2023

ELECT staff tested for instant runoff (single winner) and single transferable vote (multi-winner) races for each vendor.

ELECT Approval of Software

In summary, based upon the information reviewed and the processes and procedures outlined in the attached materials, ELECT's security department concludes that the RCTab software provides a secure solution to tabulate RCV elections.

Appendix

1. Pro V&V Certificate of Accreditation from United States Election Assistance Commission
2. Pro V&V Universal RCV Tabulator Test Report
3. Secure USB Processes
4. System Hardening Procedures
5. Software Design and Specifications
6. System Test and Verification Specification
7. RCTab Logic & Accuracy (L&A) Test Procedures
8. Quality Assurance Plan

Appendix 1

United States Election Assistance Commission

Certificate of Accreditation

Pro V&V, Inc.
Huntsville, Alabama

is recognized by the U.S. Election Assistance Commission for the testing of voting systems to the Voluntary Voting Systems Guidelines VVSG 1.0, 1.1 & 2.0 under the criteria set forth in the EAC Voting System Testing and Certification Program and Laboratory Accreditation Program. Pro V&V is also recognized as having successfully completed assessments by the National Voluntary Laboratory Accreditation Program for conformance to the requirements of ISO/IEC 17025 and the criteria set forth in NIST Handbooks 150 and 150-22.

Original Accreditation Issued on: 2/24/2015

Accreditation remains effective until revoked by a vote of the EAC pursuant to 52 U.S.C. § 20971(c)(2).

Mark A. Robbins

Date: 12/21/22

Mark A. Robbins
Interim Executive Director, U.S. Election Assistance Commission

EAC Lab Code: **1501**

Appendix 2

Letter Report

To: The Election Administration Resource Center dba Ranked Choice Voting Resource Center

From: Wendy Owens - Pro V&V, Inc.

CC: Keith Long – RCVRC; Alan Simmons, Michael Walker - Pro V&V, Inc.

Date: August 30, 2019

Subject: Universal RCV Tabulator v1.0.1

Dear RCVRC:

Pro V&V, a VSTL, is providing this letter to report the results of the modification testing performed on the RCVRC's Ranked Choice Voting Tabulator (Universal RCV Tabulator 1.0.1), a post-EMS secondary tabulator, which in this instance is an external software modification-addition to the ES&S's EVS 6.0.4.0 EAC Certified Voting System (ESSEVS6040 – May 03, 2019).

This testing campaign was performed, with the support of ES&S, to verify that the submitted modification-addition meets the certification requirements found in the Voluntary Voting System Guidelines Version 1.0 (VVSG 1.0).

To start, Pro V&V determined that this modification was subject only to limited certification testing as RCVRS was able to establish that this detached modification-addition did not affect the previously demonstrated compliance of the baseline system to the VVSG 1.0. Limited testing, in addition to other stated uses, is intended to facilitate the integration of vote counting software with other systems and election software. The following modifications to the previously certified system were evaluated:

- Addition of the Universal RCV Tabulator

Background

The ES&S EVS 6.0.4.0 voting system is a complete EAC certified voting system composed of EMS software applications, central count devices, and polling location devices.

This Universal RCV Tabulator can process data from voting machines that are capable of exporting cast vote records (CVR's) and tabulate a single-winner or multi-winner ranked choice voting election according to the rules used in current state, county or city election jurisdiction in the United States. The Universal RCV Tabulator outputs the tabulation results in comma separated values (.csv) tabular data format and creates an audit file for the RCV election.

Although the Tabulator was tested using files produced by the EVS 6.0.4.0, ES&S confirmed that the exported files created from all EVS certified systems among EVS 5.0.0.0 thru 6.0.4.0 are identical and would produce the same testing results with the Universal RCV Tabulator as noted in this report.

Application Summary

The Universal RCV Tabulator was configured and setup as it would be for normal operations as per the TDP. Both RCVRC and ES&S provided materials and phone support as needed to aid in the testing process.

For testing, the Universal RCV Tabulator resided on three independent test support platforms with the Cast Vote Records (CVR) originating from the ES&&S EVS 6.0.4.0 baseline system. The modified system supported voting variations are:

- Closed primaries
- Open primaries
- Partisan offices
- Non-partisan offices
- Write-in voting
- Ballot rotation
- Straight party voting
- Cross-party endorsement
- Split precincts
- Vote for N of M
- Ranked order voting (w/Universal RCV Tabulator)
- Provisional or challenged ballots

Software

Component Name	Version	Unique Identifier (SHA 512 hash value)
Universal RCV Tabulator	Windows 1.0.1	a83d84e22453ac656d9fd1b78e326e96a034801174b043a4ba1afa5167442050059d74962e6e0ee278063797527aa009d33ea70951e37fc30cc3cc77163800da
Universal RCV Tabulator	OSX 1.0.1	a0ea658cd0d8b685436aec7a240de3f9b0ed84980823a489586c249a79c1da8a4f5bfc99f94c10969ebb821f53dbb0d9c6da606b28adee8cfe4fa7e3beab4f7b
Universal RCV Tabulator	Linux 1.0.1	92c7af9b074929206e196e711c7399c51f8386712b6f1b7b5c31e51be18511c8af7cfca36c77427ed832f89b8b186d59f97f2cdccbc78e990a2dab7da1f2c5b4

Testing Hardware

Component Name	Model/Version Number	Serial Number(s)	Description
Universal RCV Tabulator	Dell Inspiron Desktop Windows 10 Pro	1QLJDW2	Universal RCV Tabulator Platform
Universal RCV Tabulator	Apple Macbook 8.1 Mac OS 10.13	CO2PP2BAGCN3	Universal RCV Tabulator Platform
Universal RCV Tabulator	HP Elite Book Laptop 840 Mint 19.1	SCG6284VLW	Universal RCV Tabulator Platform
Printer	Samsung Xpress M2020W Printer	CNB3M47DJ8	Universal RCV Tabulator Printer
Uninterruptable Power Supply	APC Backup UPS 600	4B191P18483	Universal RCV Tabulator External Power Supply

Testing Support Materials

Material	Quantity	Product Number(s)	Description
8.5 x 11 Printer Paper	100 Sheets	HP 200350	Report Paper
Thumb Drive	4	N/A	Transport Media



Photograph 1: Universal RCV Tabulator Setup 1 (Windows)



Photograph 2: Universal RCV Tabulator Setup 2 (OSX)



Photograph 3: Universal RCV Tabulator Setup 3 (Linux)

Testing Summary

This testing campaign concentrated on the addition of a Universal RCV Tabulator to the ES&S EVS 6.0.4.0 EAC certified voting system and the associated characteristics that necessitate further review.

Technical Documentation Package (TDP) Review

The TDP review was done to verify that the submitted Universal RCV Tabulator documentation contained sufficient technical and administrative information to allow successful operation of the Universal RCV Tabulator with the baseline system. The TDP review also assessed the extent to which the modified TDP adhered to the VVSG 1.0. This evaluation was an iterative process with concerns communicated to the RCVRC as early in testing as possible for resolution. All changes made to the TDP during testing were subjected to re-examination.

RCV TDP

Document #	Document	Version #
000	Technical Data Package	0.3
100	Tabulation Options for RCV	0.1
105	Overview	0.1
110	Expected Outcome RCV Test Sets Single-Winner	0.1
115	Expected Outcome RCV Test Sets Multi-Winner	0.1
125	ES&S Ballot Layout Limits	0.2
130	RCV Tabulator User Guide Overview	0.3
150	Universal RCV Tabulator System Security Specifications	0.3
120	Installation Instructions for RCV Tabulator	0.7
121	Installation Instructions for Universal RCV Tabulator – MacOS	0.4
122	Installation Instructions for Universal RCV Tabulator – Linux	0.4
140	RCV Tabulator Operation Instructions	0.4
141	Universal RCV Tabulator Operation Instructions	0.4
142	Universal RCV Tabulator Operation Instructions	0.4
135	Configuration File Parameters	0.4
200	Universal RCV Tabulator Election Setup Checklist - MANUAL	0.3
201	Universal RCV Tabulator Election Setup Checklist - INTERACTIVE	0.3
205	Universal RCV Tabulator cvr Files	0.1
210	Universal RCV Tabulator Election Data Form	0.3
215	Universal RCV Tabulator cvr Files	0.1
220	Universal RCV Tabulator Election Rules	0.3
230	Universal RCV Tabulator Logic & Accuracy Test	0.1
250	Universal RCV Tabulator Election Processing	0.3
251	Universal RCV Tabulator Election Processing Linux OS	0.1
252	Universal RCV Tabulator Election Processing MacOS	0.1
225	Universal RCV Tabulator System Operator Log Errors	0.2

Summary Findings: *The addition of the Universal RCV Tabulator TDP did not affect the ability of the baseline TDP to satisfy all VVSG 1.0 requirements. Additionally, the final Universal RCV Tabulator documentation editions provided sufficient detail to adequately attend to the added functionality.*

Physical Configuration Audit (PCA)

The PCA was conducted to ensure that the configurations and setups of the Universal RCV Tabulator submitted for testing matched the vendor's technical documentation, and confirmed that the documentation was sufficient for the user to install, validate, operate, and maintain the Universal RCV Tabulator. All changes made to the Universal RCV Tabulator during testing were subjected to re-examination.

The PCA further established a configuration baseline of the software and hardware to be tested.

Summary Findings: *The addition of the three employed stand-alone and isolated Universal RCV Tabulator platforms matched the documentation and did not impact the ability of the baseline system as modified to satisfy the VVSG 1.0 requirements.*

Functional Configuration Audit (FCA)

The FCA testing utilized standardized test cases to verify that the Universal RCV Tabulator satisfied prescribed requirements and performed the functions claimed in the system documentation.

Summary Findings: *The Universal RCV Tabulator passed all of the applicable pre-vote, vote, and post-vote test case requirements. The Universal RCV Tabulator demonstrated the ability to function as required and intended, and does not impact the ability of the baseline system as modified to satisfy the VVSG 1.0 requirements.*

Source Code Review

The Universal RCV Tabulator source code review was to ascertain how completely the software conforms to the vendor's specifications. The source code inspection also assessed the extent to which the code adhered to the VVSG 1.1.

Summary Findings: *The Universal RCV Tabulator stands as a VVSG 1.1 compliant source code modification to a VVSG 1.0 system, and meets all of the VVSG 1.1 source code requirements.*

Security Testing

The security testing evaluated the effectiveness of the Universal RCV Tabulator in detecting, preventing, recording, reporting, and recovering from security threats. To evaluate the integrity of the Universal RCV Tabulator attempts were made to defeat the access controls and security measures documented in the system TDP.

Summary Findings: *A fundamental security review was performed on the Universal RCV Tabulator, which incorporates the security policies of the baseline system.*

The Universal RCV Tabulator was found to have an applied level of security that complies with the verified VVSG 1.0 security provisions. Additionally the presence of the Universal RCV Tabulator does not impact the ability of the baseline system as modified to satisfy the VVSG 1.0 security requirements.

Usability Testing

The usability testing encompassed a range of methods that examined how users in the target audience actually interact with the Universal RCV Tabulator.

Summary Findings: *The Universal RCV Tabulator has operations and controls that can easily be employed by users in the target audience making use of the system TDP.*

Accessibility Testing

The accessibility testing measured characteristics that indicated the degree to which the Universal RCV Tabulator is available to, and usable by, users in the target audience.

Summary Findings: *The Universal RCV Tabulator is accessible to users with a basic understanding of computers and election management.*

System Integration

The system level testing addressed the integrated operations of the Universal RCV Tabulator with the baseline system, and tested the Universal RCV Tabulator capabilities as part of the baseline system as a whole. This testing validated the seamless functional integration and data inputs/outputs of the baseline system with the Universal RCV Tabulator. For this testing the Universal RCV Tabulator were configured and operated as for normal operations.

Summary Findings: *Cast Vote Records (CVR) that were generated by the baseline system were imported into the Universal RCV Tabulator and processed through tabulation to report generation. No system issues were noted during testing.*

Accuracy Testing

Universal RCV Tabulator accuracy was based upon the totality of all testing.

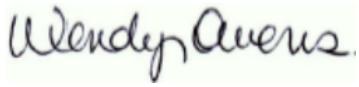
Summary Findings: *During testing, actual results were validated against expected results. No accuracy issues were noted throughout the test campaign.*

Conclusion

Based on the testing performed and the results obtained, the Universal RCV Tabulator solution identified in this letter-report is believed to meet the requirements set forth by the VVSG 1.0.

Should you require additional information or would like to discuss this matter further, please contact me at 256-713-1111.

Sincerely,



Wendy Owens
VSTL Program Manager
wendy.owens@provandv.com

Appendix 3

RCTab v.1.2.0 - Secure USB Process v.1.0.0

RCTab is available as a download from the RCVRC website or directly from Github, where each build of the software is hosted. However, jurisdictions are free to request a copy of the software on a secure USB.

The steps below outline the details of how the RCVRC selects and secures a USB for use and transport to the requestee.

USB Details

Security begins with the USB storage device selected. Currently, the RCVRC uses iStorage datAshur PRO encrypted USB Memory Sticks. iStorage's datAshur PROs were selected because they include the following features and attributes:

- PIN authenticated hardware encryption
- AES-XTS 256-bit hardware encryption
- Certified to meet NIST's FIPS 140-2 Level 3 standard
- Compatible with MS Windows, macOS, and Linux

For more information on iStorage's datAshur PROs functionality please see the appendix at the end of this guide.

USB Formatting

Each datAshur PRO memory stick arrives formatted by the factory. However, the RCVRC formats each USB memory stick in-house to ensure security. Formatting is done using Windows 11's disk formatting tool.

To format a datAshur PRO memory stick, the RCVRC follows the following steps:

1. Unlock the datAshur PRO memory stick by pressing the key icon button on the memory stick and entering the default admin password, 1-1-2-2-3-3-4-4. Press the key icon button again, and the LED above the keypad will turn green.
2. Plug the datAshur PRO memory stick into a USB slot on your PC.
3. Select the search icon on your window's toolbar, which is typically located in the bottom left-hand corner of your screen, and type "File Explorer".
4. Once File Explorer is open, select "This PC" on the left-hand side of the screen.
5. Under Devices and drives, right-click on the USB memory stick and then select "Format".
6. In the Format USB Drive window, leave each option alone except for "Format Options." Unselect "Quick Format."
7. A warning prompt will pop up. Click "Ok"
8. Formatting complete.

Setting a PIN on datAshur PRO Memory Stick

Once the datAshur PRO Memory Stick has been formatted, the manufacturer will set a new user PIN is programmed into the device. This PIN will be shared with the organization or jurisdiction requesting the USB version of RCTab. User PIN requirements are as follows:

- Must be between 7-15 digits in length
- Must not contain only repetitive numbers, e.g. (3-3-3-3-3-3-3)
- Must not contain only consecutive numbers, e.g. (1-2-3-4-5-6-7)
- Must not be plugged in a USB port at the time of updating

To update a pin on the datAshur PRO Memory Stick follow these steps:

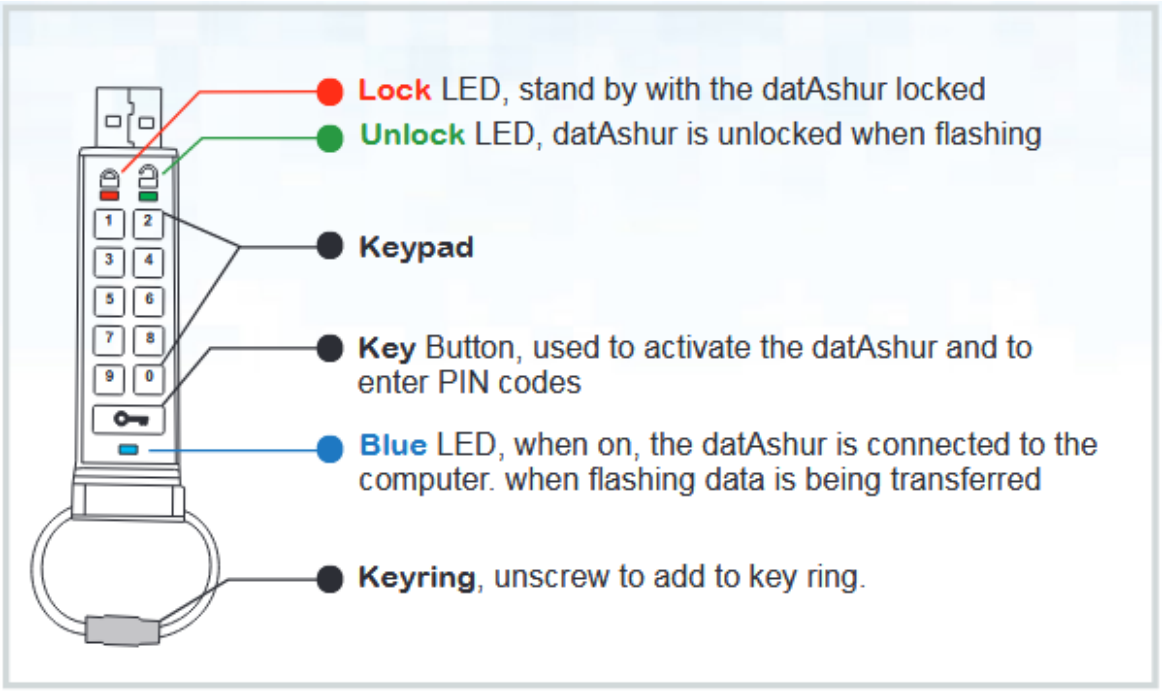
1. Press the key button and wait for the red LED to blink.
2. Enter the user PIN and press the key button. The red LED will be solid for two seconds and then change to a solid green LED light.
    a. The factory default PIN is 1 1 2 2 3 3 4 4
3. Press the key button twice and the blue LED will blink.
4. Within 10 seconds, enter a new user pin and press the key button twice. The green LED will blink after entry.
    a. Decide on a PIN first and write it down before trying this step.
    b. The new PIN can be a word and typed using the alpha-numeric keypad on the datAshur PRO Memory Stick.
5. Re-enter the new user PIN and press the key button twice. The red LED will illuminate and then change to a solid green LED if PIN entries match.
6. Once the datAshur PRO Memory Stick locks, enter the new PIN and verify it unlocks the memory stick.
    a. After the PIN has been changed, the default PIN 1 1 2 2 3 3 4 4 will no longer work.

Preparing datAshur PRO Memory Stick for a jurisdiction

After a datAshur PRO Memory Stick has been formatted and the PIN has been reset, the requested version of RCTab and any relevant documentation will be loaded onto the memory stick. The details of what is stored on the memory stick, as well as the PIN, will be shared with the organization or jurisdiction.

Appendix

1. datAshure PRO Layout



2. LED Indicators and their actions

LED	LED State	Description	LED	LED State	Description
	Red - Fade Out	Locking down/incorrect PIN entry	/	Red and Green blinking alternately	Factory reset/deleting files in Admin mode
	Red blinking	Locked and awaiting factory default PIN or User defined PIN entry	&	Red and Green flickering together	Awaiting Admin PIN entry
	Green Solid	datAshur PRO is unlocked in User mode	&	Green and Blue blinking together	User Options mode
	Green blinking	When connected to a USB port if Green Led blinks every 2 seconds this indicates the datAshur PRO has been set as 'Read-Only'	&	Green and Blue flickering together	Admin Options mode
	Green flickering	datAshur PRO is unlocked in Admin mode	&	Red and Blue blinking together	When not connected to a USB port indicates that both User and Admin PINs have been set on the datAshur PRO
	Blue Solid	Connected to a USB port	&	Red and Blue flickering together	Awaiting Admin PIN change
	Blue Blinking	Data exchange with host/changing User PIN/when not connected to a USB port indicates an Admin PIN exists	/ /	Red, Green & Blue blinking in sequence to Red and fade out	Drive has developed a fault. Please retry the command and if the problem persists contact technical support

Document Revision History

Date	Version	Description	Author
01/06/2023	1.0.0	Document Created	Rene Rojas

Appendix 4

System Hardening Procedures

URCVT v. 1.2.0 16 System Hardening Procedures v. 1.1.1

Any recommendations listed in this document should not supersede user jurisdiction procedures or other controlling governance entities.

The hardware used to house the Universal Ranked Choice Voting Tabulator, URCVT, software should, at minimum, follow the steps below to ensure the hardware is adequately protected against unauthorized access, theft of data, and/or malicious attacks.

Hardening of the operating system (Windows 10) is a way to make the computer and data more secure. It may include removing unused applications and files, establishing password login protection on Windows 10, disabling automatic windows login, keeping the system updated appropriately, proper configuration of the system, applying patches, and security updates, among other things. All URCVT systems must include only the following software:

- Windows 10 Pro with the latest service pack installed
- URCVT v. 1.2.0
- Microsoft Excel 2007 or above
- Users must also retain access to:
    - Command Prompt
    - Digital Signature tools
    - Decryption tools, such as BitLocker
    - Notepad
- Antivirus software
- UPS and printer drivers

See pages 8-9 below for procedures for securing verified versions of COTS software listed above.

Note that none of the steps below requires the presence of any special environment variables.

In addition to the system hardening protocols, it is recommended that only authorized users (no less than two bipartisan employees) should have physical access to the standalone computer. The computer should be in a secure location.

Windows Update Procedures

Preparing Offline Updates

URCVT should run on a workstation that is in a closed environment (not on a network) without access to the internet. Hardware drivers, updates, and virus protection should be downloaded on another computer and transferred to the workstation by a removable device such as a USB

flash drive. Prepare for offline updates by downloading the following to the USB drive designated for use for this purpose: Hardware Drivers, Windows Updates, Windows Defender Offline Updates.

Hardware Drivers

- Locate the computer identification information provided by the manufacturer.
- On a second internet-connected computer, locate the appropriate hardware drivers necessary to complete the computer setup.
- Download the .cab driver package and extract it.
- Copy the extracted files to a USB drive. Keep the USB drive for the next procedure.

Windows Updates

- On a second machine connected to the Internet, go to http://download.wsusoffline.net/ and download the latest WSUS Offline Update version.
- Extract the downloaded archive.
- Navigate to the extracted archive and double-click on UpdateGenerator.exe.
- Verify the following settings are checked:
    - Under Windows 10x64 versions, select:
        - Your current version of Windows 10
    - Under Options, select:
        - Verify downloaded updates
        - Use 'security only updates' instead of 'quality rollups.'
            - Include C++ Runtime Libraries
        - Under USB medium, select:
            - Copy **updates for selected products into the directory**, and next to it, set the directory where the program will download the updates.

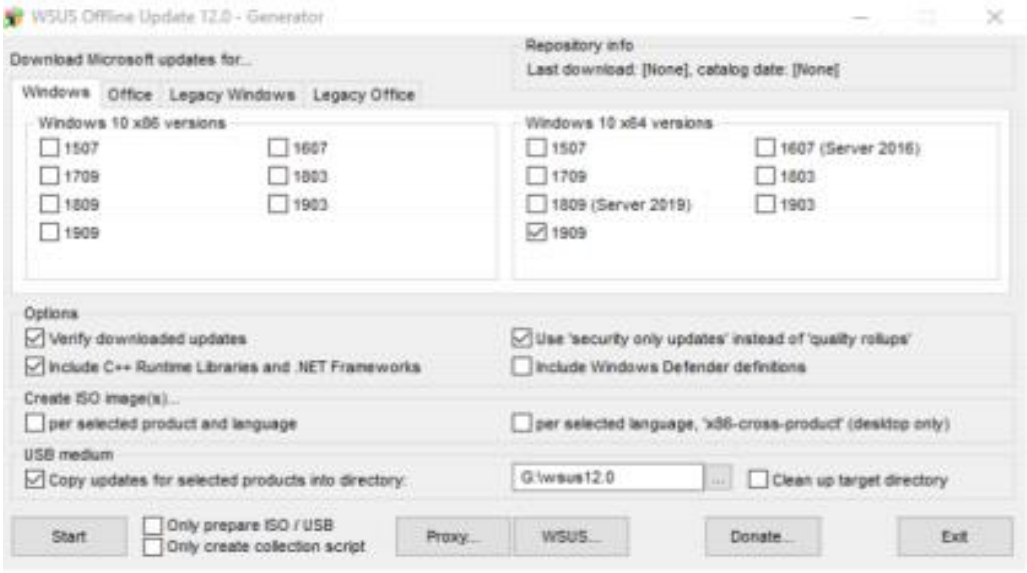


Figure 2-1: WSUS Offline Updater Settings

- Click **Start**.
- If the version check window appears asking to update WSUS, click **NO**. WSUS

opens several command-line windows to perform operations.
- When the complete dialog window appears asking if you would like to review the log file, click **NO**.
- Copy extracted files to a USB drive. Keep the USB drive for the next procedure.

Windows Defender Offline Updates

- On a second computer connected to the Internet, go to the following website: https//www.microsoft.com/en-us/wdsi/definitions
- Find the link for Windows Defender in Windows 10 (64 bit). Click the link to download the update.
- Transfer the downloaded file to a USB drive and keep it for later installation. As a note, all USB drives used for these purposes should be kept in a safe place in manufacturer recommended conditions.

Configuration of Windows Updates

This section covers the configuration of the operating system and hardware drivers. Since the workstation is not connected to the internet, updates and security patches must be installed manually.

Note: Depending on the build of your Windows 10, the UI might be slightly different than described in the section below. This document follows Windows Pro 10, build 1909. You should use your current version of Windows 10.

Drivers and Tools

Proper drivers may be required for each device needing to be installed. This depends on the hardware that you are using.

- At the non-internet connected workstation, connect the USB drive prepared in the section above, titled *Preparing for Updates*.
- Click **Start**, search **Device Manager**, and open it.
- In **Device Manager**, expand the **Other Devices** section.
- Right-click the first driver with a yellow icon and select **Update Driver Software**.

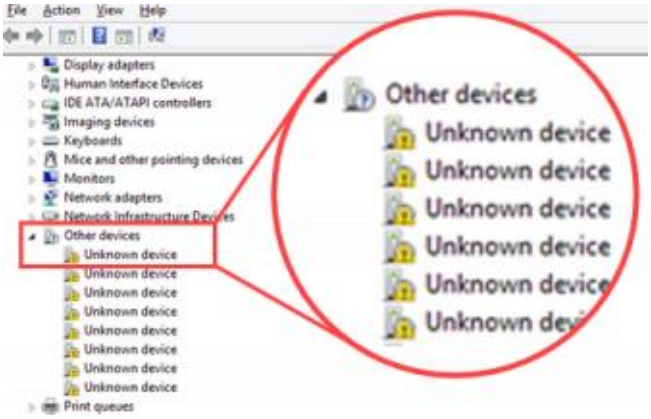


Figure above: Unknown devices in Device Manager

- Follow the prompts.
- When asked, "*How do you want to search for driver software,"* select **Browse my computer for driver software.**
- Click **Browse**.
- On the Browse for Folder dialog, navigate to the extracted driver files on the USB drive.
- Select the folder containing the drivers and click **OK**.
- On the Update Drivers dialog, click **Next** to run the update.
- When you see a confirmation message, click **Close** and repeat the steps for every driver with a yellow icon. Not necessary for USB Device.

Updating Windows

Updates to Windows 10 are vital to maintaining a system that is secure and optimized. These updates include security patches and updates. Since the URCVT workstation operates in a closed environment that is not connected to the internet, WSUS Offline Update is an alternate tool that must be used to install the updates on the standalone workstation. The tool was prepared in the section above, *Preparing Offline Updates.*

- At the URCVT workstation, connect the USB drive prepared in the above section.
- Navigate to the USB drive and run **UpdateInstaller.exe.**
- Verify the following boxes are selected:
  - Update C++ Runtime Libraries
  - Update Root Certificates
  - Verify installation packages
  - Show log file

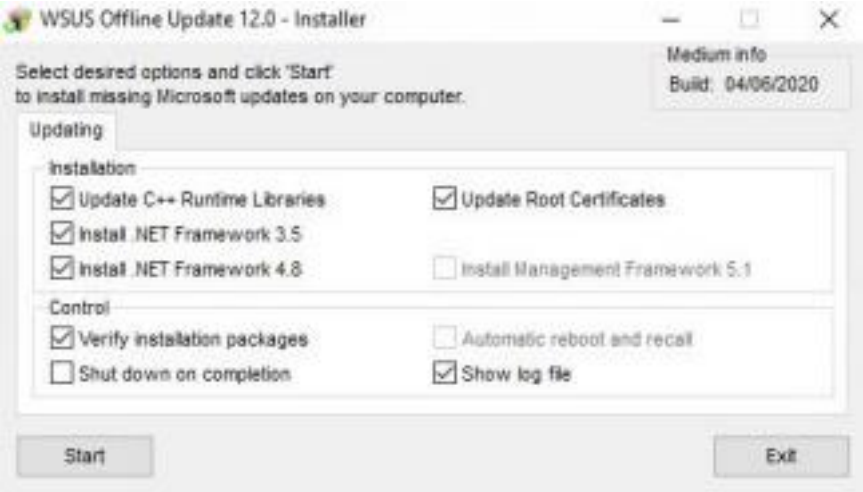


Figure above: WSUS Offline Update Installer Settings

NOTE: A warning window appears when Automatic reboot and recall is checked. Click **Yes** to disable User Account Control (UAC) temporarily. WSUS cannot operate unless UAC is disabled.

- Click **Start** to begin installing updates.
- When the cmd window prompts you to reboot & recall the system, restart the machine and log back in.

- Navigate to the WSUS installer folder and run: **UpdateInstaller.exe.**
- Click **Start** on the installer to continue offline updates installation.
- Repeat reboot and recall until the cmd window prompts you to only **Reboot the machine.**

Additionally, the following items should be downloaded manually from the second internet-connected computer. Download to the USB drive and install on URCVT computer that is operating in a closed environment and that is not connected to the internet.

Please note that the following Windows Security Updates are meant to be examples ONLY. Jurisdictions should always check for the most up-to-date Windows 10 updates available from Microsoft.

2020-03 Cumulative Update for Windows 10 Version 1909 for x64-based Systems (KB4554364):

- Copy and paste the following web link to your browser: https://www.catalog.update.microsoft.com/Search.aspx?q=KB4554364
- Next to: *2020-03 Cumulative Update for Windows 10 Version 1909 for x64-based Systems (KB4554364),* press **Download**. A *Download* window displays.
- Click on the *.msu* link. The file starts to download.

2020-01 Servicing Stack Update for Windows 10 Version 1909 for x64-based Systems (KB4541338):

- Copy and paste the following web link to your browser: https://www.catalog.update.microsoft.com/Search.aspx?q=KB4541338
- Next to: *2020-03 Servicing Stack Update for Windows 10 Version 1909 for x64-based Systems (KB4541338),* press **Download**. A *Download* window displays.
- Click on the *.msu* link. The file starts to download.

Installing Offline Updates for Windows Defender

To update Windows Defender:

- Close the Windows Defender.
- Connect the USB drive prepared in the section above.
- On a non-internet connected workstation, double click the *mpam* file to install it. There will be no prompts or installation process.
- To verify the update was applied, open Windows Defender, locate *Virus and Spyware Definitions*. It would say *Up to date* if the installation was successful.

Disabling Automatic Updates

Windows will use resources attempting to update Windows 10. Windows Update must be disabled to prevent the system from using those resources.

To disable automatic updates:

- From the Start Menu, enter gpedit.msc. gpedit.msc appears in the search results.

- Launch **gpedit.msc**.
- From the Local Group Policy Editor, expand the following nodes: **Computer Configuration** > **Administrative Templates** > **Windows Components**.
- Select **Windows Update**.
- From the Details pane, double-click **Configure Automatic Updates**. 6. Select **Disabled**, then click **OK**.
- Close the Local Group Policy Editor.
- From the Start Menu, enter CMD. Command Prompt appears in the search results.
- Right-click **Command Prompt** and then select **Run as Administrator**. If the UAC dialog appears, click **Yes**.
- In the Administrator Command Prompt window, enter the following two commands, each followed by enter.
    - sc config wuauserv start=disabled
    - NET STOP wuauserv /y
- Close Command Prompt.

Windows Security Procedures
With the non-internet connected computer now fully installed, security measures should be applied. Measures such as device encryption and hardening of the Operating System will help keep the integrity of the system and any data that is processed on the workstation. Step-by-step instructions for hardening the system are provided below.

NOTE: *Before applying security settings, make sure all system and third-party components are installed and configured. After security settings are applied, some earlier steps may be impossible to perform due to the hardened state of the Operating System. Once applied, security settings cannot be undone.*

Device Encryption
Device encryption protects your data on your device. With device encryption, only authorized people can access the device. Device encryption is available on most devices. If not, standard BitLocker encryption may be allowable instead. For information about device encryption on Windows 10 and step by step processes for:

1. Determining if you can use the device encryption or should use BitLocker standard encryption.
2. How to turn on device encryption or BitLocker standard encryption.
3. How to obtain a recovery key.

Go to the Microsoft Windows 10 Device Encryption page at: https://support.microsoft.com/en-us/windows/device-encryption-in-windows-10-ad5dcf4b-dbe0-2331-228f-7925c2a3012d.

Physical Security and Hardening
Users must physically seal all external ports on hardware URCVT is installed on, except ports used for power supply, necessary external displays, and one (1) USB port. The user jurisdiction should employ a policy where the use of tamper-evident and tamper-resistant seals are used to identify ports that should never be accessed, unlikely to be accessed, and can be accessed if necessary.

Operating System Hardening
Operating system hardening can reduce the risk of a security breach by removing or disabling many non-essential software and hardware components that could act as a back door for

attackers. The vendor highly recommends the following hardening procedures to protect your standalone computer.

Disable Network Connection From Network Connection Settings:
1) Press Win+R and enter *ncpa.cpl* to open the Network Connection window.
2) For each network connection, right-click on it:
3) Select disable.

Set ScreenSaver Password:
1) Open the Control Panel.
2) Click Appearance and Personalization.
3) Click Change screen saver.
4) In the Screen Saver settings, check the box *On resume, display logon screen*.

Disable Automatic Login:
1) Press Win+R, enter *netplwiz* to open the *User Accounts* window.
2) Check the option for *Users must enter a username and password to use this computer* and click Apply.

Disable Remote Access:
1) Type *remote settings* into the search box.
2) Select *Allow remote access to your computer* to open the Control Panel for Remote System Properties.
3) Check *Don't Allow Remote Connections* to this computer.

Enable Firewall:
1) Open the Control Panel in Windows.
2) Click on System and Security.
3) Click on Windows Firewall.
4) In the left navigation pane, click *Turn Windows Firewall On*.

Disable all network interfaces:
1) Enter cmd in the windows search bar.
2) *Command Prompt* application shows up in search results.
3) Right-click on the *Command Prompt*.
4) Select *Run as administrator*.
5) Type "C:\Windows\System32\netsh.exe interface show interface" and press Enter.
6) For each network device listed, enter the following command, replacing "Interface Name" with each of the names returned from step 5 (include the double-quotes):
C:\Windows\System32\netsh.exe interface set interface "Interface Name" disable

Global Disclaimer for non-URCVT software processes and procedures:
Always refer to the manufacturer's current documentation and recommendations for the latest and most secure manner to download, store, and verify the installation of software

dependencies. If questions or issues arise, consult with an information technology security professional for additional information and assistance.

Verify Microsoft Excel installation:

Microsoft Excel Installation:

- Download Microsoft Office on a different computer at https://support.microsoft.com/en-us/office/use-the-office-offline-installer-f0a85fe7-118f-41cb-a791-d59cef96ad1c.

Storing Microsoft Excel Installer:

- Generate an SHA-512 Checksum using the following commands if the download source does not provide one:
  - C:\Windows\System32\certutil.exe -hashfile [filename] SHA512
  - Store this checksum in a separate location, to be used for verification later
- Copy the downloaded .exe file to an external hard drive

Installing Microsoft Excel:

- Connect the external hard drive to the standalone URCVT computer.
- Copy the downloaded .exe file from the external hard drive to the URCVT computer.
- Generate an SHA512 Checksum using C:\Windows\System32\certutil.exe -hashfile [filename] SHA512.
- Compare the SHA512 hash code produced on your system to the SHA512 hash code generated on the downloading computer or with the SHA512 hash from the download source.
- If the hashes match, continue with the installation of the executable downloaded file.

Verification:

- Open Microsoft Excel from the "Start" menu.
- If Excel opens, Microsoft Excel is installed.

Verifying Antivirus is Installed (Optional):

Antivirus software is typically recommended for all Windows systems. Using software such as Webroot can serve this purpose.

Webroot Installation (or alternate antivirus software)

- Purchase Webroot by going to https://www.webroot.com/us/en/business/smb/endpoint-protection on a separate computer. To purchase alternative antivirus software, use trusted sources for purchase and download.
- Save antivirus software to an external device.
- Connect the external device to the standalone URCVT computer.
- Follow all manufacturer instructions for installation and verification.

Verifying Printer Drivers:

- Download any printer drivers to a different computer and save them to an external device.
- Connect the external device to the standalone URCVT computer.
- Refer to the documentation regarding installation, storage, and verification from the printer manufacturers such as HP, Canon, or any other printer manufacturer.

Verifying UPS installation:

- Verification of the UPS installation requires that the URCVT computer is connected to the correct UPS power source. No other drivers are required.
- As with all hardware, the equipment should be stored according to manufacturer recommendations with regard to temperature, humidity, and other external factors.

Document Revision History

Date	Version	Description	Author
09/08/2021	1.1.1	Updated for general audience	Melissa Hall
05/09/2021	1.1.0	Updated list of software for URCVT and added processes for procuring verified versions of COTS software	RCVRC
04/25/2021	1.0.0	System Hardening Procedures	Rosemary F. Blizzard

Appendix 5

Software Design and Specifications

RCTab v.1.2.0 - 02 - Software Design and Specifications v.1.2.0

Coding Standards and Style
We use *Google Checkstyle for Java* as our published, reviewed, and industry-accepted code style. For details see Google_Java_Style_Guide.html in the appendix.

Code development and review processes are described in the ***RCTab v.1.2.0 - 13 - Quality Assurance Plan v.1.1.0*.**

Java 14
The tabulator is written in Java because it meets the VVSG requirements for software language selection. It is widely supported and popular in both industry and the open-source community for a wide variety of applications. It offers a mature and robust collection of third-party libraries. The Java Runtime Environment is standard on our target platforms which means a simple installation process. Our specific version of Java is OpenJDK 14.0.1 and it can be downloaded here.

Open Source
We develop the tabulator as an open-source project for three main reasons:
1) Transparency: published source code increases public confidence in the application by giving anyone the opportunity to review our work and the processes and methodology behind it.
2) Adoption: open-source licensing encourages others to use the software to facilitate the spread of ranked-choice voting.
3) Collaboration: open-source licensing enables other software developers to contribute enhancements to the project and incorporate it into other related projects (RCV visualizers, policy research, etc.)

Architecture
RCTab consists of one in-house java code module built from 23 source files. These are described in more detail under **Tabulator Java Classes** below. The Tabulator relies on basic java platform libraries (file I/O, string processing, logging) and several 3rd-party modules listed below for reading and writing various file formats. These code modules are compiled and packaged with a minimal java runtime environment (14.0.1) which executes compiled object code, when installed and run on the target system.

Tabulator Java classes

The following Java classes comprise the entirety of all in-house developed software and implement all core functionality of the Tabulator.

CastVoteRecord: The in-memory representation of each cast vote record read from a source file. When source files are first processed at the beginning of a tabulation, each CastVoteRecord object contains the data parsed from the source, including the candidate rankings, the precinct ID, and other relevant metadata. As the tabulation progresses, the object keeps track of the cast vote record's fate, including which candidate(s) this ballot is counting toward and whether it has been exhausted.

ClearBallotCvrReader: Contains the logic for parsing a CVR source file in Clear Ballot's comma-separated value format and populating a list of CastVoteRecord objects.

CommonDataFormatReader: Contains the logic for parsing a CVR source file in the Common Data Format and populating a list of CastVoteRecord objects. It supports both XML and JSON.

ContestConfig: A wrapper around RawContestConfig. It contains extensive validation to confirm that a config file contains parameters that are legal and consistent with one another. It also has logic for reading a config file from disk, preprocessing the candidate data from a config, and normalizing some of the config values for use during tabulation.

ContestConfigMigration: Provides support for identifying whether a config file's version is compatible with the version of the application that is running. It also contains logic for automatically migrating a config from an older version to make it compatible with the current version.

DominionCvrReader: Contains the logic for parsing a set of CVR source files in Dominion's JSON format and populating a list of CastVoteRecord objects.

FileUtils: A few simple utility functions for reading from and writing to directories on disk.

GuiApplication: The simple logic for launching the application's graphical user interface, including loading the main layout markup stored in the GuiConfigLayout.fxml file.

GuiConfigController: Contains most of the logic for the interactive components of the graphical user interface, ensuring that the application responds appropriately when the user clicks a button, menu item, or other interactive element.

GuiContext: A singleton class that supports the graphical user interface in managing file chooser dialogs for opening and saving config files.

GuiTiebreakerController: Supports the interactive logic for selecting a tie-breaker winner or loser in the graphical user interface when the tie-break mode is set to one of the interactive options.

HartCvrReader: Contains the logic for parsing a CVR source file in the Hart XML format and populating a list of CastVoteRecord objects.

JsonParser: Generic logic for reading JSON files from disk and writing them to disk. It's used by the JSON parsing code for parsing Common Data Format and Dominion CVR files, as well as for reading and writing tabulator config files.

Logger: Handles the formatting and saving to disk of audit and operator log files.

Main: The main entry point for the application. Depending on the arguments supplied, it either launches the graphical user interface or proceeds with a command-line-based tabulation.

RawContestConfig: A RawContestConfig object is a simple in-memory representation of a config file loaded from disk.

ResultsWriter: After a tabulation completes, a ResultsWriter generates all of the appropriate summary results files and saves them to disk. Results files can include a summary CSV spreadsheet file, a summary JSON file, and a full Common Data Format JSON file. When "tabulate by precinct" is enabled, it also produces separate summary files for each precinct.

StreamingCvrReader: Contains the logic for parsing a CVR source file in ES&S's XLS format and populating a list of CastVoteRecord objects. It also extracts a list of precinct IDs if tabulation by precinct is enabled.

Tabulator: The core logic for tabulating a contest given a list of CastVoteRecord objects and a ContestConfig, it runs the round-by-round tabulation, writing to the tabulation log file as it proceeds, and then calls ResultsWriter to generate results files when it completes.

TabulatorSession: Manages the process of running a single tabulation. Given the path to a config file, it loads and validates the config, loads and parses the cast vote record source files, and runs the tabulation, including generating the results files at the end. It also contains logic for converting an input config into a Common Data Format source file without actually running a tabulation.

TabulatorTests: Runs all of the regression tests. Each test involves loading a config file and, if it's valid, running the tabulation and then comparing the output summary JSON file to an existing file containing the expected output. If the config file has generateCdfJson enabled, it also compares the generated CDF JSON file to an existing file containing the expected version of this output.

TallyTransfers: The Tabulator class maintains a TallyTransfers object (and one per precinct if tabulating by precinct is enabled) to keep track of the number of votes transferring from each source to each destination in each round as candidates are eliminated or elected. This data is included in the results summary JSON to enable Sankey plot visualizations.

Tiebreak: Contains the logic for breaking a tie when the tabulation needs to select a candidate for elimination or election and multiple candidates are tied with the same current vote total.

Utils: Miscellaneous utility functions for processing strings and identifying the user's environment.

3rd-party Modules

RCTab incorporates several 3rd-party modules which are all open-source. These meet the VVSG requirements for third-party modules. They are mature and widely accepted and used. None of them are modified in any way.

Module Name	Version	Purpose	Link
Apache Commons CSV	1.8	CSV "Comma Separated Values" reader / writer.	https://commons.apache.org/proper/commons-csv/user-guide.html
Apache POI OOXML	4.1.2	Excel spreadsheet reader / writer.	https://poi.apache.org/apidocs/dev/org/apache/poi/ooxml/package-summary.html
Jackson Core	2.11.1	XML / JSON streaming reader / writer core	https://github.com/FasterXML/jackson-core
Jackson Annotations	2.11.1	XML / JSON deserialization annotations	https://github.com/FasterXML/jackson-annotations
Jackson Databind	2.11.1	XML / JSON deserialization	https://github.com/FasterXML/jackson-databind
Jackson Dataformat XML	2.11.1	XML reader / writer	https://github.com/FasterXML/jackson-dataformat-xml
Jupiter JUnit API	5.6.2	Automated testing (used only during development)	https://mvnrepository.com/artifact/org.junit.jupiter/junit-jupiter-api
Jupiter JUnit Engine	5.6.2	Automated testing (used only during development)	https://mvnrepository.com/artifact/org.junit.jupiter/junit-jupiter-engine

Software Limits:

Limitations of the Tabulation software i.e., how many CVRs can be tabulated are detailed in the ***RCTab v.1.2.0 - 03 - System Hardware Specification v.1.1.0*** document.

Contest Tabulation Logic

Overview

When the user triggers a contest tabulation, the application creates a new Tabulator Session object to manage the process flow. The Tabulator Session loads, parses, and validates the contest config file. If those steps succeed, it reads the cast vote records into memory, runs the tabulation, and generates the results summary files. Throughout these processes logging output is written to two locations as detailed below under **RCTab Logging**

1) Read the config file
2) Validate the config file
3) Read cvr files
4) Round by round tabulation of votes according to configuration
5) Generate reports

For detailed user guides, see ***RCTab v.1.2.0 - 08 - System Operations Procedures v.1.1.0*** and ***RCTab v.1.2.0 - 300 - Configuration File Parameters v.1.1.0***. Note that this document covers all tabulation logic in RCTab in order to fully describe the software design. All tabulation logic was defined according to the documents listed on page 12, in conjunction with the draft VVSG 2.0 1500-107 Voting Methods and Tabulation Models document (for which RCTab acts as a reference implementation), as well as with reference to all RCV laws currently in use in the United States. Contact vendor for a folder with all such RCV laws and/or a copy of that unpublished draft standard.

Reading a config file

When a user selects an existing config file to open, the tabulator parses the JSON file and stores the information in a RawContestConfig object. This object is wrapped inside a ContestConfig object. The ContestConfig object serves as an interface between the config file and the rest of the application, providing extensive validation logic and a number of convenience methods for accessing normalized versions of the config settings.

A config file includes a tabulatorVersion string and a collection of parameters organized into four sections.

The tabulatorVersion is used to confirm that the version of the application that's loading the config file is compatible (specifically: not older than) the version of the application that created the file.

The outputSettings section contains settings related to what forms of output should be generated and where it should be saved on disk.

The cvrFileSources section is a list of one or more source file paths containing cast vote records, along with the parameters necessary for the tabulator to parse the records successfully.

The candidates section lists all of the candidate names/codes that appear in any of the CVR source files.

The rules section contains all of the parameters that determine exactly how the application should tabulate the cast vote records and produce results.

Writing the config file

A user can create a new config file or open an existing one and edit it. The GUI allows the user to modify all of the parameters that populate a config file (except for tabulatorVersion, which is determined by the app), run a validation to confirm that all of the settings in the file are valid, and save the file.

Validation

Config file validation checks each aspect of the file and attempts to verify that all of the individual settings are compatible with one another and should result in a successful tabulation. This includes confirming that the tabulation rules are consistent, that the candidate names are valid and don't contain duplicates, and that each source cvr file exists on disk, and has the proper parameters set for that cvr provider. The GUI prevents the user from creating a config file that would fail many of these checks, but the validation assumes nothing and provides an additional layer of protection against user error. Because a user can create or modify a config file simply using a text editor the tabulator can't assume that a config file has only been modified by its own GUI.

Reading CVR Files

Reading the cast vote records into memory consists of parsing the source files and creating a CastVoteRecord object to represent each record. This object contains the candidate rankings

for the CVR along with additional information parsed from the source file such as an ID and a precinct name. As the tabulation progresses, the CastVoteRecord object also stores information about the CVR's fate in each round (which candidate(s) its vote is counting toward and what fraction of the vote belongs to each). The details of parsing each source file depend on that file's provider.

Tabulation of CVRs

Note: for all winning modes other than MULTI_SEAT_SEQUENTIAL_WINNER_TAKES_ALL (a.k.a. multi-pass IRV), the application performs a single tabulation when it processes a config file. For multi-pass IRV, it instead performs a sequence of single-seat tabulations in which each tabulation excludes the candidates who have won on prior iterations, continuing until it has run numWinners tabulations and identified numWinners winners.

For the tabulation itself, the application creates a Tabulator object. This object's tabulate method runs a loop that iterates until it determines that the tabulation is complete. Each iteration of the loop is a new round. Each round starts by calling computeTalliesForRound, which iterates over all of the cast vote records and sums up the total number of current votes for each candidate. This involves a number of steps:

1. If the CVR has already been marked as exhausted, it is skipped.
2. If the CVR was counted toward a candidate in the previous round and that candidate is still active, it's counted toward that candidate again in this round.
3. If the CVR has no rankings at all, it is marked as exhausted.
4. The tabulator then begins iterating through the rankings in the CVR, starting with the most preferred rank found (i.e., the lowest rank number, which is typically 1) and proceeding in order. At each rank, it checks for a number of possible cases:
    i. If the number of rankings skipped between the last ranking seen and this one exceeds the maxSkippedRanksAllowed value in the config, the CVR is marked as exhausted.
    ii. If one or more of the candidates at this rank already appeared at another rank and the config has enabled exhaustOnDuplicateCandidate, the CVR is marked as exhausted.
    iii. If the rankings at this rank constitute an overvote, the CVR is handled according to the overvote rule set in the config.
    iv. If a continuing candidate is found at this rank, the CVR is marked as counting toward the candidate.
    v. Otherwise, the CVR is marked as exhausted.
5. If the config has enabled tabulation by precinct, the method also updates the per-precinct tallies for this round.

Next, if the tabulation is in the first round and/or the contest is for a single seat or the mode is MULTI_SEAT_SEQUENTIAL_WINNER_TAKES_ALL (multi-pass IRV), the software sets/updates the winning threshold (the number of votes that a candidate must meet or exceed in order to be named a winner) based on the winning rules set in the config.

1. The threshold in single-seat and MULTI_SEAT_SEQUENTIAL_WINNER_TAKES_ALL is calculated in each round as:

   winningThreshold = floor(V/2) + 1

Where V = the total number of votes counting for continuing candidates in the current round (and continuing refers to non-excluded candidates who have not yet been eliminated -- and, in the case of multi-pass IRV, who have not been elected in a previous pass)..

2. The threshold in MULTI_SEAT_ALLOW_ONLY_ONE_WINNER_PER_ROUND and MULTI_SEAT_ALLOW_MULTIPLE_WINNERS_PER_ROUND is calculated as:

   winningThreshold = (V/(N+1)) + 10^(-1 * decimalPlacesForVoteArithmetic) if nonIntegerWinningThreshold is set to true

   winningThreshold = floor(V/(N+1)) + 1 if nonIntegerWinningThreshold is set to false

   winningThreshold = floor(V/N) + 1 if hareQuota is set to true

Where V = the sum of the values in currentRoundCandidateToTally in the first round
and n = numWinners

3. The election threshold in MULTI_SEAT_BOTTOMS_UP_USING_PERCENTAGE_THRESHOLD is calculated as:

   winningThreshold = V*T

Where V = total number of votes counting for continuing candidates (candidates not eliminated) in the current round
and T = bottomsUpPercentageThreshold

No threshold is calculated in MULTI_SEAT_BOTTOMS_UP_UNTIL_N_WINNERS mode because the tabulation simply eliminates candidates until exactly numWinners remain, then selects those candidates as the winners.

The software then checks whether there are any continuing candidates with vote tallies in the current round that meet or exceed the winning threshold. Each of these candidates is marked as a winner and, if the winning rules in the config indicate that surplus votes should be redistributed (which is the case when the winning mode is either MULTI_SEAT_ALLOW_ONLY_ONE_WINNER_PER_ROUND and MULTI_SEAT_ALLOW_MULTIPLE_WINNERS_PER_ROUND), then the software calculates a surplus fraction. The surplus fraction for a winning candidate is calculated as:

surplusFraction = (C - T) / C

Where C = the candidate's vote tally in the current round
and T = the winning threshold

Each CastVoteRecord object counting towards a winning candidate redistributes an amount equal to its current value multiplied by the surplusFraction according to step 4 in "Tabulation of CVRs" above, based on that CastVoteRecord's rankings. Each of these CastVoteRecords is also updated to record the portion of that vote that should remain allocated to the candidate in future rounds, which is its current value multiplied by (1 - surplusFraction).

Note that if a CastVoteRecord is involved in multiple surplus redistributions, the fraction of the vote allocated to earlier winners is not affected by subsequent redistributions; only the surplus portion is eligible for further redistribution.

Any decimal values in the above calculations are governed by the decimalPlacesForVoteArithmetic setting.

More information about how surplus vote values are calculated is included in the fractional transfers discussion in section 8 of ***RCTab v1.2.0 - 110 - Tabulation Options for RCV Tabulation v1.1.0***.

If the mode is MULTI_SEAT_ALLOW_ONLY_ONE_WINNER_PER_ROUND and more than one continuing candidate meets or exceeds the winning threshold in a round, only the candidate with the top tally is selected as the winner (and any other continuing candidates meeting the threshold will be selected in subsequent rounds). If multiple candidates are tied for this top tally value, the tie is broken according to the selected tiebreakMode.

In MULTI_SEAT_BOTTOMS_UP_USING_PERCENTAGE_THRESHOLD, winners are selected in a given round only if every continuing candidate meets or exceeds the winning threshold.

Finally, if no winners have been identified in the current round, the software determines whether it should identify one or more candidates to eliminate. (This is true if a) the number of identified

winners is fewer than the number of seats for the contest, b) there are more than two candidates remaining and the winning rules specify a single-seat contest that should continue until only two candidates remain, or c) the winning mode is MULTI_SEAT_BOTTOMS_UP_USING_PERCENTAGE_THRESHOLD.) In this case, the candidate(s) to be eliminated are identified by trying the following methods in order until one of them returns one or more candidates:

1. If the cast vote records include undeclared write-ins and this set of candidates have not been eliminated yet, select them.
2. If the config specifies a minimum vote threshold for a viable candidate and one or more continuing candidates has a tally below that threshold, select them.
3. If the config enables batch elimination, attempt to identify two or more candidates who can be eliminated via this process.
4. Otherwise, select the remaining candidate with the lowest tally. (If multiple candidates are tied for the lowest tally, select one according to the tie-breaking rule specified in the config.)

The tabulator then determines whether it should continue to the next round and repeat the process. It continues if one of the following conditions is true:

a. For a single-seat contest, one of these is true:
    i. A winner has not been identified yet.
    ii. “Continue until two candidates remain” is enabled and one of these is true:
        1. There are more than two candidates remaining.
        2. The eliminations that reduced the number of remaining candidates to two happened in the current round. (This condition is included to ensure that the tabulator will generate an additional round showing the final vote tallies when only the last two candidates remain.)
b. For a multi-seat contest, one of these is true:
    i. The winning mode is MULTI_SEAT_BOTTOMS_UP_USING_PERCENTAGE_THRESHOLD and no winners have been identified yet.
    ii. The winning mode is not MULTI_SEAT_BOTTOMS_UP_USING_PERCENTAGE_THRESHOLD and the number of winners identified is fewer than the number of seats.
    iii. The winning mode is neither MULTI_SEAT_BOTTOMS_UP_USING_PERCENTAGE_THRESHOLD nor MULTI_SEAT_BOTTOMS_UP_UNTIL_N_WINNERS and the number of winners equals the number of seats, but the final winners were identified in the current round. (Similar to above, this condition ensures that the tabulator will generate an additional round showing the final surplus redistribution in MULTI_SEAT_ALLOW_ONLY_ONE_WINNER_PER_ROUND and MULTI_SEAT_ALLOW_MULTIPLE_WINNERS_PER_ROUND.)

When the tabulator determines that it should not continue tabulating, the tabulation is complete.

Reporting results

After the tabulation completes, the software generates results files and saves them to disk. These results are based on the following data that the tabulation process has produced and stored in memory:

- Which round each eliminated candidate was eliminated
- Which round each winning candidate was identified as a winner
- The winning threshold that was used to select the winner(s)
- Each candidate's vote tally in each round
- If the config has enabled tabulating by precinct, each candidate's vote tally in each precinct in each round
- A record of the number of votes in each round that were transferred from each candidate to each other candidate (or were exhausted)
- In a multi-seat contest involving surplus redistribution, the cumulative amount of residual surplus in each round
- The number of exhausted ballots in each round, which are the number of ballots that cannot be counted for any continuing candidates - those candidates who are still active in the contest. This ranked-choice voting specific category of ballots includes undervoted ballots and overvoted ballots. Exhausted ballots are referred to as inactive ballots in summary results files.

Using this data, the tabulator creates a ResultsWriter object that writes two files to disk:

1. A CSV spreadsheet that includes the round-by-round tally for each candidate, when each candidate won or was eliminated, and related information
2. A JSON file that includes the same information found in the CSV spreadsheet, plus the number of votes transferred from each candidate to each other candidate (or exhaustion) in each round

If tabulating by precinct is enabled, the ResultsWriter also generates a CSV spreadsheet with round-by-round tallies for each precinct found in the cast vote records.

Finally, if the config file specifies that the tabulator should generate CDF (Common Data Format) output, it saves a CDF file in JSON format.

Note: if the winning mode is MULTI_SEAT_SEQUENTIAL_WINNER_TAKES_ALL (multi-pass IRV), the output files described in this section are generated after each pass, i.e., after each single-seat tabulation. The pass number is appended to each filename to allow the user to distinguish among them.

RCTab Logging

In addition to results files, RCTab generates various log outputs which describe:
- Program status
- Operations in progress
- Critical errors and warnings
- Tabulation-specific data: e.g., config file contents and how each vote counted in each round
- Additional system information

Log output is logically divided into two data streams:

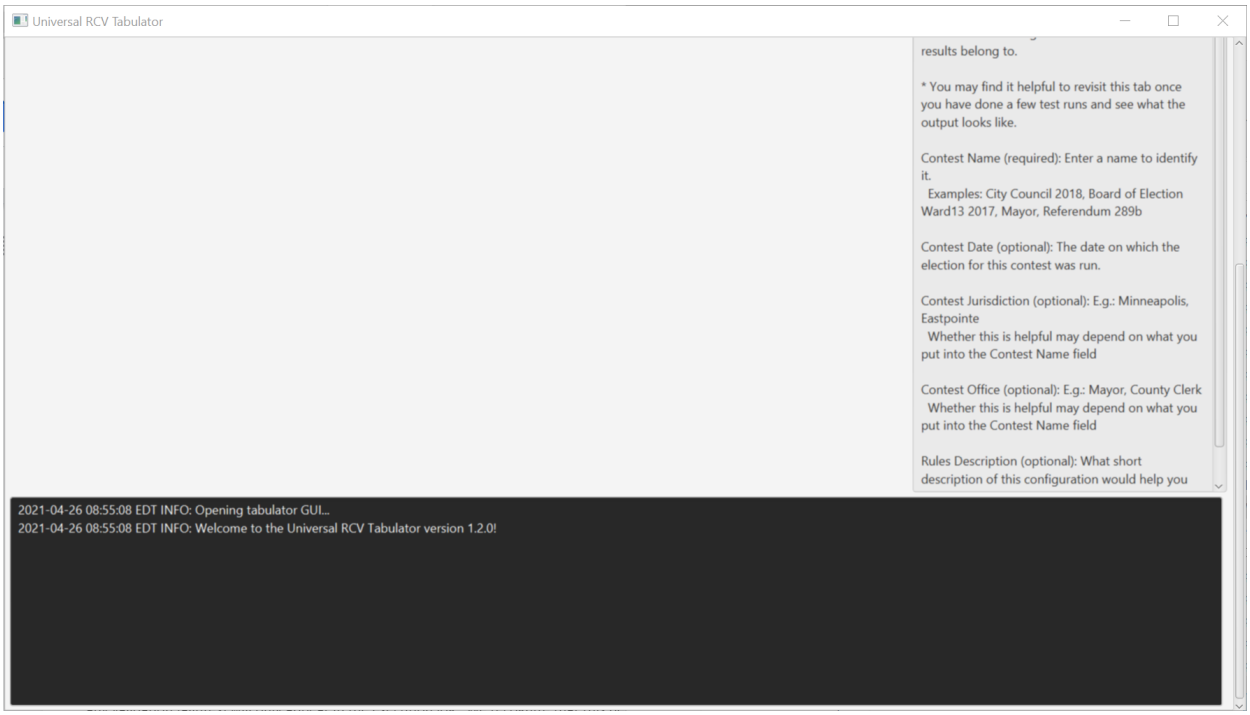
Stream 1: Tabulator "Operator" Logging

This data stream captures the overall operation of the Tabulator which may include loading, editing, validating, and saving multiple config files, running cvr conversion functions, and tabulating multiple contests.

File Name: rcv_0.log
File Rotation:
When rcv_0.log reaches 50MB size it will be renamed along with any other preceding log files.
For example:
rcv_0.log -> rcv_1.log
rcv_1.log -> rcv_2.log
Then a new rcv_0.log file will be created, and logging will continue.
This is a standard log rotation strategy that limits log file sizes for easier management.

File location: The Tabulator Operator Log will be created in the current working directory. When launched using the rcv.bat file this is next to the rcv.bat file. For example:
C:\Users\MyUser\rcv\bin\rcv_0.log

Operator logging is duplicated in the black GUI console box at the bottom of the application window. The console is provided as a convenience primarily for showing validation errors and providing feedback to the user. See screenshot below for example of this console box.



Stream 2: Contest-Specific "Audit" Logging

This data stream captures information about a specific contest tabulation. It includes all the same information written to the Execution Log (within the context of a single contest tabulation) and includes a listing of the config file being tabulated, and a record of how each cvr was counted in each round.

This data stream only begins logging after a config file has been validated. Thus, all config validation logging (including any validation failures) will only appear in the execution log. We recognize that this behavior is non-intuitive, and we have filed an issue to improve it: https://github.com/BrightSpots/rcv/issues/125

File Name: [time_stamp]_audit_0.log where timestamp is created when the tabulation is triggered and used on all output files for a given tabulation. For example:
2021-04-24_22-49-49_audit_0.log
File Rotation uses the same strategy as the Execution Logging. When an audit log reaches 50MB size it will be renamed along with any other preceding log files. For example:
2021-04-24_22-49-49_audit_0.log -> 2021-04-24_22-49-49_audit_1.log
2021-04-24_22-49-49_audit_1.log -> 2021-04-24_22-49-49_audit_2.log
Then a new 2021-04-24_22-49-49_audit_0.log file will be created, and logging will continue.

File Folder Location is specified in the config file under "outputDirectory"

User Interface:
The tabulator was originally developed for a command-line interface. The GUI (graphical user interface) was introduced both to make the process of configuring and running a tabulation faster and more intuitive and to enable users with a less technical background to use the software. The command-line interface still exists as a way to support execution via script, e.g., for batch processing and test automation. The GUI prevents the user from creating a config file that would fail many of these checks. A brief user guide to the Command Line Interface is available in ***RCTab v.1.2.0 - 240 - Command Line Instructions v.1.1.0***. More information about error messages can be found in ***RCTab v.1.2.0 - 430 - RCTabOperator Log Messages v.1.1.0***.

Supported File types:
The Tabulator uses the JSON format for contest configuration files and one style of results summary output. JSON is simple, popular, and easy for humans and software to read and write. The Tabulator uses CSV (comma-separated values) for the tabular version of its results summary output. CSV is a non-proprietary format that all modern spreadsheet applications can recognize. Tabulation output log files are produced in plain-text with a .log extension for clarity. RCTab reads .xlsx (Microsoft Excel) and .xml (Extensible Markup Language) cvr and elections metadata files supplied by various vendors (ES&S, Hart, CDF, Unisyn).

Additionally, the following documents were used to design the RCTab software:

RCTab v.1.2.0 - 110 - Tabulation Options for RCV Tabulation v.1.1.0
RCTab v.1.2.0 - 100 - Ranked-Choice Voting Laws v.1.1.0
RCTab v.1.2.0 - 120 - Process Ranked Choice Voting Contest v.1.1.0
RCTab v.1.2.0 - 130 - Expected Outcome RCV Test Sets Single-Winner v.1.1.0
RCTab v.1.2.0 - 140 - Expected Outcome RCV Test Sets Multi-Winner v.1.1.0
RCTab v.1.2.0 - 150 - ES&S Ballot Limitations & Maximum Testing Range v.1.1.0
RCTab v.1.2.0 - 07 - System Security Specification Requirements v.1.1.0

V.2:2.5.2 Applicable Documents
The vendor shall list all documents controlling the development of the software and its specifications. Documents shall be listed in order of precedence.

- This is described in this doc under ***Coding Standards and Style***

V.2:2.5.3 Software Overview
The vendor shall provide an overview of the software that includes the following items:
c. Identification of all software items, indicating items that were:
1) Written in-house.
- All in-house items written in-house are described in this doc under ***Summary of Java Classes***

2) Procured and not modified; and
- All third-party modules are not modified. They are described in this doc under ***Java 14, Architecture, 3rd-party Modules***

3) Procured and modified including descriptions of the modifications to the software and to the default configuration options. The vendor shall also include a certification that procured software items were obtained directly from the manufacturer or a licensed dealer or distributor.
- No third-party modules have been modified.

We affirm that all third-party modules were obtained from the manufacturer. All of the third-party modules can be freely obtained and updated via the internet. They are maintained by their respective authors and hosted in the Maven Central Repository.

V.2:2.5.4 Software Standards and Conventions
The vendor shall provide information that can be used by an accredited test lab or state certification board to support software analysis and test design. The information shall address standards and conventions developed internally by the vendor as well as published industry standards that have been applied by the vendor. The vendor shall provide information that addresses the following standards and conventions:
a. Software System development methodology.

Our software development methodology is feature-driven:

- New customer needs are identified and specified
- Features are designated for a particular release or deferred
- Design new or updated software to meet those needs
- Software is created or updated, reviewed and tested (see 13 - Quality Assurance Plan)
- Software is submitted for VSTL testing
- Iterate with test lab
- Release

b. Software design standards, including internal vendor procedures.
c. Software specification standards, including internal vendor procedures.
d. Software coding standards, including internal vendor procedures.

e. Testing and verification standards, including internal vendor procedures, that can assist in determining the program's correctness and ACCEPT/REJECT criteria; and
f. Quality assurance standards or other documents that can be used by the ITA to examine and test the software. These documents include standards for program flow and control charts, program documentation, test planning, and for test data acquisition and reporting.

- Our software design and coding standards are based on the VVSG 1.0 VOL 1: 5.2 Software Design and Coding Standards. Additionally, we use Google Checkstyle as described in this document under **Coding Standards and Style.**
- Software specifications are described in our Github repo under the related issues. Our software specification standard is ad-hoc.
- Testing and verification standards are described in **RCTab v.1.2.0 13 Quality Assurance Plan v.1.1.0** and **RCTab v.1.2.0 17 System Test & Verification v.1.1.0**.

V.2:2.5.5 Software Operating Environment
This section shall describe or make reference to all operating environment factors that influence the software design.

- RCTab is designed to run on unmodified COTS Windows, Mac, and Linux operating systems as they are very popular, robust, mature, trusted, and they all support Java 14. For more information see the above section titled **Java 14**.
- RCTab core processing and tabulation logic is entirely platform (i.e., operating system) agnostic.
- All platform-specific functionality is encapsulated in the Java language implementation and Java platform libraries, including:
    - Basic OS services for disk IO
    - File path resolution
    - Memory management
    - System interrupt handling.

V.2:2.5.5.1 Hardware Environment and Constraints
The vendor shall identify and describe the hardware characteristics that influence the design of the software, such as:
a. The logic and arithmetic capability of the processor.
b. Memory read-write characteristics.
c. External memory device characteristics.
d. Peripheral device interface hardware.
e. Data input/output device protocols; and
f. Operator controls, indicators, and displays.

- RCTab is designed to be as efficient as possible with RAM and CPU usage in order to lower the hardware requirements needed to process an election and decrease costs for our users.
- Because the Tabulator creates an in-memory record for each CVR it processes, the maximum number of CVRs that can be processed in a single contest is limited by the amount of available RAM on the host system. See **RCTab v.1.2.0 - 03 - System**

Hardware Specification v.1.1.0 for more details.

V.2:2.5.5.2 Software Environment
The vendor shall identify the compilers or assemblers used in the generation of executable code and describe the operating system or system monitor.

- We use the javac compiler javac 14.0.1 included with OpenJDK 14.0.1 (build 14.0.1+7).
- See **RCTab v.1.2.0 14 Tabulator Build & Hashing Instructions v.1.1.0** for more details.

V.2:2.5.6 Software Functional Specification
The vendor shall provide a description of the operating modes of the system and of software capabilities to perform specific functions.

For more information about operating modes of the system and of system capabilities to perform specific functions, please see:

- **RCTab v.1.2.0 - 01 - System Overview v.1.1.0**
- **RCTab v.1.2.0 - 18 - User Guide v.1.1.0**
- **RCTab v.1.2.0 - 110 - Tabulation Options for RCV Tabulation v.1.1.0**
- **RCTab v.1.2.0 - 08 - System Operations Procedures v.1.1.0**
- **RCTab v.1.2.0 - 300 - Configuration File Parameters v.1.1.0**

V.2:2.5.6.1 Configurations and Operating Modes
The vendor shall describe all software configurations and operating modes of the system, such as ballot preparation, election programming, preparation for opening the polling place, recording votes and/or counting ballots, closing the polling place, and generating reports. For each software function or operating mode, the vendor shall provide:
a. A definition of the inputs to the function or mode (with characteristics, tolerances or acceptable ranges, as applicable);
b. An explanation of how the inputs are processed; and
c. A definition of the outputs produced (again, with characteristics, tolerances, or acceptable ranges as applicable).

For more information about the components of RCTab with regard to data input/counting and generating final count that are relevant here, please see:

- **RCTab v.1.2.0 - 01 - System Overview v.1.1.0**
- **RCTab v.1.2.0 - 18 - User Guide v.1.1.0**
- **RCTab v.1.2.0 - 110 - Tabulation Options for RCV Tabulation v.1.1.0**
- **RCTab v.1.2.0 - 08 - System Operations Procedures v.1.1.0**
- **RCTab v.1.2.0 - 300 - Configuration File Parameters v.1.1.0**

V.2:2.5.6.2 Software Functions
The vendor shall describe the software's capabilities or methods for detecting or handling:

a. Exception conditions.
b. System failures.
c. Data input/output errors.
d. Error logging for audit record generation.

- Exceptions are handled using Java language built-in exception handling.
- Exceptions are logged to the **Operator Log** and, if a contest is being tabulated, the **Audit Log**.
- Tabulator Exceptions are detailed in **RCTab v.1.2.0 - 430 - RCTab Tabulator Operator Log Messages 1.0.0**.
- System failures such as out of memory, disk input/output errors, etc.. will be logged in these locations as well.

e. Production of statistical ballot data.

- Tabulator results are described in **RCTab v.1.2.0 - 18 - User Guide v.1.1.0** under ***Running A Tabulation.***

f. Data quality assessment; and

- For data quality assessment, we only operate upon CVR data formatted according to the standards the vendors have defined for their CVRs. See election system vendor documentation for more information regarding CVR formatting.
- Additionally, audit logs describe how all ballot data and configuration data in a contest tabulation was read/interpreted by RCTab.

g. Security monitoring and control.

- Jurisdiction practices and policies govern the security monitoring control when using the tabulator. We recommend a minimum of 2 bipartisan, trained employees operate the system together at all times.
- For more information about security related issues, please see also **RCTab v.1.2.0 - 07 - System Security Specification Requirements v.1.1.0.**
- If there are additional questions outside the scope of the jurisdiction practices and policies or the documentation provided with the software regarding security issues, we recommend consulting with an information technology security specialist.

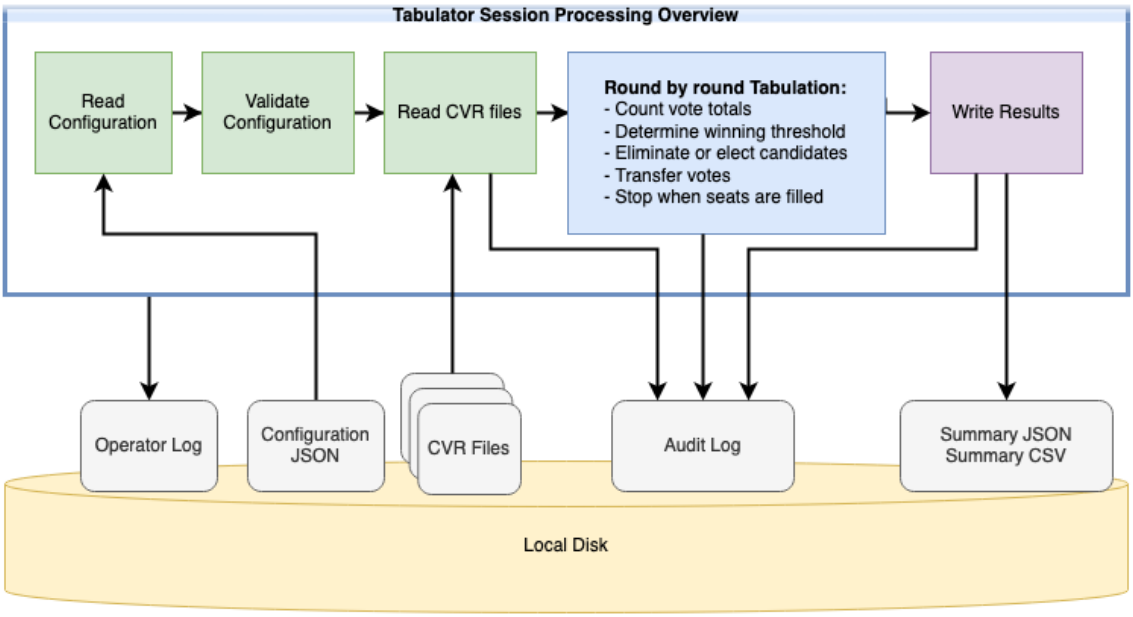
V.2:2.5.7 Programming Specifications
The vendor shall provide in this section an overview of the software design, its structure, and implementation algorithms and detailed specifications for individual software modules.

This is described in this document under ***Contest Tabulation Logic.*** Also see the below diagram located in v.2:2.5.7.1.

V.2:2.5.7.1 Programming Specifications Overview

This overview shall include such items as flowcharts, HIPOs, data flow diagrams, and other graphical techniques that facilitate understanding of the programming specifications. This section shall be prepared to facilitate understanding of the internal functioning of the individual software modules. Implementation of the functions shall be described in terms of the software architecture, algorithms, and data structures.

This is described in this document under ***Contest Tabulation Logic.*** Also see the below diagram:



V.2:2.5.7.2 Programming Specifications Details
The programming specifications shall describe individual software modules and their component units, if applicable. For each module and unit, the vendor shall provide the following information:
a. Module and unit design decisions, if any, such as algorithms used.
b. Any constraints, limitations, or unusual features in the design of the software module or unit.
e. If the software module or unit contains, receives, or outputs data, a description of its inputs, outputs, and other data elements as applicable.

- The programming specifications that describe individual software modules and their component units are described on pages 5-7 of this document.
- For additional information, see the following documents:
    - **RCTab v.1.2.0 - 01 - System Overview v.1.1.0**

- **RCTab v.1.2.0 - 18 - User Guide v.1.1.0**
- **RCTab v.1.2.0 - 110 - Tabulation Options for RCV Tabulation v.1.1.0**
- **RCTab v.1.2.0 - 08 - System Operations Procedures v.1.1.0**
- **RCTab v.1.2.0 - 300 - Configuration File Parameters v.1.1.0**

f. If the software module or unit contains logic, the logic to be used by the software unit, including, as applicable:

1) Conditions in effect within the software module or unit when its execution is initiated.
2) Conditions under which control is passed to other software modules or units.
5) Exception and error handling:

The below list summarizes the basic function of all java classes, including conditions impacting software operation. Also see pages 2–3, 6-10 of this document.

V.2:2.5.8: Databases

The RCTab software does not use any databases for its operation. This requirement does not apply to RCTab.

V.2:2.5.9 Interfaces

RCTab does not rely on any interfaces for its operation. This requirement does not apply to RCTab.

Document Revision History

Date	Version	Description	Author
01/07/2022	1.2.0	Updated URCVT to RCTab and removed NY from the document.	Ryan Kirby
05/10/2021	1.1.0	Updated documentation for improved overall VVSG alignment	RCVRC
04/27/2021	1.0.0	Software Design Specifications	Louis Eisenberg

Appendix

The Appendix contains the following files:

1. TabulatorTests_example_console_output
2. Google JAVA Style Guide

Appendix 6

System Test and Verification Specification

RCTab

RCTab v.1.2.0 17- System Test and Verification Specification v.1.3.0

V.2:2.7 System Test and Verification Specification
a. The vendor shall provide test and verification specifications for: Development test specifications.
b. The vendor shall provide test and verification specifications for: National Certification test specifications.

V.2:2.7.1 Development Test Specifications

The vendor shall describe the plans, procedures, and data used during software development and system integration to verify system logic correctness, data quality, and security.

a. This description shall include: Test identification and design, including:
i. Test structure
ii. Test sequence or progression; and
iii. Test conditions

Test Structure:

Included below on pages 8-10 is the basic template used to define every setting for each test set used to test the RCTab. This form is filled out with the settings for the relevant test. Testers can compare the information in this form to the information in the configuration file loaded from the relevant folder in test_data to ensure that all settings are correct. Each setting selected in this form has been tested. RCTab has not yet created a Test Structure Form for every RCTab test but will set up a form for all RCTab regression tests based on this form. Questions about this form can be made to the Ranked Choice Voting Resource Center at info@rcvresources.org or by calling 1-833-868-3728. We also have included an example Test Structure Form filled out according to the requirements of the Portland 2015 Mayor test. That example starts on page 11.

Regression Test Overview:

We have developed a suite of 57 Tabulation Regression Tests and continue to add more tests as new features and bug fixes are added. These are designed to verify that various aspects of Tabulator functionality behave as expected. They also verify that new code changes do not inadvertently alter Tabulator behavior. The entire test suite must be run, and all tests must pass before any new code changes can be merged into the main Tabulator repository.

Design Overview:

Each test contains a set of normal tabulation inputs (config file and cvr files) and a known valid "expected" results summary file. The test runs a tabulation with new code, and compares the results of that tabulation to previous, expected, correct results. In essence, we isolate and analyze the effects any new code changes may have on the tabulation output. This is a classic regression test design.

Test Execution Details:

The test suite will run through all tests automatically as follows:

1. Tabulator is built from source code.
2. For each test:
    a. Run a tabulation using the test config file and cvr files.
    b. Compare tabulation output summary file to reference expected summary file.
    c. If the files match exactly (except for timestamps) the test passes.
    d. If the files do not match the test fails.
    e. Test execution and test results are written to a log file and console.

Testing Procedures:

When new code is ready for submission, a developer will follow these procedures to ensure the code is safe for incorporation:

1. Run test suite: in a console, from the rcv root directory, enter: *./gradlew.bat test*
2. Observe the test output. If *any* test fails the source of the failure must be identified and either:
    a. Fixed. Usually, a test failure is caused by a bug in logic or data which can be fixed.
    b. Update the reference test asset. Sometimes bug fixes cause tests to fail because they are now operating correctly. In these cases, test output must be manually verified and peer-reviewed (like any code change) before it can be updated.

Example test outputs are included in: TabulatorTests_example_console_output.txt and Test_Results_TabulatorTests.html

For actual test data, including configuration files and expected results, refer to test_data.zip that includes all test data and was submitted with documentation.

Users can also manually run each test. The steps required to run tests manually are as follows:

1. Open RCTab
2. Click “File”
3. Click “Load”

4. Navigate to the configuration file for the test you wish to run
5. Select the configuration file and load it into the RCTab
6. Confirm that the configuration file properly loaded into the RCTab by checking that the relevant fields are filled in
7. Click “Tabulation”
8. Click “Tabulate”
9. Wait for the RCTab to finish tabulating
10. Navigate to the output location for your results
11. Compare your results .json summary file to the .json summary file included with the data. If this matches exactly, the test passes.

Test Conditions:

Test conditions require the following files for input for each test case: Configuration file (JSON), Cast Vote Record (typically CSV format). Confirm appropriate files are uploaded to proceed with appropriate testing conditions.

For more information on the development process as it relates to testing see ***RCTab v.1.2.0 13-Quality Assurance Plan v.1.1.0***.

Additional Testing Procedures:

In addition to regression testing of all changes, new features are tested by developers and RCVRC staff to ensure that they work as expected. If any features did not work as expected, a ticket was filed on GitHub with the test data and an explanation of how the achieved results differed from the expected results.

The RCVRC and Bright Spots also conduct scale tests of the RCTab. Tests include a contest with 100 CVR files composed of 100,000 individual cast vote records each, a contest with 1,000 CVR files composed of 1,000,000 individual cast vote records each, a contest with 6,000 CVR files composed of 6,000,000 individual cast vote records each, and a set of 11 CVRs composed of 9,200,000 individual cast vote records each. Volume tests with these records were conducted throughout March and April 2021.

c. This description shall include: Special purpose test procedures including any assumptions or constraints;

- No special-purpose test procedures are followed.

d. This description shall include: Test data, test data source, whether it is real or simulated, and how test data are controlled;

Test Data:

The data for 2017 Minneapolis Mayor, 2013 Minneapolis Mayor, 2013 Minneapolis Park, 2018 Maine Governor Democratic Primary are all from real-world elections and were procured directly from the websites of the jurisdictions listed in the name of the data. All other data was manufactured by Bright Spots developers, RCVRC staff, voting system vendors, or election jurisdictions. Any data with vendor names included (Unisyn, Clear Ballot, Dominion, Hart, CDF) was procured from vendors directly or from jurisdictions working with those vendors. Any data not falling in those categories was manufactured by RCTab developers according to the CVR requirements of the software to test specific functionalities of the RCTab software.

Regression test data are controlled by hosting them on GitHub and updating tests as new features are added to the RCTab. Other test data, for tests run by RCVRC staff, Bright Spots developers, or others, did not previously have clear controls on data. Data was procured from trusted sources, such as actual election jurisdictions and voting system vendors, as much as possible or generated according to the specifications of previously used CVR data from vendors. However, no formal controls were in place for test data or for tracking results. Results were communicated via the relevant issue(s) on GitHub. We are implementing formal control methods for tests and test data going forward.

e. This description shall include: Expected test results;

- Expected results for regression tests are included in the test folders available in the test_data.zip that includes all test data and was submitted with documentation.

f. This description shall include: Criteria for evaluating test results.

The names of the tests are mostly self-explanatory. For example, *test_set_1_exhaust_at_overvote* tests whether the tabulator correctly interprets the overvoteRule = "exhaust immediately" setting. Some of the tests aren't testing specific features but instead are testing a known data set, e.g., *2018_maine_governor_primary*. The complete list is included below.

Results from any tests run on regression test data should 100% match the expected results in each individual test's folder on GitHub. Note that test folders include only .json summary result files, while tests run by users will produce .json summary results, .csv summary results, and .log audit log files. The .json summary results should therefore be compared when evaluating test results.

In tests run by RCVRC staff and Bright Spots developers when incorporating new features, any features were tested according to requirements as laid out in RCV laws or regulations being incorporated into the RCTab.

V.2:2.7.2 National Certification Test Specifications
The vendor shall provide specifications for verification and validation of overall software performance.

a. These specifications shall cover: Control and data input/output;

- Data input: Data used in the RCTab should come directly from the user jurisdiction certified voting system. When exporting the data from the certified voting system the users should adhere to all export procedures as outlined by the voting system vendor.
- Data output: Data created via the RCTab should be created using the guidelines and procedures outlined in **RCTab v.1.2.0 18- User Guide v.1.1.0.**

b. These specifications shall cover: Acceptance criteria;

- Tests in the set of regression tests are designed to test one or more functionalities of the RCTab. When each test is performed, the results of the test will reveal whether the RCTab meets the functionality described in the TDP. Information about how each functionality of the RCTab is intended to function is provided in **RCTab v1.2.0 02- Software Design and Specifications v.1.1.0** and **RCTab v.1.2.0 18- User Guide v.1.1.0**.

c. These specifications shall cover: Processing accuracy;

- All functions tested must produce a result that matches the expected results. Matching results means a test passed this requirement. Processing accuracy procedures are outlined in **RCTab v.1.2.0 18- User Guide v.1.1.0.**

d. These specifications shall cover: Data quality assessment and maintenance;

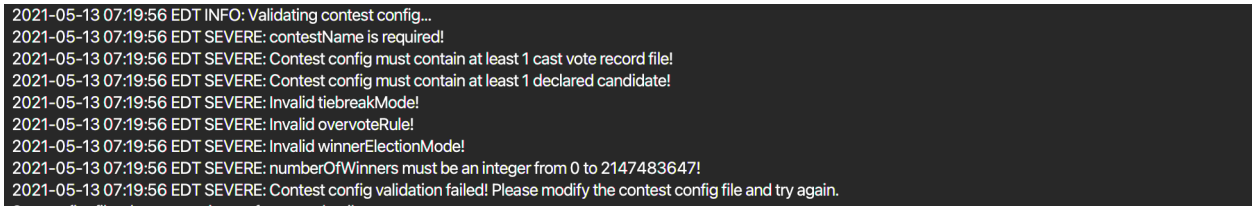
- Data quality is tested by ensuring that data used in the RCTab comes directly from the user jurisdiction certified voting system and by producing expected results for a test before running a test itself. Once a test is run, results should be inspected to confirm that they match the expected outcome. Data should be maintained on secure drives or secured computers/networks, as required by the user jurisdiction.

e. These specifications shall cover: Ballot interpretation logic;

- Regression tests can be used to test ballot interpretation logic. All CVR data will include discrete and clearly defined values for how each ranking on an RCV ballot was used. Ballot interpretation via the RCTab relies upon the candidate names, winning election rules, and voter error rules a user specifies in a configuration file. If the produced results match the expected results, then a test passed the ballot interpretation logic requirement.

f. These specifications shall cover: Exception handling;

- The invalid_params_test and invalid_sources_test can be used to test exception handling in the RCTab. When run through the RCTab these tests will cause the RCTab to produce errors in the operator log box at the bottom of the user interface. If those errors shown match those in the below screenshot, the test was successful.



g. These specifications shall cover: Security;

- RCTab has no tests specifically designed to test security. RCTab relies on a jurisdiction's security policies, as laid out in **RCTab v.1.2.0 06- System Security Specifications v.1.1.0.** Security can be maintained by ensuring that all security procedures follow the requirements set out in **RCTab v.1.2.0 06- System Security Specifications v.1.1.0**.

h. These specifications shall cover: Production of audit trails and statistical data.

- Regression tests will produce .log audit files and will log general information about the contest tabulation to the operator .log file. Production of these files can be tested using any regression test files, so long as the user activates the "Tabulate" function. All tests that produce a successful tabulation will also create .csv summary results files and .json summary results files. If these .log files are generated and updated, and .csv and .json summary files are produced when the RCTab successfully completes a tabulation, then this requirement passes.

The specifications shall identify procedures for assessing and demonstrating the suitability of the software for election use.

- For additional user jurisdiction testing specifications, please see **RCTab v.1.2.0 05- Acceptance Test Procedures v.1.1.0** and **RCTab v.1.2.0 11- L&A Testing v.1.1.0** to review vendor procedures to ensure the user jurisdiction has received and is using the correct trusted build for the state of .
- **RCTab v.1.2.0 18- User Guide v.1.1.0** also includes a detailed guide to expected user operation of the RCTab, which can be used to create tests of the user interface, tabulation functionalities, and other functionalities of the RCTab software. The vendor is available to support development of additional tests.

Document Revision History

Date	Version	Description	Author
01/05/2022	1.3.0	Updated document to reflect RCTab and remove NY	Rene Rojas
05/14/2021	1.2.0	Added test conditions. Updated Test data link to include file with all results. Added test structure information/form.	Kelly Sechrist
05/10/2021	1.1.0	Update to provide more details on past test behaviors and future plans for improving test tracking and control.	Chris Hughes
05/02/2021	1.0.0	System Test and Verification	Chris Hughes

RCTab Test Structure Form:

RCTab Test Structure Form
This form is the basic template used to define every test setting for each test set used to test the RCTab. This form is filled out with the settings for the [TEST NAME]. Testers can compare the information in this form to the information in the configuration file loaded from the relevant folder in test_data to ensure that all settings are correct. Each setting selected in this form is a setting tested by this test. RCTab has not yet created a Test Structure Form for every RCTab test, but will set up a form for all RCTab regression tests based on this form. Questions about this form can be made to the Ranked Choice Voting Resource Center at info@rcvresources.org or by calling 1-833-868-3728.

Contest Info			
Contest Name*:		Contest Date:	
Contest Jurisdiction:		Contest Office:	
Rules Description:			

CVR Files		
Provider*:		*Enter Vendor (ES&S, etc.)*
File Path*:		*Location of the cvr export file.*
First Vote Column Index*:		*Enter the Column where the First Vote is in the CVR export file.*
First Vote Row Index*:		*Enter the Row where the First Vote is in the CVR export file.*
ID Column Index:		*Enter the ID Column (if being used)*
Precinct Column Index:		*Enter the Precinct Column in the CVR export file.*
Overvote Label		*ES&S will default to "overvote"*
Undervote Label		*ES&S will default to "undervote"*
Undeclared Write-In Label		*User will define. Must match case and spelling with CVR*

Treat Blank as Undeclared WI		*Circle One*
Candidates		
Name*:		*Obtain a list of candidates from the EMS System (Attach the list of candidates to this form)*
Code:		*Enter the Code for each candidate (if being used) example: DDE*
Excluded:		*Check box if a candidate is not being counted in this tabulation*

Winning Rules		
Winner Election Mode*		Any user jurisdiction guidelines which identify the specific rules for ranked choice voting elections should be attached to this form for easy reference. Please see the RCTab User Guide for more information about the available selections that can be made.
Maximum # of Ranked Candidates*		
Minimum Vote Threshold		
Use Batch Elimination	Y N (Circle One)	
Continue until Two Candidates Remain	Y N (Circle One)	
Tiebreak Mode*		
Random Seed*		Any user jurisdiction guidelines which identify the specific rules for ranked choice voting elections should be attached to this form for easy reference. Please see the RCTab User Guide for more information about the available selections that can be made.
Number of Winners*		
Percentage Threshold*		
Threshold Calculation Method*		
Most Common Threshold		
HB Quota		
Hare Quota‡		
Decimal Places for Vote Arith (MW ONLY)*		
Voter Error Rules		
Overvote Rule*		Choose one of the three available options.
Skip to next rank		
Exhaust Immediately		
Exhaust if mult. cont.		

Consecutive Skip Ranks Allowed		Enter the number of consecutive skipped rankings or check Unlimited if permitted.
Exhaust on multi ranks for same candidate	Y N (Circle One)	Check if multiple ranks for the same candidate are not permitted.

Output			
Output Directory (where should results file go on PC?):			
Tabulate by Precinct:	Y N (Circle One)	Generate CDF JSON:	Y N (Circle One)
Configuration File Name:			
Date of Test:		Passed?: YES NO	
Name of tester(s)			
Name 1		Name 2	

‡Disclaimer: The Hare Quota tabulation option in the Universal RCV Tabulator software has not been thoroughly tested in a controlled testing lab environment. Do not attempt to implement this option without first testing in a non-operational environment. Please contact the Ranked Choice Voting Resource Center for additional information.

RCTab Test Structure Form Example:

RCTab Test Structure Form
This form is the basic template used to define every test setting for each test set used to test the RCTab. This form is filled out with the settings for the 2015 Portland Mayor test. Testers can compare the information in this form to the information in the configuration file loaded from the relevant folder in test_data to ensure that all settings are correct. Each setting selected in this form is a setting tested by this test. RCTab has not yet created a Test Structure Form for every RCTab test, but will set up a form for all RCTab regression tests based on this form. Questions about this form can be made to the Ranked Choice Voting Resource Center at info@rcvresources.org or by calling 1-833-868-3728.

Contest Info			
Contest Name*:	Portland 2015 Mayoral Race	Contest Date:	2015-11-03
Contest Jurisdiction:	Portland, ME	Contest Office:	Portland, ME
Rules Description:			

CVR Files		
Provider*:	ES&S	*Enter Vendor (ES&S, etc.)*
File Path*:	2015_portland_mayor_cvr.xlsx	*Location of the cvr export file.*
First Vote Column Index*:	4	*Enter the Column where the First Vote is in the CVR export file.*
First Vote Row Index*:	2	*Enter the Row where the First Vote is in the CVR export file.*
ID Column Index:	Leave blank	*Enter the ID Column (if being used)*
Precinct Column Index:	2	*Enter the Precinct Column in the CVR export file.*
Overvote Label	overvote	*ES&S will default to "overvote"*
Undervote Label	undervote	*ES&S will default to "undervote"*
Undeclared Write-In Label	UWI	*User will define. Must match case and spelling with CVR*
Treat Blank as Undeclared WI	FALSE	*Circle One*
Candidates		

Name*:	See below for a list of candidates.	*Obtain a list of candidates from the EMS System (Attach the list of candidates to this form)*
Code:		*Enter the Code for each candidate (if being used) example: DDE*
Excluded:		*Check box if a candidate is not being counted in this tabulation*

Winning Rules		
Winner Election Mode*	singleWinnerMajority	Any user jurisdiction guidelines which identify the specific rules for ranked choice voting elections should be attached to this form for easy reference. Please see the RCTab User Guide for more information about the available selections that can be made.
Maximum # of Ranked Candidates*	15	
Minimum Vote Threshold	0	
Use Batch Elimination	**Y** N (Circle One)	
Continue until Two Candidates Remain	Y **N** (Circle One)	
Tiebreak Mode*	useCandidateOrder	
Random Seed*	N/A	Any user jurisdiction guidelines which identify the specific rules for ranked choice voting elections should be attached to this form for easy reference. Please see the RCTab User Guide for more information about the available selections that can be made.
Number of Winners*	1	
Percentage Threshold*	N/A	
Threshold Calculation Method*	N/A	
Most Common Threshold	N/A	
HB Quota	N/A	
Hare Quota‡	N/A	
Decimal Places for Vote Arith (MW ONLY)*	N/A	

Voter Error Rules		
Overvote Rule*	Exhaust Immediately	Choose one of the three available options.
Skip to next rank	-	
Exhaust Immediately	X	
Exhaust if mult. cont.	-	
Consecutive Skip Ranks Allowed	1	Enter the number of consecutive skipped rankings or check Unlimited if permitted.

Exhaust on multi ranks for same candidate	Y **N** (Circle One)	Check if multiple ranks for the same candidate are not permitted.

Output			
Output Directory (where should results file go on PC?): output			
Tabulate by Precinct:	Y **N** (Circle One)	Generate CDF JSON:	Y **N** (Circle One)
Configuration File Name: 2015_portland_mayor_config.json			
Date of Test:		Passed?: YES NO	
Name of tester(s)			
Name 1		Name 2	

‡Disclaimer: The Hare Quota tabulation option in the Universal RCV Tabulator software has not been thoroughly tested in a controlled testing lab environment. Do not attempt to implement this option without first testing in a non-operational environment. Please contact the Ranked Choice Voting Resource Center for additional information.

Candidates	Brennan, Michael F.						
	Bragdon, Charles E.						
	Bryant, Peter G.						
	Carmona, Ralph C.						
	Dodge, Richard A.						
	Duson, Jill C.						
	Eder, John M.						
	Haadoow, Hamza A.						
	Lapchick, Jodie L.						
	Marshall, David A.						
	Mavodones, Nicholas M. Jr.						
	Miller, Markos S.						
	Rathband, Jed						
	Strimling, Ethan K.						

	Vail, Christopher L.						

List of Tests

Name of Test	Name of Test Folder	Description of test	Purpose of Test
RCVRC & Bright Spots name for regression test	Test folder name in: Refer to test_data.zip that includes all test data and was submitted with documentation.	Brief description of test and identification of RCTab functionalities tested by test files.	Unless otherwise noted, each regression test can be used to test control and data input/output, acceptance criteria, processing accuracy, ballot interpretation logic, and production of audit trails and statistical data. Processes for exporting and handling data, under control and data input, should also follow CVR handling procedures in a jurisdiction. Security processes should be tested according to the requirements in 06-NY System Security Specifications. Exception handling tests are directly identified below.
2013 Minneapolis Mayor	2013_minneapolis_mayor	Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files. Test RCTab's ability to properly count real-life RCV elections.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
2013 Minneapolis Mayor Scale	2013_minneapolis_mayor_scale	Tests the ability of RCTab to process a contest with 1,000,000 records. Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S	Control and data input/output; Processing accuracy; Ballot interpretation logic;

		CVR files.	
2013 Minneapolis Park	2013_minneapolis_park	Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files. Test the functionality of the "multi-winner allow multiple winners per round" functionality.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
test bottoms-up multi-seat logic	2013_minneapolis_park_bottoms_up	Test the functionality of the bottoms-up winner election mode setting. Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
2017 Minneapolis Park	2017_minneapolis_park	Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files. Test the functionality of the "multi-winner allow multiple winners per round" functionality.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
test Hare quota	2013_minneapolis_park_hare	Test the functionality of the Hare Quota Threshold Calculation Mode setting. Note that while RCTab passes this test the Hare Quota functionality needs to be updated as noted in 500-NY System Enhancements. Test the functionality of the "multi-winner allow multiple winners per round" functionality. Test the ability of RCTab to read and process ES&S	Control and data input/output; Processing accuracy; Ballot interpretation logic;

		CVR files and CVR settings usable with ES&S CVR files.	
test sequential multi-seat logic	2013_minneapolis_park_sequential	Test the functionality of the multi-pass IRV winner election mode setting. Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
2015 Portland Mayor	2015_portland_mayor	Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files. Test ability to process a single-winner RCV contest.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
2015 Portland Mayor Candidate Codes	2015_portland_mayor_codes	Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files; ability to process a single-winner RCV contest; ability to process a CVR using Candidate Codes instead of Candidate Names	Control and data input/output; Processing accuracy; Ballot interpretation logic;
2017 Minneapolis Mayor	2017_minneapolis_mayor	Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files, as well as RCTab's ability to properly count real-life RCV elections.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
2018 Maine Governor Democratic Primary	2018_maine_governor_primary	Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files, as well as RCTab's ability	Control and data input/output; Processing accuracy; Ballot interpretation logic;

		to properly count real-life RCV elections.	
Clear Ballot - Kansas Primary	clear_ballot_kansas_primary	Tests the ability of RCTab to read and process Clear Ballot CVR data	Control and data input/output; Processing accuracy; Ballot interpretation logic;
Continue Until Two Candidates Remain	continue_tabulation_test	Tests the ability of RCTab to properly count a single-winner contest down to two final candidates	Control and data input/output; Processing accuracy; Ballot interpretation logic;
Continue Until Two Candidates Remain with Batch Elimination	continue_until_two_with_batch_elimination_test	Tests the ability of RCTab to count a single-winner contest using both batch elimination and continue until two candidates remain settings simultaneously.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
Dominion test - Alaska test data	dominion_alaska	Tests the ability of RCTab to read and process Dominion CVR data and to run an RCV count on that data.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
Dominion test - Kansas test data	dominion_kansas	Tests the ability of RCTab to read and process Dominion CVR data and to run an RCV count on that data.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
Dominion - No Precinct Data	dominion_no_precinct_data	Tests the ability of RCTab to read and process Dominion CVR data and to run an RCV count on that data.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
Dominion test - Wyoming test data	dominion_wyoming	Tests the ability of RCTab to read and process Dominion CVR data and to run an RCV count on that	Control and data input/output; Processing accuracy; Ballot interpretation logic;

		data.	
test excluding candidates in config file	excluded_test	Test the "Exclude" function in the Candidate settings of RCTab.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
Hart - Cedar Park School Board	hart_cedar_park_school_board	Tests the ability of RCTab to read and process Hart CVR data	Control and data input/output; Processing accuracy; Ballot interpretation logic;
Hart - Travis County Officers	hart_travis_county_officers	Tests the ability of RCTab to read and process Hart CVR data	Control and data input/output; Processing accuracy; Ballot interpretation logic;
test invalid params in config file	invalid_params_test	Tests the ability of RCTab show errors if a configuration file is incomplete or improperly filled out.	Exception handling
test invalid source files	invalid_sources_test	Tests the ability of RCTab to show errors if CVR files are incompatible	Exception handling
test minimum vote threshold setting	minimum_threshold_test	Test the "minimum vote threshold" setting in winner election mode.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
testMinneapolisMultiSeatThreshold	minneapolis_multi_seat_threshold	Test the ability of RCTab to determine winning candidates according to the default Threshold Calculation method in multi-winner elections. Test the functionality of the "multi-winner allow multiple winners per round" functionality.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
missing precinct example	missing_precinct_example	Test the ability of RCTab to continue tabulating if "Precinct Column ID" is supplied but precinct	Control and data input/output; Processing accuracy; Ballot interpretation logic;

		information is missing in part of a CVR file.	
test bottoms-up multi-seat with threshold logic	multi_seat_bottoms_up_with_threshold	Test the functionality of the bottoms-up using percentage threshold winner election mode setting.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
multi-seat UWI test	multi_seat_uwi_test	Undeclared write-ins should not win elections. This test ensures that RCTab properly handles this exception by not awarding a win to an undeclared write-in candidate in a multi-winner contest.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
NIST XML CDF 2	nist_xml_cdf_2	Tests the ability of RCTab to read and process CDF data in XML format	Control and data input/output; Processing accuracy; Ballot interpretation logic;
precinct example	precinct_example	Test the ability of RCTab to detect precinct information based on CVR file data and the ability to produce precinct results using the Tabulate by Precinct functionality. Note that Tabulate by Precinct function produces precinct-level results of the RCV contest but does not identify precinct-level winners. This functionality needs updating to identify in-precinct winners.	Control and data input/output; Processing accuracy; Ballot interpretation logic;

sample interactive tiebreak	sample_interactive_tiebreak	Test the functionality of the interactive tiebreak function available in "Stop counting and ask," or "Previous round counts (then stop counting and ask)" tiebreaking modes. This is not a regression test as it requires user input. It is included in the "sample_input" folder of RCTab installation folder as an additional test of RCTab.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
test skipping to next candidate after overvote	skip_to_next_test	Test the functionality of the "Always skip to next rank" overvote setting.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
skipped first choice	test_set_0_skipped_first_choice	Test the ability of RCTab to properly process CVR data with a skipped first ranking. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
exhaust at overvote rule	test_set_1_exhaust_at_overvote	Test the functionality of the "Exhaust immediately" overvote setting. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
overvote skips to next rank	test_set_2_overvote_skip_to_next	Test the functionality of the "Always skip to next rank" overvote setting. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;

skipped choice exhausts option	test_set_3_skipped_choice_exhaust	Test the functionality of the "how many consecutive skipped ranks are allowed" setting when ballots exhaust after a single skipped ranking. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
skipped choice next option	test_set_4_skipped_choice_next	Test the functionality of the "how many consecutive skipped ranks are allowed" setting when ballots don't exhaust after skipped rankings. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
two skipped ranks exhausts option	test_set_5_two_skipped_choice_exhaust	Test the functionality of the "how many consecutive skipped ranks are allowed" setting when ballots exhaust after multiple skipped rankings. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
duplicate rank exhausts	test_set_6_duplicate_exhaust	Test the functionality of the "Exhaust on multiple ranks for the same candidate" function, if function is turned on - ballots should exhaust when a duplicate ranking is encountered. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;

duplicate rank skips to next option	test_set_7_duplicate_skip_to_next	Test the functionality of the "Exhaust on multiple ranks for the same candidate" function, if function is turned off - RCTab will ignore duplicate candidate rankings. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
multi-cdf tabulation	test_set_8_multi_cdf	Tests the ability of RCTab to read and process multiple CDF data files in XML format. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
test allow only one winner per round logic	test_set_allow_only_one_winner_per_round	Test the functionality of the multi-winner allow only one winner per round logic.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
multi-seat fractional number threshold	test_set_multi_winner_fractional_threshold	Test the functionality of the HB Quota Threshold Calculation Mode setting. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
multi-seat whole number threshold	test_set_multi_winner_whole_threshold	Test the functionality of the default Threshold Calculation Mode setting. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
overvote delimiter test	test_set_overvote_delimiter	Test the functionality of the "overvote delimeter" setting. Note that this functionality needs an update as described in 500-NY System Enhancements.	Control and data input/output; Processing accuracy; Ballot interpretation logic;

treat blank as undeclared write-in	test_set_treat_blank_as_undeclared_write_in	Test the functionality of the "Treat Blank as Undeclared Write-In" setting for CVRs.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
tiebreak using generated permutation	tiebreak_generate_permutation_test	Test the functionality of the "Generate permutation" tiebreak setting.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
tiebreak using previousRoundCountsThenRandom	tiebreak_previous_round_counts_then_random_test	Test the functionality of the "Previous Round Counts then Random" tiebreak setting.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
test tiebreak seed	tiebreak_seed_test	Test the functionality of the "random seed" setting required for any of the Random Tiebreak modes ("Random" "Previous Round Counts then Random" and "Generate Permutation")	Control and data input/output; Processing accuracy; Ballot interpretation logic;
tiebreak using permutation in config	tiebreak_use_permutation_in_config	Test the functionality of the "Use candidate order in config file" tiebreak setting.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
unisyn_xml_cdf_city_chief_of_police	unisyn_xml_cdf_city_chief_of_police	Tests the ability of RCTab to read and process CDF data in XML format	Control and data input/output; Processing accuracy; Ballot interpretation logic;
unisyn_xml_cdf_city_coroner	unisyn_xml_cdf_city_coroner	Tests the ability of RCTab to read and process CDF data in XML format	Control and data input/output; Processing accuracy; Ballot interpretation logic;
unisyn_xml_cdf_city_council_member	unisyn_xml_cdf_city_council_member	Tests the ability of RCTab to read and process CDF data in XML format	Control and data input/output; Processing accuracy; Ballot interpretation logic;

unisyn_xml_cdf_city_mayor	unisyn_xml_cdf_city_mayor	Tests the ability of RCTab to read and process CDF data in XML format	Control and data input/output; Processing accuracy; Ballot interpretation logic;
unisyn_xml_cdf_city_tax_collector	unisyn_xml_cdf_city_tax_collector	Tests the ability of RCTab to read and process CDF data in XML format	Control and data input/output; Processing accuracy; Ballot interpretation logic;
unisyn_xml_cdf_county_coroner	unisyn_xml_cdf_county_coroner	Tests the ability of RCTab to read and process CDF data in XML format	Control and data input/output; Processing accuracy; Ballot interpretation logic;
unisyn_xml_cdf_county_sheriff	unisyn_xml_cdf_county_sheriff	Tests the ability of RCTab to read and process CDF data in XML format	Control and data input/output; Processing accuracy; Ballot interpretation logic;
undeclared write-in (UWI) cannot win test	uwi_cannot_win_test	Undeclared write-ins (UWIs) cannot win elections in RCTab tabulation. This test ensures that RCTab properly handles this exception by not awarding a win to an undeclared write-in candidate in a single-winner contest.	Control and data input/output; Processing accuracy; Ballot interpretation logic;

Appendix

The Appendix contains the following files:

1. TabulatorTests_example_console_output
2. Google JAVA Style Guide

Appendix 7

RCTab Logic & Accuracy (L&A) Test Procedures

RCTab v.1.2.0 - 11 - L&A Testing v.1.2.0

The Logic & Accuracy Test is designed to verify that RCTab is correctly configured and operating properly. Logic & accuracy tests should always be conducted on RCTab prior to its use in an election as part of the user jurisdiction's full logic & accuracy tests for each election. Post-election logic & accuracy testing should also be performed where possible and in keeping with the established policies and procedures of the user jurisdiction.

MATERIALS REQUIRED. In addition to the following, you must know the correct version of your operating system and RCTab. The vendor can provide assistance in determining the correct version. Users can also find that information in the ***RCTab v.1.2.0 200 Installation Instructions for RCTab - Windows OS v.1.1.0*** documentation. The following components of a voting system are required to complete the acceptance testing procedures:

1. One Computer with RCTab installed. Installation instructions can be found in the ***RCTab v.1.2.0 200 Installation Instructions for RCTab - Windows OS v.1.1.0*** document.
2. General use directed connected printer (this includes necessary printer cable and power supply).
3. Recommended battery backup if user jurisdiction facility does not have generator capabilities in the event of a power failure.
4. One flash drive containing a CVR from your voting system with ranked-choice voting results.
5. One additional storage device that can be used for saving summary files.
6. Access to the Election Data Form (see appendix) or comparable user jurisdiction prepared form. This form may be completed digitally and may be required to be printed and stored as part of the election record.

The RCTab computer system, consisting of items 1 through 3 above, should have been set up and tested before beginning this test. IT staff may do this part of the setup if properly supervised by election staff who have been trained in accordance with procedures laid out in the personnel documentation.

VERIFY CORRECT OPERATING SYSTEM AND RCTab SOFTWARE.
Turn on the computer with RCTab installed. As the computer boots up, verify that the correct versions of the operating system and the RCTab software are installed. Compute the hash codes for the RCTab voting system software and compare them with the hash value provided with the trusted build. Refer to the **RCTab v.1.2.0 03 System Hardware Specification v.1.1.0.**

document and the **RCTab v.1.2.0 200 Installation Instructions for Universal RCV Tabulator - Windows OS v.1.1.0** document for procedures and more information.

VERIFY RCTab HARDWARE.
Verify that all hardware components of the RCTab computer are turned on and functioning properly. This includes checks of the printer(s), flash drives, USB port, etc.

LOGIC & ACCURACY PROCEDURES - the procedures should be done with all assigned personnel in no less than bipartisan teams of two who have received the recommended vendor-led training. All vendor-recommended and jurisdiction-required security procedures should be observed at all times during this process.

1. **Assemble all required materials.** The next step will cover exporting a CVR from EMS to a flash drive if this step has not already been completed as part of the voting system L&A.
2. **Export CVR File from EMS System**. This step assumes the user has completed logic & accuracy checks on all parts of their voting system, including EMS, as recommended by the system vendor. This step also requires the users to have a known outcome from the test deck prepared as part of logic and accuracy testing as required by the voting system vendor. Users should also confirm the known outcome from the test deck is, in fact, correct, and the voting system used to tabulate the ballots is also working properly. The text deck should be counted by hand BEFORE the actual L&A testing begins on both the user jurisdiction's voting system and RCTab. This includes a headcount of the round-by-round RCV outcomes as well.
    a. Following L&A testing procedures conducted in EMS, export the L&A CVR file from the jursidiction's EMS System and save the file to an empty USB flash drive. Please see the appropriate EMS procedures for the specific steps of this process.
    b. Take the USB containing the exported CVR to the hardware where the RCTab software is installed.
3. **Transfer the CVR File to the PC.**
    a. Create a folder on the hard drive of the RCTab PC. The vendor recommends a name associated with the specific election (sample: "LA - RCV Election 11-5-2019"). The vendor recommends the user specifically identify the folder as LA to avoid any confusion with outdated CVRs or other data. See point 14, page 7 for further information.
    b. Insert USB into the hardware where the RCTab software is installed and open the file with Excel
    c. Copy the CVR export file from the USB to the new folder.
    d. Enter the file path of the CVR file into the Election Data Form.
    e. Remove the USB from the USB port and attach a label with the election name.
    f. Place the USB in a secure storage location.

4. **Enter Data into the Election Data Form**. Entering this information will make interacting with RCTab faster and lessen the chances that information will be entered incorrectly. All entries should be carefully reviewed by at least two bipartisan team members assigned to work with the RCTab software. Using your Election Data Form, record the following information:
    a. Contest Name: Name of the election – sample: LA-General Election, Primary Election, Municipal Election
    b. Contest Date: Date of the actual election – sample: 11-05-2019
    c. Contest Jurisdiction: Actual voting jurisdiction – sample: LA-Johnson County, City of Peoria, Town of Salem
    d. Contest Office: RCV office being tabulated – sample: LA-City Council, County Commissioner
    e. Decide if you are going to print Precinct Reports and enter Y or N on the Election Data Form.
    f. Indicate on the Election Data Form if you are generating a CDF JSON file for export totals (Y or N). Generally, this setting will be left unchecked as it is not required in most tabulations.
    g. Record the file path of the CVR as noted in step 3f, page 2, if you have not already done so.
    h. Enter the Rules into the Election Data Form The settings entered here must be in full compliance with the governing guidelines for ranked-choice voting elections in the jurisdiction. (check with City, County or State for guidance)
5. **Open CVR File and Review**
    a. Locate the CVR file in the election folder you created in step 3a and right-click, scroll down, and hover over “Open with.” Select Excel to view the file.
    b. Locate the Column where the First Vote is and enter the Column in the Election Data Form.
    c. Locate the Row where the First Vote is and enter the Row in the Election Data Form.
    d. Locate the ID Column (leave blank if not used) and enter the Column in the Election Data Form.
    e. Locate the Precinct Column and enter the Column in the Election Data Form
    f. Exit the CVR file.

Before moving to step 6, your Election Data Form should be completed with the exception of the Configuration File Name and required signatures. Confirm and enter any missing information before proceeding.

6. **Creating the Configuration File**
    a. Start RCTab - RCTab will start ready to create a new config file.
    b. Contest Info Tab

i. On the tab labeled “Contest Info,” enter the Contest Name, Contest Date, Contest Jurisdiction, and Contest Office. For Rules Description, enter a name that is easy to remember as this can be used as the name for your final configuration file.
ii. Only the Contest Name is required for this tab; however, we recommend all fields be completed to assist in identifying output files in the future.

c. CVR Files Tab
i. Select the voting system provider from the drop-down menu.
ii. Using the “Select” button, locate the CVR file in the election folder and load the CVR file path.
iii. Enter the remaining required information from the Election Data Form into the remaining fields and click Add.
iv. The added information should populate in the listing just below the entry fields.

d. Candidates Tab
i. Click on the “Candidates” tab. Enter the first candidate name and press Add. Enter all candidates.
ii. If you are using Code, you can return to each name and enter Code, and press enter on the keyboard.
iii. You will not enter Exclude unless instructed to do so by the Election Administration Team.

e. Winning Rules Tab
i. Use the completed Election Data Form to enter all applicable rule selections here.
ii. Depending on the required settings you enter, some options may remain grayed out and unselectable by the user. This is normal and should be expected as all fields may not require input.
iii. If there are any questions or concerns about the information needed to complete this tab, STOP and consult your controlling governing body for additional guidance about the jurisdiction’s particular ranked-choice voting requirements.

f. Voter Error Rules
i. Use the completed Election Data Form to enter all applicable rules selections here.
ii. Depending on the required settings you enter, some options may remain grayed out and unselectable by the user. This is normal and should be expected as all fields may not require input.
iii. If there are any questions or concerns about the information needed to complete this tab, STOP and consult your controlling governing body for additional guidance about the jurisdiction’s particular ranked-choice voting requirements.

g. Output Tab
    i. In the output directory field, enter the file path to your election folder set up in 3a. This will place all tabulation files in this folder once the tabulation is complete.
    ii. If you are tabulating by precinct, check the box labeled “Tabulate by Precinct.”
    iii. If you are generating a CDF JSON, check the box labeled Generate CDF JSON. Generally, this setting will be left unchecked as it is not required in most tabulations.

7. Validating the Configuration File

a. Click on “Tabulation” at the top of the software window.
b. Click on “Validate”
c. Refer to the log box at the bottom of the application. If the message “Contest config validation successful.” appears, your contest configuration has been successfully completed.
d. If any error messages appear in the log box, refer to **RCTab v.1.2.0 430 Universal RCV Tabulator Operator Log Messages, v.1.1.0** and messages in the log box for how to resolve errors. If the error persists, restart the RCTab software.

8. Saving the Configuration File

a. Click on “File” at the top of the software window.
b. Click on “Save…”
c. Select a location to save the configuration file. The vendor suggests users save the configuration file to the same location set in the Output Directory setting.
d. Refer to the log box at the bottom of the application. If the message “Successfully saved file: Filepath” your configuration .json file has been successfully saved.
e. If any error messages appear in the log box, refer to **RCTab v.1.2.0 430 Universal RCV Tabulator Operator Log Messages v.1.1.0** documentation and messages in the log box for how to resolve errors. If the error persists, restart RCTab software.

9. Once a configuration is saved, the user is ready to run a tabulation.

a. Click on “Tabulation” at the top of the software window.
b. Click on “Tabulate”
c. Tabulation will begin.
d. If all the above steps were successfully completed, tabulation will run until complete.
e. The Tabulator log box will update with messages as Tabulation proceeds.
f. Once complete, the Tabulator log box will display a message stating “Results written to: [filepath from Output Directory]”

10. Output files will be:

a. .csv contest summary files

   i. Whole-contest summary files
b. .json contest summary files
   i. Whole-contest summary files
c. .log audit files
   i. .log audit files are exported in 50MB sections. If a .log file exceeds 50MB, an additional .log file is started by RCTab

11. Once output files have been generated, users should compare the results to the known test deck outcome prepared for the current election. If the results do not match, the settings entered into RCTab should be confirmed with officials that the configuration settings are in compliance with law and policy set by the user jurisdiction. Users should also confirm the known outcome from the test deck is, in fact, correct, and the voting system used to tabulate the ballots is also working properly. The text deck should be counted by hand BEFORE the actual L&A testing begins on both the user jurisdiction's voting system and RCTab. This includes a headcount of the round-by-round RCV outcomes as well.

12. Users can then navigate to "File" and click "Exit" if all contests are tabulated.

13. Users should produce and record hash codes for results files and configuration files from each successful use of RCTab.
   a. Open the Start Menu
   b. Type in Command Prompt. Press enter to launch the Command Prompt.
   c. Type in certutil -hashfile [filename]
   d. To insert the file name: locate the folder in Windows Explorer, including the files you want to produce hash files for.
   e. Click on the file you want to produce a hash for, and while continuing to hold the mouse down, drag the file to the Command Prompt window and place after -hashfile.
      i. Example: certutil -hashfile C:\Users\user\Desktop\RCV-Results\2021-04-24_20-13-56_summary.csv
   f. Type in SHA512 at the end of the line
      i. Example: certutil -hashfile C:\Users\user\Desktop\RCV-Results\2021-04-24_20-13-56_summary.csv SHA512
   g. Press enter. A hash file will appear in the Command Prompt.
   h. Record this hash file value

14. If any errors arise in the use of RCTab, refer to the relevant documentation for the source of the error. RCTab errors should refer to **RCTab v. 1.2.0 430 Universal RCV Tabulator Operator Log Messages v.1.1.0**. Errors arising out of any hardware or software other than RCTab should refer to the RCTab Maintenance Procedures and any relevant user and maintenance manual.

15. We recommend that the configuration file be set up fully each time the user accesses RCTab. Starting a new configuration file each time will lessen the chances that outdated CVRs or other data is inadvertently introduced into the system.

Using Preloaded Sample CVRs to perform L&A

- As part of the download, RCTab includes three test CVR files along with configuration files and summary results. To test, the user access RCTab and should do the following:
    - Access the sample_input folder. This folder is part of the installation files created on the computer when RCTab was installed.
    - Choose the 2015_Portland_Mayor folder
    - Load the file 2015_portland_mayor_config.json
    - Load the file 2015_portalnd_mayor_cvr.xlsx
    - Validate the configuration file and run the tabulation
    - Compare the results to the summary file 2015_portland_mayor_expected_summary.json contained in the appendix of this document. If results do not match the user should confirm the correct configuration and CVR files were correctly selected and repeat the test. Any irreconcilable issues should be reported to the RCVRC for further examination.

Document Revision History

Date	Version	Description	Author
01/14/2022	1.2.0	Updated Names and edits for clarity	Ryan Kirby
05/14/2021	1.1.0	• Updated to add information regarding creation of L&A test decks in steps 2 & 11 • Added procedures for using sample CVRs to perform L&A	Rosemary F. Blizzard
04/27/2021	1.0.0	L&A Testing Procedures	Rosemary F. Blizzard

2015_portland_mayor_expected_summary.pdf


```
{
 "config" : {
 "contest" : "Portland 2015 Mayoral Race",  "date" :
"2015-11-03",
 "jurisdiction" : "Portland, ME",  "office" :
"Mayor",
 "threshold" : "48"
 },
 "results" : [ {
 "round" : 1,
 "tally" : {
 "Bragdon, Charles E." : "11",  "Brennan, Michael F."
: "6",  "Bryant, Peter G." : "9",
 "Carmona, Ralph C." : "12",
 "Dodge, Richard A." : "10",
 "Duson, Jill C." : "5",
 "Eder, John M." : "3",
 "Haadoow, Hamza A." : "8",
 "Lapchick, Jodie L." : "7",
 "Marshall, David A." : "2",
 "Mavodones, Nicholas M. Jr." : "13",  "Miller, Markos S."
: "3",
 "Rathband, Jed" : "2",
 "Strimling, Ethan K." : "1",  "Undeclared Write-ins"
: "0",  "Vail, Christopher L." : "6"  },
 "tallyResults" : [ {
 "eliminated" : "Undeclared Write-ins",  "transfers" : { }
 }, {
 "eliminated" : "Strimling, Ethan K.",  "transfers" : {
 "Vail, Christopher L." : "1"  }
 } ]
 }, {
 "round" : 2,
 "tally" : {
 "Bragdon, Charles E." : "11",  "Brennan, Michael F."
: "6",  "Bryant, Peter G." : "9",
 "Carmona, Ralph C." : "12",
 "Dodge, Richard A." : "10",
 "Duson, Jill C." : "5",
 "Eder, John M." : "3",
 "Haadoow, Hamza A." : "8",
```

```
 "Lapchick, Jodie L." : "7",
 "Marshall, David A." : "2",
 "Mavodones, Nicholas M. Jr." : "13",  "Miller, Markos S."
: "3",
 "Rathband, Jed" : "2",
 "Vail, Christopher L." : "7"  },
 "tallyResults" : [ {
 "eliminated" : "Rathband, Jed",  "transfers" : {
 "Mavodones, Nicholas M. Jr." : "2"  }
 } ]
 }, {
 "round" : 3,
 "tally" : {
 "Bragdon, Charles E." : "11",  "Brennan, Michael F."
: "6",  "Bryant, Peter G." : "9",
 "Carmona, Ralph C." : "12",  "Dodge, Richard A." :
"10",  "Duson, Jill C." : "5",
 "Eder, John M." : "3",
 "Haadoow, Hamza A." : "8",  "Lapchick, Jodie L." : "7",
"Marshall, David A." : "2",  "Mavodones, Nicholas M. Jr." :
"15",  "Miller, Markos S." : "3",  "Vail, Christopher L." :
"7"  },
 "tallyResults" : [ {
 "eliminated" : "Marshall, David A.",  "transfers" : {
 "Miller, Markos S." : "2"  }
 } ]
 }, {
 "round" : 4,
 "tally" : {
 "Bragdon, Charles E." : "11",  "Brennan, Michael F."
: "6",  "Bryant, Peter G." : "9",
 "Carmona, Ralph C." : "12",  "Dodge, Richard A." :
"10",  "Duson, Jill C." : "5",
 "Eder, John M." : "3",
 "Haadoow, Hamza A." : "8",  "Lapchick, Jodie L." : "7",
"Mavodones, Nicholas M. Jr." : "15",  "Miller, Markos S." :
"5",  "Vail, Christopher L." : "7"  },
 "tallyResults" : [ {
 "eliminated" : "Eder, John M.",  "transfers" : {
 "Duson, Jill C." : "3"
 }
 } ]
 }, {
```

```
 "round" : 5,
 "tally" : {
 "Bragdon, Charles E." : "11",  "Brennan, Michael F."
: "6",  "Bryant, Peter G." : "9",
 "Carmona, Ralph C." : "12",
 "Dodge, Richard A." : "10",  "Duson, Jill C." :
"8",
 "Haadoow, Hamza A." : "8",
 "Lapchick, Jodie L." : "7",  "Mavodones, Nicholas M. Jr."
: "15",  "Miller, Markos S." : "5",
 "Vail, Christopher L." : "7"  },
 "tallyResults" : [ {
 "eliminated" : "Miller, Markos S.",  "transfers" : {
 "Mavodones, Nicholas M. Jr." : "5"  }
 } ]
 }, {
 "round" : 6,
 "tally" : {
 "Bragdon, Charles E." : "11",  "Brennan, Michael F."
: "6",  "Bryant, Peter G." : "9",
 "Carmona, Ralph C." : "12",  "Dodge, Richard A." :
"10",  "Duson, Jill C." : "8",
 "Haadoow, Hamza A." : "8",
 "Lapchick, Jodie L." : "7",  "Mavodones, Nicholas M. Jr."
: "20",  "Vail, Christopher L." : "7"  },
 "tallyResults" : [ {
 "eliminated" : "Brennan, Michael F.",  "transfers" : {
 "Bragdon, Charles E." : "3",  "Bryant, Peter G." :
"2",  "Carmona, Ralph C." : "1"  }
 } ]
 }, {
 "round" : 7,
 "tally" : {
 "Bragdon, Charles E." : "14",  "Bryant, Peter G." :
"11",
 "Carmona, Ralph C." : "13",  "Dodge, Richard A." :
"10",  "Duson, Jill C." : "8",
 "Haadoow, Hamza A." : "8",
 "Lapchick, Jodie L." : "7",  "Mavodones, Nicholas M. Jr."
: "20",  "Vail, Christopher L." : "7"  },
 "tallyResults" : [ {
 "eliminated" : "Vail, Christopher L.",  "transfers" : {
 "Mavodones, Nicholas M. Jr." : "6",  "exhausted" : "1"
```

```
 }
 } ]
 }, {
 "round" : 8,
 "tally" : {
 "Bragdon, Charles E." : "14",  "Bryant, Peter G." :
"11",  "Carmona, Ralph C." : "13",  "Dodge, Richard
A." : "10",  "Duson, Jill C." : "8",
 "Haadoow, Hamza A." : "8",  "Lapchick, Jodie L." : "7",
"Mavodones, Nicholas M. Jr." : "26"  },
 "tallyResults" : [ {
 "eliminated" : "Lapchick, Jodie L.",  "transfers" : {
 "Haadoow, Hamza A." : "1",  "Mavodones, Nicholas M. Jr." :
"6"  }
 } ]
 }, {
 "round" : 9,
 "tally" : {
 "Bragdon, Charles E." : "14",  "Bryant, Peter G." :
"11",  "Carmona, Ralph C." : "13",  "Dodge, Richard
A." : "10",  "Duson, Jill C." : "8",
 "Haadoow, Hamza A." : "9",  "Mavodones, Nicholas M. Jr."
: "32"  },
 "tallyResults" : [ {
 "eliminated" : "Duson, Jill C.",  "transfers" : {
 "Bryant, Peter G." : "1",  "Dodge, Richard A." : "5",
"Mavodones, Nicholas M. Jr." : "2"  }
 } ]
 }, {
 "round" : 10,
 "tally" : {
 "Bragdon, Charles E." : "14",  "Bryant, Peter G." :
"12",  "Carmona, Ralph C." : "13",  "Dodge, Richard A." :
"15",  "Haadoow, Hamza A." : "9",  "Mavodones, Nicholas M.
Jr." : "34"  },
 "tallyResults" : [ {
 "eliminated" : "Haadoow, Hamza A.",  "transfers" : {
 "Carmona, Ralph C." : "2",  "Mavodones, Nicholas M. Jr." :
"7"  }
 } ]
 }, {
 "round" : 11,
 "tally" : {
```

```
 "Bragdon, Charles E." : "14",
 "Bryant, Peter G." : "12",
 "Carmona, Ralph C." : "15",
 "Dodge, Richard A." : "15",
 "Mavodones, Nicholas M. Jr." : "41"  },
 "tallyResults" : [ {
 "eliminated" : "Bryant, Peter G.",  "transfers" : {
 "Bragdon, Charles E." : "9",  "Carmona, Ralph C." :
"2",
 "Mavodones, Nicholas M. Jr." : "1"  }
 } ]
 }, {
 "round" : 12,
 "tally" : {
 "Bragdon, Charles E." : "23",
 "Carmona, Ralph C." : "17",
 "Dodge, Richard A." : "15",
 "Mavodones, Nicholas M. Jr." : "42"  },
 "tallyResults" : [ {
 "eliminated" : "Dodge, Richard A.",  "transfers" : {
 "Bragdon, Charles E." : "1",  "Carmona, Ralph C." :
"11",
 "Mavodones, Nicholas M. Jr." : "3"  }
 } ]
 }, {
 "round" : 13,
 "tally" : {
 "Bragdon, Charles E." : "24",
 "Carmona, Ralph C." : "28",
 "Mavodones, Nicholas M. Jr." : "45"  },
 "tallyResults" : [ {
 "eliminated" : "Bragdon, Charles E.",  "transfers" : {
 "Carmona, Ralph C." : "12",
 "Mavodones, Nicholas M. Jr." : "9",  "exhausted" : "3"
 }
 } ]
 }, {
 "round" : 14,
 "tally" : {
 "Carmona, Ralph C." : "40",
 "Mavodones, Nicholas M. Jr." : "54"  },
 "tallyResults" : [ {
 "elected" : "Mavodones, Nicholas M. Jr.",  "transfers" : { }
```

```
 }  ]
 }  ]
}
```

Appendix 8

Quality Assurance Plan

RCTAB v.1.2.0 13 - Quality Assurance Plan v.1.2.0

Scope:
This document outlines the general Quality Assurance processes and procedures of the RCTAB counting software.

The RCTAB software is designed for use as a round-by-round counting software and installed on COTS equipment after centralization of the cast vote record data. Centralization of data occurs based on the policies, procedures, and laws of the jurisdiction using the counting software. This software is designed specifically for use in ranked-choice voting elections and for the purpose of New York City will be used for counting single-winner contests.

The software is simple to install and utilize with proper training of election officials. From the earliest concept of this product, RCTAB was designed to provide confidence and accuracy in the round-by-round count of any jurisdiction. The software is designed for election official input based on jurisdiction RCV rules. The software can use CVR data from Dominion, ES&S, Hart, and Unisyn voting systems.

Items Covered in the Scope:

- Requirements, design process, and definition of the RCTAB software.
- Determination of the specifications that a COTS device must meet in order to optimize RCTAB installation and operation.
- The process recommendations for centralization of CVR data prior to round-by-round counting.
- Validation and verification of the performance of the RCTAB.
- Validation and verification of the process for installation of RCTAB on COTS hardware along with the necessary steps to secure the system as would be required in a jurisdiction.

Requirements, Design Process, and Definition of RCTAB Software:
Requirements:

The RCTAB is tabulation software that is designed to use voting system data (such as the Cast Vote Record (CVR) from ES&S voting equipment) to run a round-by-round tabulation of a ranked-choice voting contest. The software must be installed on a computer configured according to the specifications listed in our **RCTAB 1.2.0 - 3 - System Hardware Specification v.1.2.0.**

The computer must be a standalone computer that is not connected to an internet connection or a network of any kind. Wireless connection must be disabled if available on the computer. All industry standard security configurations must be set up and any security policies must be followed, included but not limited to: computer hardening and installation of a recommended antivirus software. For additional information, see documentation listed below.

Description of Parts and Materials Necessary for RCTAB Use: (V.2: 2.12.2--Description)

- Trusted build of RCTAB to be acquired from SLI or the NY State Board of Elections.
- COTS computer that is not connected to the internet and is configured according to all specifications laid out in the following documents: **RCTAB 1.2.0 NY-3 System Hardware Specification 1.1.0, RCTAB 1.2.0 NY-16 System Hardening Procedures 1.1.0, RCTAB 1.2.0 12 Configuration Management Plan,** and **RCTAB 1.2.0 NY-7 System Security Specification Requirements 1.1.0.**
- Battery backup is also recommended if the facility does not have a generator. This is not required to run the software.

Ensuring Proper Functionality of the Parts and Materials:

- The parts were chosen in the following manner in accordance with VVSG Volume 2: 2:12.1 as it refers to Volume 1:8.5 and Volume 1:8.6.
    - RCTAB software--the voting tabulation product. (See below for all testing information regarding the product.)
    - COTS hardware was chosen as an industry standard for a Windows machine. All set up should refer to the documentation listed above. RCVRC does not design, manufacture, or resale any hardware.
- Test data storage process has been updated to meet the specifications outlined in the VVSG Volume 1:8.5c

Design Process:

The RCTAB software is developed with the following tools, policies, and practices to ensure robust software quality and reliability. RCTAB testing relates only to the function of the software and performs no parts and materials testing as we produce only software and do not design or manufacture hardware. Testing follows standards laid out in the VVSG Volume 2:2.12.1 with regard to V1:8.5.

The **RCTAB 1.2.0 04 System Functionality Description v.1.2.0** incorporates general functional requirements for the tabulation software system. Requirements for accuracy were taken into account when designing and performing all testing including stress tests. The VVSG 2.0 requirements with regard to accuracy were also utilized when designing and performing stress tests. V2:2.12.1 also refers to V1:8.5, V1:8.6 and V1:8.7 and were followed throughout the process. Regression testing is completed for each design change or addition, whether minor or major. For additional information about testing, refer to **RCTAB 1.2.0, 17 System Test and Verification Specification.**

Design, Testing, and QA Process Responsibilities:

The design process and QA assessments are performed by a joint team that includes the developers from Bright Spots and software team from EARC/RCVRC. Project managers may be used on a contract basis to manage QA responsibilities such as testing.

Documentation of Quality Conformance Procedures:

The RCTAB development team uses a ticketing system to identify bugs as well as design issues. All procedures below reflect this process and are managed through the Resource Center and Bright Spots using GitHub. Refer to the **RCTAB 1.2.0 12 Configuration Management Plan** to understand the process more fully.

QA Processes and Procedures:

1) Version Control Software:
We use Git version control software (git-scm.com) in conjunction with Github (github.com/BrightSpots/rcv) to coordinate the efforts of our developers and maintain a complete record of ALL software code changes to the RCTAB and the reasoning behind them.

2) Software Revision Control Branching Policy:
To isolate code in development from production code (released), we use Git-Flow: a branching policy built on top of Git. The policy coordinates development, testing, review, and deployment of code throughout the development life-cycle. Details can be found here: (www.atlassian.com/git/tutorials/comparing-workflows/gitflow-workflow)

3) Code reviews:
All code changes submitted for incorporation into the RCTAB software must undergo a manual code review from at least one developer other than the original drafter/developer. Other stakeholders and experts are involved with code reviews as needed. Code reviews offer an additional opportunity to identify potential defects, improve code structure, clarity, performance, and robustness. Code merges are blocked until at least one developer explicitly approves the code submission, at which point the code is merged, and regression tests will be run. For code review examples, see: github.com/BrightSpots/rcv/pulls.

4) Regression Tests:
We have developed a suite of 57 Tabulation Regression Tests. We continue to add more tests as new features and bug fixes are added. These tests are designed to verify that new code changes do not inadvertently alter any tabulation results.

Each test has a set of inputs (just like any tabulation): A config file and CVR file(s). Additionally, each test has an expected results file. The automated test will: load the config, run the tabulation, verify that the tabulation output matches the expected results. For actual test data, see: github.com/BrightSpots/rcv/tree/master/src/test/resources/network/brightspots/rcv/test_data.

The names of the tests are mostly self-explanatory. For example, *test_set_1_exhaust_at_overvote* tests whether the tabulator correctly interprets the

overvoteRule = "exhaust immediately" setting. Some of the tests aren't testing specific features but instead are testing a known data set, e.g., *2018_maine_governor_primary*. The complete list is included below.

All regression tests are run by developers and must pass before any new code can be merged into the tabulator. See Appendix A-1 for list of regression tests.

Quality Conformance Inspections and Documentation:
1) System Requirements Testing:
Minimum system requirements were determined by repeated tabulation of elections with 100,000 CVRs, 1,000,000 CVRs, and 6,000,000 CVRs on each target platform. These tests were timed to ensure they complete in a reasonable amount of time successfully.

2) Ad-hoc user testing:
When developing new features, we try to recruit as much user feedback and user testing as possible. These testers are typically from the RCVRC staff, vendor partners, election administrators, and RCV activists.

3) Process for Handling of deficiencies:
Any defects discovered through testing or reported by users are recorded and tracked using Github issue tracking tools. We confirm the existence of the defect, evaluate its severity, and mark it accordingly. Depending on user impact, development resources, and release timelines, we schedule developers to address the defects in order of priority and then do the actual work. Typically, this involves:

1. reproducing the defect
2. making necessary code changes to fix the defect on an isolated git branch
3. requesting a code review and implementing any changes arising from the code review
4. verifying that regression tests pass
5. pushing the code change to the main branch and linking the issue in the commit message
6. closing the issue and linking to the commit in Github issue tracker

In this way, we are able to ensure that all known issues are tracked, and the most important ones are mitigated according to criticality. For more details, see: https://github.com/BrightSpots/rcv/issues.

Testing Documentation:
A timeline of testing that has occurred to date can be located in the **RCTAB 1.2.0 7 System Test and Verification Specification.** We have updated general procedures moving forward to include a test documentation log with specific testing details including:

- Test Date
- Type and description of test performed
- Location test performed
- Individual/individuals who conducted the test
- Test Outcomes

Regression Test Overview:

We have developed a suite of 57 Tabulation Regression Tests and continue to add more tests as new features and bug fixes are added. These tests are designed to verify various aspects of Tabulator functionality behave as expected. They also verify that new code changes do not inadvertently alter Tabulator behavior. The entire test suite must be run, and all tests must pass, before any new code changes can be merged into the main Tabulator repository.

Design Overview:

Each test contains a set of normal tabulation inputs (config file and cvr files) and a known valid "expected" results summary file. The test runs a tabulation with new code, and compares the results of that tabulation to previous, expected, correct results. In essence, we isolate and analyze the effects any new code changes may have on the tabulation output. This is a classic regression test design.

Test Execution Details:

The test suite will run through all tests automatically as follows:

1. Tabulator is built from source code.
2. For each test:

a. Run a tabulation using the test config file and cvr files.
b. Compare tabulation output summary file to reference expected summary file.
c. If the files match exactly (except for timestamps) the test passes.
d. If the files do not match the test fails.
e. Test execution and test results are written to a log file and console.

Testing Procedures:

When new code is ready for submission a developer will follow these procedures to ensure the code is safe for incorporation:

1. Run test suite: in a console, from the rcv root directory, enter: *./gradlew.bat test*
2. Observe the test output. If *any* test fails the source of the failure must be identified and either:
    a. Fixed. Usually, a test failure is caused by a bug in logic or data which can be fixed.
    b. Update the reference test asset. Sometimes bug fixes cause tests to fail because they are now operating correctly. In these cases, test output must be manually verified and peer reviewed (like any code change) before it can be updated.

Example test outputs are included in: TabulatorTests_example_console_output.txt and Test_Results_TabulatorTests.html

For actual test data, including configuration files and expected results, see: github.com/BrightSpots/rcv/tree/master/src/test/resources/network/brightspots/rcv/test_data. To download the data, go to this page: https://github.com/BrightSpots/rcv/tree/v1.2.0. This is the location on GitHub where version 1.2.0 of the RCTAB source code is hosted. Click on “Code” and select “Download ZIP.” Once the ZIP is downloaded, extract it. Navigate to the unzipped folder and navigate to src/test/resources/network/brightspots/rcv/test_data. All test data files will be included in this folder.

Users can also manually run each test. Steps required to run tests manually are as follows:

1. Open RCTAB
2. Click “File”
3. Click “Load”
4. Navigate to the configuration file for the test you wish to run
5. Select the configuration file and load it into the RCTAB
6. Confirm that the configuration file properly loaded into the RCTAB by checking that the relevant fields are filled in
7. Click “Tabulation”
8. Click “Tabulate”
9. Wait for the RCTAB to finish tabulating
10. Navigate to the output location for your results
11. Compare your results .json summary file to the .json summary file included with the test data. If these match exactly, the test passes.

Additional Testing Procedures:

In addition to regression testing of all changes, new features are tested by developers and

RCVRC staff to ensure that they work as expected. If any features did not work as expected, a ticket was filed on GitHub with the test data and an explanation of how the achieved results differed from the expected results.

The RCVRC and Bright Spots also conduct scale tests of the RCTab. Tests include a contest with 100 CVR files composed of 100,000 individual cast vote records each, a contest with 1,000 CVR files composed of 1,000,000 individual cast vote records each, a contest with 6,000 CVR files composed of 6,000,000 individual cast vote records each, and a set of 11 CVRs composed of 9,200,000 individual cast vote records each. Volume tests with these records were conducted throughout March and April 2021.

Additionally, see List of Tests at the end of this document starting at p. 9.

All documentation in this submission is named according to the formula:
[System version] [Document Number-NY] [Document Name] [Document version] System Version: RCTAB 1.2.0
Document version: 1.0.0 (all documents are new with this submission)
Example:
RCTAB 1.2.0 11 Quality Assurance Plan 1.0.0

Product Documentation:
RCTAB provides documentation in order to meet the VVSG standards outlined in Volume 2, Section 2, Description of the Technical Data Package. Refer to this reference list of documentation for more information:

• **RCTAB 1.2.0, 01 System Overview**
• **RCTAB 1.2.0, 02 Software Design and Specifications**
• **RCTAB 1.2.0, 03 System Hardware Specification**
• **RCTAB 1.2.0, 04 System Functionality Description**
• **RCTAB 1.2.0, 07 System Security Specification Requirements**
• **RCTAB 1.2.0, 08 System Operations Procedures**
• **RCTAB 1.2.0, 09 System Maintenance Procedures**
• **RCTAB 1.2.0, 10 Personnel Deployment and Training**
• **RCTAB 1.2.0, 12 Configuration Management Plan**
• **RCTAB 1.2.0, 13 Quality Assurance Plan**
• **RCTAB 1.2.0, 15 System Change Notes**

• **RCTAB 1.2.0, 16 System Hardening Procedures**
• **RCTAB 1.2.0, 17 System Test and Verification Specification**
• **RCTAB 1.2.0, 18 User Guide**

Appendix A:

RCTAB Regression Test Listing:
@DisplayName("NIST XML CDF 2")
@DisplayName("unisyn_xml_cdf_city_tax_collector")
@DisplayName("unisyn_xml_cdf_city_mayor")
@DisplayName("unisyn_xml_cdf_city_council_member")
@DisplayName("unisyn_xml_cdf_city_chief_of_police")
@DisplayName("unisyn_xml_cdf_city_coroner")
@DisplayName("unisyn_xml_cdf_county_sheriff")
@DisplayName("unisyn_xml_cdf_county_coroner")
@DisplayName("Clear Ballot - Kansas Primary")
@DisplayName("Hart - Travis County Officers")
@DisplayName("Hart - Cedar Park School Board")
@DisplayName("Dominion test - Alaska test data")
@DisplayName("Dominion test - Kansas test data")
@DisplayName("Dominion test - Wyoming test data")
@DisplayName("Dominion - No Precinct Data")
@DisplayName("test invalid params in config file")
@DisplayName("test invalid source files")
@DisplayName("2015 Portland Mayor")
@DisplayName("2015 Portland Mayor Candidate Codes")
@DisplayName("2013 Minneapolis Mayor Scale")
@DisplayName("Continue Until Two Candidates Remain")
@DisplayName("Continue Until Two Candidates Remain with Batch Elimination")
@DisplayName("2017 Minneapolis Mayor")
@DisplayName("2013 Minneapolis Mayor")
@DisplayName("2013 Minneapolis Park")
@DisplayName("2018 Maine Governor Democratic Primary")
@DisplayName("testMinneapolisMultiSeatThreshold")
@DisplayName("test for overvotes")
@DisplayName("test excluding candidates in config file")
@DisplayName("test minimum vote threshold setting")
@DisplayName("test skipping to next candidate after overvote") @DisplayName("test Hare quota")
@DisplayName("test sequential multi-seat logic")

@DisplayName("test bottoms-up multi-seat logic")
@DisplayName("test bottoms-up multi-seat with threshold logic") @DisplayName("test allow only one winner per round logic")
@DisplayName("precinct example")
@DisplayName("missing precinct example")
@DisplayName("test tiebreak seed")
@DisplayName("skipped first choice")
@DisplayName("exhaust at overvote rule")
@DisplayName("overvote skips to next rank")
@DisplayName("skipped choice exhausts option")
@DisplayName("skipped choice next option")
@DisplayName("two skipped ranks exhausts option")
@DisplayName("duplicate rank exhausts")
@DisplayName("duplicate rank skips to next option")
@DisplayName("multi-cdf tabulation")
@DisplayName("multi-seat whole number threshold")
@DisplayName("multi-seat fractional number threshold")
@DisplayName("tiebreak using permutation in config")
@DisplayName("tiebreak using generated permutation")
@DisplayName("tiebreak using previousRoundCountsThenRandom")
@DisplayName("treat blank as undeclared write-in")
@DisplayName("undeclared write-in (UWI) cannot win test")
@DisplayName("multi-seat UWI test")
@DisplayName("overvote delimiter test")

Date	Version	Description	Author
05/9/2021	1.1.0	Updates to scope of work, reference documents, and parts and Materials	Kelly Sechrist
05/02/2021	1.0.0	Quality Assurance Plan	Chris Hughes

List of Tests

Name of Test	Name of Test Folder	Description of test	Purpose of Test
RCVRC & Bright Spots name for regression test	Test folder name in: Refer to test_data.zip that includes all test data and was submitted with documentation.	Brief description of test and identification of RCTab functionalities tested by test files.	Unless otherwise noted, each regression test can be used to test control and data input/output, acceptance criteria, processing accuracy, ballot interpretation logic, and production of audit trails and statistical data. Processes for exporting and handling data, under control and data input, should also follow CVR handling procedures in a jurisdiction. Security processes should be tested according to the requirements in 06-NY System Security Specifications. Exception handling tests are directly identified below.
2013 Minneapolis Mayor	2013_minneapolis_mayor	Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files. Test RCTab's ability to properly count real-life RCV elections.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
2013 Minneapolis Mayor Scale	2013_minneapolis_mayor_scale	Tests the ability of RCTab to process a contest with 1,000,000 records. Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files.	Control and data input/output; Processing accuracy; Ballot interpretation logic;

2013 Minneapolis Park	2013_minneapolis_park	Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files. Test the functionality of the "multi-winner allow multiple winners per round" functionality.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
test bottoms-up multi-seat logic	2013_minneapolis_park_bottoms_up	Test the functionality of the bottoms-up winner election mode setting. Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
2017 Minneapolis Park	2017_minneapolis_park	Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files. Test the functionality of the "multi-winner allow multiple winners per round" functionality.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
test Hare quota	2013_minneapolis_park_hare	Test the functionality of the Hare Quota Threshold Calculation Mode setting. Note that while RCTab passes this test the Hare Quota functionality needs to be updated as noted in 500-NY System Enhancements. Test the functionality of the "multi-winner allow multiple winners per round" functionality. Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files.	Control and data input/output; Processing accuracy; Ballot interpretation logic;

test sequential multi-seat logic	2013_minneapolis_park_sequential	Test the functionality of the multi-pass IRV winner election mode setting. Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
2015 Portland Mayor	2015_portland_mayor	Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files. Test ability to process a single-winner RCV contest.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
2015 Portland Mayor Candidate Codes	2015_portland_mayor_codes	Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files; ability to process a single-winner RCV contest; ability to process a CVR using Candidate Codes instead of Candidate Names	Control and data input/output; Processing accuracy; Ballot interpretation logic;
2017 Minneapolis Mayor	2017_minneapolis_mayor	Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files, as well as RCTab's ability to properly count real-life RCV elections.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
2018 Maine Governor Democratic Primary	2018_maine_governor_primary	Test the ability of RCTab to read and process ES&S CVR files and CVR settings usable with ES&S CVR files, as well as RCTab's ability to properly count real-life RCV elections.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
Clear Ballot - Kansas Primary	clear_ballot_kansas_primary	Tests the ability of RCTab to read and process Clear Ballot CVR data	Control and data input/output; Processing accuracy; Ballot interpretation logic;

Continue Until Two Candidates Remain	continue_tabulation_test	Tests the ability of RCTab to properly count a single-winner contest down to two final candidates	Control and data input/output; Processing accuracy; Ballot interpretation logic;
Continue Until Two Candidates Remain with Batch Elimination	continue_until_two_with_batch_elimination_test	Tests the ability of RCTab to count a single-winner contest using both batch elimination and continue until two candidates remain settings simultaneously.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
Dominion test - Alaska test data	dominion_alaska	Tests the ability of RCTab to read and process Dominion CVR data and to run an RCV count on that data.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
Dominion test - Kansas test data	dominion_kansas	Tests the ability of RCTab to read and process Dominion CVR data and to run an RCV count on that data.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
Dominion - No Precinct Data	dominion_no_precinct_data	Tests the ability of RCTab to read and process Dominion CVR data and to run an RCV count on that data.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
Dominion test - Wyoming test data	dominion_wyoming	Tests the ability of RCTab to read and process Dominion CVR data and to run an RCV count on that data.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
test excluding candidates in config file	excluded_test	Test the "Exclude" function in the Candidate settings of RCTab.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
Hart - Cedar Park School Board	hart_cedar_park_school_board	Tests the ability of RCTab to read and process Hart CVR data	Control and data input/output; Processing accuracy; Ballot interpretation logic;

Hart - Travis County Officers	hart_travis_county_officers	Tests the ability of RCTab to read and process Hart CVR data	Control and data input/output; Processing accuracy; Ballot interpretation logic;
test invalid params in config file	invalid_params_test	Tests the ability of RCTab show errors if a configuration file is incomplete or improperly filled out.	Exception handling
test invalid source files	invalid_sources_test	Tests the ability of RCTab to show errors if CVR files are incompatible	Exception handling
test minimum vote threshold setting	minimum_threshold_test	Test the "minimum vote threshold" setting in winner election mode.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
testMinneapolisMultiSeatThreshold	minneapolis_multi_seat_threshold	Test the ability of RCTab to determine winning candidates according to the default Threshold Calculation method in multi-winner elections. Test the functionality of the "multi-winner allow multiple winners per round" functionality.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
missing precinct example	missing_precinct_example	Test the ability of RCTab to continue tabulating if "Precinct Column ID" is supplied but precinct information is missing in part of a CVR file.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
test bottoms-up multi-seat with threshold logic	multi_seat_bottoms_up_with_threshold	Test the functionality of the bottoms-up using percentage threshold winner election mode setting.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
multi-seat UWI test	multi_seat_uwi_test	Undeclared write-ins should not win elections. This test ensures that RCTab properly handles this exception by not awarding a win to an undeclared write-in candidate in	Control and data input/output; Processing accuracy; Ballot interpretation logic;

		a multi-winner contest.	
NIST XML CDF 2	nist_xml_cdf_2	Tests the ability of RCTab to read and process CDF data in XML format	Control and data input/output; Processing accuracy; Ballot interpretation logic;
precinct example	precinct_example	Test the ability of RCTab to detect precinct information based on CVR file data and the ability to produce precinct results using the Tabulate by Precinct functionality. Note that Tabulate by Precinct function produces precinct-level results of the RCV contest but does not identify precinct-level winners. This functionality needs updating to identify in-precinct winners.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
sample interactive tiebreak	sample_interactive_tiebreak	Test the functionality of the interactive tiebreak function available in "Stop counting and ask," or "Previous round counts (then stop counting and ask)" tiebreaking modes. This is not a regression test as it requires user input. It is included in the "sample_input" folder of RCTab installation folder as an additional test of RCTab.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
test skipping to next candidate after overvote	skip_to_next_test	Test the functionality of the "Always skip to next rank" overvote setting.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
skipped first choice	test_set_0_skipped_first_choice	Test the ability of RCTab to properly process CVR data with a skipped first ranking. Test the ability of RCTab to export CVR data	Control and data input/output; Processing accuracy; Ballot interpretation logic;

		in the CDF.	
exhaust at overvote rule	test_set_1_exhaust_at_overvote	Test the functionality of the "Exhaust immediately" overvote setting. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
overvote skips to next rank	test_set_2_overvote_skip_to_next	Test the functionality of the "Always skip to next rank" overvote setting. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
skipped choice exhausts option	test_set_3_skipped_choice_exhaust	Test the functionality of the "how many consecutive skipped ranks are allowed" setting when ballots exhaust after a single skipped ranking. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
skipped choice next option	test_set_4_skipped_choice_next	Test the functionality of the "how many consecutive skipped ranks are allowed" setting when ballots don't exhaust after skipped rankings. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
two skipped ranks exhausts option	test_set_5_two_skipped_choice_exhaust	Test the functionality of the "how many consecutive skipped ranks are allowed" setting when ballots exhaust after multiple skipped rankings. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
duplicate rank exhausts	test_set_6_duplicate_exhaust	Test the functionality of the "Exhaust on multiple ranks for the same candidate" function, if function is turned on - ballots should exhaust when a duplicate ranking is encountered. Test the	Control and data input/output; Processing accuracy; Ballot interpretation logic;

		ability of RCTab to export CVR data in the CDF.	
duplicate rank skips to next option	test_set_7_duplicate_skip_to_next	Test the functionality of the "Exhaust on multiple ranks for the same candidate" function, if function is turned off - RCTab will ignore duplicate candidate rankings. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
multi-cdf tabulation	test_set_8_multi_cdf	Tests the ability of RCTab to read and process multiple CDF data files in XML format. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
test allow only one winner per round logic	test_set_allow_only_one_winner_per_round	Test the functionality of the multi-winner allow only one winner per round logic.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
multi-seat fractional number threshold	test_set_multi_winner_fractional_threshold	Test the functionality of the HB Quota Threshold Calculation Mode setting. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
multi-seat whole number threshold	test_set_multi_winner_whole_threshold	Test the functionality of the default Threshold Calculation Mode setting. Test the ability of RCTab to export CVR data in the CDF.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
overvote delimiter test	test_set_overvote_delimiter	Test the functionality of the "overvote delimeter" setting. Note that this functionality needs an update as described in 500-NY System Enhancements.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
treat blank as undeclared write-in	test_set_treat_blank_as_undeclared_write_in	Test the functionality of the "Treat Blank as Undeclared Write-In"	Control and data input/output; Processing accuracy;

		setting for CVRs.	Ballot interpretation logic;
tiebreak using generated permutation	tiebreak_generate_permutation_test	Test the functionality of the "Generate permutation" tiebreak setting.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
tiebreak using previousRoundCountsThenRandom	tiebreak_previous_round_counts_then_random_test	Test the functionality of the "Previous Round Counts then Random" tiebreak setting.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
test tiebreak seed	tiebreak_seed_test	Test the functionality of the "random seed" setting required for any of the Random Tiebreak modes ("Random" "Previous Round Counts then Random" and "Generate Permutation")	Control and data input/output; Processing accuracy; Ballot interpretation logic;
tiebreak using permutation in config	tiebreak_use_permutation_in_config	Test the functionality of the "Use candidate order in config file" tiebreak setting.	Control and data input/output; Processing accuracy; Ballot interpretation logic;
unisyn_xml_cdf_city_chief_of_police	unisyn_xml_cdf_city_chief_of_police	Tests the ability of RCTab to read and process CDF data in XML format	Control and data input/output; Processing accuracy; Ballot interpretation logic;
unisyn_xml_cdf_city_coroner	unisyn_xml_cdf_city_coroner	Tests the ability of RCTab to read and process CDF data in XML format	Control and data input/output; Processing accuracy; Ballot interpretation logic;
unisyn_xml_cdf_city_council_member	unisyn_xml_cdf_city_council_member	Tests the ability of RCTab to read and process CDF data in XML format	Control and data input/output; Processing accuracy; Ballot interpretation logic;
unisyn_xml_cdf_city_mayor	unisyn_xml_cdf_city_mayor	Tests the ability of RCTab to read and process CDF data in XML format	Control and data input/output; Processing accuracy; Ballot interpretation logic;
unisyn_xml_cdf_city_tax_collector	unisyn_xml_cdf_city_tax_collector	Tests the ability of RCTab to read and process CDF data in XML format	Control and data input/output; Processing accuracy; Ballot interpretation logic;

unisyn_xml_cdf_county_coroner	unisyn_xml_cdf_county_coroner	Tests the ability of RCTab to read and process CDF data in XML format	Control and data input/output; Processing accuracy; Ballot interpretation logic;
unisyn_xml_cdf_county_sheriff	unisyn_xml_cdf_county_sheriff	Tests the ability of RCTab to read and process CDF data in XML format	Control and data input/output; Processing accuracy; Ballot interpretation logic;
undeclared write-in (UWI) cannot win test	uwi_cannot_win_test	Undeclared write-ins (UWIs) cannot win elections in RCTab tabulation. This test ensures that RCTab properly handles this exception by not awarding a win to an undeclared write-in candidate in a single-winner contest.	Control and data input/output; Processing accuracy; Ballot interpretation logic;

★ VIRGINIA ★
STATE BOARD *of* ELECTIONS

Amendments to 1VAC20-100

BOARD WORKING PAPERS
Rachel Lawless
Confidential Policy Advisor

★ VIRGINIA ★
STATE BOARD of ELECTIONS

Memorandum

To: Chairman O'Bannon, Vice Chair Dance, Secretary Alvis-Long, Delegate Merricks, and Mr. Matthew Weinstein

From: Steve Koski, Policy Analyst ELECT and Rachel Lawless, Confidential Policy Advisor

Date: May 30, 2023

Re: Proposed Amendments to 1VAC20-100-10, 1VAC20-100-40, 1VAC20-100-50, 1VAC20-100-70 (Ranked Choice Voting Regulations)

Suggested Motions:

"I move that the Board approve the proposed amendments to regulatory action 1VAC20-100-10."

"I move that the Board approve the proposed amendments to regulatory action 1VAC20-100-40."

"I move that the Board approve the proposed amendments to regulatory action 1VAC20-100-50."

"I move that the Board approve the proposed amendments to regulatory action 1VAC20-100-70."

Applicable Code Sections:

§24.2-103(A) Powers and duties in general; report.

§24.2-673.1 Ranked choice voting.

Background:

§24.2-673.1 of the Code of Virginia became effective on July 1, 2021, providing county and city governing bodies the option to use ranked choice voting as the method of electing their members. §24.2-673.1(D) of the Code allows the State Board of Elections to "promulgate regulations for the proper and efficient administration of elections determined by ranked choice voting," and §24.2-103(A) of the Code states that the State Board of elections "shall make rules and regulations and issue instructions and provide information consistent with the election laws to the electoral boards and registrars to promote the proper administration of election laws." In furtherance of those provisions, the State Board of Elections promulgated ranked choice voting regulations (1VAC20-100-10 through 1VAC20-100-80) in 2021.

In preparation for the first ranked choice voting contest to be held in Virginia (the 2023 June Primary Election for the Arlington County Board of Supervisors), it was determined that amendments to the ranked choice voting regulations were required for consistency with established ranked choice voting practices and the technological capabilities of the voting systems and available ranked choice tabulation software, and to ensure best practices are utilized. To that end, it is recommended that 1VAC20-100-10, 1VAC20-100-40, 1VAC20-100-50, and 1VAC20-100-70 of the Virginia Administrative Code be amended.

Attachments:

- Proposed amendments to 1VAC20-100-10, 1VAC20-100-40, 1VAC20-100-50, and 1VAC20-100-70
- Office of the Attorney General's Letter of Assurance

ELECT Staff Recommendation:

ELECT staff recommends the State Board of Elections approve the proposed amendments to 1VAC20-100-10, 1VAC20-100-40, 1VAC20-100-50, and 1VAC20-100-70.

{Continued on next page}

Agency: The State Board of Elections

Virginia Administrative Code (VAC) citation: 1VAC20-100-10

Regulation Title: Definitions.

Date before State Board of Elections: May 30, 2023

Brief Summary:

The proposed amendments create new definitions and amend existing definitions to the ranked choice voting regulations (1VAC20-100-10 through 1VAC20-100-80). The amendments include a distinction between tabulation on the voting system in the first-choice ranking tabulation round and tabulation on software for the ranked choice voting rounds, clarification of the determination of election thresholds for candidates to win, and the addition and amendment of terms related to ballot treatment in tabulation.

Regulation Text:

1VAC20-100-10. Definitions.

The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Active ballot" means a ballot that counts toward an active candidate in the current round of counting.

"Active candidate" means a candidate or person who has not been defeated during a round-by-round vote count. In a count that lasts multiple rounds, the number of active candidates will decrease with each round.

"Duplicate ranking" means a voter has assigned one candidate multiple rankings.

"Election threshold" means the number of votes sufficient for a candidate to be elected in a multi-winner, single transferable vote contest, *except in the first-choice ranking tabulation round*. The election threshold equals the total *valid* votes ~~counted~~ *cast* for active candidates in the *first* round of tabulation *under 1VAC-20-100-50 C*, divided by the sum of one plus the number of offices to be filled, then adding one, disregarding any fractions. Election threshold = ~~{~~[(Total *valid* votes cast *for active candidates in first round*)/(Seats to be elected+1)~~}~~]+1, with any fraction disregarded.

"Highest-ranked active candidate" means the active candidate assigned to a higher ranking than any other active candidates.

"Inactive ballot " means a ballot that can no longer be counted due to the ballot having no rankings *remaining* for active candidates ~~in the round~~.

"First-choice ranking tabulation round" means the stage of tabulation of first-choice rankings completed at each precinct on the voting system under 1VAC20-100-50 A.

"Instant runoff voting" means no more than one seat in the office must be filled by the election.

"Maximum possible threshold" means the number of first-choice rankings from active ballots received in the first-choice ranking tabulation round sufficient for a candidate to be elected. The maximum possible threshold equals the total ballots cast for the office, including valid first-choice rankings, undervotes, skipped rankings, or overvotes for the office, divided by the sum of one plus the number of offices to be filled, then adding one, disregarding any fractions. Maximum possible threshold = [(Total ballots cast for the office)/(Seats to be elected + 1)] + 1, with any fraction disregarded.

"Ranked choice overvote" means a voter assigned more than one candidate the same ranking.

"Ranked choice undervote" means a voter has left a ranking unassigned.

"Ranked choice voting" means a method of casting and tabulating votes in which (i) voters rank candidates in order of preference, (ii) *tabulation of first-choice rankings and votes cast at other rankings is conducted, (iii) if the number of candidates elected after first-choice ranking tabulation is less than the number of offices to be filled,* tabulation proceeds in rounds such that in each round either a candidate or candidates are elected or the last-place candidate is defeated, ~~(iii)~~ *(iv)* votes for voters' next-ranked candidates are transferred from elected or defeated candidates, and ~~(iv)~~ *(v)* tabulation ends when the number of candidates elected equals the number of offices to be filled. Ranked choice voting is known as "instant runoff voting" when electing a single office and "single transferable vote" when electing multiple offices.

"Ranking" means the ordinal number assigned on a ballot to a candidate to express the voter's preference for that candidate. Ranking number one is the highest ranking, ranking number two is the next-highest ranking, and so on, consecutively, up to the number of candidates indicated on the ballot.

"Round" means a stage of the vote tabulation *under 1VAC20-100-50 B or C* in which a person may be elected or the last ranked person ~~is~~ defeated.

"Single transferable vote" means more than one seat in the office must be filled by the election.

"Skipped ranking" means ~~a voter has left a ranking unassigned but ranks a candidate at a subsequent ranking~~ *an undervote, on a ballot where a voter validly ranks a candidate at a subsequent ranking, treated as set forth in 1VAC20-100-40 B.*

"Surplus fraction" is a number equal to the quotient of the difference between an elected candidate's vote total and the election threshold, divided by the candidate's vote total, (or (V-T)/V, in which "V" is the elected candidate's vote total and "T" is the election threshold), truncated after four decimal places.

"Surplus vote" means the number of votes a candidate receives beyond the election threshold set for a *single* transferable vote race.

"Tabulation" means the counting and, where necessary, transferring of votes cast in a ranked choice voting election that occurs in two stages:

(i) Determination by voting system in the first-choice ranking tabulation round of first-choice ranking votes cast for each candidate and the creation of a record of votes cast at all ranking choices for each ballot cast.

(ii) Determination in a round, using the record of votes cast created by the voting system in the first-choice ranking tabulation round, of the votes to be transferred from eliminated candidates to active candidates, of the vote totals for active candidates after vote transfers, and of whether a candidate has received the number of votes sufficient to be elected.

"Transfer value" means the proportion of a vote that a ballot will contribute to its highest-ranked active candidate. Each ballot begins with a transfer value of one. If a ballot contributes to the election of a candidate under 1VAC20-100-50 ~~B~~*C*, it receives a new transfer value.

Agency: The State Board of Elections

Virginia Administrative Code (VAC) citation: 1VAC20-100-40

Regulation Title: Ballot treatment.

Date before State Board of Elections: May 30, 2023

Brief Summary:

The proposed amendments to 1VAC20-100-40 clarify the treatment of ballots during tabulation in the case of ranked choice overvotes and skipped rankings to account for differences between the first-choice ranking tabulation round and the ranked choice voting tabulation rounds.

Regulation Text:

1VAC20-100-40. Ballot treatment.

As prescribed by § 24.2-673.1 of the Code of Virginia, ballots shall be tabulated in the following manner:

~~1.~~*A.* Ranked choice overvote.

~~a.~~*1.* ~~A ballot with a ranked choice overvote shall be counted in the initial round if voter intent can be determined. The ballot~~ *In the case of a ranked choice overvote for a ranking on a ballot, the ranking* shall not be counted in any round ~~in which the ballot has a ranked choice overvote~~ *and the next valid ranking shall be counted in all rounds except the first-choice ranking tabulation*.

~~b.~~*2.* ~~A ballot with a~~ *In the case of a* duplicate ranking *for an active candidate, only the voter's highest ranking for the candidate* shall be counted ~~unless the voter's choice was defeated in a previous round~~. *Valid rankings after a duplicate ranking shall be counted.*

~~2.~~ *B.* Skipped ranking.

~~a.~~*1.* In the event of a ballot with a skipped ranking, the next valid ranking shall be counted, *except in the first-choice ranking tabulation round*.

~~b.~~*2.* In the event the ballot reaches two consecutive skipped rankings, the ballot will be considered an inactive ballot.

~~3.~~*C.* Tie breaking.

~~a.~~*1.* In the event two persons have an equal number of votes for a seat and a higher number than any other person in the last round of an election conducted by ranked choice voting, the candidate or person to be elected shall be determined by lot as prescribed by § 24.2-674 of the Code of Virginia.

~~b.~~*2.* In the event two or more persons have an equal number of votes for a seat and the fewest number of votes in a round of an election conducted by ranked choice voting, tabulation cannot be continued until one of the persons is defeated. The person to continue as an active candidate shall be determined by lot as prescribed by § 24.2-674 of the Code of Virginia.

Agency: The State Board of Elections

Virginia Administrative Code (VAC) citation: 1VAC20-100-50

Regulation Title: Ranked choice voting tabulation.

Date before State Board of Elections: May 30, 2023

Brief Summary:

The amendments to 1VAC20-100-50 amend the tabulation process to conform to the established processes for ranked choice voting, particularly in relation to the voting systems and ranked choice voting tabulation software. The amendments include creation of a first-choice ranking tabulation round where only first-choice rankings are tabulated and a candidate has an opportunity to win based upon first-choice rankings by reaching the "maximum possible threshold" without proceeding to the ranked choice voting tabulation rounds. The maximum possible threshold is created for the first-choice ranking tabulation round to ensure that ballots without valid first-choice rankings, but valid subsequent rankings, will be included in the threshold to win. The amendments also provide that software may be used for tabulation of the ranked choice voting rounds, subject to approval by the Department of Elections.

Regulation Text:

1VAC20-100-50. Ranked choice voting tabulation.

A. First-choice ranking tabulation round. For all elections for an office conducted by ranked choice voting, only first-choice rankings shall be counted in the first-choice ranking tabulation round. If any candidate has a vote total greater than or equal to the maximum possible threshold, that person shall be designated as elected. If the number of candidates whose vote total is equal to or greater than the maximum possible threshold is equal to the number of seats to be filled, those candidates are declared elected and tabulation in additional rounds shall not be conducted. If the number of candidates whose vote total is equal to or greater than the maximum possible threshold is less than the number of seats to be filled, tabulation shall proceed as set forth in subsections B and C.

~~A.~~*B.* Instant runoff voting *round*. For any election for one office conducted by ranked choice voting, each *active* ballot shall count as one vote *in each round* for the highest-ranked active candidate on that ballot. Tabulation shall proceed in rounds with each round proceeding sequentially as follows:

1. If any active candidate has a majority of votes from active ballots in a round of tabulation, that person shall be designated as elected and the tabulation is complete.

~~1.~~*2.* If two or fewer active candidates remain, the candidate with the greatest number of votes is elected and tabulation is complete.

~~2.~~*3.* If more than two active candidates remain *and no candidate has a majority of votes on active ballots in a round of tabulation*, the active candidate with the fewest votes is defeated, votes for the defeated candidate are transferred to each ballot's ~~next-ranked~~ *highest-ranked* active candidate, and a new round begins with subdivision 1 of this subsection.

~~B.~~*C.* Single transferable vote *round*. For any election for more than one office conducted by ranked choice voting, each *active* ballot shall count, at its current transfer value, for the highest-ranked active candidate on that ballot. Tabulation shall proceed in rounds. Each round proceeds sequentially, until tabulation is complete, as follows:

1. If the sum of the number of elected persons and the number of active candidates is less than or equal to the number of office seats to be filled, then all active candidates are designated as elected, and tabulation is complete. Otherwise, the tabulation proceeds pursuant to subdivision 2 of this subsection.

2. If any active candidate has a number of votes greater than or equal to the election threshold for the contest, that person shall be designated as elected. Each ballot counting for an elected person is assigned a new transfer value by multiplying the ballot's current transfer value by the surplus fraction for the elected person, truncated after the fourth decimal place. The transfer value of each ballot cast for an elected candidate must be transferred to the highest-ranked active candidate on that ballot. Each person elected under this subdivision is deemed to have a number of votes equal to the election threshold for the contest in all future rounds and a new round begins pursuant to subdivision 1 of this subsection.

3. If no candidate or person is elected pursuant to subdivision 2 of this subsection, the candidate with the fewest votes is defeated and votes for the defeated candidate~~s~~ shall be transferred at their current transfer value to each ballot's next-ranked active candidate and a new round begins pursuant to subdivision 1 of this subsection.

~~C.~~*D.* Surplus transfer. If in a round of counting conducted under subsection ~~B~~*C* of this section, two or more active candidates have a number of surplus votes greater than the election threshold for the contest, the surpluses shall be distributed in rounds in which the largest surplus is distributed first, with any ties resolved by lot as required by § 24.2-674 of the Code of Virginia.

E. Tools, including software, used for tabulation in subsections B and C must be approved for use by the Department of Elections.

Agency: The State Board of Elections

Virginia Administrative Code (VAC) citation: 1VAC20-100-70

Regulation Title: Election results.

Date before State Board of Elections: May 30, 2023

Brief Summary:

The amendments to 1VAC20-100-70 provide greater detail about the reporting of results and preservation of records related to ranked choice voting elections. The amendments require reporting of first-choice ranking tabulation results by precinct, reporting of ranked choice voting round results, and the retaining of a record of votes cast for public inspection and copying. Further, the amendments require the Department of Elections to develop guidance for compliance with the reporting requirements.

Regulation Text:

1VAC20-100-70. Election results.

A. ~~Results for all rounds~~ *The following information* must be publicly posted on the Department of Elections website at https://www.elections.virginia.gov~~.~~*:*

1. First-choice ranking tabulation round vote results, reported by precinct; and

2. Results for each round completed under 1VAC20-100-50 B and C, including final results.

B. A record of votes cast at all rankings, as tabulated in the first-choice ranking tabulation round, shall be created and retained for public inspection and copying.

C. The Department of Elections shall develop guidance for compliance with this section consistent with other requirements in the Code of Virginia.

COMMONWEALTH *of* VIRGINIA

Office of the Attorney General

Jason S. Miyares
Attorney General

202 North 9th Street
Richmond, Virginia 23219
804-786-2071
FAX 804-786-1991
Virginia Relay Services
800-828-1120

TO: John O'Bannon, Chairman
State Board of Elections

Susan Beals, Commissioner
Department of Elections

FROM: Travis Andrews TAndrews
Assistant Attorney General

Date: May 10, 2023

Subject: Letter of Assurance for Proposed Amendments to Regulations 1VAC20-100-10, 1VAC20-100-40, 1VAC20-100-50, and 1VAC20-100-70

I have reviewed the proposed amendments to regulations 1VAC20-100-10, 1VAC20-100-40, 1VAC20-100-50, and 1VAC20-100-70, regarding the conduct of ranked choice voting. In my view as counsel to the State Board of Elections, the Board has the authority to promulgate these regulations pursuant to Virginia Code § 24.2-103 and Virginia Code § 24.2-673.1. The proposed amendments do not appear to conflict with the Constitution of the United States or the Constitution of the Commonwealth of Virginia, or any federal or state law currently in effect. This regulatory action is exempt from the Administrative Process Act pursuant to Virginia Code § 2.2-4002(B)(8) because it relates to the conduct of elections.

This memorandum addresses legal matters only and is not intended to serve, nor should it be construed, as a comment for or against the merits of the proposed amendments.

Ranked Choice Voting



SBE Meeting Presentation

May 30, 2023

Overview

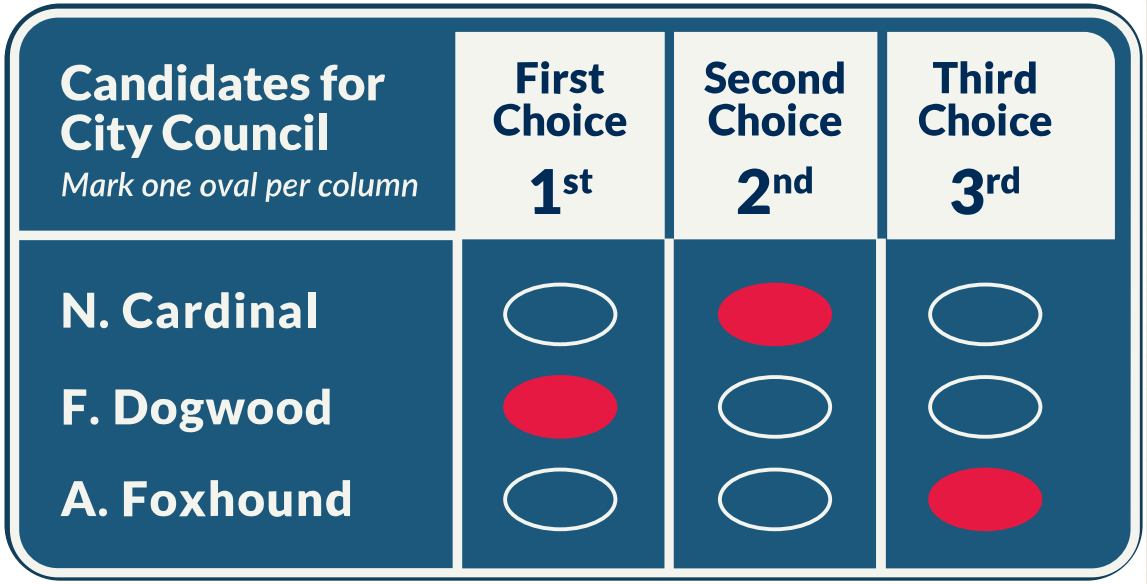
- Background on RCV in Virginia
- General overview of RCV process
- SBE RCV regulations
- Tabulation software and security
- Voter education

Background

- Chapter 1054 of the 2020 Governor's Acts of Assembly
  - *Effective July 1, 2021*
- Local governing body elections
- SBE approved regulations in September of 2021
- Arlington County first locality to adopt in December of 2022 for 2023 Primary Election

RCV Voting Process (How does it work?)

- Voters rank candidates in order of preference
- Candidates with fewest top choices are eliminated
- Second & third choices are transferred in rounds until winner(s) declared

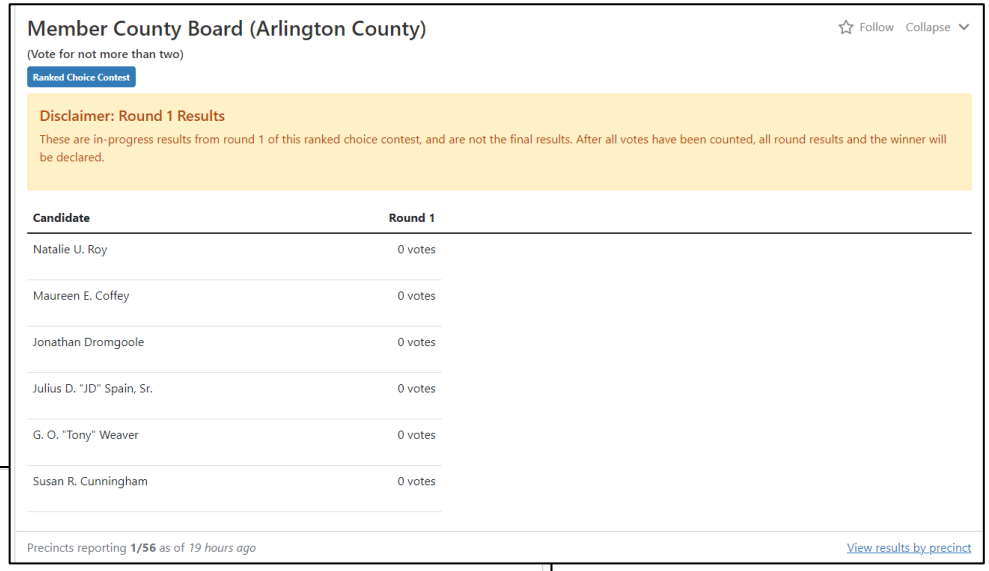


RCV Tabulation

- Ballots scanned at polling locations on voting systems
- Cast vote record produced by each voting system
- RCV rounds centrally tabulated by software at canvass

RCV Results

- First choice totals reported on Election Night
- Additional rounds will occur after all ballots have been received



Member County Board (Arlington County)

Follow Collapse

(Vote for not more than two)

Ranked Choice Contest

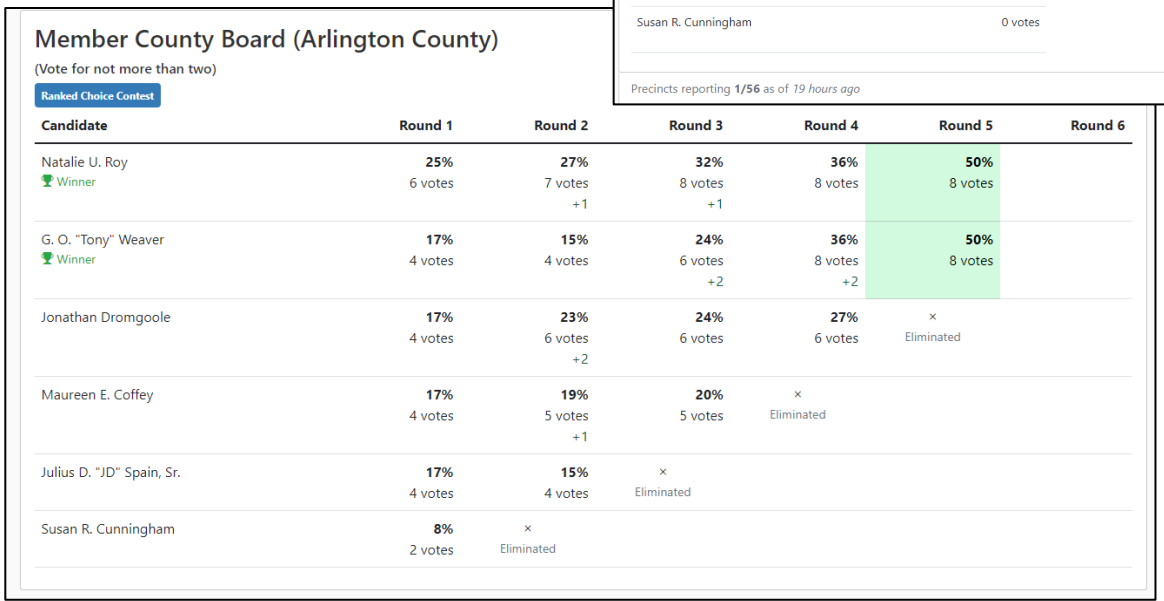
Disclaimer: Round 1 Results

These are in-progress results from round 1 of this ranked choice contest, and are not the final results. After all votes have been counted, all round results and the winner will be declared.

Candidate	Round 1
Natalie U. Roy	0 votes
Maureen E. Coffey	0 votes
Jonathan Dromgoole	0 votes
Julius D. "JD" Spain, Sr.	0 votes
G. O. "Tony" Weaver	0 votes
Susan R. Cunningham	0 votes

Precincts reporting **1/56** as of *19 hours ago*

View results by precinct



Member County Board (Arlington County)

(Vote for not more than two)

Ranked Choice Contest

Candidate	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6
Natalie U. Roy Winner	**25%** 6 votes	**27%** 7 votes +1	**32%** 8 votes +1	**36%** 8 votes	**50%** 8 votes	
G. O. "Tony" Weaver Winner	**17%** 4 votes	**15%** 4 votes	**24%** 6 votes +2	**36%** 8 votes +2	**50%** 8 votes	
Jonathan Dromgoole	**17%** 4 votes	**23%** 6 votes +2	**24%** 6 votes	**27%** 6 votes	× Eliminated	
Maureen E. Coffey	**17%** 4 votes	**19%** 5 votes +1	**20%** 5 votes	× Eliminated		
Julius D. "JD" Spain, Sr.	**17%** 4 votes	**15%** 4 votes	× Eliminated			
Susan R. Cunningham	**8%** 2 votes	× Eliminated				

- May take up to seven days to announce winner(s)

Tabulation Software and Security

RCTab- Research and Procurement

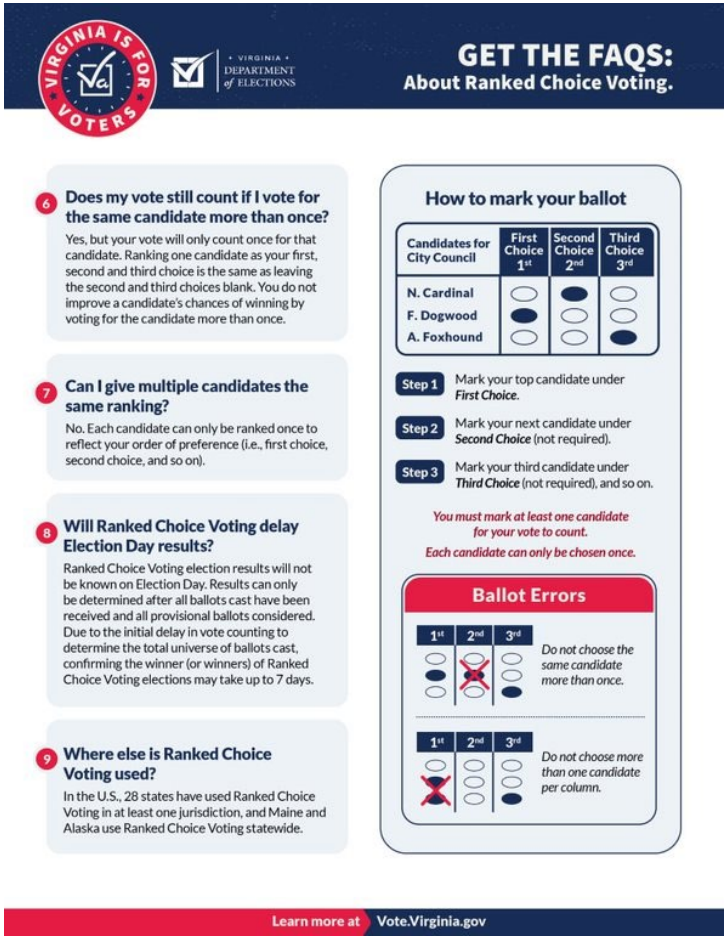
- Created by the Ranked Choice Voting Resource Center (RCVRC)
- Federally tested, meets VVSG Standards set by the EAC

RCTab- Testing and Validation

- State review of RCVRC and EAC security documentation
- State and local testing of RCTab
- Procedures developed to ensure chain of custody, non-connectivity, and pre-election validation by localities

Voter Education

- Mandated by code for both state and local
- Arlington County outreach coordination
- Available for other localities to use in the future



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STATE BOARD *of* ELECTIONS

Handcounting Standards

BOARD WORKING PAPERS
Rachel Lawless
Confidential Policy Advisor

★ VIRGINIA ★
STATE BOARD of ELECTIONS

Memorandum

To: Chairman O'Bannon, Vice Chair Dance, Secretary Alvis-Long, Delegate Merricks, and Mr. Matthew Weinstein

From: Rachel Lawless, Confidential Policy Advisor and Steve Koski, Policy Analyst

Date: May 30, 2023

Re: Proposed Revisions to *Virginia's Guide to Hand-Counting Ballots*

Suggested Motion:

"I move that the Board adopt, and make effective immediately, revisions to *Virginia's Guide to Hand-Counting Ballots*."

Applicable Code Sections:

§ 24.2-103(A) Powers and duties in general; report.

§ 24.2-673.1 Ranked choice voting.

Attachments:

Revised *Virginia's Guide to Hand-Counting Ballots*

Background:

§24.2-103(A) of the Code of Virginia states that the State Board of Elections "shall make rules and regulations and issue instructions and provide information consistent with the election laws to the electoral boards and registrars to promote the proper administration of election laws." To provide instructions and guidance for the process of manually counting votes, the State Board approved *Virginia's Guide to Hand-Counting Ballots* (hand-counting standards).

Due to the adoption and planned use of ranked choice voting in Virginia, revisions to the hand-counting standards are proposed to provide clarity on ballot treatment scenarios that arise in ranked choice elections. Like in traditional elections, the use of hand-counting will be used primarily in the event of a recount or when counting certain absentee ballots. The hand-counting standards are unchanged aside from the added language related to ranked choice voting.

ELECT Staff Recommendation:

ELECT staff recommends the State Board of Elections approve the revised *Virginia's Guide to Hand-Counting Ballots.*

VIRGINIA'S GUIDE TO
HAND-COUNTING BALLOTS

Can this vote count?

A complete guide to hand-counting printed ballots for elections and recounts

★VIRGINIA★
STATE BOARD *of* ELECTIONS

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Page 7

2 – More than 1 candidate marked
Page 7

3 – Strikethroughs
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4 – Marks outside the oval
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5 – Circle-like marks
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6 – Written words
Page 15

7 – Write-in votes
Page 17

8 – Ranked choice votes
Page 21

Introduction

What is hand-counting?

Hand-counting ballots is the process by which ballots are manually counted rather than read by the voting machine. The majority of ballots for an election will not be hand-counted. Hand-counting ballots should be considered only when the ballot cannot be read by the voting machine.

The purpose of these instructions is to assist you while manually counting ballots. Throughout these instructions you will see examples that discuss how to read a ballot and determine if a vote should be counted.

How to use these guidelines

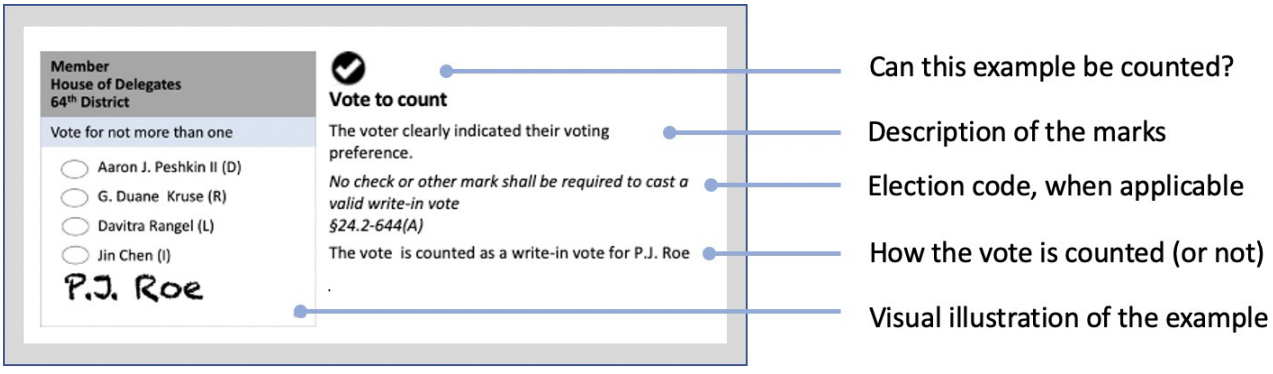
Use these guidelines when you are looking for an indication that a voter affirmatively chose a candidate or a write-in for their vote. Many times this will be obvious and other times it may not be as clear.

These guidelines are the rules and principles that must be applied to every manually counted ballot.

When a voter's choice is not clear, these instructions can help you make a determination about the vote.

What's in this guide?

The instructions include illustrated scenarios of votes to count and votes not to count. When a rule in the Virginia election code applies to an example, it is included with a citation.



What to do if…

What if the ballot I am reading is not shown in the examples?

Sometimes the vote you are looking at will not be exemplified in these instructions. Use the principles provided in these instructions to determine if and how a vote should be counted.

What if my team cannot determine who the voter voted for?

In a recount if the teams cannot agree on how to process the ballot, the vote must be challenged and adjudicated by the court.

For other ballots being manually counted, speak with your general registrar.

What if the hand count is for a ranked choice voting election?

Since ballots in ranked choice voting elections require marking ranking selections in a comparable manner to marking candidate selections in traditional elections, the provisions of this guide generally apply to ranked choice voting elections in determining voter intent. See Section 8 for guidance regarding ranked choice voting ballots and example scenarios specific to that method of voting. In the event of a conflict between Section 8 and the remainder of the guide in relation to ranked choice voting, Section 8 shall control.

Abbreviations and symbols

	A vote that can be counted
	A vote that cannot be counted

1. Extra Marks

A voter might accidentally make extra pen marks or smudges on their ballot.

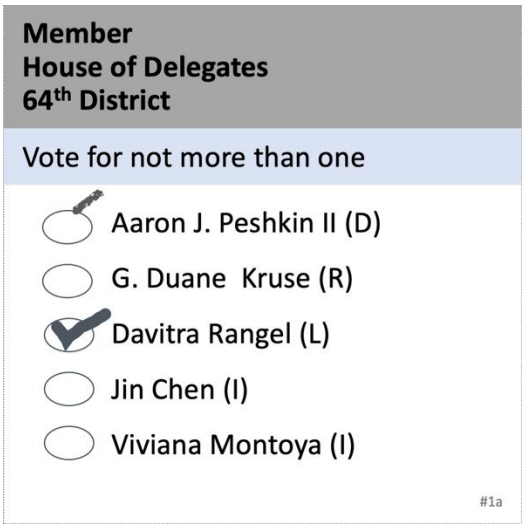
Follow the rule in the elections code

- Any ballot marked so that the intent of the voter is clear shall be counted. (Va. Code §24.2-644)

How to determine voter intent if a ballot contains extra marks

- Count the vote for the mark that stands out and is clearly associated with a candidate.

Vote marking scenarios

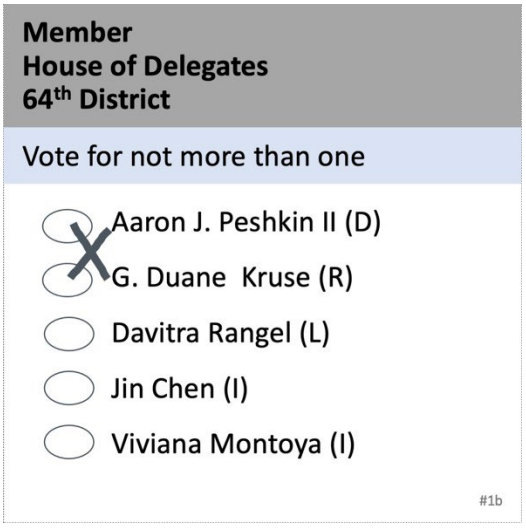


Vote to count

This example contains two marks, but one stands out because it is bold and complete.

This vote is counted for Davitra Rangel.

Vote marking scenarios: Marks between candidates

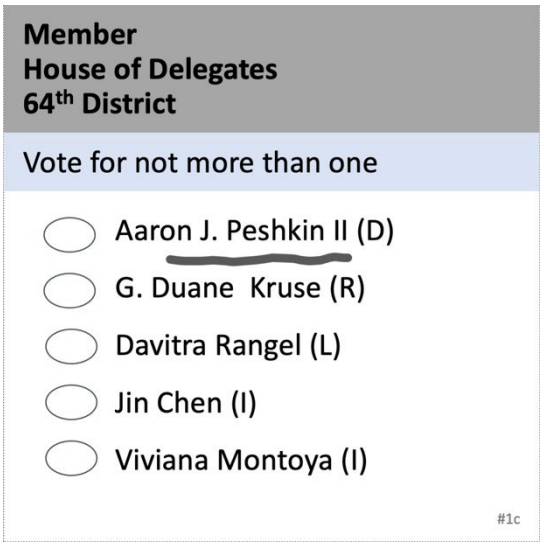


Vote not to count

The voter marked between two candidate names.

In this instance, the voter did not clearly indicate their choice.

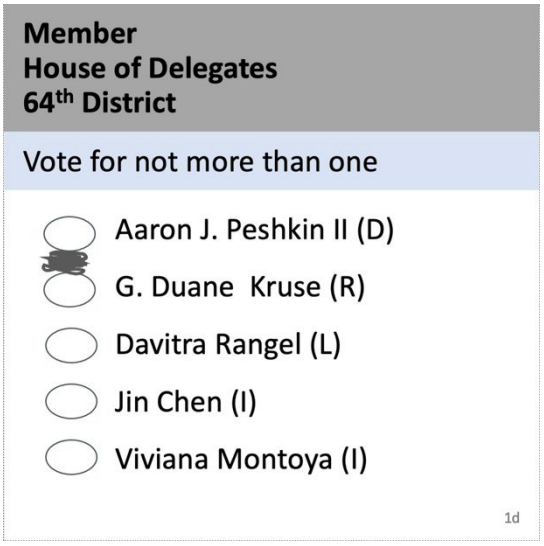
This vote cannot be counted.



Vote not to count

The mark is between two names and gives no clear indication of the voter's choice.

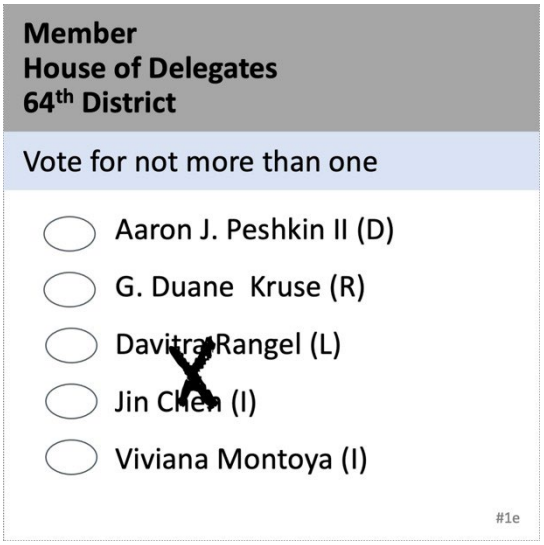
This vote cannot be counted.



Vote not to count

It is not clear who the voter prefers because the mark is in between two candidates.

This vote cannot be counted.



Vote not to count

The mark is between—and touches—two names and gives no clear indication of the voter's choice.

This vote cannot be counted.

2. More than one candidate marked

You may encounter a ballot that contains more than one mark for a vote-for-one contest.

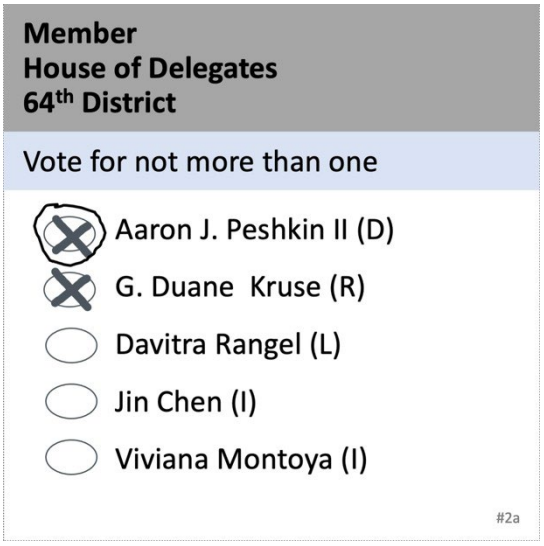
Follow the rules in the elections code

- Any ballot marked so that the intent of the voter is clear shall be counted. (Va. Code §24.2-644).
- If a ballot for an office contains a greater number of votes than permitted, no vote for the office can be counted (Va. Code §24.2-663).
- In a recount, voting for more candidates than permitted is considered an overvote and the vote cannot be counted (Va. Code §24.2-802.2).

How to determine voter intent if a ballot contains more than 1 mark for a race

- Count the vote for the mark that stands out and is clearly associated with a candidate.

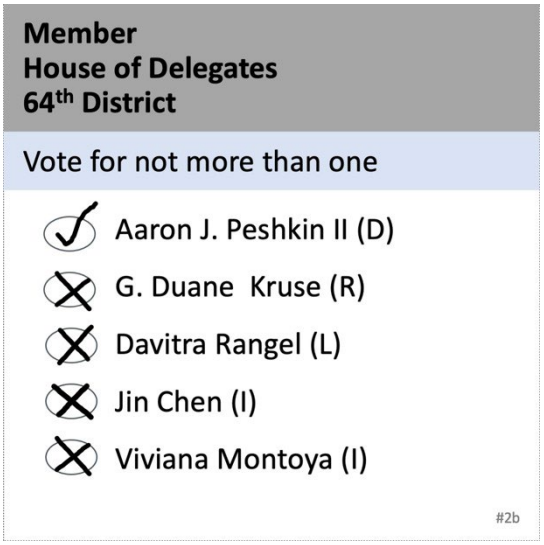
Vote marking scenarios



Vote to count

This example contains two marks, but one stands out because the box contains an x and is circled.

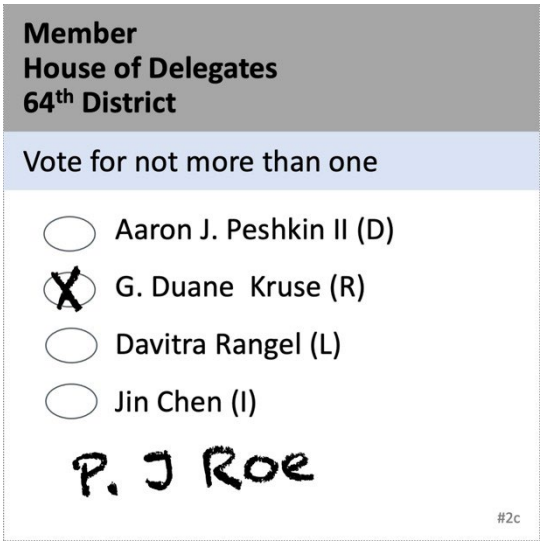
The vote is counted for Aaron J. Peshkin II.



Vote not to count

The voter marked each candidate on the ballot. One candidate was marked with a check while the others are marked with an "X". Each mark has the same weight for choice and there is no clear indication of voter intent.

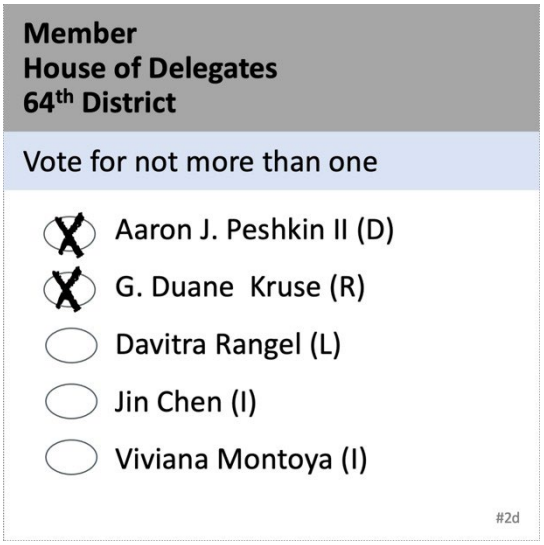
The voter marked each candidate which is an overvote; thus, the vote cannot be counted.



Vote not to count

The voter marked a candidate and wrote the name of a write-in candidate. Both are a vote for a candidate.

This vote cannot be counted.



Vote not to count

The voter marked two candidates, when only one is allowed. It is not clear who the voter prefers because both marks are the same. No mark stands out for a particular candidate. This vote cannot be counted.

3. Strikethroughs

Some voters draw lines (also called strikethroughs) across candidate names instead of marking in the oval or box.

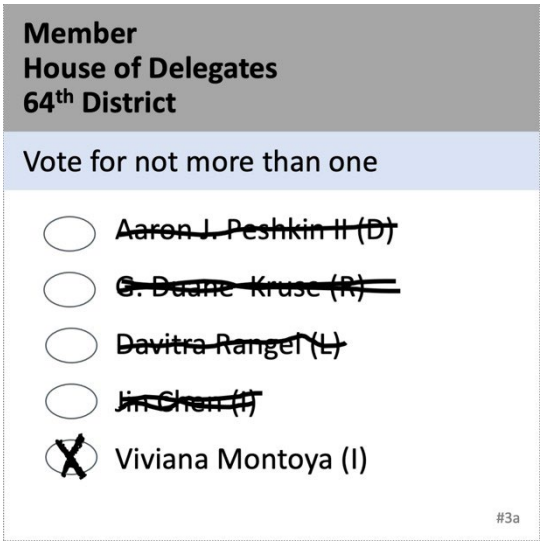
Follow the rule in the elections code

- Any ballot marked so that the intent of the voter is clear shall be counted. (Va. Code §24.2-644)

How to determine voter intent if a ballot contains strikethroughs

- Strikethroughs mean a voter does not favor a candidate. They don't provide information about voter intent. Often, these votes cannot be counted.

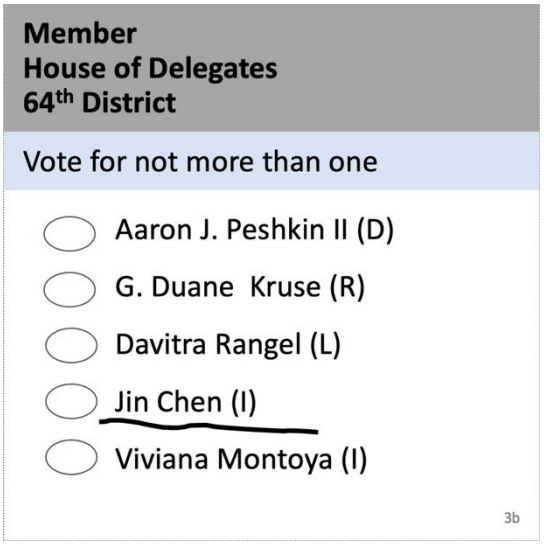
Vote marking scenarios



Vote to count

This voter checked the oval for one candidate and marked out the others.

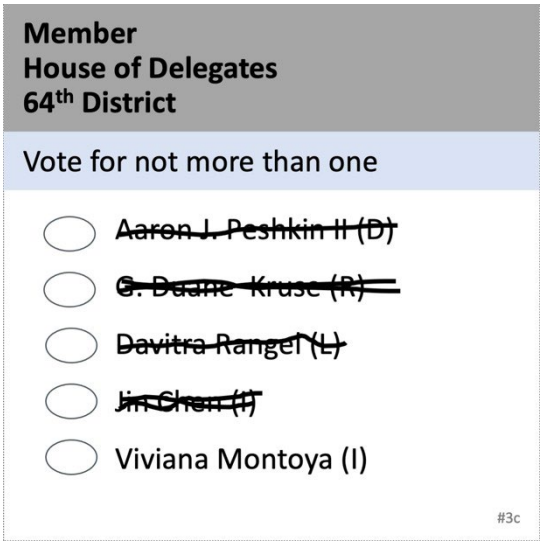
The vote is counted for Viviana Montoya.



Vote not to count

The voter marked a line in between two names and there is no clear indication of the voter's choice.

This vote cannot be counted.



Vote not to count

In this example, 4 candidates are struck out. There is no clear mark that indicates who the voter prefers.

This vote cannot be counted.

4. Mark outside the oval

A voter's mark for a candidate may fall outside the oval or box.

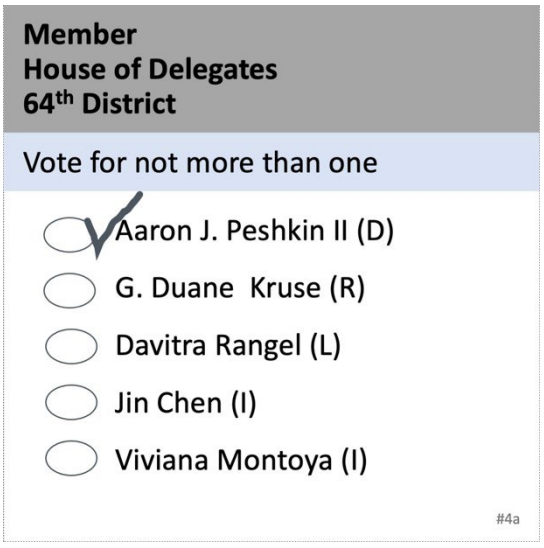
Follow the rule in the elections code

- Any ballot marked so that the intent of the voter is clear shall be counted. (Va. Code §24.2-644)

How to determine voter intent if a ballot contains marks outside the oval

- Consider whether the mark indicates a preference for a candidate. If the mark is unclear, the vote cannot be counted.

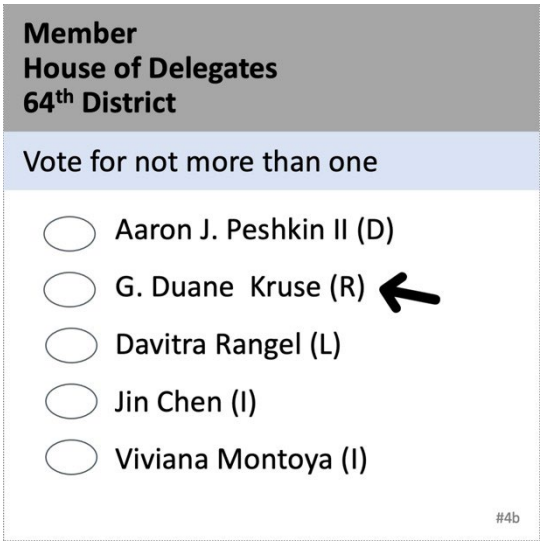
Vote marking scenarios



Vote to count

In this example, it is clear that the checkmark aligns with a candidate.

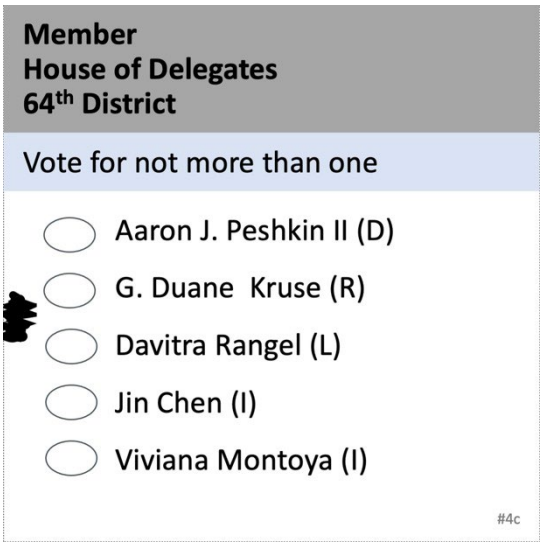
The vote is counted for Aaron J. Peshkin II.



Vote to count

In this example, the arrow clearly points to a candidate.

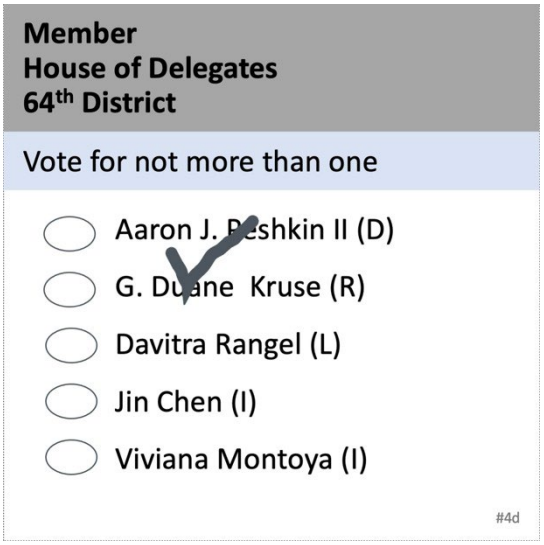
The vote is counted for G. Duana Kruse.



Vote not to count

This mark outside of the oval is not clearly associated with any candidate.

This vote cannot be counted.



Vote not to count

This mark is not clearly associated with a single candidate.

This vote cannot be counted.

5. Circle-like marks

You may encounter a ballot on which a voter has circled a candidate name, rather than filling in an oval or box to specify their vote.

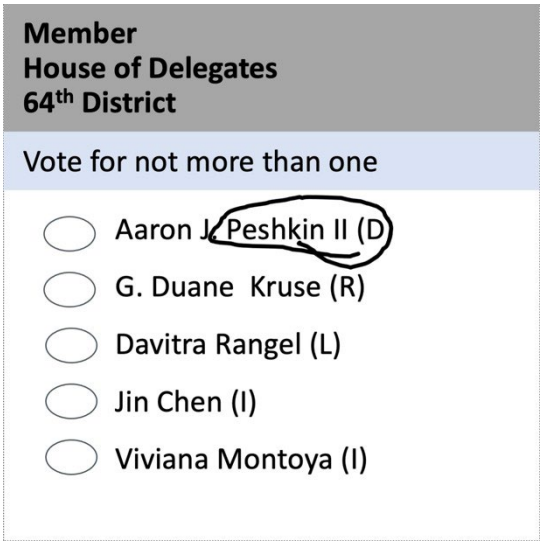
Follow the rule in the elections code

- Any ballot marked so that the intent of the voter is clear shall be counted (Va. Code §24.2-644).

How to determine voter intent if a ballot contains circle-like marks

- Consider whether the mark indicates a preference for a candidate. If it is unclear, the vote cannot be counted.

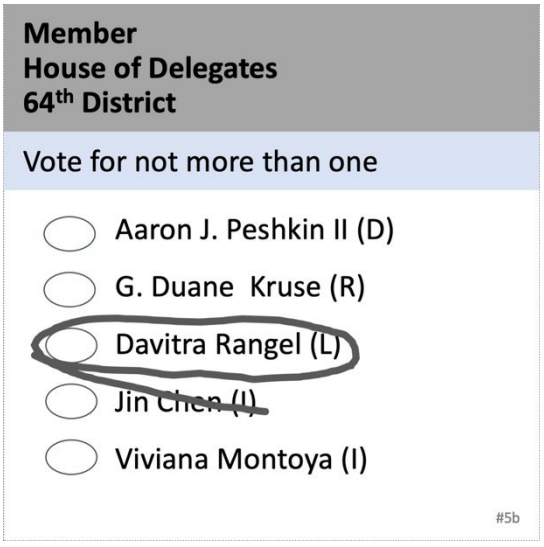
Vote marking scenarios



Vote to count

In this example, the circle corresponds to a specific candidate.

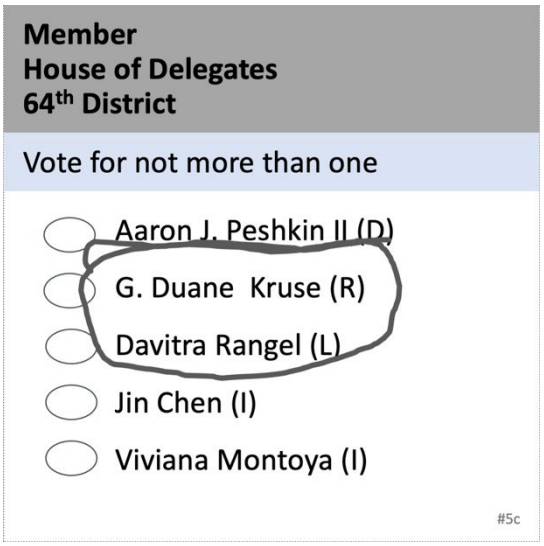
The vote is counted for Aaron J. Peshkin II.



Vote to count

In this example, the circle line touches more than one candidate. The center of the circle closes on one candidate.

The vote can be counted for Davitra Rangel.



Vote not to count

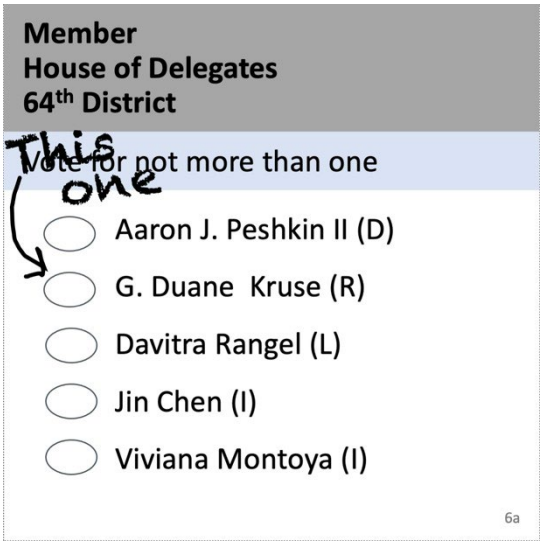
The circle closes around two candidates. The voter's preference cannot be determined.

This vote cannot be counted.

6. Writing words

Voters shall not write words, other than a candidate's name, to indicate preference. Writing words cannot be used to indicate preference.

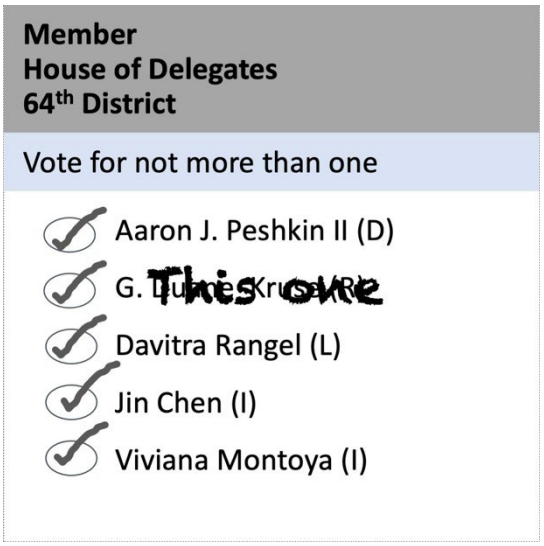
Vote marking scenarios



Vote to count

In this example, the words "this one" cannot be taken as an indication of preference. However, the voter also drew an arrow which can be used to indicate the voter's preference for 1 candidate.

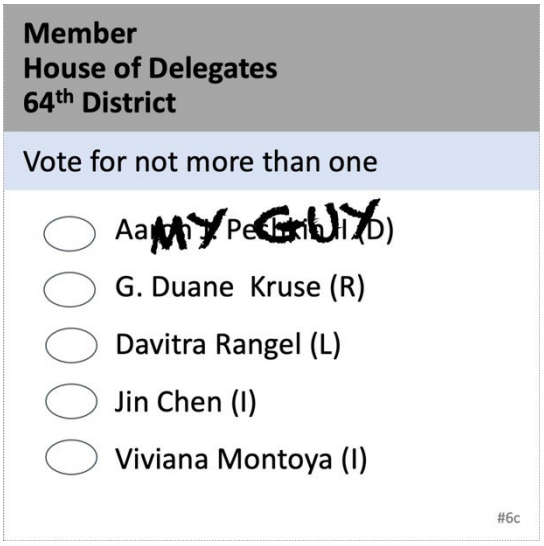
The vote is counted for G. Duane Kruse.



Vote not to count

The voter checked all the boxes and wrote "this one" on the ballot. The words "this one" cannot be used as an indication of preference.

Additionally, voter marked each candidate which is an overvote; thus, the vote cannot be counted



Vote not to count

The voter only wrote “My Guy” across a candidate’s name.

This is not a clear indication that the voter was choosing this candidate for their vote.

This vote cannot be counted.

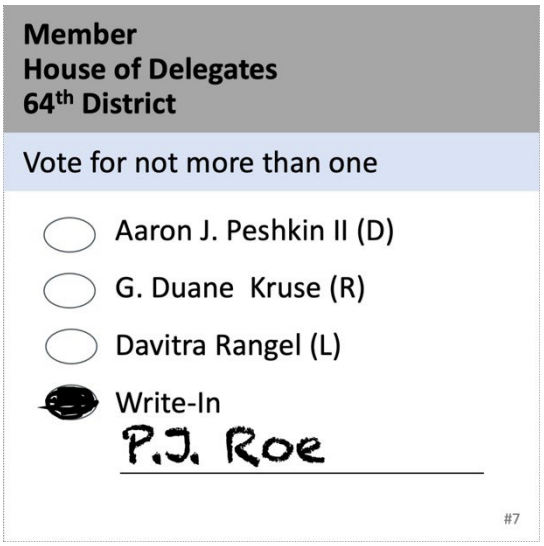
7. Write-in votes

Voters may choose to write in the name of a candidate not listed on the ballot.

Follow the rules in the election code

- At all elections, except primary elections, a voter may vote for any person other than the listed candidates for the office by writing or hand printing the person's name on the official ballot. No check or other mark shall be required to cast a valid write-in vote.
  §24.2-644(C)
- No write-in vote shall be counted for an office for any person whose name appears on the ballot as a candidate for that office.
  §24.2-644(D)

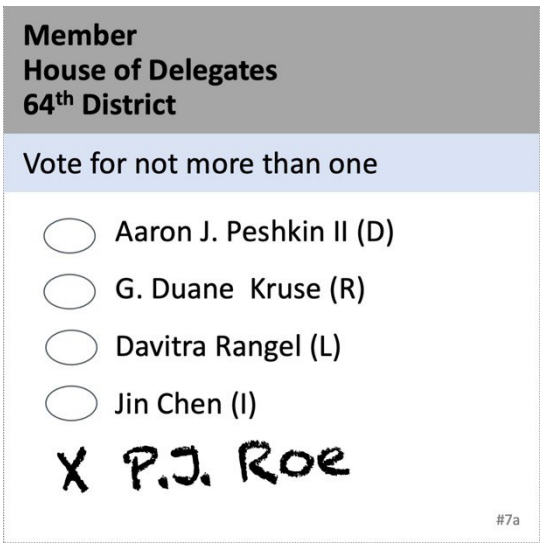
Voting scenarios



Vote to count

The voter wrote the name and filled in the oval to indicate that this is their choice.

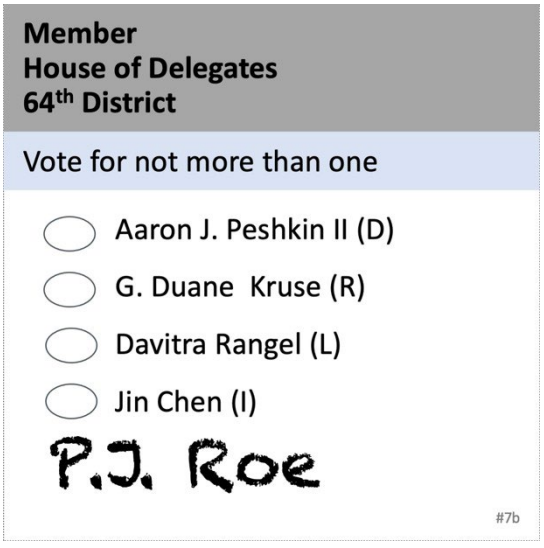
The vote is counted as a write-in vote for P.J. Roe.



Vote to count

The voter wrote in the name and created a mark to indicate that this is their choice.

The vote is counted as a write-in vote for P.J. Roe.

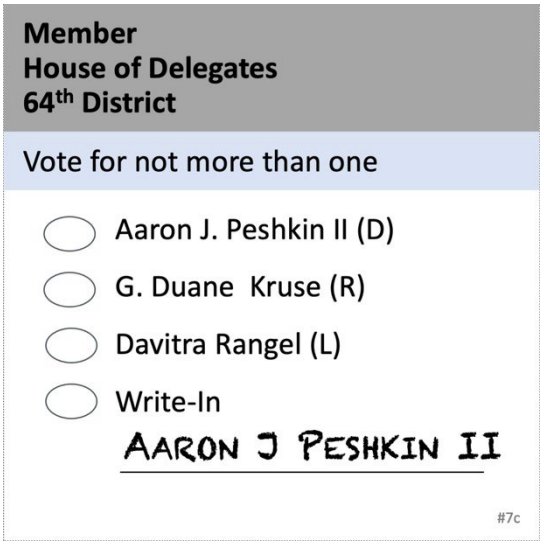


Vote to count

The voter clearly indicated their voting preference.

No check or other mark shall be required to cast a valid write-in vote.
§24.2-644(C)

The vote is counted as a write-in vote for P.J. Roe.

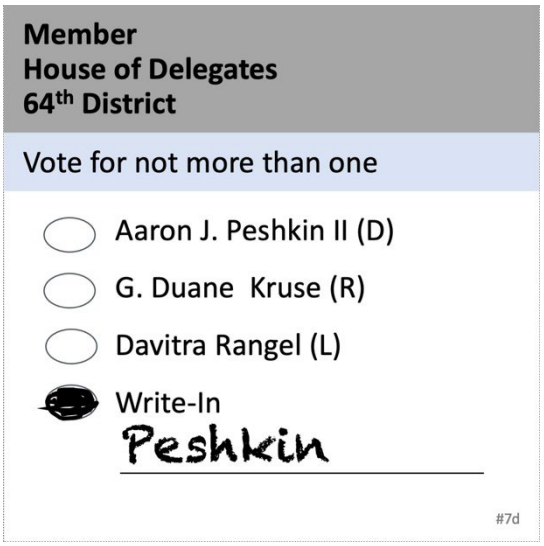


Vote not to count

The voter indicated their choice; however, their choice is already printed on the ballot.

No write-in vote shall be counted for an office for any person whose name appears on the ballot as a candidate for that office.
§24.2-644(D)

This vote cannot be counted.

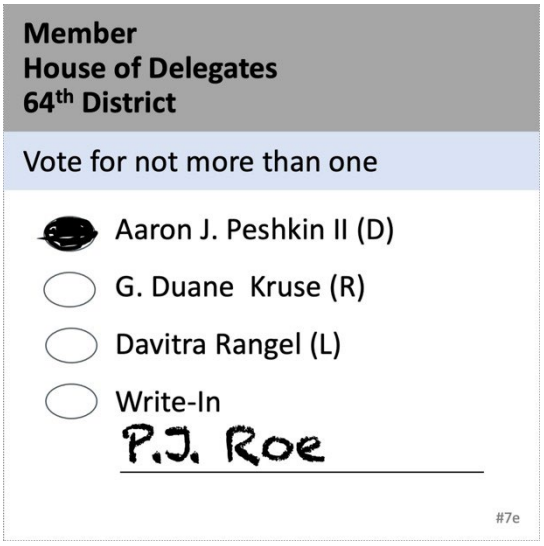


Vote not to count

The voter indicated their choice with the last name of a candidate; however, their choice is already printed on the ballot.

No write-in vote shall be counted for an office for any person whose name appears on the ballot as a candidate for that office.
§24.2-644(D)

This vote cannot be counted.



Vote not to count

The voter marked a selection and wrote down a name.

This indicates two choices—more than are permitted for this contest.

If voter indicates a number of choices for a race in which is not permitted they have made an overvote and no vote shall be counted.
§24-802.2

This vote cannot be counted.

8. Ranked Choice Votes

Pursuant to § 24.2-673.1 of the Code of Virginia, the State Board of Elections promulgated 1VAC20-100-40, which sets forth standards for ballot treatment in ranked choice elections for scenarios in which a voter completes their ballot in a manner inconsistent with given instructions. This section provides a visual guide for those scenarios and how they are resolved.

The examples in this section presume the ability to determine the intent for each choice. If there is uncertainty about whether a voter intended to make a choice, the preceding sections will serve as a guide to make determinations of intent. This section shall control for purposes of ranked choice votes in the event of a conflict with the preceding sections.

For completed ballots unreadable by a machine **in ranked choice elections only**, ballot transcription is available pursuant to 1VAC20-100-60, only if voter intent can be determined. Please see the official guidance from ELECT on ballot transcription for ranked choice elections: Ranked choice Voting (RCV) Ballot Transcription Overview & Process.

In the following examples, keep in mind that only first-choice rankings may be applied in the first-choice ranking tabulation round. 1VAC20-100-50 A.

Vote marking scenarios:

Ranked choice Overvote: More than one candidate assigned same ranking

MAYOR (4 year term)	Vote 1st Choice Here	Vote 2nd Choice Here	Vote 3rd Choice Here	Vote 4th Choice Here	Vote 5th Choice Here
Thomas Jefferson	● ✓	○	○	○	○
Benjamin Franklin	○	● ✗	○	○	○
Alexander Hamilton	○	● ✗	○	○	○
John Adams	○	○	● ✓	○	○
Write in: _____	○	○	○	○	○

In the case of a ranked choice overvote for a ranking on a ballot, the ranking shall not be counted in any round and the next valid ranking shall be counted in all rounds except the first-choice ranking tabulation. 1VAC20-100-40 A 1.

Votes are invalid for a ranking assigned to multiple candidates. In this example, the first-choice vote would be applied in the first-choice ranking tabulation round. If the first-choice candidate is eliminated in a subsequent round, the second-choice overvotes would be invalid and the third-choice vote would be valid.

Duplicate Ranking: Voter assigned one candidate multiple rankings

MAYOR (4 year term)	Vote 1st Choice Here	Vote 2nd Choice Here	Vote 3rd Choice Here	Vote 4th Choice Here	Vote 5th Choice Here
Thomas Jefferson	○	● ✓	○	○	○
Benjamin Franklin	○	○	○	○	● ✓
Alexander Hamilton	○	○	○	● ✓	○
John Adams	● ✓	○	● ✗	○	○
Write in: _____	○	○	○	○	○

In the case of a duplicate ranking for an active candidate, only the voter's highest ranking for the candidate shall be counted. Valid rankings after a duplicate ranking shall be counted. 1VAC20-100-40 A 2.

In this example, the voter's highest ranking for John Adams is valid. The third-choice vote for John Adams is not valid. If the voter's first- and second-choice candidates are eliminated, the fourth-choice ranking would be applied.

Skipped Ranking #1: One ranking skipped

MAYOR (4 year term)	Vote 1st Choice Here	Vote 2nd Choice Here	Vote 3rd Choice Here	Vote 4th Choice Here	Vote 5th Choice Here
Thomas Jefferson	○	○	● ✓	○	○
Benjamin Franklin	● ✓	○	○	○	○
Alexander Hamilton	○	○	○	○	○
John Adams	○	○	○	○	○
Write in: _____	○	○	○	○	○

In the event of a ballot with a skipped ranking, the next valid ranking shall be counted, except in the first-choice tabulation round. 1VAC20-100-40 B 1.

If only one ranking skipped, next valid vote to count. In this example, first-choice and third-choice votes are valid.

Skipped Ranking #2: More than one ranking skipped

MAYOR (4 year term)	Vote 1st Choice Here	Vote 2nd Choice Here	Vote 3rd Choice Here	Vote 4th Choice Here	Vote 5th Choice Here
Thomas Jefferson	○	○	○	○	○
Benjamin Franklin	○	○	○	○	○
Alexander Hamilton	○	○	○	○	○
John Adams	○	○	● ✕	○	○
Write in: _____	○	○	○	○	○

In the event the ballot reaches two consecutive skipped rankings, the ballot will be considered an inactive ballot. 1VAC-20-100-40 B 2.

Vote after two consecutive skipped rankings not to count. In this example, the third-choice vote is not valid.

***Please note**:* Pursuant to 1VAC20-100-10, "skipped ranking" is when a voter has left a ranking unassigned but validly ranks a candidate at a subsequent ranking. A round in which a voter has made a choice deemed invalid is not a "skipped ranking" (e.g., an overvote followed by a skipped ranking does not count as two consecutive skipped rankings).

★ VIRGINIA ★
STATE BOARD *of* ELECTIONS

Officer Removal Petitions and Petition Signature Qualifications

BOARD WORKING PAPERS

Ashley Coles
ELECT Policy Analyst

★ VIRGINIA ★
STATE BOARD of ELECTIONS

Memorandum

To: Chairman O'Bannon, Vice Chair Dance, Secretary Alvis-Long, Delegate Merricks, and Mr. Matthew Weinstein

From: Ashley Coles, Policy Analyst

Date: May 30, 2023

Re: New 1VAC20-60-90 Material omissions from officer removal petitions and petition signature qualifications

Suggested Motions:
"I move that the Board adopt the proposed regulation, 1VAC20-60-90 Material omissions from officer removal petitions and petition signature qualifications."

Applicable Code Sections:
§24.2-103(A) Powers and Duties in general
§24.2-233
§24.2-235
Acts of Assembly Chapter(s) 663 and *664*

Background:
Acts of Assembly Chapter(s) 663 and *664* passed during the 2023 Session of the General Assembly set out the procedures by which an elected officer, or officer who has been appointed to fill an elective office, may be removed from office. As it pertains to the State Board and general registrars, these bills require that (i) the general registrar review a petition for removal on a form prescribed by the State Board and determine its sufficiency; (ii) the general registrar certify the petition within 10 business days and promptly file such certification with the clerk of the circuit court; and (iii) the certification state the number of signatures required, the number of signatures on the petition, the number of valid signatures, along with any signatures found to be invalid and any material omissions from the petition. As a result, the State Board must adopt a regulation outlining what constitutes a material omission on a removal petition, and the State Board must approve a new removal petition form.

Regulatory Process:
Due to the nature of this regulation, ELECT proposes this regulatory change be fast-tracked pursuant to §2.2-4012.1 of the Code of Virginia, which provides that rules expected to be noncontroversial may be promulgated. This process requires the concurrence of the Governor, written notice to the applicable standing committees of the Senate of Virginia and House of Delegates, and to the Joint Commission on Administrative Rules prior to submitting a fast-track regulation. The fast-track regulation would be published in the Virginia Register of Regulations and posted on the Virginia Regulatory Town Hall to allow public comment. If an objection to the use of the fast-track process is received within the public comment period from 10 or more persons, any member of the applicable standing committee of either house of the General Assembly or of the Joint Commission on Administrative Rules, the agency shall file notice of the objection with the Registrar of Regulations and proceed with the normal promulgation process with the initial publication of the fast-track regulation serving as the Notice of Intended Regulatory Action. Otherwise, the regulation is effective 15 days after the close of the comment period.

Attachments:
- Proposed 1VAC20-60-90
- ELECT 233 Petition for the Removal of an Officer

Agency: The State Board of Elections

Virginia Administrative Code (VAC) citation: 1VAC20-60-90

Regulation Title: Material omissions from officer removal petitions and petition signature qualifications

Date before State Board of Elections: May 30, 2023

Brief Summary:

The proposed regulation brings the State Board into compliance with the *Acts of Assembly Chapter(s) 663* and *664* by indicating what constitutes a material omission on a removal petition.

Regulation Text:

1VAC20-60-90. Material omissions from officer removal petitions and petition signature qualifications.

A. Pursuant to the requirements of §§ 24.2-233 and 24.2-235 of the Code of Virginia, a petition or a petition signature should not be rendered invalid if it contains an error or omission not material to its proper processing.

B. The following omissions are always material, and any petition containing such omissions shall be rendered invalid if:

1. The petition submitted is not the double-sided document, or a double-sided copy thereof, provided by the State Board of Elections;

2. The petition does not have the name, or some variation of the name, and the office of the officer to be removed on the front of the form;

3. The petition fails to identify the applicable jurisdiction in which the officer serves;

4. The petition does not have the specific reasons or grounds for removal on the form;

5. The circulator has not signed the petition affidavit and provided his current address;

6. The circulator is a minor or a felon whose voting rights have not been restored;

7. The circulator has not signed the petition he circulated in the presence of a notary;

8. The circulator has not had a notary sign the affidavit for each petition submitted;

9. A person other than the circulator signed the petition affidavit;

10. The notary has not affixed a photographically reproducible seal;

11. The notary has not included his registration number and commission expiration date; or

12. Any combination of the scenarios of this subsection exists.

C. The following omissions related to individual petition signatures are always material, and any petition signature containing such omission shall be rendered invalid if:

1. The signer is not qualified to cast a ballot for the office for which the petition was circulated;

2. The signer is also the circulator of the petition;

3. The signer provided an accompanying date that is subsequent to the date upon which the notary signed the petition;

4. The signer did not sign the petition; or

5. The signer provided an address that does not match the petition signer's address in the Virginia voter registration system, unless the signer provided an address that is within the same precinct where a voter is currently registered in the Virginia voter registration system, and the signer can be reasonably identified as the same registered voter.

D. The following omissions shall be treated as nonmaterial provided the general registrar can independently and

reasonably verify the validity of the petition or signature:

1. An older version of the petition is used (provided that the information presented complies with current laws, regulations, and guidelines);

2. The name of the officer to be removed and office title are omitted from the back of the petition;

3. The circulator has not provided his year of birth in the affidavit;

4. The signer omits his first name, provided he provides a combination of his first or middle initials or a middle name and last name and address that matches a qualified voter within the Virginia voter registration system;

5. The signer provided a derivative of his legal name as his first or middle name (e.g., "Bob" instead of "Robert");

6. The signer prints his name on the "Print" line and prints his name on the "Sign" line;

7. The signer fails to provide the date but a period of time that qualifies can affirmatively be established with previous and subsequent dates provided by other signers upon the petition page; or

8. The signer fails to provide the year when signing the petition.

E. A signature upon a petition shall be included in the count toward meeting the petition signature requirements only if:

1. The petition signer is a qualified voter who is maintained on the Virginia voter registration system either (i) with active status or (ii) with inactive status and qualified to vote for the office for which the petition was circulated;

2. The signer provides his name; and

3. The signer provides an address that matches the petition signer's address in the Virginia voter registration system, or the signer provided an address that is within the same precinct where a voter is currently registered in the Virginia voter registration system, and the signer can be reasonably identified as the same registered voter.

Virginia Petition for the Removal of an Officer

ELECT-233

Petition Signer Statement

We, the qualified voters of _____ signed hereunder or on the reverse side of this page do hereby
(COUNY OR CITY OR TOWN AND DISTRICT, IF APPLICABLE)

petition the circuit court to order the removal of_____, from the office of _____,
(OFFICER'S NAME) (OFFICE TITLE)

pursuant to §24.2-233 of the Code of Virginia. The specific reasons or grounds upon which the above official is sought to be removed, are as follows:_____

_____

_____

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_____

Note to Petition Signer

- Your signature on this petition must be your own and does not signify if you voted for the official you're requesting to remove.
- **Privacy notice:**
  - Providing your year of birth is optional. You may sign the petition without providing this information.
  - The information provided will be checked against the official voter registration roll.
  - This form is available for public inspection.
- **Fraud notice:** The person(s) signing this form do so under penalties of perjury.

Office Use Only	#	Petition Signer	Date Signed	Year of Birth (optional)
	1.	Print Full Name _____ Signature _____ Full Residential Address (including city/state/zip) (PO Box **not** acceptable)		
	2.	Print Full Name _____ Signature _____ Full Residential Address (including city/state/zip) (PO Box **not** acceptable)		
	3.	Print Full Name _____ Signature _____ Full Residential Address (including city/state/zip) (PO Box **not** acceptable)		
	4.	Print Full Name _____ Signature _____ Full Residential Address (including city/state/zip) (PO Box **not** acceptable)		
	5.	Print Full Name _____ Signature _____ Full Residential Address (including city/state/zip) (PO Box **not** acceptable)		

Virginia Petition for the Removal of an Officer (continued from reverse side)

Officer's Name: _____ **Office Title:** _____

Note to Petition Signer

- Your signature on this petition must be your own and does not signify if you voted for the official you're requesting to remove.
- **Privacy notice:**
  - Providing your year of birth is optional. You may sign the petition without providing this information.
  - The information provided will be checked against the official voter registration roll.
  - This form is available for public inspection.
- **Fraud notice:** The person(s) signing this form do so under penalties of perjury.

Office Use Only	#	Petition Signer	Date Signed	Year of Birth (optional)
	6.	Print Full Name _____ Signature _____ Full Residential Address (including city/state/zip) (PO Box **not** acceptable) _____		
	7.	Print Full Name _____ Signature _____ Full Residential Address (including city/state/zip) (PO Box **not** acceptable) _____		
	8.	Print Full Name _____ Signature _____ Full Residential Address (including city/state/zip) (PO Box **not** acceptable) _____		
	9.	Print Full Name _____ Signature _____ Full Residential Address (including city/state/zip) (PO Box **not** acceptable) _____		
	10.	Print Full Name _____ Signature _____ Full Residential Address (including city/state/zip) (PO Box **not** acceptable) _____		
	11.	Print Full Name _____ Signature _____ Full Residential Address (including city/state/zip) (PO Box **not** acceptable) _____		
	12.	Print Full Name _____ Signature _____ Full Residential Address (including city/state/zip) (PO Box **not** acceptable) _____		
	13.	Print Full Name _____ Signature _____ Full Residential Address (including city/state/zip) (PO Box **not** acceptable) _____		
	14.	Print Full Name _____ Signature _____ Full Residential Address (including city/state/zip) (PO Box **not** acceptable) _____		
	15.	Print Full Name _____ Signature _____ Full Residential Address (including city/state/zip) (PO Box **not** acceptable) _____		

Circulator Affidavit

I, (print full name) _____, swear or affirm that (i) my full residential address (including city/state/zip) is _____, (ii) I am not a minor, (iii) I am not a felon whose voting rights have not been restored; (iv) I have witnessed the signature of each person who signed this page and its reversed side; and (v) I consent to the jurisdiction of the courts of Virginia in resolving any disputes concerning the circulation of petitions, or signatures contained therein. I understand that falsely signing this Affidavit is a felony punishable by a maximum fine up to $2,500 and/or imprisonment up to ten years.

Circulator Signature: _____ Date: _____

Notary

State of _____ County/City of _____

The foregoing instrument was subscribed and sworn before me this _____ day of _____, 20 _____

by (circulator name) _____.

Notary Signature _____ Registration # _____ Commission Expiration _____

Place photographically Reproducible Stamp/Seal Here

or

Place Photographically Reproducible Seal/Stamp Here

Virginia Petition for the Removal of an Officer

Printing	• The Petition is a two sided document (front and back) that **must** be printed on **one** piece of 8 1/2" by 14" paper. The front of the petition contains line numbers 1 through 5; the back contains line numbers 6 through 15, followed by the Circulator Affidavit. If the front and back are on two separate pieces of paper, the petition will not be accepted. • This instruction page does not have to be printed/submitted. • If you are unable to print or reproduce this form on one piece of 8 1⁄2" x 14" paper, call the Department of Elections at 800-552-9745 or 804-864-8901 and we will be glad to send you a form.
Circulator	• The "Petition Signer Statement" section **must** be completed prior to obtaining signatures. • The "Petition Signer Statement" must indicate the neglect of a clear ministerial duty of the office, misuse of the office, or incompetence in the performance of the duties of the office and its material adverse effect upon the conduct of the office. • You **must** complete the Circulator Affidavit. The Circulator Affidavit must be completed and signed **in front of** the Notary. • The petition signatures must equal 10% of the total number of votes cast at the last election for the office the officer holds. You may review the Department of Elections website for election results at https://www.elections.virginia.gov/resultsreports/election-results/.
Submitting	• When you submit this form to the appropriate circuit court within the officer's jurisdiction, all signatures must be **originals**. Copies of signatures will not be accepted. • The petition shall be filed with either three (3) paper copies or an electronic copy.

Do Not Submit This Instruction Page With Completed Petition Pages.

COMMONWEALTH *of* VIRGINIA

Office of the Attorney General

Jason S. Miyares
Attorney General

202 North 9th Street
Richmond, Virginia 23219
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800-828-1120

TO: John O'Bannon, Chairman
State Board of Elections

Susan Beals, Commissioner
Department of Elections

FROM: Travis Andrews
Assistant Attorney General

Date: May 10, 2023

Subject: Letter of Assurance for Proposed Regulation 1VAC20-60-90

I have reviewed the proposed regulation 1VAC20-60-90, regarding material omissions from officer removal petitions and petition signature qualifications. In my view as counsel to the State Board of Elections, the Board has the authority to promulgate this regulation pursuant to Virginia Code § 24.2-103 and Chapter 663 of the Acts of Assembly. The proposed regulation does not appear to conflict with the Constitution of the United States or the Constitution of the Commonwealth of Virginia, or any federal or state law currently in effect. Because the proposed regulation is expected to be noncontroversial, it qualifies for the fast-track rulemaking process under the Administrative Process Act, Virginia Code § 2.2-4012.1.

This memorandum addresses legal matters only and is not intended to serve, nor should it be construed, as a comment for or against the merits of the proposed regulation.

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STATE BOARD *of* ELECTIONS

RLA Manual Update

BOARD WORKING PAPERS

Rachel Lawless
Confidential Policy Advisor
Claire Scott
ELECT Policy Analyst

★ VIRGINIA ★
STATE BOARD of ELECTIONS

Memorandum

To: Chairman O'Bannon, Vice Chair Dance, Secretary Alvis-Long, Delegate Merricks, and Mr. Weinstein

From: Rachel Lawless, Confidential Policy Advisor and Claire Scott, Policy Analyst

Date: May 30, 2023

Re: Proposed Amendments to the Risk-Limiting Audit Manual

Suggested Motions:

"I move that the Board approve the proposed amendments to the Risk-Limiting Audit Manual pursuant to §24.2-671.2 of the Code of Virginia."

Applicable Code Section:

§24.2-671.2 Risk-limiting audits

Overview:

Pursuant to the Code of Virginia §24.2-671.2, the State Board of Elections (SBE) must prescribe the processes and procedures for the conduct of risk-limiting audits (RLA) in the Commonwealth of Virginia. During its March 7, 2023 meeting, the SBE approved SBE Form 671.2(D), which allows for the implementation of the batch-comparison method for RLAs in Virginia. The proposed amendments to the Risk-Limiting Audit Manual provide the necessary processes and procedures to allow localities that have been approved for a RLA, pursuant to §24.2-671.2(D), to perform a batch-comparison method RLA.

Attachments:

2023 Risk-Limiting Audit Manual

ELECT Staff Recommendation:

ELECT staff recommends the State Board of Elections approve the proposed amendments to Risk-Limiting Audit Manual.

2023

★ VIRGINIA ★
DEPARTMENT of ELECTIONS

Risk Limiting Audit

MANUAL

VIRGINIA DEPARTMENT OF ELECTIONS

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1. Introduction

1.1 Background on Risk Limiting Audits (RLA) in Virginia

1.1.1 Definition of an RLA

A Risk Limiting Audit (RLA) is a type of post-election audit that utilizes statistical methods and a manual review of paper ballots to confirm that the electronic voting system accurately reported the correct outcome of an election. RLAs analyze a random sample of hand-counted ballots to confirm election results. If the margin of an election is wide, fewer votes are audited; if the margin is narrow, more votes are audited until enough evidence can confirm the results of the contest.[1]

There are two RLA methods used in the Commonwealth of Virginia: *ballot-polling* and *batch-comparison*. Ballot-polling audits manually review a randomly selected, sufficiently large sample of ballots to determine if the overall outcome of an election contest was correctly reported. Batch-comparison audits manually review randomly selected physical batches of ballots, such as those cast in one precinct, and compare those results with corresponding machine counts.[2] In Virginia, the Virginia Department of Elections (ELECT), in accordance with the procedures prescribed by the State Board of Elections (SBE), has traditionally utilized the *ballot-polling* method to conduct statutorily required RLAs.

Since 2022, local electoral boards (EB) have the option to apply for RLAs for contested races that are wholly contained within the jurisdiction of the EB. Local electoral boards may choose to utilize either the ballot-polling or batch-comparison method for conducting their RLA, subject to the approval of the SBE.

1.1.2 History of RLAs in Virginia

RLAs provide strong statistical evidence that the declared winner of a contest received the most votes. In 2017, the Virginia General Assembly passed legislation that amended the Code of Virginia to include RLAs of ballot scanner machines in use in the Commonwealth and the changes went into effect on July 1, 2018**.** During the 2022 General Assembly Session, §24.2-671.1 was repealed and replaced with §24.2-671.2, which took effect on July 1, 2022. With these changes, the Code now requires that RLAs be performed by the EBs and general registrars (GR) under the supervision of ELECT and in accordance with the procedures prescribed by the SBE.

This document outlines the SBE procedures and includes guidance on the following:

- Randomly selecting contested races and determining the risk-limit;

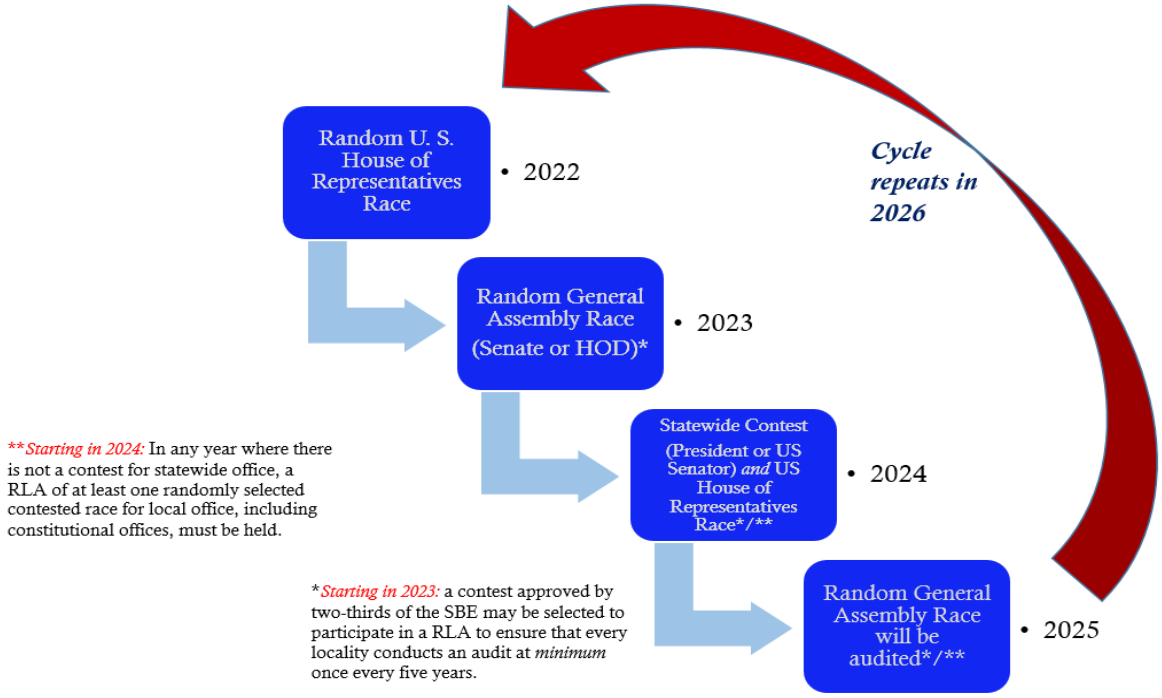
[1] *See* National Conference of State Legislatures, Risk-Limiting Audits
[2] *Id.*

- Preparing for an RLA, including guidelines for organizing ballots, selecting venues, and securing appropriate materials by EBs and GRs;
- Ballot custody, accounting, security, and written record retention procedures that ensure a complete and accurate collection of cast ballots from which samples are drawn;
- Hand counting of the audited ballots;
- Methods for conducting the RLA; *and*,
- Ensuring transparency and understanding of the process by participants and the public, including guidelines for direct observation by members of the public, representatives of the candidates involved in the RLA, and representatives of the political parties.

2. RLA Basics

2.1 RLA Selection and Notification Process

Pursuant to § 24.2-671.2, RLAs must be conducted **before** a race has been certified.[3] ELECT must ensure that an RLA is conducted for at least one randomly selected contest each year. The Code of Virginia provides the contests eligible for selection for an RLA depending on the election cycle, as outlined in §24.2-671.2(C) and illustrated in the graphic from 2022 below:



Additionally, §24.2-671.2(D) allows EBs to *request* a risk-limiting audit of a contested race within the EB's jurisdiction. Using an SBE-671.2(D) Form: Request for Risk Limiting Audit, a locality may submit their request to the SBE for approval.[4] Examples of races wholly contained within a locality's jurisdiction *may* include but are not limited to: mayoral, school board, city council, clerk of court, treasurer, or sheriff. Localities that have portions of House of Delegate, State Senate, U.S. Senate, or U.S. House of Representative races located within their localities are not able to request to audit just their portions of those races. Section 2.1.1 of this manual details how to apply for an RLA.

At least once every five years, every jurisdiction must participate in at least one RLA of a contest in its jurisdiction, either by random selection by the SBE or by opting into their own contest. As

[3] *See* Code of Virginia, § 24.2-671.2. Risk-limiting audits

[4] *See* ELECT, SBE-671.2(D) Form

of 2022, the SBE may, by two-thirds majority vote, direct that a locality conduct an RLA of a contest within its jurisdiction. The SBE defines participation in an RLA by the uploading of a ballot manifest. Every locality in the Commonwealth participated in a ballot-polling RLA of the 2020 Presidential and 2021 U.S. Senate races, which is explained in greater detail in the March 31, 2021 Risk-Limiting Audit Report found on ELECT's website.[5]



Applying for an RLA and the Yearly Random Selection of Races
If a locality opts for an RLA of a race wholly contained within its jurisdiction, it is not exempted from the required yearly, randomly selected RLA.

2.1.1 Applying for an RLA of a Local Contest

An EB may request SBE approval for an RLA of a contested local race wholly contained within the EB's jurisdiction. The SBE has promulgated both a regulation to guide EBs in selecting a race for an RLA (see Appendix) as well as the SBE-671.2(D) Form that localities must use to request a race for an RLA (see Appendix). As of March 2022, EBs may choose between utilizing the *ballot-polling* or *batch-comparison* method of conducting a Risk-Limiting Audit.

An electoral board must cast a majority vote at a public meeting to request an RLA for a particular contested local race, wholly contained within the jurisdiction of the electoral board. Further, an electoral board must sign and complete the current SBE-24.671.2(D) Form and identify the local race(s) subject to the requested RLA. All board members should sign and date the form. Once completed, the secretary of the electoral board must send the form to ELECT via the locality's Elections and Registration Specialist. An ideal time for electoral board members to select a race for audit is during the canvass. These forms must be submitted to ELECT no later than close of business the day prior to the publicly noticed RLA SBE meeting (the date will vary depending on the election cycle.)

The SBE will grant an RLA request if the form is properly completed, all statutory requirements are met, and the request is submitted in time. Finally, the regulation specifies that, as needed, the SBE will grant a two-week extension to an electoral board's certification deadline under § 24.2-671 to accommodate the completion of the RLA.[6]

2.1.2 Key Factors

When considering applying for an RLA of a race wholly contained within the jurisdiction of the electoral board, ELECT recommends considering several aspects:

[5] *See* ELECT, Risk-Limiting Audit Report, March 31, 2021
[6] *See* Code of Virginia, §24.2-671 Electoral board to Meet to Ascertain Results; conclusiveness of results

METHOD CHOICE

The SBE gives EBs the option to choose between the use of two RLA methods for applications submitted pursuant to §24.2-671.2(D): ballot-polling or batch-comparison.

Ballot-polling typically requires the smallest number of ballots to produce strong evidence that a reported outcome was correct. This method has been used by the Commonwealth since RLAs were first required by statute. It is the easiest method for the public to observe the interpretation of ballots. A ballot-polling audit is similar to an exit poll, where a statistically significant number voters are sampled to make inferences about the whole electorate. In the case of ballot-polling RLAs, a statistically significant number of ballots are sampled to infer the accuracy of the machines used in the election.

Batch-comparison is an audit where batches, such as precincts, are randomly selected, counted, and compared to the voting system's count. This method tends to use the most ballots of either method, causing a greater workload than ballot-polling and the need for more manpower and resources. Additionally, when Arlo, the RLA software, is set up for a batch-comparison audit it tends to select, although random, the precincts with more ballots. Localities should expect to review over a thousand ballots.

Tip

You can use the Arlo Planner Tool to create an *estimate* of the number of ballots or batches that may be required to conduct an RLA for your race. The Arlo Planner Tool can be found here: Arlo Planner Tool, by VotingWorks. This tool is available to the public and does not require a login to access.

AN EXAMPLE OF SAMPLE SIZES FOR BOTH METHODS

ELECT estimated the number of ballots that may have needed to be sampled for the 2022 General Election RLA, U.S. Congressional District 9, using both the ballot-polling method and the batch-comparison method, with the risk limit set to 10%, to provide a real-world example of the amount of work required for each method. This race had 248,792 ballots cast with a margin of 47% between the candidate with the most votes and the candidate with the second most votes.

Batch-comparison Estimate for District 9	Ballot-Polling Estimate for District 9
7 Batches or ~5,600 total ballots*	60 ballots

Note about Performing Both a Ballot-polling RLA and a Batch-comparison RLA
If your locality must perform both a ballot-polling RLA and a batch-comparison RLA, can you use the same ballot manifest for both? Yes, the ballot manifest for one may be used for the other. *However*, in this event, the batches listed in the ballot manifest ***must*** be the same as your precincts. For example, if 100 ballots were cast in Precinct 1, then Batch 1 would have 100 ballots. The candidate by batch file must match with the ballot manifest for a batch-comparison method RLA. This is discussed in greater detail in 5.2.2 Creating a Candidate Total by Batch File. You may also choose to create two separate ballot manifests for greater ease in locating ballots.

Reminder
ELECT reminds localities that should an EB choose to apply for an RLA the batches or ballots used to perform the RLA will be randomly chosen by Arlo, no matter which RLA method is chosen, and will not be chosen by the applying EB.

TIME

Pursuant to the Code of Virginia §24.2-671.2, ELECT is required to oversee that certain RLAs are done after the general election but before certification. The SBE announces those races, as well as approved applications requesting a local RLA, during an SBE meeting, typically held the second Wednesday following the November General Election. This creates a very tight timeline for the RLA, which must be completed before certification, that overlaps with the Thanksgiving holiday. This means localities will have 9.5 business days to complete the RLA process during a general elections.

This timeline may be further compounded during a November general election by choosing a *different* method than the SBE for an RLA of a local contest. For example, the SBE may choose to conduct an RLA using the ballot-polling method in a jurisdiction. If an EB chooses to utilize a batch-comparison method for a local race, then the EB would be running two different types of RLAs at the same time, which may take additional time to complete.

If an EB applies for an RLA of a primary, the timeline is even more compressed. For a June primary, an electoral board will have 3 business days from the time of approval of the RLA to the date for the SBE to declare a nominee. This timeline may also include the 4th of July, depending on the year. Given these time constraints, an RLA of a primary, while not prohibited by statute, is not recommended.

STAFFING

As part of the RLA, EBs must recruit audit review boards (see section 3.4 for more information about audit review boards). An audit review board is a two-person team assigned to review ballots and record a hand tally of the results. The required number of audit review boards is

based on the number of batches that are needed for an RLA. However, when a single batch contains a large number of ballots, additional audit review boards may be assigned to the batch to tally the ballots more effectively and efficiently. For example, a batch-comparison method RLAs must have batches that are the size of your precincts. Your locality may have only a few batches, but those batches may be large based on the number of ballots cast in a precinct. Thus, more audit review boards may be needed to tally those ballots effectively and efficiently.

- On average, an audit review board can pull 20-25 ballots per hour utilizing the ballot-polling method. If many ballot containers must be retrieved, this average decreases to about 15-20 ballots per hour. It may take longer to locate a specific ballot within a stack of ballots utilizing the ballot-polling method, which accounts for the additional time.
- On average, an audit review board utilizing the batch-comparison method could approximately audit about 510 ballots per hour. Auditing 100,000 ballots for one contest would take approximately 195 hours.[7] Batch-comparison audit review boards can work more quickly because they are not searching for specific, random ballots but instead working through all ballots in a "batch". That being said, they have substantially more ballots to review.

COST

As noted above, audit review boards will need to be recruited to process the ballots or batches that will be hand counted. Each audit review board consists of two individuals; if more ballots or batches are sampled, more people will need to be compensated to complete the RLA process on time.

2.2 RLA SBE Meeting

The SBE will meet electronically on the second Wednesday after a general election to select contests, set the "risk limit", and determine the random seed number for the RLA.

2.2.1 Selected Contests

ELIGIBILITY

For those contests eligible for an RLA as designated by the year in §24.2-671.2(C), the SBE will only consider races with margins greater than 1%.[8] All races that meet that threshold will be placed in the selection pool.

An EB may apply for an RLA pursuant to §24.2-671.2(D). The EB must fill out an SBE-671.2(D) Form, and the contested race must qualify pursuant to the criteria under 1VAC20-60-80.[9] If the

[7] *See* Pilot Implementation Study of Risk-Limiting Audit Method in the State of Rhode Island.
[8] *See* Administrative Code of Virginia, 1VAC20-60-80.
[9] *See* Administrative Code of Virginia, 1VAC20-60-80.

SBE-671.2(D) Form is properly filled out and the contested race qualifies under 1VAC20-60-80, then the SBE will approve the application. These contests will not be placed in a selection pool.

DRAWING

For those contests eligible for an RLA in a given year under 24.2-671.2(C), the SBE Chair or designated representative will randomly draw one race(s) to audit from this pool. Before the random selection takes place, a member of ELECT staff will explain the selection method. Examples of random selection methods may include drawing a contest from a bowl or rolling dice to determine the audited contest. The selection will be held and recorded during a public meeting to ensure that the chosen race is completely random.

2.2.2 Setting the Risk Limit

A *risk limit* is the maximum chance that the RLA will fail to correct an incorrectly reported outcome. For example, a 10% risk-limit means that there is a 90% chance that the RLA will correct an incorrect outcome. To date, every RLA in Virginia has used a 10% risk-limit. A 5% risk limit is also common in other jurisdictions, though has yet to be tested in Virginia. The SBE will set the *risk limit* of the RLA following industry best practices and will announce the risk limit of each RLA at the virtual SBE RLA meeting.

2.2.2 Generating the Random Seed Number

For each audited race, the RLA software uses a 20-digit random seed number to select ballots for retrieval. A random seed number specifies the starting point of a computer-generated random sequence of numbers. The 20-digit random seed number is generated at the SBE RLA meeting.

To create this random number, the SBE Chair or designated representative(s) rolls twenty, ten-sided dice (numbered zero through nine), one time each. As each dice is rolled, the resulting number is recorded on a whiteboard. Any person may be designated by the SBE Chair to roll the dice; it may be done by one person or multiple people.

If there are applications approved by the SBE from electoral boards pursuant to Title 24.2-671.2(D), a new, additional 20-digit seed number will be generated via the process explained above.

The 20-digit number generated by this activity will be inputted into the RLA software by the RLA *Administrator* on ELECT's staff. Once this number is inputted, the auditing software will randomly select and generate a list of ballots to be retrieved based on the sample size. For an illustrated example of this process, please review the *Random Seed Number Generation* video on ELECT's YouTube channel.[10]

[10] *See* ELECT YouTube Channel, Random Seed Number Generation.

3. RLA Preparation

3.1 Overview

Due to the compressed timeline for RLAs, localities can take actions before Election Day to set themselves up for a successful RLA should they be chosen or approved by the SBE, including:[11]

- Determining RLA location;
- Scheduling the public meeting;
- Recruiting Audit Review Boards; *and,*
- Reviewing ballot accounting and storage practices.

3.2 Determining the Location of the RLA

A locality must consider a space for the RLA that can accommodate the public and that is ADA-compliant. The facility where an RLA takes place must also have an internet connection to download and print retrieval lists, placeholder pages, RLA board credentials, and labels.

If only a few ballots are required for an RLA, it may be possible to conduct the RLA at the courthouse. If more space is needed or if no workspace is available, the RLA may take place in another suitable location, such as: the GR's office, a library, a firehouse, a school, etc. Localities should work with their Clerks of Court to consult on the physical space of the RLA.

3.3 Scheduling the Public Meeting

Pursuant to § 2.2-3707[12] and §24.2-671.2(G), an RLA must be conducted as a public meeting. An EB and the GR shall conduct an RLA within their jurisdiction. Once the electoral board has selected a location for the RLA, it must provide the location to ELECT; ELECT will select the date and time for the RLA to begin. ELECT will publish the list of contested races along with the date, time, and location of the RLA as soon as practical. Local party chairpersons must also be notified of the RLA public meeting.

Additionally, at least one member of the electoral board representing each party must participate in, and be present for the duration of, the RLA. [13] In addition to electoral board members and the GR, meeting attendees may include:

- Clerk of Court
- Audit Board members;
- General public;
- Representatives from political parties;
- Candidates;

[11] *See* the Appendix for an example of the timeline for the November General Election.

[12] *See* Code of Virginia, § 2.2-3707. Meetings to be public; notice of meetings; recordings; minutes,

[13] *See* Code of Virginia §24.2-641.2, Risk-Limiting Audit

- Campaign staff; *and*,
- Local party chairs.

Localities should plan for at least one full day to conduct the RLA. As a best practice, it is recommended that the public meeting begins in the morning so the afternoon may be free if a second round of ballot retrieval is required. Since the sample is random, there is no way to predetermine the number of ballots a locality must retrieve.

3.4 Recruiting RLA Audit Review Boards

An *Audit Review Board* is a two-person team that retrieves specified ballots, records the results of the ballot, and inputs the results into the ballot software. GRs and/or the electoral board determine the audit board(s). Audit board members can be: staff, officers of election, electoral board members, GRs, or representatives from each party and/or candidates. Audit boards do not have to declare a party affiliation. As a best practice, it is recommended the audit board consist of one Democrat and one Republican to ensure balanced representation.

The number of *Audit Review Boards* is based on the number of ballot storage containers that must be opened and not on the number of ballots to be retrieved. The average numbers for both the ballot-polling and the batch-comparison method are provided below.

- Ballot-polling: On average, an audit board can pull 20-25 ballots per hour. If many ballot containers must be retrieved, this average decreases to about 15-20 ballots per hour.
- Batch-comparison: an audit board could audit about 510 ballots per hour. Auditing 100,000 ballots for one contest would take approximately 195 hours.[14]

Since localities retrieve random ballots when utilizing the ballot-polling method, it can take audit boards longer to locate the appropriate ballot in a stack of ballots, which results in fewer ballots being retrieved per hour. Whereas in the batch-comparison method, every ballot in a stack is counted in a precinct. While this may be quicker than locating random ballots, more ballots need to be reviewed using the batch-comparison method.

3.5 Reviewing Ballot Accounting and Storage Practices

When preparing for an RLA, it is a good time to review ballot accounting practices, which include ballot tracking, ballot reconciliation, and chain of custody forms and procedures. Ballot accounting forms the basis of a ballot manifest by providing the number of ballots in an envelope/box/container (ballot manifests are explained in greater detail for *ballot-polling* in section 4.3 Creating a Ballot Manifest and for *batch-comparison* in section 5.2.1 Creating a Ballot Manifest.) It is imperative that the ballots remain organized and clearly marked within

[14] *See* Pilot Implementation Study of Risk-Limiting Audit Method in the State of Rhode Island

the contents of the box. It is important to consider both methods when storing your ballots, having a strategic plan for organizing ballots can save a lot of time when conducting an RLA.

ELECT has designed a sample chain of custody form to document the control, transfer, and disposition of ballots during an RLA. Localities may choose to utilize this form or design their own to suit their specific needs. This sample form can be found in Forms Warehouse under the RLA section.

3.6 Suggested Supplies

While not required, the following is a list of helpful supplies for a successful RLA:

- Table and chairs for each audit board;
- Bright colored paper;
- Bright-colored removable labels;
- Tally sheets;
- Pens;
- Rubber fingers;
- Device to open containers;
- Materials to reseal containers, if necessary;
- Device with Wi-Fi/cellular to enter ballot tallies (laptop, smartphone, etc.); *and*,
- Printer.

4. The Ballot-Polling Method of the Risk-Limiting Audit

4.1 Overview

Once a locality is selected for an RLA or the electoral board has requested an RLA, it must do the following:

- Notify the public and participants identified in section 3.2 and 3.4 of this manual;
- Submit an ELECT 659-Request to Inspect Sealed Election Material form;
- Create and upload the ballot manifest; *and,*
- Gather supplies.

For the purpose of this manual, a batch is a documented set of ballots created by a voting system, an officer of election, or other election official.

4.2 Submitting an ELECT 659-Request to Inspect Sealed Election Material Form

Pursuant to Va. Code § 24.2-659, a locality must receive permission from the ELECT to unseal ballots cast on Election Day for a post-election audit. Localities are required to submit an *ELECT 659-Request to Inspect Sealed Election Material* form to obtain permission. The form is submitted to ELECT for signature authorization and then presented to the Clerk of the Circuit Court to access ballots from the election. This form may be found in Forms Warehouse under the RLA section.

4.3 Creating a Ballot Manifest

A *ballot manifest* is a two-column Excel spreadsheet created by localities that includes a list of the "Batch Name" (Column A) and the "Number of Ballots" (Column B).

	A	B
1	Batch Name	Number of Ballots
2	Precinct 1	301
3	Precinct 2	302

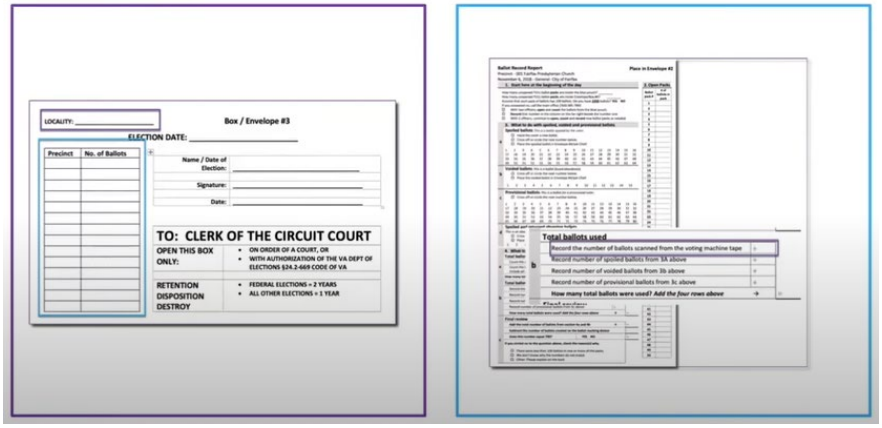
The ballot manifest creates an inventory of every ballot cast in a locality. Depending on the size of the locality, a ballot manifest should take one hour or less to complete. As a best practice, localities are encouraged to build their ballot manifest as they go. In order to select random ballots or batches, *all* participating localities must upload a ballot manifest before the audit can begin.

Note about Performing Both a Ballot-polling RLA and a Batch-comparison RLA
In the event that your locality has to perform *both* a ballot-polling RLA and a batch-comparison RLA, pay attention to the design of your ballot manifest for each method. While the ballot manifest for one may be used for the other, the batches listed in the ballot manifest ***must*** be the same as your precincts. For example, if 100 ballots were cast in Precinct 1, then Batch 1 would have 100 ballots. This is not only for consistency but also so that the candidate by batch file matches with the ballot manifest for a batch-comparison method RLA, discussed in 5.2.2 Creating a Candidate Total by Batch File. You may also choose to create two separate ballot manifests for each separate method for greater ease in locating ballots.

Batch information can be found on Ballot Record Reports or on Label #3. ELECT encourages localities to have discussions with their Clerk of Court prior to the election. During these conversations, localities should work with their Clerk of Court to discuss storage limitations, the location of the RLA, and chain of custody concerns.[15]

The number of ballots in each batch should be verified independent of the tabulator. The information to create a ballot manifest may be found in the following places:

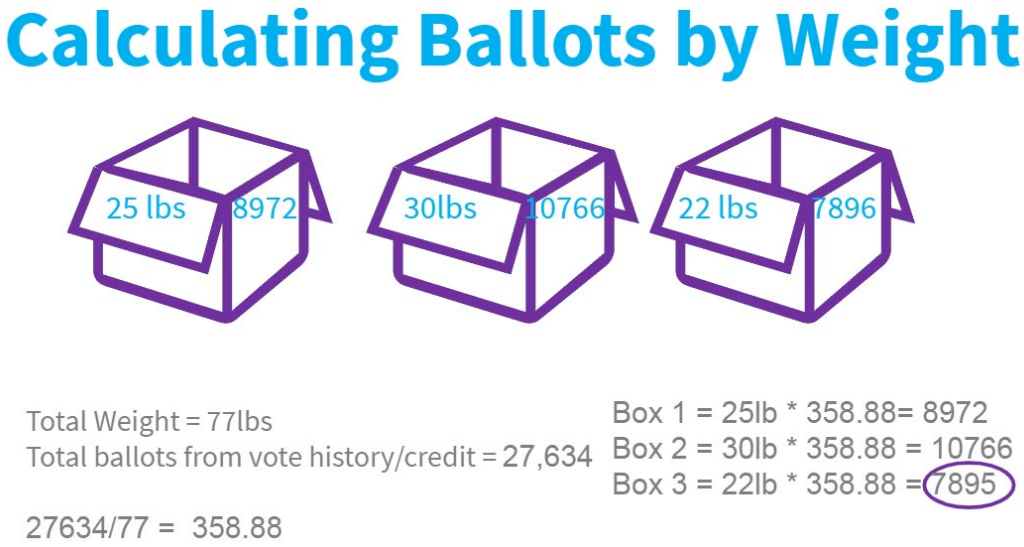
- Ballot Record Reports from precincts
- Inventory the ballot boxes at the Clerk of Court. Label #3 should contain the information needed.



- Electronic Pollbook Data
    - ***Reminder:*** Check Incident Reports or Officer of Election notes for occurrences of failing to check-in voters. This will allow the EPB number to be increased to the correct number.)

[15] *See* Democracy Fund, Knowing It's Right, Part Three, Planning and Conducting a Risk-Limiting Audit Pilot, Jennifer Morrell, June 2020.

- VERIS data from the Final Absentee Report
- Calculating the Number of Ballots in a container by weight.
    - If the number of ballots in a specific container is unknown, a locality can perform a simple equation to approximate the number of ballots in each box. To do this, each container box must be weighed. The weight of each box is added together. The total of this sum is then divided by the total number of ballots cast. The result of this equation is then multiplied by the weight of the corresponding box to get the number of ballots (see graphic.)



Helpful Tips and Reminders:

- All types of ballots are included (in-person, mail-in, provisional, etc.) in the manifest.
- Localities may label the "Batch Name" in any way that helps keep them organized (example: Precinct 101, Box 26, Container 8, etc.). Batch names are unique to each locality.
- Boxes/Containers/Envelopes that contain large amounts of ballots may be grouped into smaller units to ease the physical challenges of conducting the RLA, as long as it is reflected in the batch name (example of "batch names": Precinct 101 Unit 1; Box 26 Unit 2; Container 8 Unit 3 etc.).
- Keep the spreadsheet simple; avoid color coding and bold, so the ballot auditing software can read it.
- Run a quick equation in excel to check that all ballots have been accounted for in a locality. After performing this check, make sure to **delete** this sum before uploading the manifest into the RLA software.
- Build a ballot manifest as the ballots are being stored after an election in preparation for future RLAs.

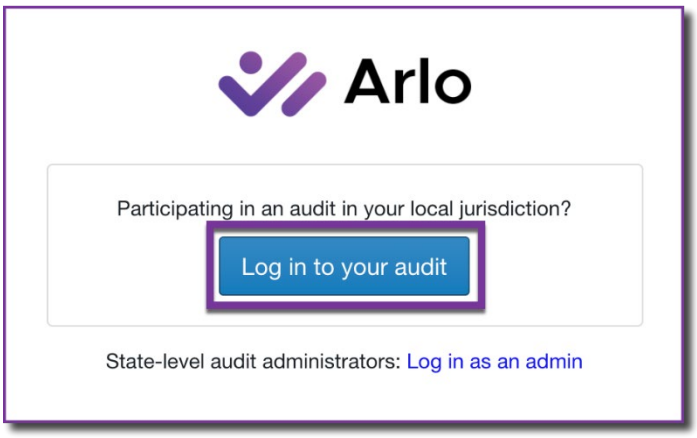
- ELECT staff is available to troubleshoot specific challenges and provide support.

4.4 Uploading a Ballot Manifest

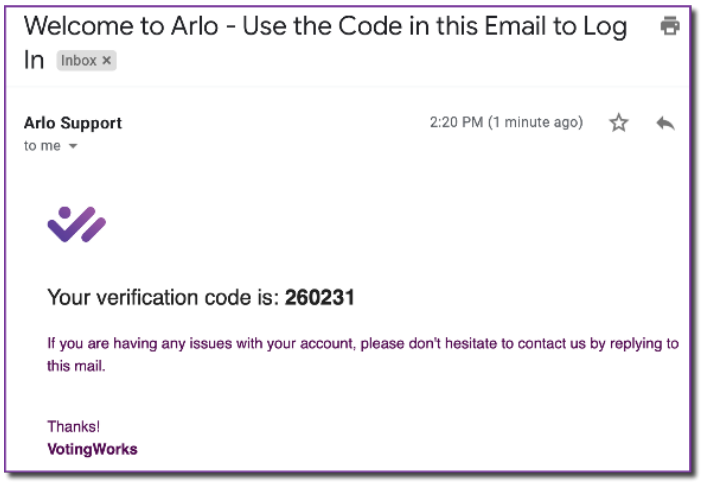
Once the ballot manifest is created, it is saved as a **.csv file (**CSV UTF-8, CSV (Macintosh) and CSV (MS-DOS) are all acceptable) and uploaded into the auditing software. The RLA software lets participants know if a mistake has been made when creating or uploading the manifest by generating an error message. Mistakes may include: empty rows, incorrect file formats (the manifest must be saved as a .csv file), or ballot totals in any rows or columns. All ballot manifests must be submitted by all participating localities to start the RLA.

Once the software receives all the ballot manifests, it will compile them into one large ballot list. This master list will be used to select random ballots across participating localities. Ballot manifests must be uploaded no later than the Thursday after the SBE's random draw. Once all ballot manifests are uploaded the RLA can begin. Detailed instructions, on how to upload a ballot manifest into the current auditing software, are listed below:

1. Using Google Chrome or Safari as your browser, go to this link: https://arlo.voting.works
2. Click Log in to your audit.



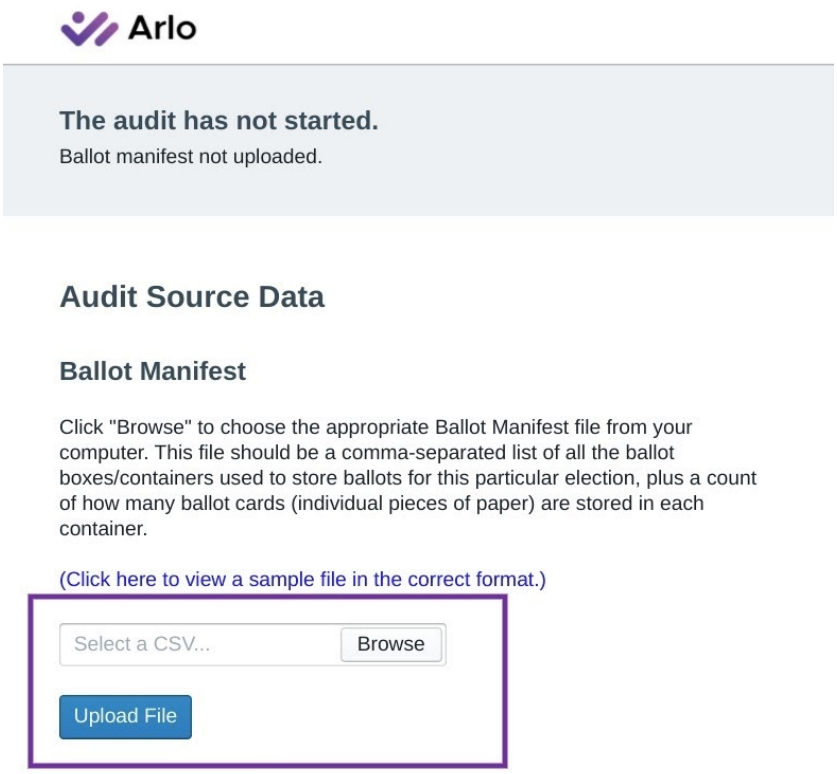
3. Enter your email address.
4. Check your email for a new email with the subject "Welcome to Arlo - Use the Code in this Email to Log In" - enter the verification code.



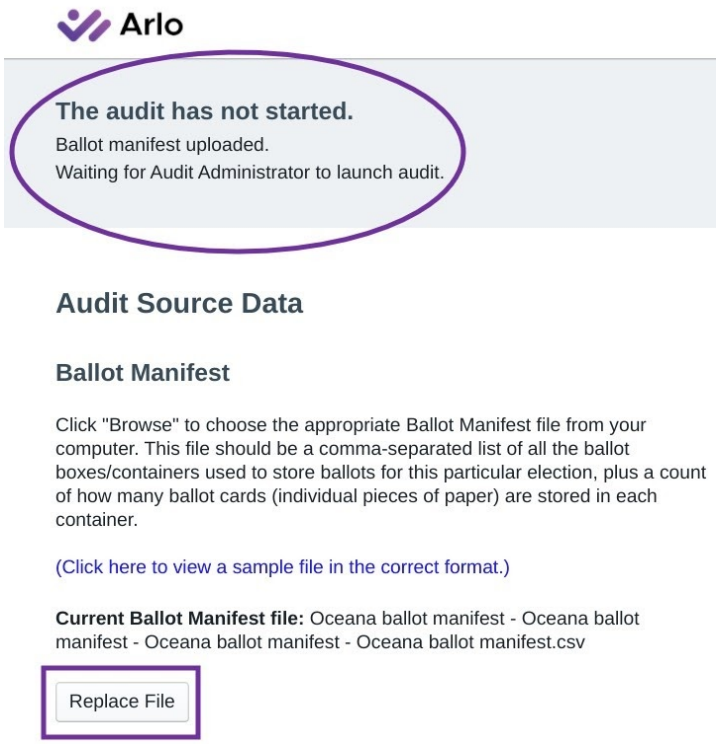
5. Click on the button with the locality name.



6. Click the Browse button and navigate to the ballot manifest .csv file that was created. Once selected, click Upload File.



7. When the upload is successful, a message will appear at the top of the screen that says “Ballot manifest uploaded.” If a mistake is found after a ballot manifest has been uploaded, participants have the option to log back in and use the **Replace File** button to update the file.



8. Once the steps for uploading your ballot manifest have been completed, log out before exiting the screen.

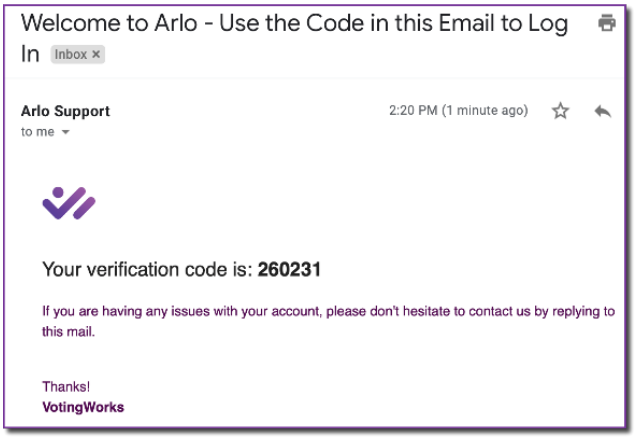
4.6 The Public Meeting

4.6.1 Ballot Retrieval Process

4.6.1.1 Log In to RLA Software

Once the list of ballots to be audited has been generated by the RLA software, participants will log into the RLA software to review the list of ballots they must retrieve to complete the RLA.

1. Using Google Chrome or Safari as your browser, go to this link: https://arlo.voting.works
2. Click Log in to your RLA.
3. Enter email address.
4. Check your email for a new email with the subject "Welcome to Arlo - Use the Code in this Email to Log In" - enter the verification code.

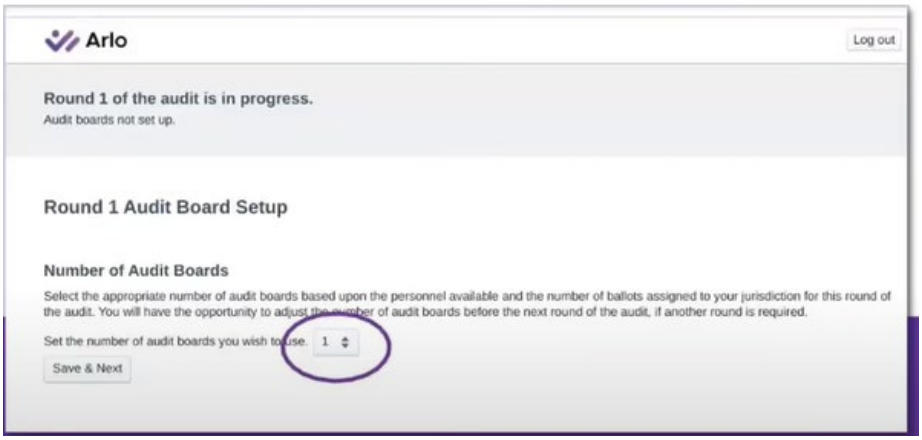


5. Click on the button with the locality name.



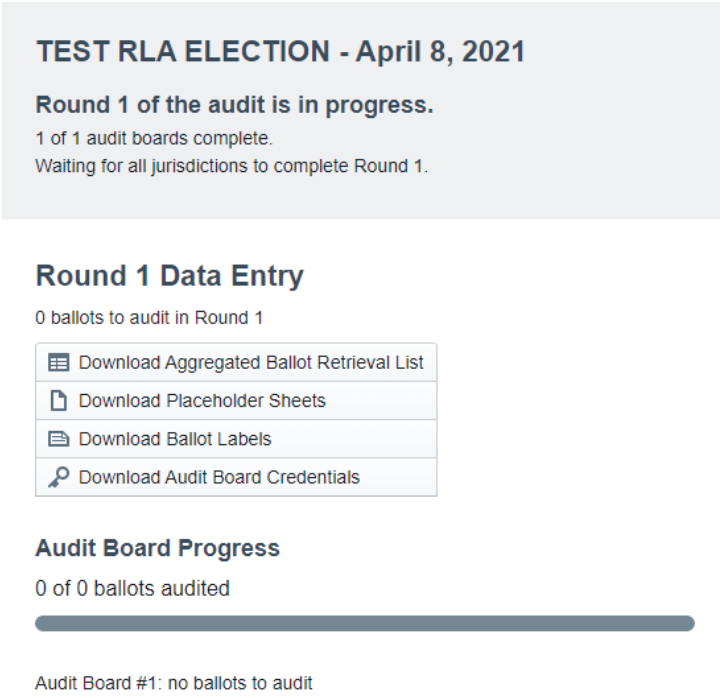
4.6.1.2 Audit Boards

The RLA software will ask how many audit boards will be participating in the RLA.



4.6.1.3 Download and Print

The RLA software will sort ballot retrieval lists, placeholder sheets, ballot labels, and audit board credentials for every audit board. Print each item for each audit board.



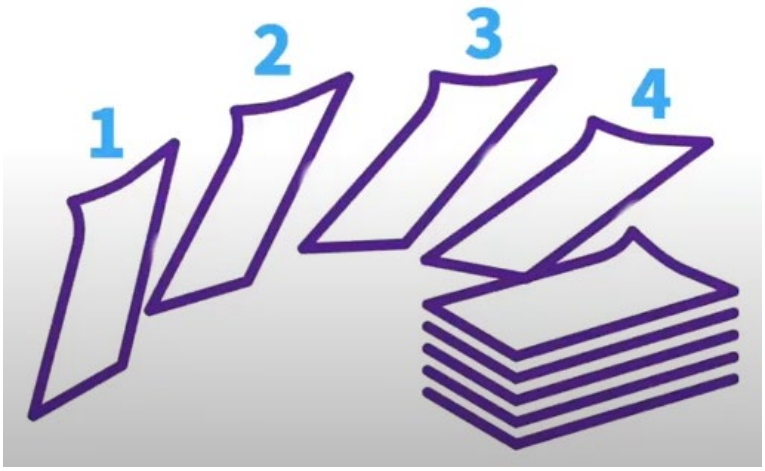
- **Ballot Retrieval List:** A ballot retrieval list is a list of ballots to be retrieved by a locality. The "Batch Name" will be the naming convention used in the ballot manifest. Since the selection is random, precincts may have multiple ballots to be retrieved and some precincts may have none.

	A	B
1	Batch Name	Ballot Number
2	Precinct 1	90
3	Precinct 2	2
4	Precinct 2	197
5	Precinct 4	27
6	Precinct 5	313
7	Precinct 5	578
8	Precinct 5	587

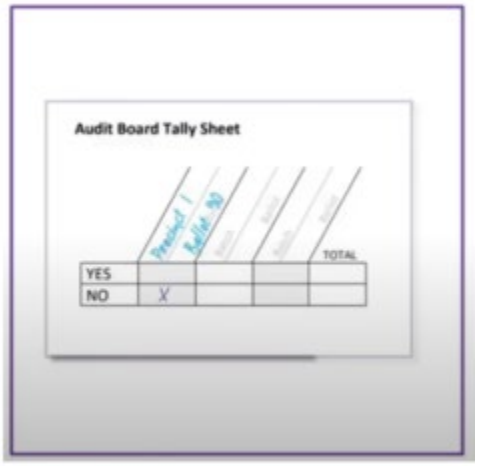
    - The ballot number reflects the numerical order of a specific ballot. To audit ballot number 90 in Precinct 1, for example, a member of the audit board must count from the top, each stored ballot until they reach the 90th ballot in the batch.
- **Placeholder sheets:** Placeholder sheets are individual sheets that contain each batch name and number (ex. Precinct 1, Ballot Number 90). They come in the form of a pdf and are printed on brightly colored paper. These sheets will be used to mark the place of the ballot that is being retrieved in the stack of ballots.
- **Ballot Labels:** Ballot Labels should be placed on ballots when retrieved. A bright-colored removable label is recommended but not required.
- **Audit Board Credentials for Data**: The RLA software will create a username and password for the audit board members. The link at the bottom of the audit board credentials or QR code will direct audit board members to the site to enter in the ballot totals.

4.6.2 Retrieving and Tallying Ballots

1. Review the list of ballots and retrieve the necessary containers.
2. Perform any change of custody that may be required by the Clerk of Court. The chain of custody needs to be documented. ELECT has a sample form that may be used to document the chain of custody, or a locality may design their own form.
3. Remove ballots from the box and place them in a neat stack.
4. Review the *Ballot Retrieval List* to determine what ballot to select.
5. Starting at the top of the stack, count ballots until the desired ballot is reached.



6. Once the ballot needed to be retrieved is reached, pull it out of the stack and insert the placeholder sheet in the stack to mark its position. Place the removable label on the ballot. The placeholder sheets and ballot labels are generated by the RLA software.
7. Once all ballots have been pulled from the containers, the audit board will use the procedures established by ELECT for conducting hand counts of ballots.[16] These procedures are outlined in Forms Warehouse under Election Management, Election Day Instruction and Forms, *Hand Counting-Ballots-Examples*. Include the batch name, ballot number, and the vote on the tally sheet. ELECT has sample tally sheets available for use during an RLA, but a locality may choose to create their own.



8. Localities may return ballot(s) to the appropriate container(s) or keep all the ballots from the RLA in a designated envelope/container.

[16] *See* ELECT, Commonwealth of Virginia, Ballot Examples, Hand Counting Printed Ballots for Virginia Elections or Recounts

9. The containers should be resealed and returned to the Clerk of the Circuit Courts following the Chain of Custody procedures.

4.6.2.1 Alternative Methods to "Counting Down the Stack"

If a locality has a batch that is too large to locate a single ballot efficiently by counting down the stack of ballots, the locality may perform the **K-Cut Method** to locate the ballot or utilize a **Commercial Scale.** The methods are explained in more detail below:

K-Cut Method

To make a k-cut of a given stack of ballots:

- Cut the stack into two parts at *random*, designated a "top" part and a "bottom" part.
- Switch the order of the parts by moving the "bottom" part to the top and the "top" part to the bottom.
- The two parts are placed together.
- Cut the stack at least five times.
- The ballot at the top of the new stack is selected.[17]

A locality must perform a k-cut five times before selecting the top ballot. A random number must be used to dictate the percentage of the cut. One way to randomize the percentage of the cut is to utilize a random number generator set to 1-100.[18] The number generated then becomes the percentage of the cut (*example* 23=23% of the stack is moved to the bottom.) After performing the cut five times the top ballot becomes the retrieved ballot.

Commercial Scale

Localities may utilize a commercial scale to locate a ballot. Using a ballot scale is highly accurate, saves time, and places less stress on a locality's audit board. By calculating the average weight of the ballots, a scale can easily identify the corresponding ballot in a ballot retrieval list.[19]

Helpful Tips and Reminders:

- ELECT has a limited number of counting scales to loan. Localities may send an email to their Elections and Registration Specialist to request the use of a scale.
- ELECT has sample Chain of Custody forms and Tally Sheets available for use in Forms Warehouse.

[17] *See* k-Cut: A Simple Approximately-Uniform Method for Sampling Ballots in Post-Election Audits, Mayuri Sridhar and Ronald L. Rivest, Massachusetts Institute of Technology

[18] *See* Sample Random Number Generator

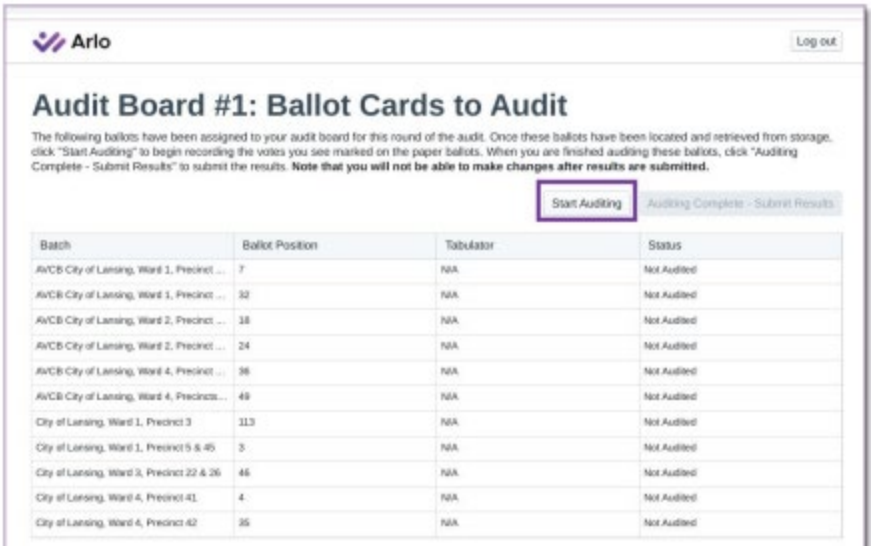
[19] *See* Weight, Weight, Don't Tell Me: Using Scales to Select Ballots for Auditing, Cynthia Sturton, Eric Recorla, and David Wanger, University California Berkeley

4.7 Ballot Entry into the RLA Software

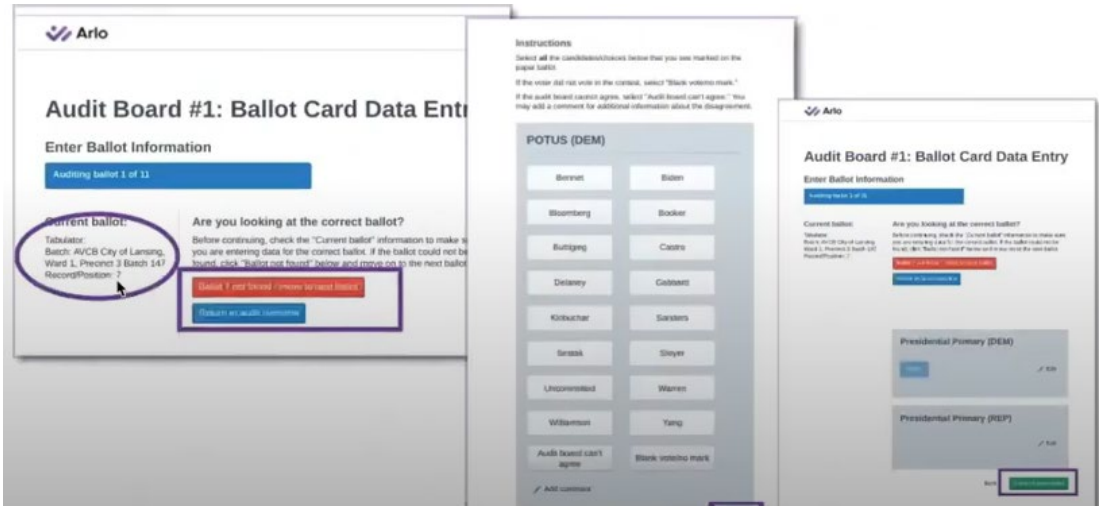
The link and/or QR code found at the bottom of the audit board credentials will take audit board members to the data entry portal to input the results of the RLA. A device with a Wi-Fi connection is needed to record the paper tally sheet. This may include a laptop or a smartphone. If using a smartphone, scan the QR code or type in the URL into the web browser.



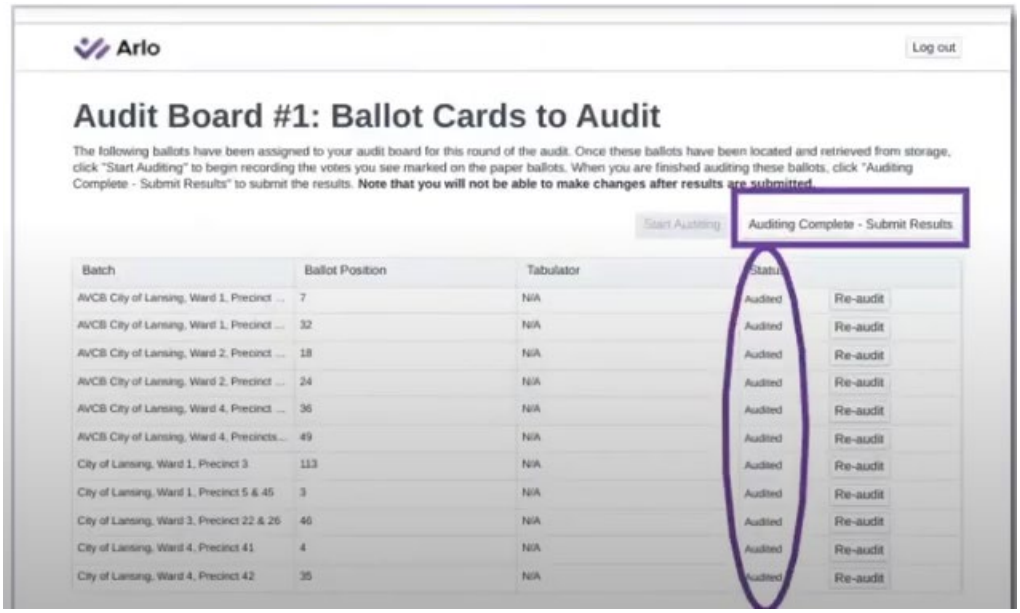
1. The audit board members will be prompted to sign in. The audit board will see the list of ballots. Audit board members will "key in" results from the list of ballots. If a locality has 22 ballots to retrieve, there will be 22 separate fields to record each ballot. ELECT recommends both audit board members participate with one audit board member reading the results and one audit board member entering the results. Audit board members must **both** agree on the results of each ballot.
2. Click the **Start Auditing** button to begin.



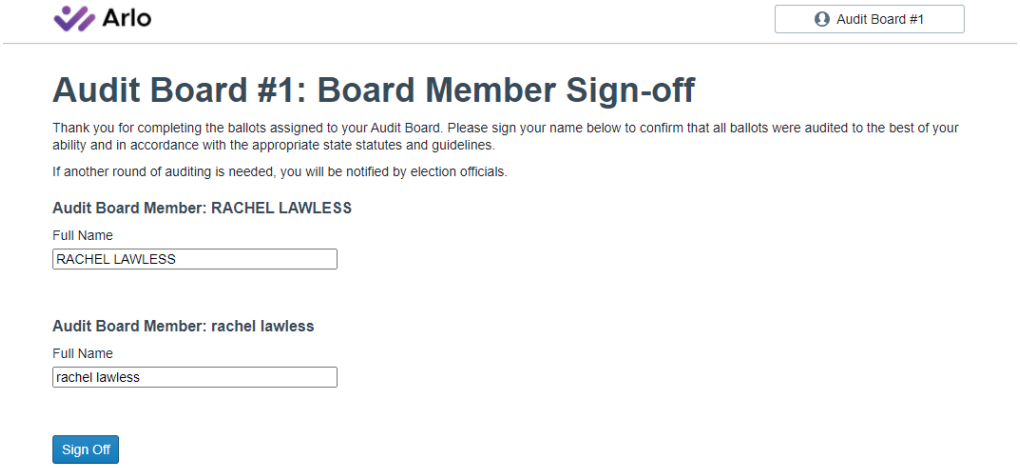
3. Go through the ballots in order.
4. Select the candidate marked on the ballot, both audit board members need to agree with the results. Click Review. Verify accuracy before clicking Submit & Next Ballot button.



5. When all ballots have been inputted, audit boards should return to the audit overview screen to verify every ballot has been entered into the audit software. Once everything has been verified, click the **"Auditing Complete-Submit Results**" button.



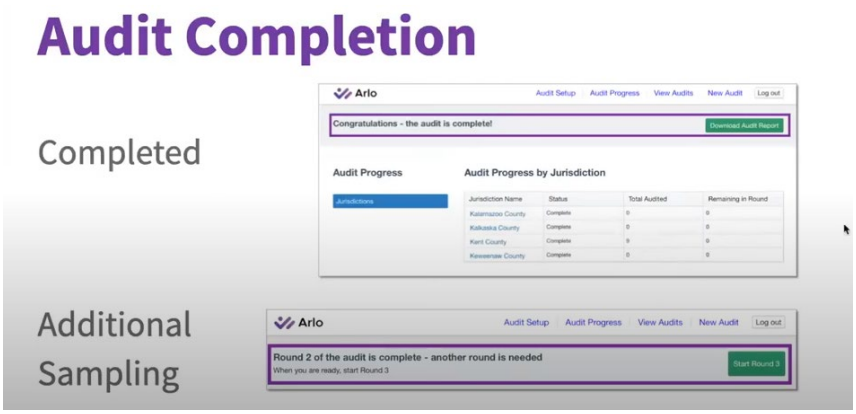
6. Audit board members will sign off. Names must be keyed in exactly how the audit board member signed in. For example, if the caps lock was on when the audit board member signed in, then the caps lock must be on when the audit board member signs out.



4.8 Completion of the Ballot-Polling RLA

When all audit boards have completed their ballot entry and the risk limit has been met, the *Audit Progress* screen will display the message "Congratulations - the audit is complete!"

If the risk limit was not met after all the ballots have been audited for the contest, the audit software will initiate another round of sampling. A new ballot retrieval list, placeholders, labels, and audit board credentials will be generated for an additional round of ballot retrieval. If more than one locality is auditing for the same office, both localities must complete before the software will determine the need for the second round and subsequently generate the new retrieval list(s).



Pursuant to § 24.2-671.2 (I), if an RLA of a contested race escalates to a full hand count, the results of the hand count shall be used to certify the election in lieu of the tabulation of the unofficial results obtained prior to the conduct of the RLA.[20] After a certain number of rounds of RLA and the risk limit has yet to be met, Arlo will indicate that a full hand count is required if it finds the sample size needed is the same as the actual amount of ballots.

[20] *See* Code of Virginia, §24.2-671.2 Risk-Limiting Audits

5. The Batch-comparison Method of the Risk-Limiting Audit

Once a locality has been approved for a batch-comparison RLA, it must do the following:

- Notify the public and participants identified in section 3.2 and 3.4 of this manual;
- Submit an ELECT 659-Request to Inspect Sealed Election Material form;
- Create and upload the ballot manifest as described in section 5.2.1;
- Create and upload the candidate totals by batch file as described 5.2.2; and,
- Gather Supplies for the RLA

5.1 Submitting an ELECT 659-Request to Inspect Sealed Election Material Form

Pursuant to Va. Code § 24.2-659, a locality must receive permission from the ELECT to unseal ballots cast on Election Day for a post-election audit. Localities are required to submit an *ELECT 659-Request to Inspect Sealed Election Material* form to obtain permission. Once submitted, the form is sent to ELECT for signature authorization and then presented to the Clerk of the Circuit Court to access ballots from the election. This form may be found in Forms Warehouse under the RLA section.

5.2 Create the RLA Documents

For a batch-comparison RLA, Arlo requires two documents, a *Ballot Manifest* and a *Candidate Totals by Batch* file. Both documents are discussed below. For the purpose of this manual, a batch is a documented set of ballots created by a voting system, an officer of election, or other election official. In Virginia, a batch is the equivalent of a precinct when utilizing the batch-comparison RLA Method.

5.2.1 Creating a Ballot Manifest

The ballot manifest is an inventory of every ballot cast in a locality for a particular race. A ballot manifest is a two-column Excel spreadsheet created by localities that includes a list of the "Batch Name" (Column A) and the "Number of Ballots" (Column B). Unlike in a ballot-polling ballot manifest, the batches listed in the ballot manifest for a batch comparison audit must be the size of your precincts. For example, if precinct 1 had 100 ballots cast then precinct 1 would be entered under Column A and 100 would be entered under Column B (*see below).*

	A	B
1	Batch Name	Number of Ballots
2	Precinct 1	301
3	Precinct 2	302



Note about Performing Both a Ballot-polling RLA and a Batch-comparison RLA
In the event that your locality has to perform both a ballot-polling RLA and a batch-comparison RLA, the ballot manifest for one may be used for the other. However, in this event, the batches listed in the ballot manifest ***must*** be the same as your precincts. For example, if 100 ballots were cast in Precinct 1, then Batch 1 would have 100 ballots. This is not only for consistency but also so that the candidate by batch file matches with the ballot manifest for a batch-comparison method RLA, discussed in 5.2.2 Creating a Candidate Totals by Batch File. You may also choose to create two separate ballot manifests for each separate method for greater ease in locating ballots.

5.2.2 Creating a Candidate Totals by Batch File

Unlike a ballot-polling method RLA, a batch-comparison RLA needs the amount of ballots cast for each candidate from each batch. Due to various voting systems capabilities and for the purposes of uniformity across the Commonwealth, the size of a batch must be the size of a precinct as that is the only way to get the total number of ballots cast for any candidate. The total number of ballots cast for any candidate must, then, be placed into a spreadsheet called the *Candidate Totals by Batch File*, which outlines each batch of ballots and how many ballots were cast for each candidate in a particular batch.

To create a *Candidate Totals by Batch File*, open a spreadsheet program to create a simple spreadsheet.

- Column A labeled “Batch Name” is for your batch name. The batch names in column A must match the batch names in your ballot manifest.
- Additional columns should be labeled with the names of the candidates. You should use the names on the ballot. Write-ins may be lumped together unless they have reached the threshold for a write-in certification.

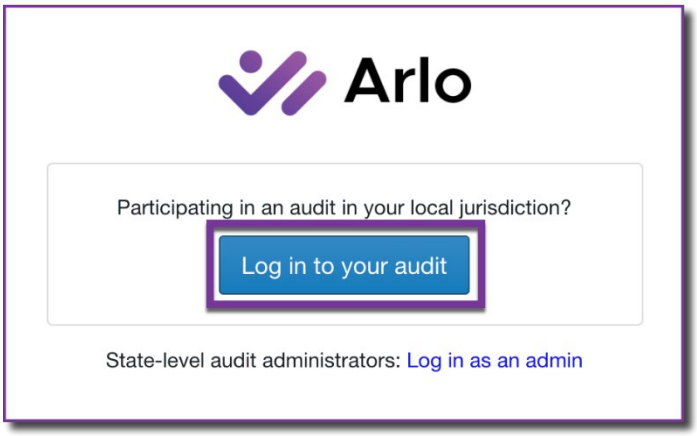
	A	B	C	D
1	Batch Name	John Doe	Jane Smith	Write-in
2	Precinct 1	100	200	1
3	Precinct 2	200	100	2

Enter the data for your locality from your statements of results. When you're finished, review the spreadsheet to ensure the total number of batches matches the number of batches in your ballot manifest and that the candidate totals are correct. Then, save the file as a .csv file.

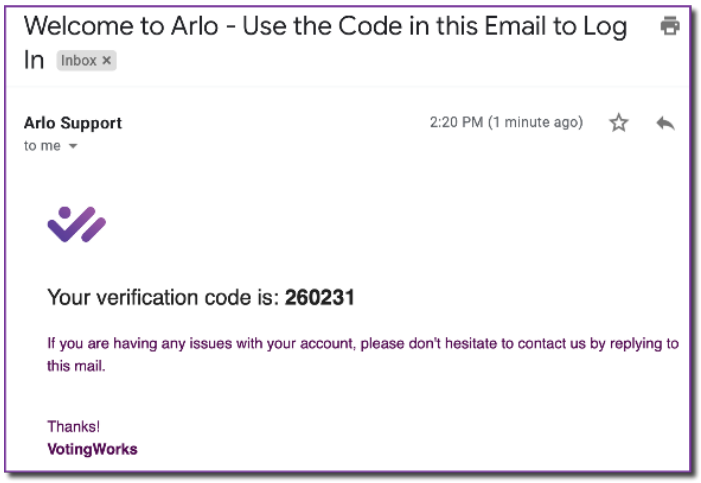
5.3 Uploading the Ballot Manifest and Candidate Totals by Batch files

Once the ballot manifest and the candidate totals by batch files are created, participants will save the ballot manifest and candidate totals by batch files as .**csv files (**CSV UTF-8, CSV (Macintosh) or CSV (MS-DOS) are all acceptable) and upload the spreadsheets into the auditing software. The RLA software will let participants know if a mistake has been made when creating or uploading the files by generating an error message. Mistakes can include: empty rows, incorrect file formats (the manifest must be saved as a .csv file), or ballot totals in any rows or columns. The ballot manifest and the candidate total by batch files must be uploaded no later than the Thursday after the SBE's random draw. Once the files are uploaded the RLA can begin. Detailed instructions, on how to upload a ballot manifest and the candidate totals by batch into the current auditing software, are listed below:

1. Using Google Chrome or Safari as your browser, go to this link: https://arlo.voting.works
2. Click Log in to your audit.



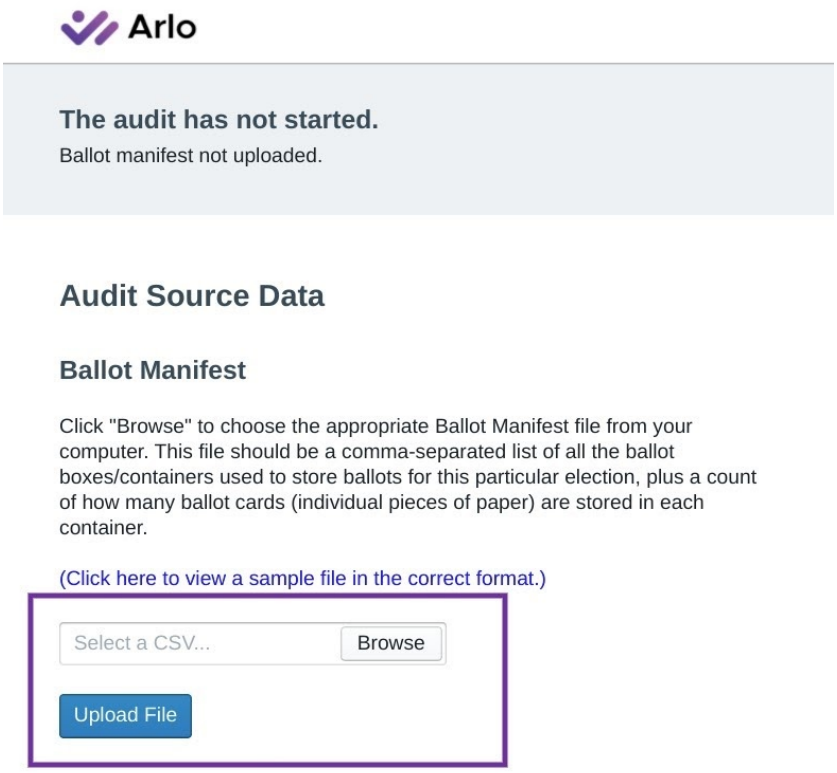
3. Enter email address.
4. Check your email for a new email with the subject "Welcome to Arlo - Use the Code in this Email to Log In" - enter the verification code.



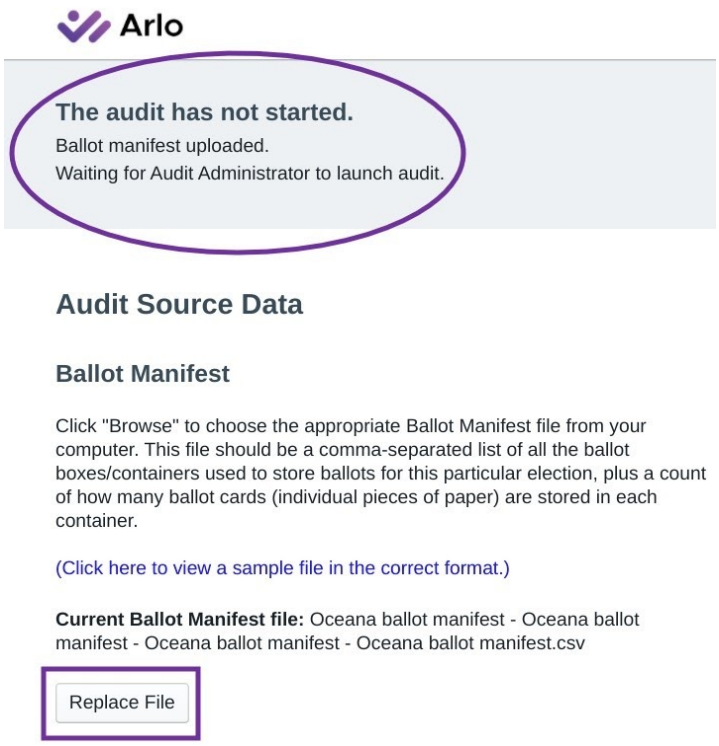
5. Click on the button with the locality name.



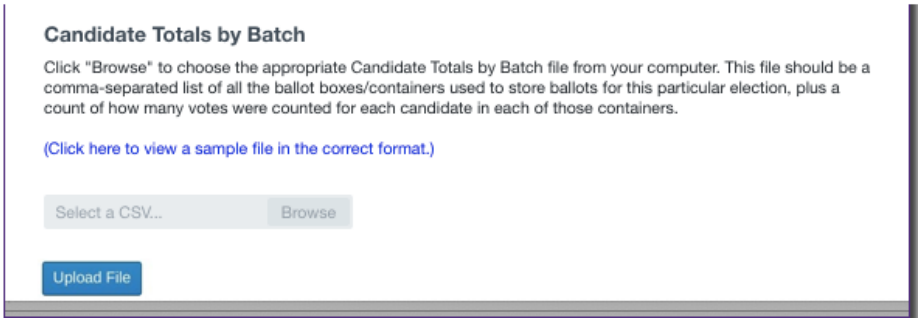
6. Click the Browse button and navigate to the ballot manifest .csv file that was created. Once selected, click Upload File.



7. When the upload is successful, a message will appear at the top of the screen that says “Ballot manifest uploaded.” If a mistake is found after a ballot manifest has been uploaded, participants have the option to log back in and use the **Replace File** button to update the file.



7. Next, a prompt will appear below the Ballot Manifest section to upload the Candidate Totals by Batch. click the Browse button to navigate to the candidate totals by batch .csv file. Once selected, click the Upload File button. Remember, the batch names in the Candidate Totals by Batch file must match the batch names in the ballot manifest and the totals listed in the Candidate Totals by Batch match your statements of results.



5.4 Retrieving and Tallying

After the audit begins, the locality will receive a batch retrieval list. To retrieve batches, refer to your batch retrieval list to determine what batches are needed. Each batch retrieval list will show the batch name and the audit board selected to tally the batch.

	A	B
1	Batch Name	Audit Board
2	Precinct 1	Audit Board 1
3	Precinct 2	Audit Board 2

- Retrieve the correct container(s) using the required chain of custody verification steps.
- Pull the entire batch of ballots out of the storage container and organize it into a neat stack of ballots. If the container contains more than 1000 ballots, ballots should be removed from the container and sorted in manageable stacks, leaving the rest of the ballots in the container until the previous stack is tallied.[21]

5.4.1 Methods for Retrieving Ballots

There are two methods for retrieving and tallying during a batch-comparison RLA. For larger batches, multiple audit review boards may be assigned. Audit review boards should be encouraged to prioritize accuracy over speed; it is better to have the correct count the first time and it take more time than to have to redo the count.

The Sort-and-Stack Method[22]

a. For each ballot: one audit board member picks up a single ballot from the stack and reads the vote for the contest being audited aloud, then hands the ballot to the second audit board member.
    i. The second audit board member verifies the vote that is on the ballot is indeed what the first audit board member read, then places the ballot in the "stack" that corresponds to the vote.
    ii. The first audit board member should watch to make sure the ballot is placed in the correct stack.
    iii. A stack should be created for each contest choice (including write-in), overvoted/blank/undervoted ballots, duplicated ballots, and ballots where the audit board cannot agree on the voter's intent.
b. Count the ballots in each stack by having one member of the audit board verbally count the ballot while handing it to the other member for verification.
    i. Count the ballots in groups of 10, stacking the groups at right angles to each other, so you can easily count the complete groups when you are

[21] *See* VotingWorks, Batch Retrieval & Tally
[22] *Id.*

done. For instance, if you have seven groups of 10 ballots each plus an extra 3 ballots, the total tally would be 73.

ii. Record the total tally for each candidate on the Audit Board Batch Tally Sheet.

The Hashmarking Method[23]

a. Prepare a Tally Sheet

iii. For this method, a tally sheet should be prepared. The tally sheet should:

1. be organized in the same order as the ballot.
2. list each contest and associated choices (including write-ins when applicable) to be audited.
3. include a space for overvotes and blank/undervotes for each contest.
4. have space for tally marks after each choice.

b. Tally the Votes: One audit board member reads the choice for the first contest being audited to the second audit board member who makes a tally mark on the tally sheet. Repeat for all contests being audited. Ideally, a third audit board member should observe the ballot marks and tally sheet tallies.

i. Completing this process in groups of 20, 50, 100, or some other set number allows for verification checks throughout the process. Once the set number is completed, add up the tally marks to ensure the same number was tallied for each contest.

c. Complete Audit Board Batch Tally Sheet: When all ballots are tallied, total the tally marks and complete the Audit Board Batch Tally Sheet.

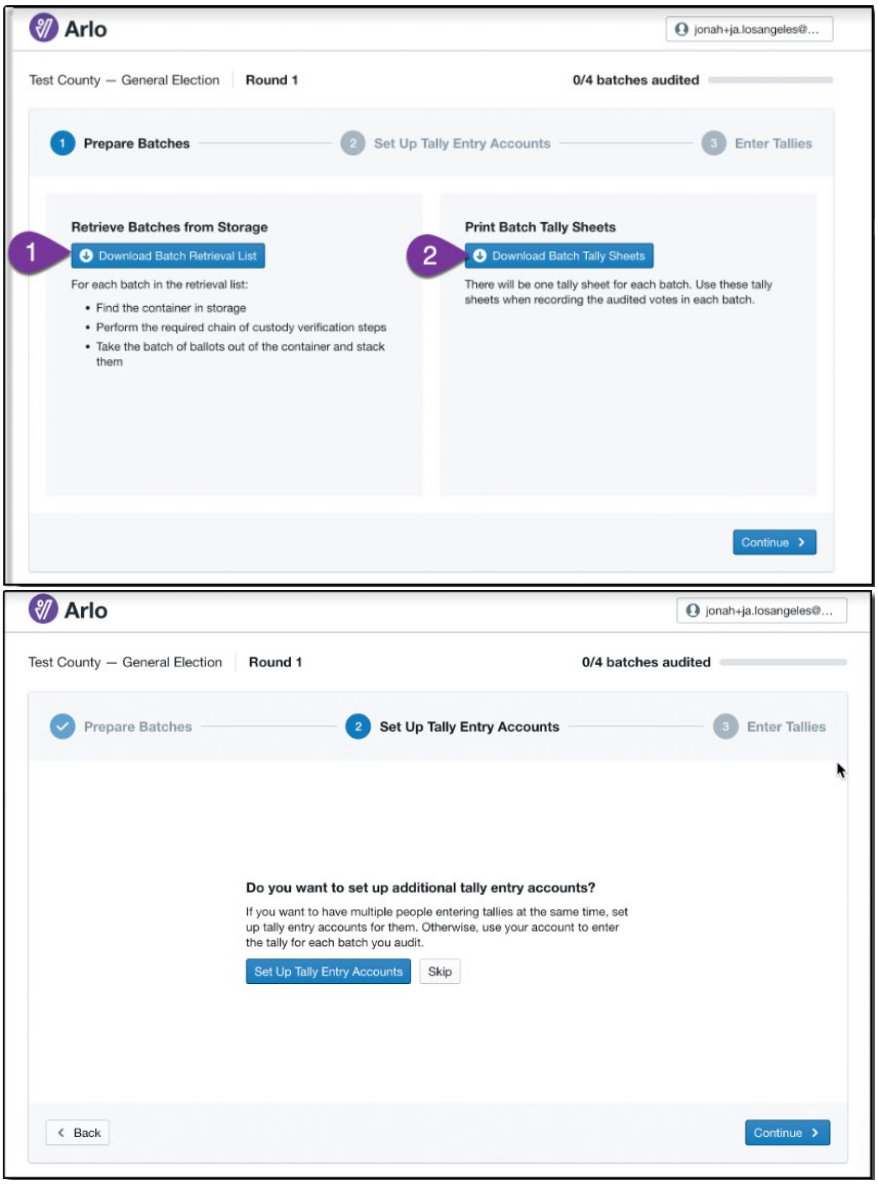
5.5 Batch Tally Entry into Arlo

All tallies from the batches selected must be uploaded into Arlo; the audit will remain open until all tallies have been uploaded. Tallies can be entered by audit boards, a specified member of the staff, an electoral board member, or the GR.

To create tally entry accounts for audit boards or for a specified individual, select Set Up Tally Entry Accounts on the Set Up Tally Entry Accounts screen. If only one designated participant will be entering tallies, select Skip.[24]

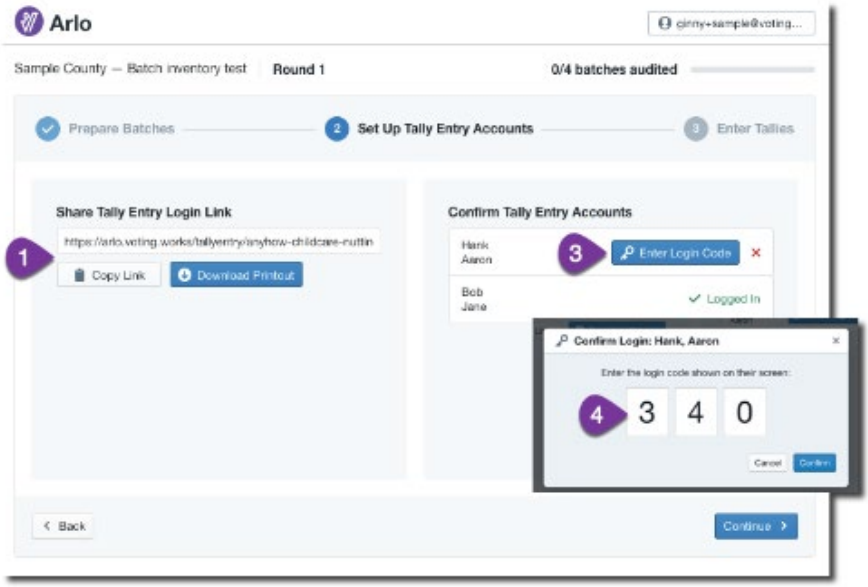
[23] *Id.*

[24] *See* VotingWorks, Batch Tally Entry into Arlo, Voting Works

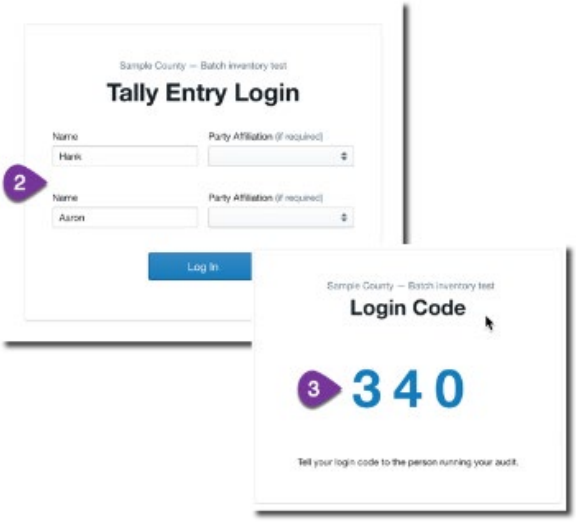


A designated participant should provide the audit boards or the specified individual with the login link displayed on the screen (each link is unique). Then, the audit board or specified individual should Log In by entering their name(s) and party affiliation, if provided. A login code will be provided, the participants enter that code to authenticate the Tally Entry User(s) by selecting Enter Login Code, entering the code, and selecting Confirm to complete the login process.[25]

[25] *Id.*



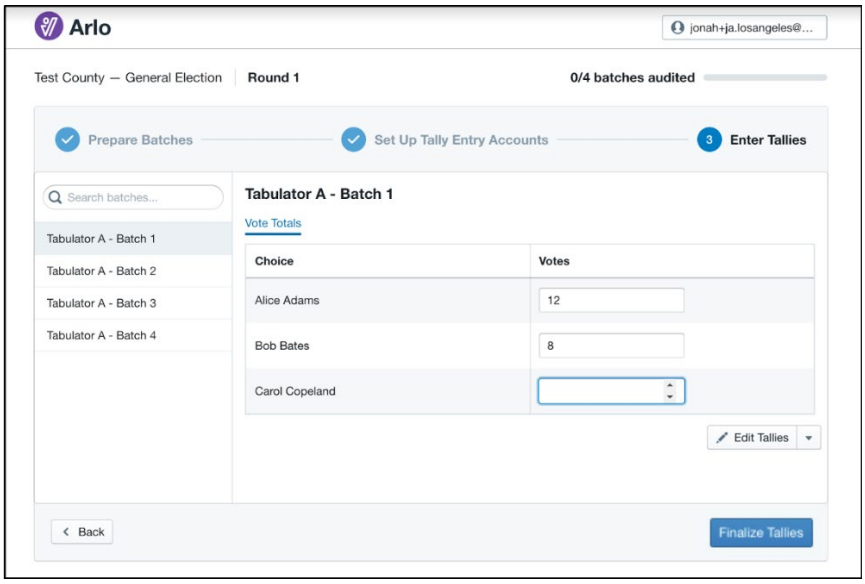
Jurisdiction Manager



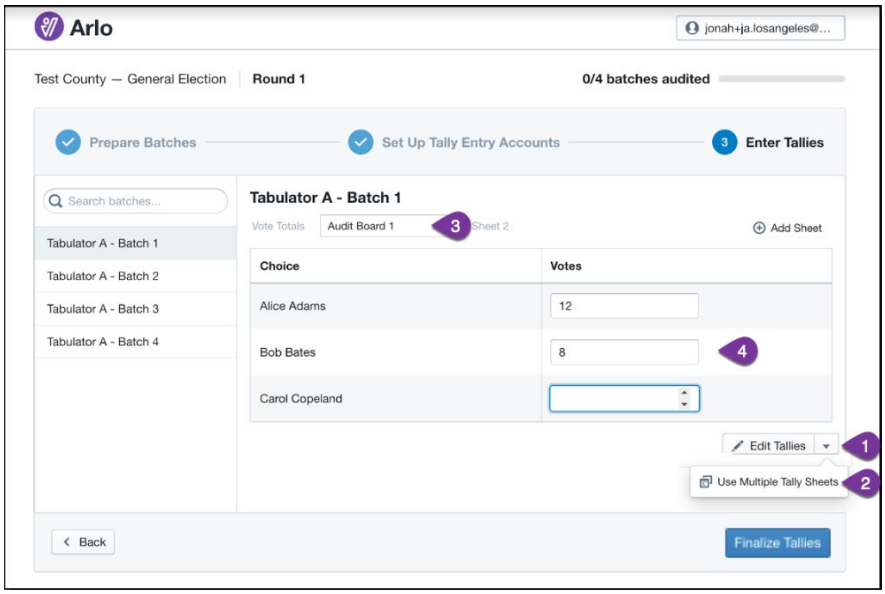
Tally Entry User

To enter the candidate totals for a batch, select the batch from the list on the left-hand side of the Enter Tallies screen or use the search batches function, and, then, click Edit Tallies, enter the vote totals from the Batch Tally Sheet, and select Save Results.[26] Once all batches have been entered and reviewed, a designated participant can select Finalize Tallies.[27]

[26] *Id.*
[27] *Id.*



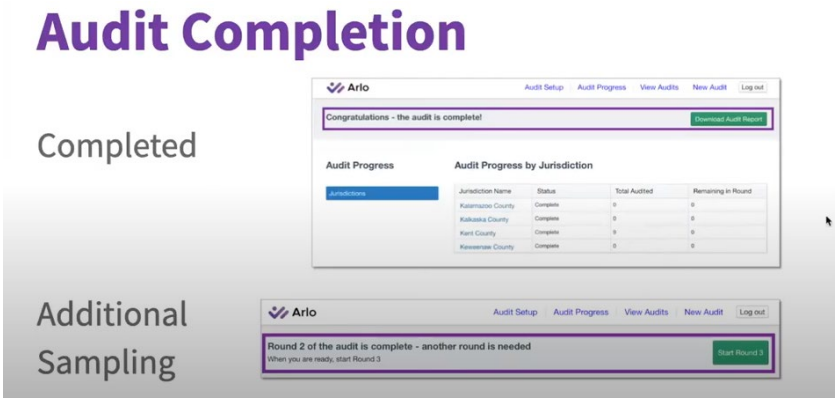
If multiple Audit Board Batch Tally Sheets were used to tally a batch, select the drop-down next to Edit Tallies and select Use Multiple Tally Sheets to enter more than one tally sheet. The individual who enters the tally sheet should edit the name at the top to identify who completed the entry of the Batch Tally Sheet; this helps keep a chain of custody for the data entered. Next, enter the votes, and select Save Sheet (the Edit Tallies button changes to Save Sheet after selection).[28] Select Sheet 2 to add another Batch Tally Sheet, and Select +Add Sheet to add another Tally Sheet as needed.[29] The Vote Totals tab is the sum of votes for all sheets entered.[30]



[28] *Id.*
[29] *Id.*
[30] *Id.*

5.6 Completion of a Batch-comparison RLA

When all audit boards have completed their tally entry and the risk limit has been met, the *Audit Progress* screen will display the message "Congratulations - the audit is complete!"
If the risk limit was not met after all the batches have been audited for the contest, the audit software will initiate another round of sampling. A new batch retrieval list, placeholders, labels, and audit board credentials will be generated for an additional round of batch retrieval.



Pursuant to § 24.2-671.2 (I), if an RLA of a contested race escalates to a full hand count, the results of the hand count shall be used to certify the election in lieu of the tabulation of the unofficial results obtained prior to the conduct of the RLA.[31] After a certain number of rounds of RLA and the risk limit has yet to be met, Arlo will indicate that a full hand count is required if it finds the sample size needed is the same as the actual amount of ballots.

6. Results

At the conclusion of the RLA, ELECT will submit a report to the SBE on the findings of the RLA. If your locality is participating in an RLA and would like to provide feedback to be included in the report, contact your RLA Administrator from ELECT with your findings. The report will include the results of the RLA as well as an analysis of any detected discrepancies. ELECT has also created a sample press release template that localities may utilize. This press release is found in the RLA section in Forms Warehouse.

[31] *See* Code of Virginia, §24.2-671.2 Risk-Limiting Audits

7. APPENDIX

7.1 Code

7.1.1 § 24.2-671.2. Risk Limiting Audits

A. For the purposes of this section:

"Contested race" means an election for an office where more names appear on the ballot then there are vacancies to be filled or a statewide referendum or proposed constitutional amendment.

"Risk limit" means the largest probability that the Risk Limiting Audit will fail to correct an election outcome that differs from the outcome that would be found by a full manual tabulation of the votes on all ballots cast in the contested race.

"Risk Limiting Audit" means an audit protocol conducted after an election and prior to the certification of the election results with a pre-specified minimum probability of requiring a full hand count of votes cast if the outcome reported by the voting system differs from the outcome that would be found by a full hand count of the votes in a contested race. A "Risk Limiting Audit" requires a hand count of randomly sampled printed ballots that continues until there is either strong statistical evidence that the reported outcome is accurate or, in the absence of such evidence, a full hand count of all ballots cast in the contested race that determines the outcome.

B. Risk Limiting Audits conducted pursuant to this section shall be performed by the local electoral boards and general registrars under the supervision of the Department and in accordance with the procedures prescribed by the State Board, including:

1. Processes for randomly selecting contested races and determining the risk limit.

2. Procedures for preparing for a Risk Limiting Audit, including guidelines for organizing ballots, selecting venues, and securing appropriate materials by local electoral boards and general registrars.

3. Procedures for ballot custody, accounting, security, and written record retention that ensure that the collection of cast ballots from which samples are drawn is complete and accurate throughout the audit.

4. Procedures for hand counting of the audited ballots.

5. Processes and methods for conducting the Risk Limiting Audit.

6. Procedures for ensuring transparency and understanding of the process by participants and the public, including guidelines for direct observation by members of the public, representatives of the candidates involved in the Risk Limiting Audit, and representatives of the political parties.

C. The Department shall provide that the following Risk Limiting Audits be conducted:

1. In the year of a general election for members of the United States House of Representatives, a Risk Limiting Audit of at least one randomly selected contested race for such office;

2. (Effective July 1, 2023) In the year of a general election for members of the General Assembly, a Risk Limiting Audit of at least one randomly selected contested race for such office;

3. (Effective July 1, 2024) In any year in which there is not a general election for a statewide office, a Risk Limiting Audit of at least one randomly selected contested race for a local office, including constitutional offices, for which certification by the State Board is required under § 24.2-680; and,

4. (Effective July 1, 2023) In any year, any other Risk Limiting Audit of a contested race that is necessary to ensure that each locality participates in a Risk Limiting Audit of an office within its jurisdiction at least once every five years or that the State Board finds appropriate. Such audits must be approved by at least a two-thirds majority vote of all members of the Board.

D. A local electoral board may request that the State Board approve the conduct of a Risk Limiting Audit for a contested race within the local electoral board's jurisdiction. The state board shall promulgate regulations for submitting such requests. The State Board shall grant an extension of the local electoral board's certification deadline under § 24.2-671 as necessary to accommodate the conduct of a Risk Limiting Audit conducted pursuant to this subsection. The Department may count a Risk Limiting Audit conducted pursuant to this subsection toward the requirement in subdivision C 4.

E. Notwithstanding the provisions of subsections C and D, no contested race shall be selected to receive a Risk Limiting Audit if the tabulation of the unofficial result for the contested race shows a difference of not more than one percent of the total vote cast for the top two candidates.

F. Upon the tabulation of the unofficial results of an election, the State Board shall determine, in accordance with subsection C, all the contested races for that election that will receive a Risk Limiting Audit and shall set the risk limit to be applied in such audits. As soon as practicable after selection of the contests to be audited, the Department shall publish a notice of the contested races in accordance with the requirements for public meetings in § 2.2-3707. The Department shall provide support to local electoral boards and general registrars in preparing to hold the Risk Limiting Audits.

G. The local electoral board and general registrar shall conduct a Risk Limiting Audit within their jurisdiction at the date, time, and location noticed by the Department. At least one member of the EB representing each party shall participate in the Risk Limiting Audit and be present for the duration of the Risk Limiting Audit when ballots are being selected and counted and calculations are being made. All Risk Limiting Audits shall be conducted in a place and manner that is open to the public. At the conclusion of a Risk Limiting Audit, all audit materials, including ballots and any records generated during the course of the audit, shall be delivered to the clerk of the circuit court and retained as election materials pursuant to § 24.2-668.

H. The local electoral board in coordination with the general registrar shall promptly report the results of a Risk Limiting Audit of any contested races subject to § 24.2-680 in their jurisdiction to the Department. The results of any Risk Limiting Audit for a local contested race shall also be retained by the local electoral board. At the conclusion of each Risk Limiting Audit requiring certification by the State Board, the Department shall submit to the State Board a report, which shall include all data generated by the Risk Limiting Audit and all information required to confirm that the Risk Limiting Audit was conducted in accordance with the procedures adopted by the State Board. The Department shall publish the results of all Risk Limiting Audits pursuant to this section on the Department's website.

I. If a Risk Limiting Audit of a contested race escalates to a full hand count, the results of the hand count shall be used to certify the election in lieu of the tabulation of the unofficial results obtained prior to the conduct of the Risk Limiting Audit. A full hand count conducted pursuant to this section shall not be construed as a recount under Chapter 8 (§ 24.2-800 et seq.). Nothing in this section shall be construed to limit the rights of a candidate under Chapter 8.
2022, cc. 443, 444.

7.1.2 § 24.2-669. Clerk to keep ballots; inspection; destruction.

The clerk to whom the counted and uncounted ballots are delivered shall, without breaking the seal, deposit them in a secure place in his office, where they shall be kept for the time required by this section. He shall not allow the ballots to be inspected except (i) by an authorized representative of the State Board or by the electoral board at the direction of the State Board to ensure the accuracy of the returns or the purity of the election, (ii) by the officers of election, and then only at the direction of the electoral board in accordance with § 24.2-672 when the provisions of § 24.2-662 have not been followed, (iii) on the order of a court before which there is pending a proceeding for a contest or recount under Chapter 8 (§ 24.2-800 et seq.) of this title or before whom there is then pending a proceeding in which the ballots are necessary for use in evidence, or (iv) for the purpose of conducting an audit as part of a post-election pilot program pursuant to § 24.2-671.1. In the event that ballots are inspected under clause (i), (ii), or (iv) of this paragraph, each political party and each independent candidate on the ballot, or each primary candidate, shall be entitled to have a representative present during such inspection. The representatives and observers lawfully present shall be prohibited from interfering with the officers of election in any way. The State Board or local electoral board shall provide such parties and candidates reasonable advance notice of the inspection.

After the counted ballots for a federal election have remained in the clerk's office for two years, if no election contest or other proceeding is pending in which such ballots may be needed as evidence, the clerk shall destroy such ballots. After the counted ballots for any other election have remained in the clerk's office for one year, if no election contest or other proceeding is pending in which such ballots may be needed as evidence, the clerk shall destroy such ballots. After the unused ballots have remained in the clerk's office and the time has expired for initiating a recount, contest, or other proceeding in which such ballots may be needed as

evidence and no such contest or proceeding is pending, the clerk may then destroy the unused ballots other than punchcard ballots, which shall be returned to the electoral board.

7.1.3 §24.2-671 Electoral Board to Meet and Ascertain Results; Conclusiveness of Results

Each electoral board shall meet at the clerk's or general registrar's office of the county or city for which they are appointed at or before 5:00 p.m. on the day after any election. The board may adjourn to another room of sufficient size in a public building to ascertain the results, and may adjourn as needed, not to exceed seven calendar days from the date of the election unless an extension has been granted to accommodate a Risk Limiting Audit conducted pursuant to § 24.2-671.2. Written directions to the location of any room other than the clerk's or general registrar's office where the board will meet shall be posted at the doors of the clerk's and general registrar's offices prior to the beginning of the meeting.
The board shall open the returns delivered by the officers.

If the electoral board has exercised the option provided by § 24.2-668 for delivery of the election materials to the office of the general registrar on the night of the election, the electoral board shall meet at the office of the general registrar at or before 5:00 p.m. on the day after any election.

The board shall ascertain from the returns the total votes in the county or city, or town in a town election, for each candidate and for and against each question and complete the abstract of votes cast at such election, as provided for in § 24.2-675. For any office in which no person was elected by write-in votes, and for which the total number of write-in votes for that office is less than (i) 10 percent of the total number of votes cast for that office and (ii) the total number of votes cast for the candidate receiving the most votes, the electoral board shall ascertain the total votes for each write-in candidate for the office within one week following the election. For offices for which the electoral board issues the certificate of election, the result so ascertained, signed and attested, shall be conclusive and shall not thereafter be subject to challenge except as specifically provided in Chapter 8 (§ 24.2-800 et seq.).
Once the result is so ascertained, the secretary of the electoral board shall deliver one copy of each statement of results to the general registrar to be available for inspection when his office is open for business. The secretary shall then return all pollbooks, any printed inspection and return sheets, and one copy of each statement of results to the clerk.

Beginning with the general election in November 2007, a report of any changes made by the local electoral board to the unofficial results ascertained by the officers of election or any subsequent change to the official abstract of votes made by the local electoral board shall be forwarded to the State Board of Elections and the explanation of such change shall be posted on the State Board website.

Each political party and each independent candidate on the ballot, or each primary candidate, shall be entitled to have representatives present when the local electoral board meets to ascertain the results of the election. Each such party and candidate shall be entitled to have at least as many representatives present as there are teams of officials working to ascertain the

results, and the room in which the local electoral board meets shall be of sufficient size and configuration to allow the representatives reasonable access and proximity to view the ballots as the teams of officials work to ascertain the results. The representatives and observers lawfully present shall be prohibited from interfering with the officials in any way. It is unlawful for any person to knowingly possess any firearm as defined in § 18.2-308.2:2 within 40 feet of any building, or part thereof, used as a meeting place for the local electoral board while the electoral board meets to ascertain the results of an election, unless such person is (a) any law-enforcement officer or any retired law-enforcement officer qualified pursuant to subsection C of § 18.2-308.016; (b) occupying his own private property that falls within 40 feet of a polling place; or (c) an armed security officer, licensed pursuant to Article 4 (§ 9.1-138 et seq.) of Chapter 1 of Title 9.1, whose employment or performance of his duties occurs within 40 feet of any building, or part thereof, used as a meeting place for the local electoral board while the electoral board meets to ascertain the results of an election.

7.1.4 § 2.2-3707. Meetings to be public; notice of meetings; recordings; minutes.

A. All meetings of public bodies shall be open, except as provided in §§ 2.2-3707.01 and 2.2-3711.

B. No meeting shall be conducted through telephonic, video, electronic or other electronic communication means where the members are not physically assembled to discuss or transact public business, except as provided in § 2.2-3708.2 or as may be specifically provided in Title 54.1 for the summary suspension of professional licenses.

C. Every public body shall give notice of the date, time, and location of its meetings by:

1. Posting such notice on its official public government website, if any;

2. Placing such notice in a prominent public location at which notices are regularly posted; and

3. Placing such notice at the office of the clerk of the public body or, in the case of a public body that has no clerk, at the office of the chief administrator.

All state public bodies subject to the provisions of this chapter shall also post notice of their meetings on a central, publicly available electronic calendar maintained by the Commonwealth. Publication of meeting notices by electronic means by other public bodies shall be encouraged.

The notice shall be posted at least three working days prior to the meeting.

D. Notice, reasonable under the circumstance, of special, emergency, or continued meetings shall be given contemporaneously with the notice provided to the members of the public body conducting the meeting.

E. Any person may annually file a written request for notification with a public body. The request shall include the requester's name, address, zip code, daytime telephone number, electronic mail address, if available, and organization, if any. The public body receiving such request shall provide notice of all meetings directly to each such person. Without objection by

the person, the public body may provide electronic notice of all meetings in response to such requests.

F. At least one copy of the proposed agenda and all agenda packets and, unless exempt, all materials furnished to members of a public body for a meeting shall be made available for public inspection at the same time such documents are furnished to the members of the public body. The proposed agendas for meetings of state public bodies where at least one member has been appointed by the Governor shall state whether or not public comment will be received at the meeting and, if so, the approximate point during the meeting when public comment will be received.

G. Any person may photograph, film, record or otherwise reproduce any portion of a meeting required to be open. The public body conducting the meeting may adopt rules governing the placement and use of equipment necessary for broadcasting, photographing, filming, or recording a meeting to prevent interference with the proceedings, but shall not prohibit or otherwise prevent any person from photographing, filming, recording, or otherwise reproducing any portion of a meeting required to be open. No public body shall conduct a meeting required to be open in any building or facility where such recording devices are prohibited.

H. Minutes shall be recorded at all open meetings. However, minutes shall not be required to be taken at deliberations of (i) standing and other committees of the General Assembly; (ii) legislative interim study commissions and committees, including the Virginia Code Commission; (iii) study committees or commissions appointed by the Governor; or (iv) study commissions or study committees, or any other committees or subcommittees appointed by the governing bodies or school boards of counties, cities and towns, except where the membership of any such commission, committee or subcommittee includes a majority of the governing body of the county, city or town or school board.

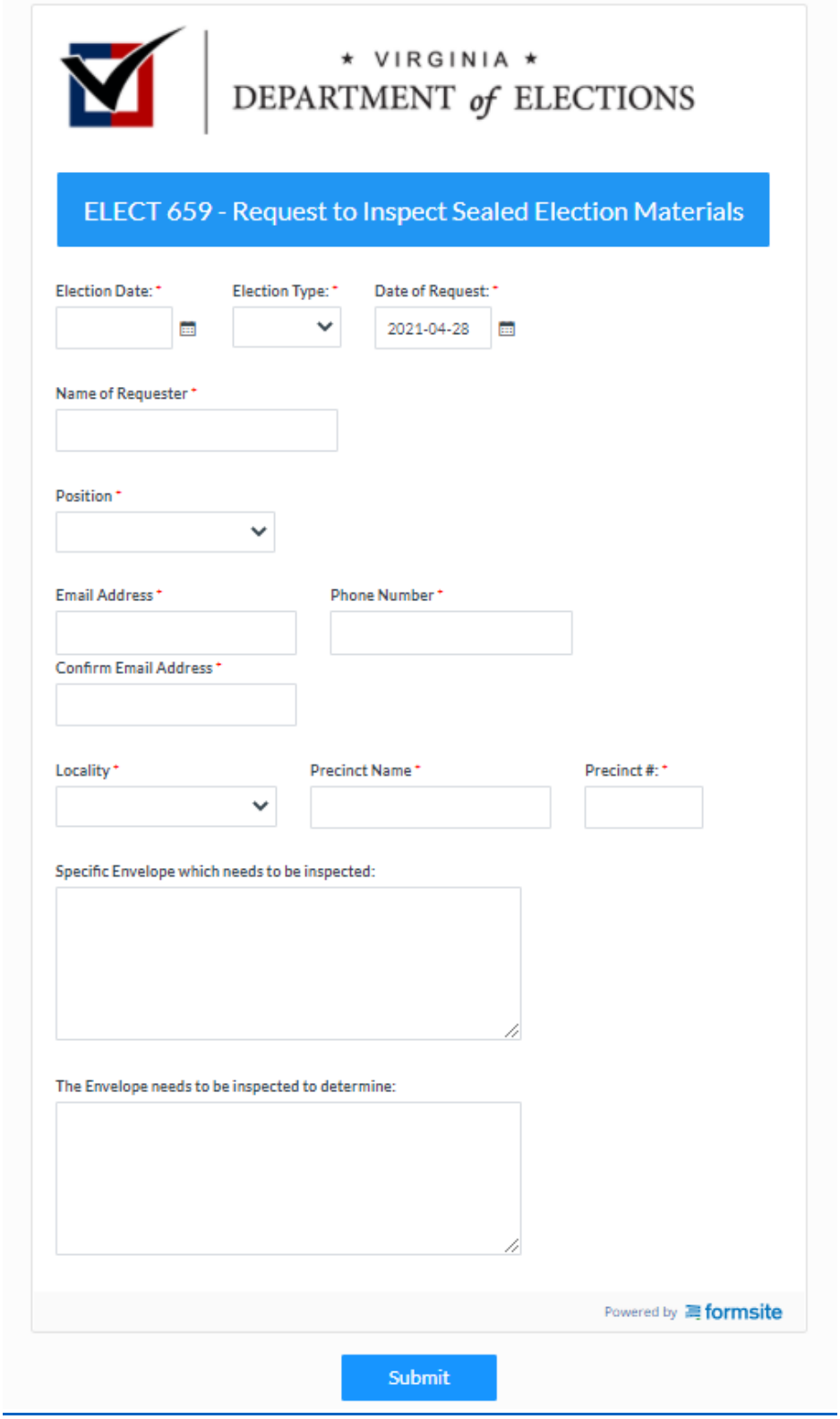
Minutes, including draft minutes, and all other records of open meetings, including audio or audio/visual records shall be deemed public records and subject to the provisions of this chapter.

Minutes shall be in writing and shall include (a) the date, time, and location of the meeting; (b) the members of the public body recorded as present and absent; and (c) a summary of the discussion on matters proposed, deliberated, or decided, and a record of any votes taken. In addition, for electronic communication meetings conducted in accordance with § 2.2-3708.2, minutes of state public bodies shall include (1) the identity of the members of the public body at each remote location identified in the notice who participated in the meeting through electronic communication means, (2) the identity of the members of the public body who were physically assembled at the primary or central meeting location, and (3) the identity of the members of the public body who were not present at the locations identified in clauses (1) and (2) but who monitored such meeting through electronic communication means.

1968, c. 479, § 2.1-343; 1973, c. 461; 1976, c. 467; 1977, c. 677; 1982, c. 333; 1989, c. 358; 1990, c. 538; 1993, c. 720; 1995, c. 562; 1999, cc. 696, 703, 726; 2000, c. 227; 2001, c. 844;

2004, cc. 730, 768; 2005, c. 352; 2007, c. 300; 2009, c. 628; 2010, c. 309; 2015, c. 131; 2017, c. 616; 2018, c. 55.

7.2 ELECT 659-Request to Inspect Sealed Election Material



★ VIRGINIA ★
DEPARTMENT of ELECTIONS

ELECT 659 - Request to Inspect Sealed Election Materials

Election Date: *

Election Type: *

Date of Request: *
2021-04-28

Name of Requester *

Position *

Email Address *

Phone Number *

Confirm Email Address *

Locality *

Precinct Name *

Precinct #: *

Specific Envelope which needs to be inspected:

The Envelope needs to be inspected to determine:

Powered by formsite

Submit

7.3 RLA Chain of Custody Log

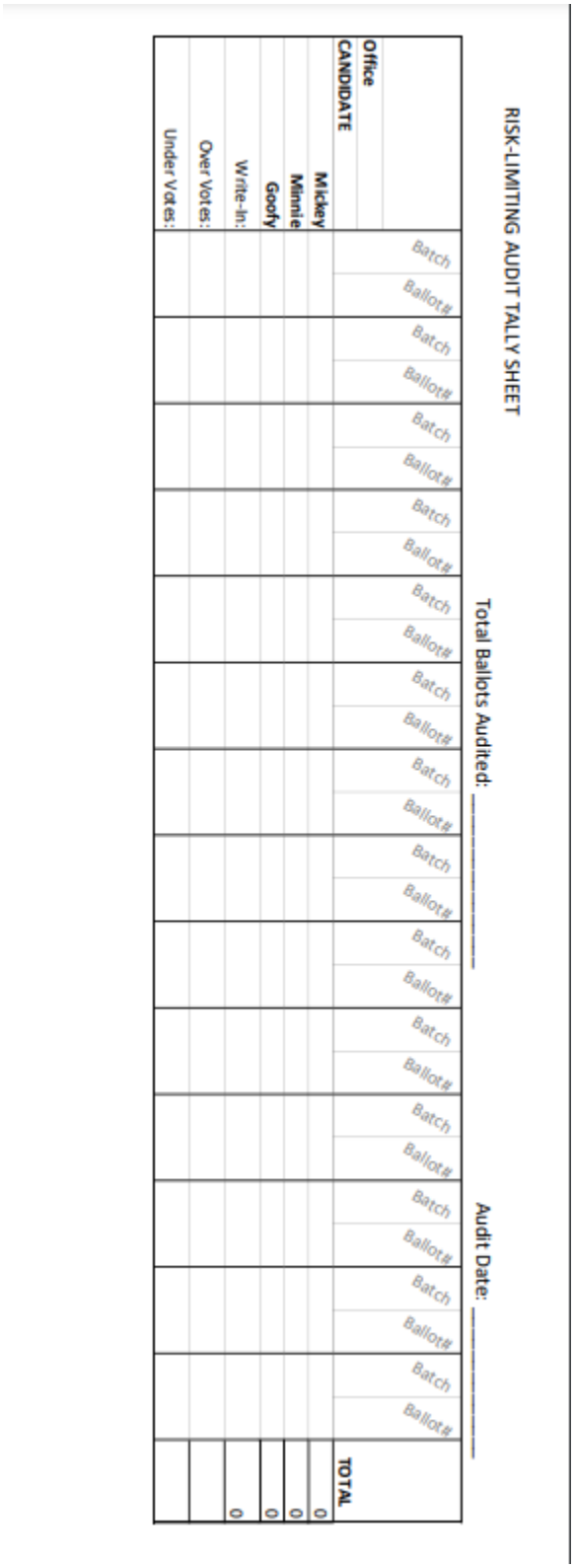
RLA Chain of Custody Log **Jurisdiction Name:**

Election Date: _____ **Audit**

Date(s):_____

Date	Name (Please sign)	Title	Precinct Box/Envelope being checked out or back in	Time Out	Time In

7.4 Tally Sheet



RISK-LIMITING AUDIT TALLY SHEET

Total Ballots Audited: _____ Audit Date: _____

Office																									
CANDIDATE																									
Mickey		Batch																							
Minnie		Ballot#																							
Goofy		Batch																							
Write-In:		Ballot#																							
Over Votes:		Batch																							
Under Votes:		Ballot#																							
		Batch																							

7.5 Sample Press Release

[For Immediate Release (unless embargoed)]
[Organization Name]
[Date]

[Headline, use Times New Roman or Arial font]

[Insert Sub header, Keep font sizes standard, and 1 point apart in size. For example, if your headline is 14, your sub header should be 13, and your body should be 12]

[CITY] **–** Provide general news release content. For example, begin by naming official who announced the results and summarize the results.

Here you can include 1-2 paragraphs explaining some of the details about the audit.

[Quote from the Director of Elections/GR]

Include any additional information or resources related to the audit, which can include links to the audit report, voter registration website, etc.

Media Contact:
[Name]
[Job Title]
[Email address]
[Phone number]
[Website]

###

7.6 Glossary

Administrator: a member of ELECT staff that adds elections to be audited, sets the risk-limit, adds participants, inputs the random seed number, and reviews the progress of the RLA.

Arlo: the RLA software supported by VotingWorks and leased by ELECT to administer the RLA
Audit Review Boards: a two-person team that retrieves specific ballots, records the results on a tally sheet, and uploads the results into the auditing software.

Ballot Manifest: a two-column Excel spreadsheet that creates an inventory of every ballot cast in a locality during a contest.

Ballot-Polling: one of two methods for conducting an RLA that relies on manually reviewing a random sample of ballots across localities to determine if the overall outcome of an election was correctly reported.

Batch: a documented set of ballots created by a voting system, an officer of election, or other election official.

Batch-comparison: one of two methods for conducting an RLA that relies on manually counting all ballots in a random selection of precinct batches to determine if the overall outcome of an election was correctly reported. This method is only available to those RLAs applied for pursuant to §24.2-671.2(D).

Candidate Totals by Batch: a file that outlines each batch of ballots and how many votes were cast for each candidate in a particular batch.

Participants: a GR or appointed person that will be responsible for coordinating the audit in their locality. Participants are responsible for uploading a ballot manifest, entering audit review boards, and downloading ballot retrieval lists from the audit software.

Random Seed Number: a 20-digit number randomly generated by the rolling of 20 ten-sided dice once each during the SBE RLA Selection Meeting. This number is used to generate the ballot or batch retrieval list by Arlo.

Risk Limit: the maximum chance that the audit will fail to correct an incorrectly reported outcome. For example, a 10% risk limit means there is a 90% chance that the audit will correct an incorrectly reported outcome.

Risk Limiting Audit: a type of post-election audit that utilizes statistical methods and a manual review of paper ballots to check that the voting equipment accurately reported the correct outcome of an election.

7.7 1VAC20-60-80 Request for Risk Limiting Audit Race within a Jurisdiction

A. For purposes of this section, “contested race” means a contested race wholly contained within the jurisdiction of the county or city for which an electoral board requesting a risk-limiting audit serves.

B. Pursuant *to §* 24.2-671.2 D of the Code of Virginia, a local electoral board shall follow the process in this section to request a risk-limiting audit of a contested race within its jurisdiction:

1. At the public canvass meeting following the election, an electoral board may elect to request a risk-limiting audit of a contested race, or multiple contested races, by a majority vote.

2. If a question to request a risk-limiting audit achieves a majority vote, an electoral board must submit a completed SBE 671.2(D) Request for Risk-Limiting Audit form to request SBE (SBE) approval of the audit. If requesting audits of multiple contested races, an electoral board must submit a completed SBE 671.2(D) Request for Risk-Limiting Audit form for each race. If risk-limiting audits are requested for multiple contested races, the electoral board must request the same method of conducting the audit for each race.

3. The SBE will grant a request for a risk-limiting audit of a contested race if:

a. The submitted SBE 671.2(D) Request for Risk-Limiting Audit form contains sufficient information for the SBE to determine that the local electoral board members cast a majority vote in favor of the audit request;

b. The submitted SBE-671.2(D) Request for Risk-Limiting Audit form contains sufficient information for the SBE to determine the method of conducting the risk-limiting audit chosen by a majority vote of the electoral board and, in the event that risk-limiting audits are requested for multiple contested races, the requested method of conducting the risk-limiting audit is the same for each race;

c. The submitted SBE 671.2(D) Request for Risk-Limiting Audit form contains sufficient information for the State Board of Elections to determine which contested races are subject to the requested audit and that those contested races are in fact wholly contained within the jurisdiction of the city or county for which the local electoral board serves;

d. The State Board of Elections concludes that the audit is permissible under § 24.2-671.2 of the Code of Virginia and all other relevant provisions of law; and

e. The margin of the candidate with the most votes and the second most votes is equal to or greater than 1.0%

4. Upon granting an electoral board's request for a risk-limiting audit, the State Board of Elections may grant an extension not to exceed two weeks of the local electoral board's certification deadline pursuant to § 24.2-671 of the Code of Virginia if necessary for the conduct of the audit.

Statutory Authority
§ 24.2-103 of the Code of Virginia.

7.8 ELECT §24.2-671.2 (D) Form: Request for Risk Limiting Audit

★ VIRGINIA ★
DEPARTMENT *of* ELECTIONS

REQUEST FOR RISK-LIMITING AUDIT

PURPOSE OF THIS FORM

Under Code of Virginia § 24.2-671.2(D), "A local electoral board may request that the State Board approve the conduct of a risk-limiting audit for a contested race within the local electoral board's jurisdiction." The local electoral board may request an audit of such a local race wholly contained within the jurisdiction of the local electoral board by completing and submitting this form to their Election Services Registrar Liaison prior to the State Board of Elections meeting to choose races to audit. Please review 1VAC20-60-80 for details on qualifying for a risk-limiting audit request.

COMPLETE THE FOLLOWING:

Locality: _____

Date of Public Meeting: _____

Local Contested Race: _____

Town Name/District Number: _____

Date of RLA: _____

Location of RLA: _____

Was Ranked-Choice Voting Used? ☐ Yes ☐ No

RLA Method Requested: ☐ Ballot-polling ☐ Batch-comparison

Preliminary Vote Totals: _____

Candidate A: _____

Candidate B: _____

Candidate C (if applicable): _____

Candidate D (if applicable): _____

On the lines below, please include any other relevant information

_____

_____

**ELECT reserves the right to ask additional questions on behalf of the SBE, if necessary.*

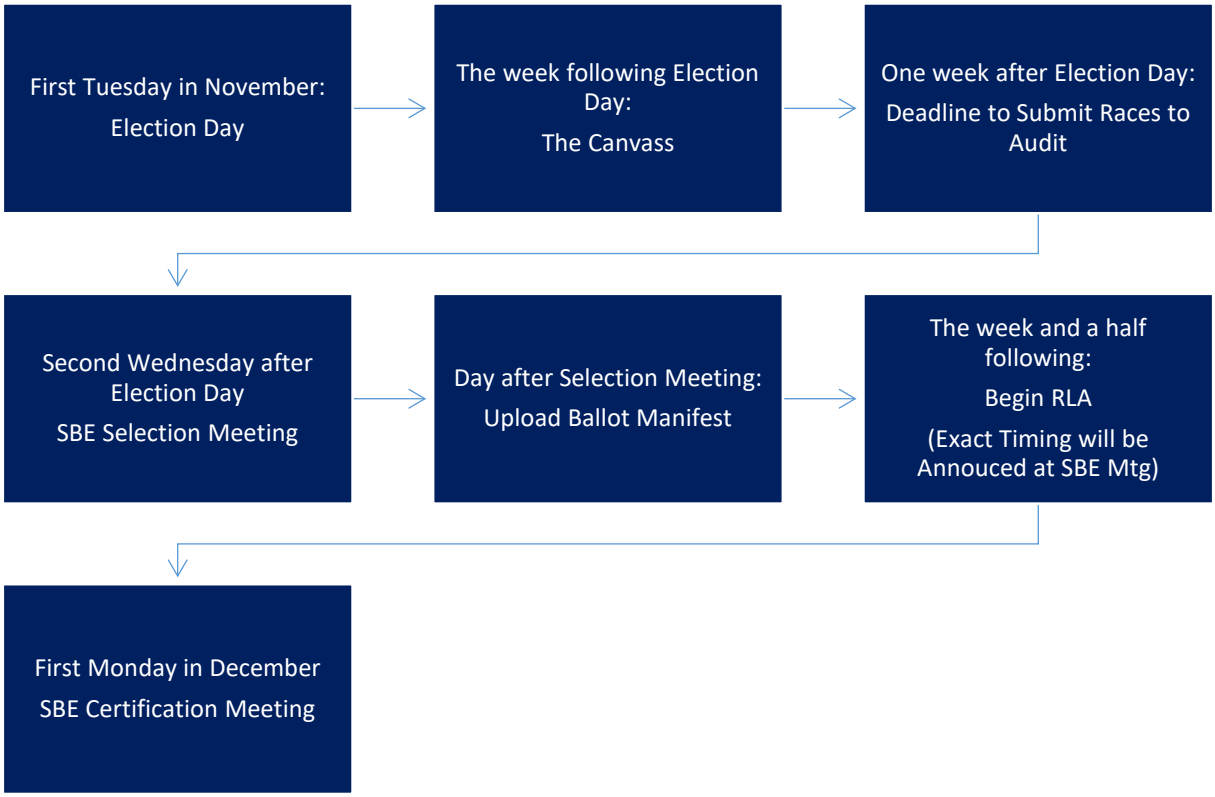
***Please submit a form for each local contested race your locality is requesting to have audited. If multiple races are being submitted, the RLA method requested must be the same for all races requested.*

We, the members of the electoral board, request an audit of the above contested race(s), *being wholly contained* within our jurisdiction:

Printed name of Chairperson	Signature	Date	Vote (Yay or Nay)
Printed name of Vice-Chairperson	Signature	Date	Vote (Yay or Nay)
Printed name of Secretary	Signature	Date	Vote (Yay or Nay)

If your audit request is approved by the State Board of Elections, then the Board may grant an extension of up-to two weeks to your certification deadline under §24.2-671.2 of the Code of Virginia for the audited race.

7.9 General Timeline for a Risk-Limiting Audit after a General Election



★ VIRGINIA ★
STATE BOARD *of* ELECTIONS

Public Comment

BOARD WORKING PAPERS

★ VIRGINIA ★
STATE BOARD of ELECTIONS

Closed Session

BOARD WORKING PAPERS

★ VIRGINIA ★
DEPARTMENT *of* ELECTIONS

REQUEST FOR RISK-LIMITING AUDIT

PURPOSE OF THIS FORM

Under Code of Virginia § 24.2-671.2(D), "A local electoral board may request that the State Board approve the conduct of a risk-limiting audit [RLA] for a contested race within the local electoral board's jurisdiction." The local electoral board may request an audit of such a race wholly contained within the jurisdiction of the local electoral board by completing and submitting this form to their Election Services Registrar Liaison prior to the State Board of Elections (SBE) meeting to choose races to audit. *If a request is made of a race that is not wholly contained within a locality's jurisdiction, this request will be denied. Please review 1VAC20-60-80 for details on qualifying for a risk-limiting audit request.*

COMPLETE THE FOLLOWING:

Locality: _____

Date of Public Meeting: _____

Contested Race: _____

Town Name/District Number: _____

Date of RLA: _____

Location of RLA: _____

Was Ranked-Choice Voting Used? ☐ Yes ☐ No

RLA Method Requested: ☐ Ballot Polling ☐ Batch Comparison

Preliminary Vote Totals: _____

Candidate A: _____

Candidate B: _____

Candidate C (if applicable): _____

Candidate D (if applicable): _____

On the lines below, please include any other relevant information:

_____

_____

REQUEST FOR RISK-LIMITING AUDIT

**ELECT reserves the right to ask additional questions on behalf of the SBE, if necessary.*

***Please submit a form for each contested race your locality is requesting to have audited.*

**** If multiple races are being submitted, the RLA method requested must be the same for all races requested.*

We, the members of the electoral board, request an audit of the above contested race(s), being wholly contained within our jurisdiction:

Printed name of Chairperson	Signature	Date	Vote (Yay or Nay)
Printed name of Vice-Chairperson	Signature	Date	Vote (Yay or Nay)
Printed name of Secretary	Signature	Date	Vote (Yay or Nay)

If your audit request is approved by the State Board of Elections, then the Board may grant an extension of up-to two weeks to your certification deadline under §24.2-671.2 of the Code of Virginia for the audited race.

The Sort-and-Stack Method

a. For each ballot: one audit board member picks up a single ballot from the stack and reads the vote for the contest being audited aloud, then hands the ballot to the second audit board member.

i. The second audit board member verifies the vote that is on the ballot is indeed what the first audit board member read, then places the ballot in the "stack" that corresponds to the vote.

ii. The first audit board member should watch to make sure the ballot is placed in the correct stack.

iii. A stack should be created for each contest choice (candidate), overvoted, and undervoted (blank) ballots, and ballots where the audit board cannot agree on the voter's intent.

b. Count the ballots in each stack by having one member of the audit board verbally count the ballot while handing it to the other member for verification.

Example: Candidate A, 1, Candidate A, 2, Candidate A, 3 up to 10. Start over with 1 after reaching 10 to stack in groups of 10.

i. Count the ballots in groups of 10, stacking the groups at right angles to each other, so you can easily count the complete groups when you are done. For instance, if you have seven groups of 10 ballots each plus an extra 3 ballots, the total tally would be 73.

ii. Record the total tally for each candidate on the Audit Board Batch Tally Sheet.

RLA Pilot Chain of Custody Log **Jurisdiction Name:**

Election Date: _____ **Audit Date(s):_____**

Date	Name (Please sign)	Title	Precinct Box/Envelope being checked out or back in	Time Out	Time In

General Timeline for a Risk-Limiting Audit after a General Election:

1. First Tuesday in November: Election Day

2. The week following Election Day: The Canvass

3. One week after Election Day: Deadline to Submit Races to Audit

4. Second Wednesday after Election Day SBE Selection Meeting

5. Day after Selection Meeting: Upload Ballot Manifest

6. The week and a half following: Begin RLA (Exact Timing will be Annouced at SBE Mtg)

7. First Monday in December SBE Certification Meeting

Unoffical Report on Loudoun County Batch Comparison Risk Limiting Audit, June 28, 2023

Shelley Oberlander, Loudoun County Electoral Board Member

Batch Comparison Method Risk Limiting Audit an Option in Virginia, March 2023:

On March 7, 2023 the VA State Board of Elections voted unanimously to allow local VA Electoral Boards the option to choose the Batch Comparison Method for their Risk Limiting Audit or they could use the already approved Ballot Polling Method. At the May 30th, 2023 VA SBE meeting, ELECT presented an updated Risk Limiting Audit Chapter for the 2023 GREB manual, which includes the procedures and details for conducting a Batch Comparison Method RLA. The May 30, 2023 SBE Agenda contains the updated procedures and details for conducting a Batch Comparison Risk Limiting Audit. The Updated 2023 RLA Procedures are located on ELECT's Forms Warehouse and include how to conduct a Batch Comparison Method, RLA. A glossary of Risk Limiting Audit terms is also located in the 2023 RLA Procedures manual on page 52.

Loudoun County Requests a Batch Comparison Method RLA for the June 20, 2023 Democratic Primary:

Following the June 20, 2023 Democratic Primary Election in Loudoun County, the new Bipartisan Electoral Board voted unanimously (during the Canvass meeting) on Wednesday, June 21, 2023 to request a Batch Comparison Method Risk Limiting Audit for the House of Delegates District 26 race, which is wholly contained under the jurisdiction of the Loudoun Electoral Board (VA Code 12.2-671.2(D)).

The request by the local EB to conduct an RLA must to be submitted by 5:00 pm on the Tuesday following the election, which is the day before the State Electoral Board is scheduled to meet. The SBE is required to meet on the second Wednesday following the Election, to approve any local RLA requests and to choose an RLA to be conducted annually on behalf of the SBE.

The Loudoun EB Secretary filled in the Request Form (SBE Form 671.2(D)) and it was signed by each member of the Electoral Board, with their vote indicated. The majority of the EB must vote to request the RLA, but for Loudoun the vote to request the Batch Comparison RLA was unanimous. The Loudoun General Registrar submitted the completed form to our Region 5 (Northern Region) ELECT Liaison, Phoenicia Hill.

Logistical Decisions Made by Electoral Board and Staff Prior to Submitting the RLA Request:

To be able to fill in the RLA request form, certain decisions and considerations need to be made in advance by the EB and Staff.

1. The RLA must be done on a contested race. (At least 2 opposing candidates).

2. The requested race has to be wholly under the jurisdiction of the local Electoral Board. Examples:
   School Board, Board of Supervisors, Commonwealth Attorney, Sheriff, some House of Delegates, etc.
3. The margin of victory must be greater than >1%, so there is not a chance for a recount of the race.
4. A separate Request form needs to be submitted for each race being audited.
5. The same RLA method needs to be used for all the RLA's being conducted in that locality, unless a locality is being asked to do a RLA by the SBE and they also requested to conduct their own RLA.
6. Lists of bipartisan Election Officers that served in the Election need to be made by the EB and GR and asked if they are available to work to be part of the Audit Teams to conduct a Risk Limiting Audit. Loudoun had 6 Audit Teams comprised of 12 Bipartisan Election Officers. 2 Election Officers were on each Audit Team, 1 Republican and 1 Democrat. We asked some Election Officers during the Canvass if they could serve during the Audit.
7. A location for the RLA needs to be chosen that is large enough for several Audit Teams, the Electoral Board and Staff, Authorized Observers and the Public.
8. Loudoun requested the SBE grant the allowed extension for certifying the race being audited. Our Election Abstracts were all signed and submitted as required by Monday, June 26th, except for the race being audited. Up to a 2 week certification extension can be granted to the locality by the SBE. However, due to the SBE's plan to certify the Primary elections by Wed. July 5, 2023, (*using literal calendar days to count the 14 days after the Election to certify the election rather than business days*). Loudoun was granted a shorter extension.
9. Choose a date or several possible dates and a time and location that is available for the RLA and that works for the Election Officers to come and conduct the RLA. The date must be within the parameters of certification requirements by the SBE. The updated GREB manual section on RLA's does not recommend doing an RLA for a Primary due to the few dates available for the RLA to be conducted, especially, so close to the July 4th holiday. There were only 2 days that Loudoun could conduct the RLA and so those dates were requested on the form. It is also recommended to start the RLA in the morning, so there is time for a second round of tabulating if needed.
10. The General Registrar also checked with the Clerk of Circuit Courts to see if he and his staff were available to deliver the ballots needed on the day of the RLA and stay to guard the ballots and return the ballots to the office of the Clerk of Circuit Courts after the RLA. Unfortunately, the Clerk of Circuit Courts said many members of his staff were on vacation and he would not have the staff available to deliver and retrieve the ballots

on either of the 2 dates the Loudoun EB had requested the RLA. He said he would have staff available the 2 days before that.

11. The Registrar amended the RLA request form to request the Audit for one day earlier, Wednesday June 28th, 2023 and since Loudoun was the only RLA request received, the SBE decided to meet one day earlier and they approved the RLA request.
12. The RLA date and time has to be publically posted and announced 3 days prior to the RLA. Loudoun posted the several possible RLA dates and times as soon as the RLA request form was submitted on Wednesday, June 21, 2023 and added to the post (pending SBE approval), until the specific date and time were decided and approved by the SBE.
13. The General Registrar made sure the Unit Chairmen of each major political party and each candidate in the race being audited, were notifed about the RLA date, time and location and were invited to each send one authorized observer.
14. Besides making the RLA open to the Public, Loudoun also Live streamed the RLA (with no audio, as was done with the February 2021 Ballot Polling RLA).
15. Loudoun Batch Comparison RLA Room Set-Up: Two, six foot multi-purpose tables with 4 chairs were provided for each of the 6 Audit Team's to work on to sort, hand-count and tabulate the ballots. Tables and chairs were provided to the Electoral Board and another area of tables and chairs for staff and members from ELECT that attended the Audit. A row of tables and chairs were provided for the public and also served as a barrier to keep the Public contained from direct contact with the ballots. Authorized observers had special identification badges and were allowed to walk through the audit area to observe, while following authorized observer rules and not interfering with the audit and asking questions only to the GR and EB members.

16. Useful RLA Materials: Tables, chairs, Pens, Tabulation sheets, Sort and Stack Method Instructions, Virginia Hand- Count Instructions, rubber bands, sticky notes, rubber thumbs, Election Officer labels for the #3 envelope boxes and packing tape to re-seal #3 ballot boxes after completion of Audit and Lunch.

17. June 28, 2023 Loudoun RLA Attendees: All 3 Loudoun Electoral Board Members (although only 2 bipartisan EB members are required to attend), Members of ELECT: (Rachel Lawless, confidential policy analyst, Claire Scott, policy Analyst and ……Security and IT). The Loudoun General Registrar, Loudoun Deputy Registrar, 12 bipartisan Loudoun Election Officers who comprised the 6 Audit Teams, Authorized Observers from one of the major political parties, all 3 members of the Orange County Electoral Board, the press/media, periodically some Loudoun Election staff, and the Loudoun Clerk of Circuit Courts security staff person.

The Batch Comparison, Risk Limiting Audit Process:

1. At the SBE meeting on Tuesday, June 27, 2023 at 1:00 pm, the VA State Board of Elections approved the Batch Compariosn method RLA requested by Loudoun County for the HOD District 26 race. Then ELECT chose a 20 digit random seed number, by rolling 20 ten-sided dice once each. This random seed number number was put into the RLA software called ARLO to randomly select the RLA batches.

   ARLO: is the RLA software supported by VotingWorks and leased by ELECT to administer the RLA.
   A Batch: is defined as a documented set of ballots created by a voting system, an officer of election, or other election official. Examples of a Batch are all the ballots from a Precinct, all the CAP ballots (Central Absentee Precinct), all of the ballots from an Early Voting Satellite Location, etc.

2. Loudoun County also had to upload its ballot manifest into the ARLO software.
   A Ballot Manifest: is a two column Excel spreadsheet that creates an inventory of every ballot cast in a locality during a contest. (race, election? (copies of all the ballots? Why 2 columns? 2 sides of the ballot?).

3. Then ELECT ran the ARLO software which is set to determine a risk limit of 10%.
   (The updated GREB manual indicates that ARLO has a tendency to choose larger Precincts to audit.)

   ARLO chose 10 batches for Loudoun to Audit:
   1. Precinct 120
   2. Precinct 124
   3. Precinct 322
   4. Precinct 630
   5. Precinct 712
   6. Precinct 714
   7. EV1-Leesburg
   8. EV2-Sterling
   9. CAP
   10. Post-Election
4. ELECT sent a form to the Loudoun Clerk of Circuit Courts instructing his office to deliver the boxes of ballot s randomly selected for the Audit to the Loudoun Election Office on the Audit day by a certain time.

5. A total of 9,703 ballots were opened by the Audit Team Election Offciers. Each Audit Team was assigned one batch to retrieve, open , sort and hand tabulate. Only the ballots that had the HOD District 26 race on them were pulled out to be hand tablulated.
6. The ballots were sorted and stacked using the Sort and Stack Method. The ballots designated as not having the HOD District 26 race on them were double checked and labeled with a sticky note saying, "double checked" on them and signed by the person who double checked them. They also had a rubber band around them and were put to one side of the table.
7. The ballots with the HOD District 26 race on them were then sorted by the vote cast for each candidate.
8. *It is recommended that when the ballot box is opened, that the ballots be removed and both Election Officers verify that the ballot box is empty and all the ballots are on the table. The empty ballot box should remain at one end of the table with the lid opened, so anyone walking by can see that the box is empty while the ballots are being sorted, stacked and tabulated*.
9. The Ballots with the HOD District 26 race on them were sorted into piles by the labels taped on top of each table for each candidate. There was also a labeled pile for Under-votes, Over- votes and an Undecided pile, if the 2 bipartisan Election Officers could not agree on the clear intent of the voter from the ballot. If the Election Officers could not agree in determining the voter's intent, the GR or someone from the Electoral Board could decide on the vote or the ballot was not counted. *Although, most of the ballots could clearly be decided by the 2 bipartisan Election Officers, I think the Adjudication Process should be more clearly spelled out and maybe involve a vote from the Electoral Board*. There are 2 sheets attached that give instructions for Hand-counting Ballots in Virginia and what makings on the ballot can be counted as a vote.
10. A total of 5583 votes/ballots were cast in this entire election for the House of Delegates District 26 race. The final vote for the entire HOD District 26 race was: 3,784 votes for Srinivasan and 1,799 Votes for Kompalli. For the Batch Comparison RLA, 10 batches of ballots were randomly selected to be audited and 9,703 ballots were retrieved. The Audit Team for each Batch sorted the ballots for just the HOD District 26 race and 2,602 House District 26 ballots were Audited. The Audit results were: 1,802 votes for Srinivasan and 800 votes for Kompalli. The results for each Batch matched the Statement of Results Tape numbers from the corresponding Voting machine, with the exception of 5 extra Votes. The 5 additional votes were counted because during the Hand Counting, the 2 bipartisan Election Officers could clearly determine the intent of the Voter, even though for various reasons the voting machine had not been able to determine that vote.

(*Note that, during the Ballot Polling Method RLA in February 2021 for the 2020 Presidential race, only 63 ballots were pulled and audited in Loudoun County out of approximately 230,000 ballots cast. As well, that audit was for a Presidential race which was on every ballot in the election. Because so few ballots are pulled and audited in the February 2021 Ballot Polling RLA, it is not regarded by some as an effective Audit. The Batch Comparison method is often preferred because many more ballots are audited. The Batch Comparison audit also verifies the accuracy of the voting machine results in the Precinct when the hand tabulation results are compared to the SOR results from the voting machines.)*

11. The sort and stack Method was used to separate the ballots for each candidate, by both Election Officers and the ballots for each candidate were put in stacks of 10, at right angles, to easily count/tabulate them.
12. The total number of votes cast for each candidate was written by each Audit Team on the RLA Tally Sheet. This tally sheet is input into ARLO by the Election Officers or the RLA Administrator. The tabulation results from the Batch Comparison RLA are compared to the Tabulation results from the Statement of Results tapes from the Precinct Voting machines from Election night. The ARLO software compares the RLA results to the original voting machine SOR results to verify the accuracy of the voting machines.
13. <u>Loudoun had a 99% Accuracy rating in the Audit Results compared to the Voting machine results</u> for the June 20,2023 Democratic Primary.
14. <u>Five more votes were added to the tabulation of this race from the Audit.</u> The HOD District 26 winner, Kannan Srinivassan received 4 more votes and the opponent, Sirisha Kompalli received 1 more vote. These additional votes were due to the human Election Officers on the Audit Review Teams being able to clearly identify the intent of the voter and counting those ballots, which had not been counted by the voting machine, maybe due to the voter circling their choice or putting a dot or writing too lightly for the machine to read the vote.
15. After auditing each batch, the Audit Team of Election Officers placed all the ballots from that Precinct back into the #3 Envelope Ballot box and sealed the ballot box with tape and placed a new seal on the box, signed by both bipartisan Election Officers of that Audit Team. Then they returned the #3 Envelope Ballot box(es) to the secure storage area and retrieved another batch of ballots from another randomly selected Precinct and began the Batch Comparison Audit process again.
16. The Loudoun County Batch Comparison Method, Risk Limiting Audit of 10 batches of ballots (totaling 9,703 ballots) was completed in 3 hours and 15 minutes. The Audit began at 10:00 am and concluded at 1:15 pm.

17. An Audit report was created through the ARLO software and the Loudoun Deputy Registrar presented the Audit results up on a big screen to everyone present in the room.
18. An Audit Report was also sent to ELECT?
19. An Abstract of the results of the House of Delegates District 26 race was created by the Loudoun General Registrar, which included the 5 additional votes determined by the Audit.
20. The Loudoun Electoral Board signed the Abstract to certify the results of the HOD District 26 race and the Abstract was sent to ELECT, so the SBE could also certify the race on July 5. 2023.
21. After the completion of the entire RLA the Clerk of Circuit Courts staff, again took custody of the sealed ballots and returned them to secure storage at the Clerk of Circuit Courts office.

In Conclusion:

The Loudoun County Batch Comparison Method Risk Limiting Audit for the June 20, 2023 Democratic primary went very well. This was the first Batch Comparison Method, RLA ever conducted in Virginia. A fairly small race was chosen and yet because the CAP and Early Voting Batches were chosen for the Audit, 9,703 ballots were audited. Surprisingly, auditing this many ballots only took 3 hours and 15 minutes. The Ballot Polling Method used for the February 2021 RLA took much longer and only retrieved 63 ballots to Audit. The Batch Comparison Method RLA, gives voters more confidence in the accuracy of the election results because many more ballots are audited and by auditing an entire batch of ballots, the voting machine result tabulations are also verified. The Loudoun County Election Office did a fantastic job in preparing in advance for the Audit, which helped everything run smoothly on the day of the Audit. The Audit results showed 99% Accuracy, which gives the public much confirmation as to the accurate results of Loudoun elections and the good election processes and good staff being used to conduct Loudoun Elections. It is excellent and important that the Audit is transparent and open to the Public and that bipartisan Election Officers and Authorized Observers were part of this Audit process.

Recommendations:

1. I recommend the 10 batches chosen for the Batch Comparison Method, RLA, should be truly randomly chosen, without using any computer software, and the names of all the precincts put into film canisters, mixed up and then 10 batches randomly drawn out.
2. Although, most of the ballots could clearly be decided by the 2 bipartisan Election Officers, I recommend that the Adjudication Process be more clearly defined and maybe involve a vote from the Electoral Board.
3. It might be best for the 2 Bipartisan Audit Team members to be randomly paired.
4. Pros and Cons should be discussed about having the Audit Teams enter the Batch Tally results into ARLO or an RLA Administrator staff member.
5. It is recommended that when the ballot box is opened by the Audit Team, that the ballots be removed and both Election Officers verify that the ballot box is empty and all the ballots are on the table. The empty ballot box should remain at one end of the table with the lid opened, so anyone walking by can see that the box is empty while the ballots are being sorted, stacked and tabulated.

Additional History: After the November 2022 general Election, the Loudoun County bipartisan Electoral Board voted unanimously to request approval from the SBE to conduct a Batch Comparison, Risk Limiting Audit for 2 contested races (The Michael Rivera- Leesburg School Board race and the Hung Coa- US House of Representatives 10th District race). ELECT denied Loudoun permission to do the Batch Comparison RLA, saying ELECT was not yet prepared with procedures for a Batch Comparison RLA. ELECT also said Loudoun could not do an RLA on the Hung Coa, US House of Representatives race, because that race was not wholly under the Loudoun Electoral Board's jurisdiction. The Loudoun Electoral Board could have done a Ballot Polling method RLA for the Rivera local School Board race, but chose not to. The Loudoun EB had already participated in a Ballot Polling RLA in February of 2021, following the 2020 Presidential Election, which they did not find beneficial. So, no RLA occurred in Loudoun following the November 2022 General Election.

★ VIRGINIA ★
DEPARTMENT of ELECTIONS

Use this form when your locality wants to conduct a post-election audit as required by Va. Code § 24.2-671.2.

Pursuant to Va. Code § 24.2-669, you must receive permission from the Department of Elections to unseal ballots cast on Election Day for a post-election audit. You must fill out and submit this form to the Department of Elections prior to conducting an audit for your locality.

If ELECT provides permission to unseal election materials for a post-election audit, you must provide the form, which will be sent to the email address entered below, to the Clerk of the Circuit Court of your locality.

Election Date: * 2022-11-0

Election Type: * General

Date of Request: *

Name of Requester *

Position *

Email Address *
Confirm Email Address *

Phone Number *

Locality *

Precinct Name * All Precincts Precinct #: * All

Specific Envelope which needs to be inspected: *

The Envelope needs to be inspected to determine: *

RISK-LIMITING AUDIT TALLY SHEET

Total Ballots Audited: _____ Audit Date: _____

Office **CANDIDATE**	Batch	Ballot#	Batch	Ballot#	Batch	Ballot#	Batch	Ballot#	Batch	Ballot#	Batch	Ballot#	Batch	Ballot#	Batch	Ballot#	Batch	Ballot#	Batch	Ballot#	Batch	Ballot#	Batch	Ballot#	Batch	Ballot#	Batch	Ballot#	**TOTAL**
Write-In:																													
Over Votes:																													
Under Votes:																													

To Whom it May Concern, February 24, 2021

On February 8, 2021 I attended a meeting for the County of Nottoway Board of Elections. My daughter had expressed a desire to attend as she has just turned eighteen in December of 2020. The agenda was presented and almost immediately things began to unravel. The current Chair (Caroline Davis) gave up her chair and "delegated" the position to the current Vice Chair(Sarah Allen), the Secretary (Sunny Abbot) remained in his position. I referred to the agenda and saw no information pertaining to the "exchange" of power being listed as part of the meeting. Several people came to the meeting, the public seemed upset and I was not privy to the reason initially. As the meeting progressed the Chairman, or after the initial exchange of power Vice Chairman stated she had signed a letter that allowed the registrar to work on a project required by the state to be implemented, Cyber Security was the subject being discussed. She (Caroline Davis) further stated that although she had signed the letter, she was unaware of its contents and that it must have been different than what was discussed during the official meeting. The secretary vehemently denied any change of information. He continued to state he was performing his duty and the letter's contents were exactly what were discussed in the official meeting held to sanction the creation of the letter in order to be compliant with the current state mandate referencing cyber security. I have to say at this point I was very confused. Several people spoke out of turn. The new chairman (Susan Allen) was not happy, she asked the public "why are you here"? and "what do you want to talk about"…I spoke up and stated that we were asked to sign in on sheet of paper in order to be able to ask questions during the question and answer period of the agenda and she responded that she needed to know our questions and I responded we were waiting until all information had been presented. A motion was put forward to rescind the official letter signed by Mrs. Davis who stated she did not read it prior to signing it, the secretary stated it was official and the new chairman said that she had not been consulted. Meanwhile the Chairman of the Nottoway County Democratic Committee (Mr. Crews) began addressing the Chairman, he was asked to speak up and he aggressively turned and said "I Don't work for you" and "I'm not talking to you".

Initially my intent to ask questions was only for the purpose of asking questions my daughter might have, but I needed clarification and decided to ask for a "recap". Unbeknownst to me a representative that previously served on the State Board of Elections was in attendance, Clara Belle Wheeler. I asked if the letter in question was discussed in an official meeting…they confirmed that it was, I asked if at the close of the meeting the secretary knew he was to create the letter and obtain signatures…they confirmed it was, I then asked if two of the three members were involved in the official meeting…they confirmed that there were at least two involved…I then stated it is a quorum, and that makes the letter official and therefore valid and its contents and commitments are official. Mrs. Davis stated she was not aware of the contents of the letter and she signed it without reading it…an audience member said that "buyers" remorse did not invalidate an official act. I then suggested that we allow the SME (subject matter expert) be allowed to speak and confirm policy and procedure, Ms. Allen refused and said "no I will not allow anyone to defer"…the public pointed out that she had allowed it previously and asked her to refer to Robert's Rules of Order and/or the state code before choosing not to allow the speaker to defer his turn and allow Mrs. Wheeler to speak. I realized that I was witnessing corruption, that I was inadvertently participating in making a mockery of the democratic process and I refused to stop speaking until Mrs. Wheeler was allowed to speak. Mrs. Wheeler was eventually allowed to speak and confirmed the "recap" to be correct and the document in question to be valid. Despite the validity

of the letter, the board voted to rescind the letter and nullify its contents. Dissent and anger, biased and an unwillingness to work cohesively with the registrar because of a personal matter…we all witness a lack of professionalism and were mistreated for our interest and concern for the electoral process. My daughter said it best… "you should all be ashamed and embarrassed". We all had a right to ask questions and know that the person, or persons in a position of authority to speak on our behalf have our best interests at heart and are diligently following the legal process set forth by the state through the policies and procedures of the Virginia Department of Elections. The people of this community will not be silenced or intimidated.

The meeting continued with much public comment and anger. The Chairman declared the letter invalid and then went on to say that she and the registrar do not get along and that if the registrar would like to show her affection and willingness to work with her then she could come give her a "COVID-19 hug" and motioned with her arms. Through out the meeting Ms. Allen was upset and made comments while people were speaking and continued to take direction from the DNC representative (Mr. Crews). I was unsure of his role, assuming he was in fact a member of the board, I discovered later that he does not hold any official role on the board.

I have diligently looked on the website, checked Facebook, and contacted the local registrar's office to find out when the next meeting will take place. The last statement made concerning the next meeting was to say it would be at night in order to allow more involvement from the public. We were told that the announcement for the meeting would be posted online, but I just received a copy via email after contacting the registrar's office and it has a date for this Friday the 26th at 2pm. We should be given the opportunity to have input, and that allowing only 4 days to announce a meeting then choosing to hold the meeting during the day, after agreeing to hold it at night during an official meeting, is not promoting transparency and inclusion. Furthermore, the announcement states it is a budget meeting, not an emergency meeting and the "Public Comments will not be received at this meeting". A meeting must be announced and given ample time for response.

As of today, the Board of Elections Chair and Vice Chair have not implemented the Cyber Security policy required by the State Board of Elections. As of today, the Board of Elections is to participate in a statewide Risk Limiting Audit and the Chair and Vice Chair have refused to attend/participate…these are the responsibilities and duties of those appointed officials, by refusing to participate and/or assist they are refusing to do the will of the people. I have little faith in the competency of two board members that refuse to attend training to continue their education and refuse to participate in an audit that is designed to encourage transparency and fluidity. I have no personal relationship with any of the individuals I have mentioned. I hold no office or would immediately benefit from any intervention on your part, but I beg you to consider this dereliction of their duty going forward. They are not performing their appointed duties and therefore should be replaced with two members who have an interest in being in those positions and helping to unify a fractured community that now sees their incompetence as a failure on the part of the entire county.

Sincerely,

Diana-Lynn Wilkins-Mitchell