VIRGINIA DEPARTMENT OF ELECTIONS

Study of Senate Bill 1380
2023 Legislative Session

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DEPARTMENT *of* ELECTIONS

EXECUTIVE SUMMARY

During the 2023 General Assembly Legislative Session, several bills were proposed related to Ranked Choice Voting (RCV). Many of these dealt with the expansion of RCV, including from local races to General Assembly, Congressional, and statewide races. One of these bills was Senate Bill 1380 (SB 1380), which sought to expand RCV as an option for use in presidential primaries. While SB 1380 was passed by indefinitely in the Senate Privileges and Elections Committee, the subject matter was referred to the Department of Elections (ELECT) for study.

ELECT is pleased to present the Senate Privileges and Elections Committee with this report that contains analysis related to the subject matter of SB 1380, considering both the existing RCV legal framework and the experience in administering an RCV election in the 2023 Democratic primary for the Arlington County Board. Further, this report provides general observations and considerations for RCV that may be helpful in informing the Committee's future work generally.

While RCV has been successfully implemented to this point, there are outstanding issues to be considered for both existing RCV local elections and, relevant to this report, an expansion of RCV to a presidential primary. These issues include:

- Technological and logistical issues that surround the centralized tabulation of RCV rounds.
- Provisions of the Code of Virginia related to election administration that do not contemplate, or conflict with, the practical administration of RCV races. These provisions relate to voting system requirements, RCV tabulation software, canvass processes, results reporting, and records retention.
- Voter education.

SENATE BILL 1380

The purpose of SB 1380 is to expand RCV in Virginia to presidential primary elections.[1] To that end, the bill adds provisions to Title 24.2, Chapter 5 of the Code of Virginia (§§ 24.2-545, 24.2-546, 24.2-547, 24.2-548, 24.2-549, and 24.2-550), which is the existing chapter related to presidential primaries. The following are key aspects of the legislation:

- A party may choose to use RCV for its presidential primary and whether to award delegates on a winner-take-all or proportional basis (including the threshold required to receive delegates and whether delegates are based on primary results in individual congressional districts).
- ELECT must confirm with party whether preferences for RCV primary are feasible.
- Required form of the RCV ballot.
- Rules regarding tabulation of the ballot, including: how to count overvotes, undervotes, and skipped rankings; and how to tabulate results based upon the chosen method of awarding delegates.
- Requirements of ELECT related to the reporting of results, including:
    - Total number of votes for each candidate in each round of tabulation;
    - Inactive ballots by round;
    - The selected method of awarding delegates and the round-by-round tabulation results for the election had the party chosen to award delegates differently; and

[1] https://lis.virginia.gov/cgi-bin/legp604.exe?ses=231&typ=bil&val=sb1380.

    - If delegates are awarded by congressional district, results must be reported for each congressional district.
- Authority delegated to the SBE to promulgate rules necessary to implement the legislation.

BACKGROUND

In analyzing the contents of SB 1380, it is useful to review the development of RCV in Virginia to date. While this bill provides RCV provisions unique to presidential primaries, the RCV fundamentals in the bill generally fit within existing RCV Code and regulatory provisions created and implemented for RCV at the local level. Therefore, many considerations and lessons learned from Virginia's experience with RCV to date can be applied to the subject matter of this bill, and any action taken will potentially benefit all forms of RCV used in Virginia, whether local or multi-jurisdictional.

Initial Approval of RCV in Virginia

In 2020, the General Assembly and Governor Northam approved the optional use of RCV voting in elections for city and county governing bodies until July 1, 2031 ("RCV statute").[2] The RCV statute sets forth the general concept of "instant runoff" (single winner) and "single transferable vote" (multi winner) RCV races[3] and the triggering mechanism for local governing bodies to approve use of RCV.[4] Further, the RCV statute delegates authority to the State Board of Elections (SBE) to create regulations to administer RCV elections.[5] Accordingly, the SBE promulgated 1VAC20-100-10 *et seq.* in 2021, which addresses the following:

- Process for localities to adopt RCV.
- Treatment of ballots in tabulation in relation to overvotes, skipped rankings, and ties within a round.
- Tabulation procedures in single-winner and multi-winner races, including the transfer of votes from defeated candidates to active candidates and the determination of elected candidates.
- Posting of results.
- Transposing of ballots unable to be read by machine.
- Permissibility of write-ins
- Voter outreach.

IMPLEMENTATION OF RCV IN VIRGINA

Though no locality immediately opted to use RCV upon adoption of the RCV statute, ELECT began taking measures towards implementation. In addition to internal efforts, ELECT sought the input of key stakeholders, including general registrars and electoral boards members. The more recent development of procedures came in preparation for the first use of RCV by Arlington County in 2023, which is discussed later in this report. As part of the development of RCV processes and procedures, it became clear that amendments were necessary to the existing RCV regulations. These amendments were adopted by the SBE in May 2023, which set the existing framework for the currently established RCV process.

[2] 2020 Acts of Assembly, Chapter 1054; § 24.2-673.1.
[3] Va. Code § 24.2-673.1(A).
[4] Va. Code § 24.2-673.1(B).
[5] Va. Code § 24.2-673.1(C).

RCV Process Overview

The process set forth in this section was established for the administration of RCV in races for local governing bodies. Again, much of this process is complementary to the requirements of SB 1380 and, therefore, many of the challenges discovered in implementing RCV for localities will also apply to those in presidential primaries under SB 1380.

1. RCV is established as the method of election for county board of supervisors or city council members by passage of an ordinance by a majority vote of the county board of supervisors or city council. The decision to use RCV must be made in consultation with the local electoral board and general registrar.
2. Locality ensures voting system capabilities in relation to RCV.
3. ELECT approves RCV tabulation software for use in the election and delivers the software to the locality.
4. Voters rank candidates in order of preference (number of rankings available depends on voting system vendor).
5. Voting system in precinct scans ballots, reports first-choice preference, and creates cast vote record, which is stored on a flash drive connected to the voting system.
6. Results ascertained by officers of election at each precinct and reported on ELECT's results reporting website.
7. All provisional and late-arriving absentee ballots are processed after election day on voting system.
8. If a candidate receives enough first-choice votes to win the election, the process does not proceed to RCV tabulation rounds.
9. If there are offices to be filled after tabulating first-choice results, the locality proceeds to RCV tabulation. The flash drives containing the voting system CVRs are inserted into the locality's computer containing the RCV tabulation software and the CVRs are entered into the software.
10. RCV tabulation is completed by general registrar and electoral board as part of canvass process, at a public meeting, and the results are ascertained.
11. Locality creates copy of CVR and maintains for public inspection.
12. Results are reported to the ELECT results reporting website.

Key Aspects of Local RCV Implementation

Within the existing technological and legal framework available at the time of implementation, the SBE and ELECT developed many new processes and procedures that are reflected in existing guidance and current practices. The following were key issues to address in the implementation of RCV and would largely be at play in a presidential primary using RCV.

Ballot Standards for RCV

The SBE has the authority to prescribe ballot standards for elections within the Commonwealth.[6] These standards apply to all official ballots within the Commonwealth, unless stated otherwise. All ballots must

[6] Va. Code § 24.2-613.

comply with all applicable Code sections and ballot standards passed by the SBE. Ballot standards were approved specifically for RCV in September of 2021.[7]

Maximum Number of Rankings

A foundational principle of RCV is the ability for a voter to rank their candidate preferences. Currently certified voting systems in the Commonwealth can rank anywhere from 3 to 23 candidates (see chart below) depending on the voting system vendor and available software. The SBE chose to establish, for uniformity purposes in their ballot standards, a maximum number of candidates that a voter may rank for an election conducted by RCV. To date, the SBE has imposed limitations on the number of rankings to include a maximum of **ten (10) candidates.** Therefore, a locality is limited in the number of rankings they may allow voters by both their choice in vendor and the SBE.

Establishing a limit to the number of candidates a voter may rank does not impact the number of candidates that may run in any given contest, only the number a voter may select. This number, however, is aspirational given the current limitations in existing certified voting system software in the Commonwealth.

Voting Systems Software

The SBE has approved four voting systems for use in the Commonwealth: Unisyn Voting Solutions (Unisyn), Hart Intercivic, Inc. (Hart), Election Systems & Software, Inc. (ES&S), and Dominion Voting Systems Corp (Dominion Voting). [8] Localities have the option of choosing which voting systems fits their individual locality's needs and budget.

One of the key challenges in the implementation and expansion of RCV is the range of capabilities and features of each of these systems. The chart below gives a detailed overview of each voting systems capabilities in relation to RCV.

{See chart on next page}

[7] Virginia State Board of Elections, Ballot Standards for Ballots with Ranked Choice Voting (RCV) Races, https://www.elections.virginia.gov/media/formswarehouse/ranked-choice-voting/SBE-RCV-Ballot-Standards-6_2_22.pdf

[8] Va. Code §24.2-629.

Vendor	Number of Localities w/System	Maximum Number of Rankings	First Round Raw Results Process	Additional Rounds Tabulation Process	Costs Beyond Current System Packages	Additional Certifications Required
Dominion	29	10	Machines will tabulate the first rank/round of the RCV contests as a regular contest. Raw results on compact flash drive that is inputted to EMS server.	Tabulation does not require 3rd party software (DSuite does it). Additional cost incurred by localities to obtain additional software.	Additional costs likely required (EMS system, DSuite).	State certification required for Dominion's RCV technology or 3rd Party Software must be used.
Hart	19	6* *No current plans to expand number of rankings.	Verity voting system tabulates first round of results.	Additional rounds need to be run through 3rd party RCV software	Additional costs likely required (approved 3rd party RCV software).	3rd party software.
Unisyn	32	3* *Will be capable of doing 10 rankings in the next version certified by VVSG2.0. Any jurisdiction wishing to support 10 would need to update their in-precinct scanner, which comes with a per machine cost.	Current equipment tabulates first round of results. The OpenElect system does have an integrated RCV tabulator, capable of supporting end-to-end RCV tabulation without the purchase of additional software.	Results are uploaded to Unisyn tabulator. The RCV software is part of the standard OCS license from Unisyn.	$100,000.00 to update the system. Any locality wishing to support 10 rank candidates would need to update their in-precinct scanners from the current OVO devices to the new FVS devices. There will be a per machine cost for each device.	State certification required for Unisyn RCV tabulator software or 3rd Party Software must be used.
ES&S	53	23	No	3rd party software tabulates results (RCV Universal Tabulator).	Additional costs likely required (approved 3rd party RCV software).	3rd party software required.

Tabulation

In RCV races, tabulation occurs in two phases: (1) scanning of ballots, ascertainment of votes, and creation of the cast vote record (CVR) by the voting system at the polling locations; (2) transferring of votes and calculating in RCV rounds at a central tabulation location.[9] A CVR is an electronic record of the selections made on each ballot. This is particularly important for RCV tabulation, as the CVR shows the ranking assigned to each candidate on each ballot and is used in the RCV tabulation rounds. The first phase of tabulation determines whether a candidate has sufficient first-choice rankings to win the election. If a candidate does not reach that threshold, RCV tabulation rounds are required to select a winner. [10] The ability to win based upon first-choice ranking tabulation was added to the RCV regulations in 2023 after further research was undertaken for implementation to avoid the unnecessary administration of RCV rounds.[11]

All certified voting system vendors in the Commonwealth can produce results showing first-choice rankings[12] and a CVR, though not all localities have such functionality available without making system upgrades.

RCV Round Centralized Tabulation

Early in the implementation of RCV, it became clear that centralized tabulation is necessary for RCV races due to the need to transfer votes from eliminated candidates to subsequent choices (this requires the CVRs from all precincts to be combined). In the context of a race wholly contained within a locality this is not as challenging because the RCV tabulation can be completed by the general registrar and electoral board upon receiving all CVRs from the precincts. In preparation for local RCV races, discussions were had about whether the centralized tabulation should happen at ELECT or in the locality, during the canvass. Ultimately, it was decided that tabulation would be conducted by the general registrar during the canvass for local RCV. However, as discussed later, the issue of centralized tabulation becomes more of a logistical challenge when RCV expands to multi-jurisdictional races (including statewide races, like in SB 1380).

RCV Tabulation Software

Consistent with widely accepted practices of running RCV elections across other jurisdictions, the use of software is required to tabulate RCV rounds in the most accurate, efficient manner. Of the four certified vendors in the Commonwealth, only Unisyn and Dominion Voting Systems provide software that could compute RCV rounds of tabulation while Hart and ESS systems would require the use of a 3rd Party tabulation software. This technological landscape is one reason why ELECT chose to procure a third-party tabulation software that was compatible with the CVR file formats produced by all four vendors: RCTab.

Developed by the Ranked Choice Voting Resource Center (RCVRC), RCTab is the most comprehensive RCV round tabulation software to be federally tested under the Voluntary Voting System Guidelines (VVSG) and has been utilized across the country to conduct RCV elections held in New York, Michigan,

[9] Virginia Administrative Code, 1VAC-100-10.
[10] Virginia Administrative Code, 1VAC20-100-50.
[11] Virginia Administrative Code, 1VAC20-100-50.
[12] Virginia Administrative Code, 1VAC20-100-10.

Alaska, Kansas, and Wyoming. [13] Use of this software would allow ELECT to develop uniform guidance on tabulation, provide standardized output for election results reporting, and allow room for the possible expansion of RCV during future legislative sessions.

RCV Tabulation Software Security Approval

As required by regulation, the Security Team at ELECT created an approval process for the use of RCTab.[14] This approval is part of a broader discussion about RCV tabulation software certification discussed later in this report.

RCV IN ARLINGTON COUNTY

On December 17, 2022, Arlington County became the first locality to opt to use RCV when its County Board passed an ordinance to establish RCV as the election method for its June 2023 Democratic primary election (a multi-winner RCV race with two seats available). Due to the unique needs of RCV administration depending on the voting system vendor used, it was necessary to collaborate closely with Arlington County to tailor developed processes. Arlington uses Unisyn voting systems, which are only capable of allowing up to three rankings. As a result, voters were limited in their selections for their local County Board primary, which was a downward deviation from the SBE's policy of allowing up to ten.

General Registrar/Director of Elections Gretchen Reinemeyer was a critical partner in creating the environment for the successful administration of the first RCV race in the Commonwealth. While the voter experience in Arlington was largely positive, two main issues were raised by members of the community: voter outreach and the method of tabulation used in the multi-winner election.

As to voter education, both Arlington County and ELECT undertook significant efforts. Arlington County's Department of Voter Registration and Elections developed an outreach plan, conducted multiple educational presentations, and created numerous educational materials, including toolkits that could be used by community organizations to educate their constituencies.[15] While these efforts were acknowledged, some constituencies still had concerns about the need for more education due to the novel form of voting and tabulation.[16] Further, ELECT created a variety of resources for voter education.[17]

Concerns regarding RCV tabulation were due to the multi-winner nature of the Arlington County primary. Some citizens and activist groups took issue with the method of tabulation, claiming that the ranking of all candidates with two seats available led to the dilution of some of voters' second preference voter. In other words, some contended that there should be two first choices available since there were two candidates. However, ELECT stands by the chosen method based upon the legal framework in Virginia and the generally accepted RCV practices used across other jurisdictions.

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[13] Ranked Choice Voting Resource Center, The RCV Universal Tabulator, https://www.rcvresources.org/rctab
[14] Virginia Administrative Code, 1VAC20-100-50(E).
[15] https://vote.arlingtonva.gov/Ranked-Choice-Voting; https://vote.arlingtonva.gov/Ranked-Choice-Voting/Education-Outreach
[16] https://www.arlnow.com/2023/05/19/ranked-choice-voting-education-campaign-is-underway-but-arlington-naacp-says-more-needs-to-be-done/
[17] https://www.elections.virginia.gov/casting-a-ballot/ranked-choice-voting/

While the Arlington County Board largely commended the efforts undertaken by election officials at the state and county levels and the overall success of the administration of the RCV race, it ultimately decided not to use RCV for the November 23 General Election.[18] The Board wanted more time to address the concerns raised but did not preclude the possibility of using RCV for future elections.

KEY CONSIDERATIONS FOR RCV EXPANSION UNDER SB 1380 AND ONGOING USE IN LOCALITIES

Upon reviewing the subject matter of SB 1380, ELECT has identified considerations for the expansion of RCV in Virginia. Further, based upon ELECT's experience in implementing RCV for local races, there are takeaways that relate to the current statutory framework that merit consideration, but also are applicable to expansion.

Centralized Administration of Tabulation

As explained previously, once ballots are scanned by voting systems at each precinct, the CVR from each voting system in each precinct must be combined and tabulated together to perform the necessary vote transfers that are part of the RCV tabulation process. SB 1380 does not specify the entity responsible for RCV tabulation nor does it address any of surrounding logistical issues with the tabulation. SB 1380 provides a general grant of rulemaking authority to the SBE that would cover this subject matter, though some clarifications in Code could be helpful to the process.

Method of Tabulation

A fundamental issue in RCV is the method of tabulating the RCV rounds. As described above, ELECT procured the use of the RCTab software, as this software was used across multiple jurisdictions for the tabulation of RCV rounds and could be used in all localities. If RCV is expanded to multiple jurisdictions, while ELECT still views RCTab as the best option for tabulation, RCTab is currently unable to process CVRs from multiple vendors in a single election. Though, it should be noted that the RCVRC has stated that a forthcoming version of RCTab will have this functionality. However, in relation to currently available technology, this leaves either hand tabulation of RCV rounds or the development of Virginia's own tabulator, for which we have not seen a precedent elsewhere in the United States.

Rules of Tabulation

For local RCV races, the rules for tabulation are set forth by regulation.[19] While the ballot treatment and tabulation rules in SB 1380 are largely consistent with what has been established, there are some differences that should be reconciled for consistency of RCV administration in Virginia. For instance, while there is the ability to win based upon first-choice rankings in RCV local races, this is not possible under SB 1380. In the first round of tabulation in SB 1380, RCV tabulation rounds would commence immediately and overvotes, undervotes, and skipped rankings would be considered immediately.

Responsible Party for Tabulating

An expansion of RCV beyond local, single-jurisdiction races to a statewide, presidential primary will require centralized tabulation of the CVRs from all localities. In reviewing the processes used in other

[18] https://www.washingtonpost.com/dc-md-va/2023/07/15/ranked-choice-voting-cancelled-arlington/
[19] Virginia Administrative Code, 1VAC20-100-40 and 1VAC20-100-50.

states, it would be common for the SBE/ELECT to be the party responsible for such centralized tabulation. The following are examples of RCV tabulation in other states with statewide RCV races:

- **Maine**: Ballots are counted at the local level. Materials are transported by private courier to the Secretary of State. RCV tabulation is conducted by the Secretary of State at a public meeting. Ballots are returned to localities after the expiration of the recount period.[20]
- **Alaska**: Central tabulation conducted by Alaska Department of Elections.[21]

Again, while the logistics of tabulation are not specifically addressed by SB 1380, the Committee may want to provide some clarity about the entity responsible (in addition to other logistical aspects discussed in the next subsection).

Logistical Considerations

Due to the centralized nature of tabulation of the RCV rounds and the fact that it can only occur after all ballots have been processed, it is viewed by ELECT as part of the canvass process to be completed by the general registrar and electoral board (for local RCV races). This is another area where the Code is silent about RCV, but the SBE/ELECT were able to supplement the existing canvass provisions to account for RCV through its processes and procedures. More clarity about this aspect of the process would be helpful not only for RCV races confined to single localities, but certainly for expansion to a statewide presidential primary where a whole new location/segment of the canvass process would be introduced.

- **Where and when must RCV tabulation occur?** For local races, the canvass is a public meeting, but for a statewide race under SB 1380, there should be more clarity in Code about the nature of the RCV tabulation meeting, when and where it should be held, and designating it as a public meeting. Related to this topic is the issue of chain of custody of election materials and their transportation to a centralized location.
- **What is the role of authorized representatives and officers of election?** With an RCV tabulation meeting facilitated at the state level for purposes of SB 1380, parties permitted to participate should be clarified, including any roles for authorized representatives and officers of election. As mentioned previously, RCV tabulation in the Arlington County election was completed at the canvass in a public meeting that was open for observation.
- **What are the processes that should be in place for administration of the RCV tabulation?** Since RCV tabulation is a canvass process (with some elements of the election administration and ascertainment process by officers of election), consideration should be given as to how existing Code provisions relating to those processes should be applied to the RCV tabulation process.
- **What record(s) should be produced that indicates the results of the tabulation?** As this process at the state level would be an extension of the canvass process (like in local RCV races), ascertainment and reporting requirements should be established.

Complexity in Tabulation

An issue with centralized tabulation specific to SB 1380 is the possibility in the legislation for delegates to be rewarded based upon results in congressional districts. As discussed below in the section on

[20] Maine Administrative Code, 29-250 C.M.R. Ch. 535 (2018).
[21] Alaska Administrative Code, 6 AAC 25.195.

election reporting, results of RCV races are not tabulated in individual precincts or other subdivisions like with normal elections since the CVRs from all precincts are combined and then RCV tabulation rounds are completed. To have RCV results by congressional district, RCV tabulation would need to be completed individually for each congressional district, and then completed statewide. This would lead to a complex tabulation process at the state level that could lead to voter confusion.

Maximum Number of Rankings

If RCV is expanded to include multi-jurisdictional races, the number of rankings with the existing software limitations is uniformly capped at 3 given the diversity of voting system equipment in the Commonwealth and current software capabilities of existing approved SBE approved voting systems. The language in SB 1380 accounts for variances in voting system capacity related to the number of rankings available, as it requires as many rankings as qualified candidates, but allows the SBE to limit the number of rankings due to equipment constraints as long as the number is no fewer than three and is uniform across the state. While this flexibility is helpful, it is important to understand the landscape and challenges related to meeting the goals of the legislation.

In order to uniformly accommodate more than three rankings in a multi-jurisdictional race, the SBE will have to update their Voting System Certification Standards to match their approved RCV Ballot Standards. Changing this policy will place pressure on remaining vendors to update their current software to include more rankings. Unisyn is already developing software to accommodate ten rankings and this capability will be available in the next version of the software certified to VVSG2.0 standards (not yet in use in the United States) while Hart has no plans to develop software or provide updates unless required by ELECT.

Updating the voting system software will result in additional costs for both localities and vendors. New software will have to be produced and adopted by vendors that can support RCV, localities will incur additional cost obtaining it. Once this software is created, it will have to be certified prior to use in Virginia. The certification process requires that vendors receive certification from Voting Sytems Test Lab (VSTL) and Election Administration Commission (EAC) prior to submitting their product for certification through ELECT. The following gives a high-level overview of the changes and associated cost for these changes for both vendors and localities:

- **HartInterCivic:** The cost to update Hart software to support a ranking of 10 candidates would incur business operations costs in the form of product development efforts (design, development, testing, etc.), certification efforts at the EAC and state level, and eventually labor costs for upgrades at the jurisdictional level. Due to the nature of the update, it is unlikely this change would be categorized as a *de minimis change* based on the amount of test effort required to validate that the feature is working as intended. Adding 4 additional candidate rankings has a far-reaching impact on ballot template design, additional user interface validation for accessible devices, and underlying logic.
- **Unisyn:** Any jurisdiction wishing to support 10 rank candidates would need to update their in-precinct scanners from the current OVO devices to the new FVS devices. There will be a per machine cost for each device. The currently certified system does not support 10, therefore Unisyn would need to add these requirements into their current system, develop and test them internally, and then certify with both the Election Administration Commission (EAC) and the State of Virginia. There would be a cost associated with these efforts but with the VVSG 1.0

standards being deprecated, the vendor would need to reach out the VSTL to determine all costs.

- **Dominion:** Democracy Suite is the in-house suite. The pricing for RCV and Democracy Suite Light (EMS) for up to 15,000 registered voters (RCV and EMS price increases with size of registered voters) per voting location would be:
    - Voting system updates ($17,280.00 total)
        - Express Server Computer Workstation: $3780.00
        - Democracy Suite Light Software: $8500.00
        - Ranked Choice Voting Software: $5000.00
    - Annual License fees after first year ($3,700 per year)
        - Democracy Suite's Annual License Fee: $1700.00
        - RCV Annual Licensing Fee: $2000.00
- **ES&S:** EVS 6.1.1.0 and EVS 6.3.0.0 along with a 3rd party tool such as the tool provided by RCV Resource Center, should be all that is needed to conduct an RCV election.

Voting System Requirements and Certification of Tabulator

RCV is not contemplated in the Code in relation to voting system certification. Based upon the definition of "voting system" as "the electronic voting and counting machines used at elections, including direct recording electronic machines (DRE), ballot scanner machines, and on-demand ballot printing systems and ballot marking devices used to manufacture or mark ballots to be cast by voters on electronic voting and counting machines"[22], it was determined that tabulation software for RCV does not fall into the category of a voting system. RCV tabulators are sometimes referred to referred to as "voting system add-ons." Therefore, there is a gap in the Code related to the use of tabulation software for RCV rounds.[23]

This gap in the Code related to RCV tabulators includes security and integrity, as the Code requires electoral boards to develop and annually update written plans and procedures to ensure the security and integrity of its electronic voting systems.[24] Likewise, the Code provisions related to approval and testing by the SBE of electronic voting systems clearly relate to voting systems that voters interact with when casting votes and that read and record the cast ballots.[25] RCV tabulation software, on the other hand, is used in the canvass process after ballots have been read by the voting systems and recorded onto a CVR.

The lack of Code provisions related to an RCV tabulator led the SBE, as discussed earlier, to amend the existing RCV regulations in 2023 to require any tools, including software, used in the tabulation of RCV rounds to be approved by ELECT.[26] To that end, ELECT's security staff developed and presented to the SBE at its May 2023 meeting the criteria for ELECT's approval of the RCTab software for use in the Arlington County Board Democratic primary election.[27] As part of its approval, ELECT relied on a

[22] Va. Code § 24.2-101.
[23] While it is possible to tabulate RCV rounds by hand, ELECT views a tabulator as an essential component of the process for both accuracy and security, as well as administrative practicality.
[24] Va. Code § 24.2-625.1(D).
[25] Va. Code § 24.2-629.
[26] Virginia Administrative Code, 1VAC20-100-50(E).
[27] https://townhall.virginia.gov/L/GetFile.cfm?File=meeting\151\37226\Agenda_ELECT_37226_v1.pdf

successful test and related report of RCTab by Pro V&V, a voting systems test laboratory accredited by the U.S. Election Assistance Commission. Additionally, ELECT reviewed RCVRC's RCTab security documentation package and conducted its own test elections with RCTab.

Regardless of the type of RCV election, the issue of the characterization of RCV tabulation software is important. While ELECT is confident in its approval and use of RCTab, a more defined framework within the Code would help clarify the distinction between RCV software and a voting system, and also establish responsibilities related to security and certification.

Cast Vote Record (CVR)

When the central tabulation of RCV is completed, the CVR is obtained from each voting system and uploaded into the RCV tabulation software. The software (in terms of current use, RCTab) processes the CVRs and executes the RCV tabulation process, transferring votes and eliminating candidates round-by-round until a candidate(s) reaches the required threshold to win.

As stated previously, while each voting system vendor has the capability to produce CVRs, not all localities have voting systems that have access to the functionality without upgrades. All voting system vendors can create this functionality for those localities, but those localities will bear any associated costs in securing the necessary upgrades to their voting systems. In the context of RCV for a multi-jurisdiction race, even if all voting systems have CVR functionality activated, not all voting systems create the same type of CVR file (this relates to the previously discussed challenge of central tabulation when voting systems from multiple vendors are used in one race). The necessary upgrades to locality voting systems could lead to significant cost for localities; in the case of local RCV, localities opt for RCV and know the requirements, but they will have no choice in the event of a statewide race.

Another issue with CVRs relates to their availability as a public record. In non-RCV elections, CVRs have generally been considered election records, stored under seal with the clerks of court, and therefore have generally not been available for release as public records. In RCV elections, the release of CVRs has been viewed as an important element of transparency into the multi-stage tabulation process. To that end, SBE revised the RCV regulations to require localities to preserve a record of votes cast in an RCV election for the purpose of public inspection.[28]

In considering the current framework for RCV and any expansion, issues surrounding the CVR are important to address, including the capabilities of localities' voting systems and the treatment of CVR as a public record.

Election Reporting

The Code requires that localities report results by precinct.[29] SB 1380 also contains a provision that requires final results to be reported by precinct. Precinct-level reporting of final results, however, is not possible in RCV races due to the way such races are tabulated. Once a CVR is produced by the voting system for each precinct, votes from all precincts are combined to conduct the necessary vote transfers in the RCV round phase of tabulation. In other words, individual RCV tabulation processes are not carried out at each precinct. Further, as discussed previously in the context of tabulation, to fulfill SB

[28] Virginia Administrative Code, 1VAC20-100-70(B).
[29] Va. Code § 24.2-667.1

1380's requirements for determining and reporting results at the congressional level, RCV tabulation would need to be completed at both the congressional and state level to produce such results.

While precinct-level results are not possible after the RCV tabulation process has been conducted, it is possible to report the first-choice vote totals for each candidate in precincts, as this is printed out on the voting system results "tapes". Currently, ELECT requires first-choice results in each precinct to be reported, though the results page makes clear that RCV round tabulation must occur. The results of the RCV tabulation rounds are displayed on a separate page of ELECT's election reporting website.

Another issue with results reporting under SB 1380 is the requirement for the release of "unofficial preliminary round-by-round tabulation results and unofficial preliminary cast vote records as soon as feasible after the polls close and at regular intervals thereafter until the counting of ballots is complete." For local RCV races, it was decided that preliminary tabulation should not be completed because outstanding ballots would need to be counted and factored in (provisional and late-arriving absentee) in order to have the full universe of ballots eligible to be counted. There was concern that it could lead to confusion and distrust in the process if preliminary results were released and then the results subsequently changed. In considering the process for tabulation of RCV rounds, there should be more defined requirements related to the timing of RCV round tabulation and of reporting results.

For purposes of SB 1380 and the current state of RCV, clarity could be provided in the Code related to the reporting of RCV results, particularly in relation to the requirements for precinct-level reporting of RCV elections, the final results of which are unable to be broken down by precinct, and the timing of the release of results (which dovetails with tabulation timing discussions).

Recounts

Under the Code, the recount provisions apply broadly to all elections, including RCV elections.[30] However, the existing recount provisions do not contain any specific provisions that address RCV. Due to the unique nature of RCV races compared to traditional races, the general recount provisions do not always make sense in the context of RCV.

An area of clarification for RCV recounts relates to the criteria and eligibility for requesting a recount of an RCV election. In breaking down the recount provisions in the Code, there are two parties to the election invoked: (1) Any candidate apparently nominated or elected; and (2) any candidate apparently defeated. Since RCV tabulation is a multi-stage process, the existing Code provisions are open to interpretation as to application. For instance, should the eligibility to request a recount confined to a particular round of tabulation? The following examples show the approaches of two different jurisdictions related to RCV recounts:

- In Minneapolis[31] in single-winner RCV races, required recounts are based upon the final round vote totals for the winning and losing candidates. A candidate defeated in the final round of tabulation may request a recount of the votes cast for the nomination or election to that office if the difference between the final round vote total for that candidate and for a winning candidate is less than the required threshold. Further, discretionary recounts are granted for

[30] Va. Code § 24.2-800(A)
[31] Minneapolis Code of Ordinances §167.90.

candidates in any round at the expense of the candidate (bond, cash, or surety must be paid to cover the recount expenses).

- In Utah, state law expressly excludes RCV races from general recount provisions. Rather, recounts for RCV races are built into the process. An election officer must order a recount of valid votes in a tabulation round if a candidate reaches the required number of votes to be elected and the difference between the candidate and any other candidate is within a certain threshold or, alternatively, the candidate with the lowest number of votes in a tabulation round and any other candidate is within a certain threshold.[32]

Due to the process differences in RCV elections, a comprehensive review of the recount provisions of the Code is warranted to account for RCV. This could include the insertion of RCV-specific provisions or, as was done in Utah, the carving out of RCV from the provisions and the creation of a standalone process.

Ballot Transcription

According to the U.S. Election Assistance Commission (EAC), ballot transcription is the process of replacing a ballot that cannot be read by the ballot scanner machine with a new ballot that preserves the voter's intent.[33] Due to the need for ballots in RCV elections to be scanned by voting systems and registered on CVRs, ballot transcription is an important aspect of RCV. Based upon existing SBE regulation,[34] ELECT has developed guidance allowing for the use of ballot transcription in RCV races. However, provisions for ballot transcription in RCV could be added into the Code for greater clarity on the issue. This issue also has implications for situations that require the hand counting of ballots.

Risk-limiting Audits

Under current law, RCV races are generally eligible for risk-limiting audits (RLAs) pursuant to §24.2-671.2(D), which allows for local electoral boards to apply to the SBE for approval to perform an RLA for a race within the local electoral board's jurisdiction. SBE regulation[35] further clarifies the criteria for approval of such a request. That said, it is important to be clear about the limitations of RLAs in RCV races.

ELECT uses a software called Arlo to administer RLAs, which is hosted by VotingWorks. Arlo provides organization and randomization of samples in addition to calculating whether the risk limit has been met. Currently, VotingWorks has yet to test Arlo's capabilities in a live RCV race; as a result, Arlo's RCV user interface has not been fully built.

Without the functionality of Arlo, performing an RLA of an RCV race would be a complex, manual, and potentially inaccurate process. Therefore, consideration should be given to limiting the scope of what can be audited for an RCV confined to the first-choice rankings reported by voting systems.

Voter Outreach

[32] Utah Code 20A-4-603(4) and 20A-4-603(5).
[33] U.S. Election Assistance Commission, Inbound Ballot Process, https://www.eac.gov/sites/default/files/electionofficials/vbm/Inbound_Ballot_Process.pdf.
[34] Virginia Administrative Code, 1VAC20-100-60.
[35] Virginia Administrative Code, 1VAC20-60-80.

Based upon the experience in Arlington County and the experience of other jurisdictions across the country, voter education is a critical component for RCV elections, particularly when newly introduced. For instance, New York City appropriated $15 million for a voter education campaign ahead of its RCV mayoral primary.[36] As previously described, prior to the Arlington County primary election, both ELECT and Arlington County undertook significant efforts to educate voters, but many citizens and community groups still contended that more was needed.

In the case of an expansion of RCV to multi-jurisdictional races, particularly with nuances of a presidential primary layered in under SB 1380, a robust voter education campaign would be needed to ensure voters are fully informed of the process. It should also be noted that due to the passage of §24.2-124.1 during the 2022 legislative session, general registrars and ELECT cannot accept any money, grants, property, or services given by a private individual or nongovernmental entity for the purposes of funding voter education and outreach programs which means that the state and localities may not collaborate with nonpartisan, nonprofit organizations to conduct outreach.

CONCLUSION

ELECT takes no position on the policy of the use of RCV in elections, as currently available in localities or in an expanded, multi-jurisdictional form. However, if RCV is to expand in Virginia, either to presidential primaries as proposed under SB 1380 or to other types of multi-jurisdictional races, the issues raised in this study should be considered. Further many of these issues warrant consideration in relation to the current framework in place for RCV in local races.

In relation to specific provisions of SB 1380 and implementing a statewide RCV race, the biggest challenge lies with centralized tabulation and the current use of four different voting system vendors by Virginia localities and the fact that, in the immediate, the currently available RCV tabulation software is not capable of processing CVRs from multiple vendors in a single election. If that functionality is created, every locality must still have the necessary voting system upgrades to produce a CVR that can be uploaded into the RCV tabulation software. This comes with a large fiscal impact to localities.

In addition to the fundamental issues with tabulation, addressing the other areas of concern set forth in this report will ensure that there is a well-defined framework for RCV in local races and in any future expansion, like provided by SB 1380, which will help ensure voter confidence in the RCV process.

[36] https://www.nyc.gov/office-of-the-mayor/news/315-21/new-york-city-launch-15-million-ranked-choice-voting-education-campaign.