To: Colorado Department of State
From: Chris Hughes, Policy Director, Ranked Choice Voting Resource Center
Re: Proposed Rules included in April 15, 2022 Notice of Proposed Rulemaking
Date: 5/24/22

I am submitting these comments on behalf of the Ranked Choice Voting Resource Center (RCVRC). RCVRC is a nonpartisan, nonprofit organization providing information, research, and tools to teach the public about ranked-choice voting. We have extensive experience with ranked-choice voting (RCV). We have assisted efforts to implement RCV across the United States, from Alaska to Maine to New York City. We appreciate the opportunity to submit comments on proposed amendments to the Colorado Department of State Election Rules. RCVRC staff are available to discuss any of these comments and to provide support to the Department of State as it works on these regulations.

One RCV tool we produce is RCTab, open-source round-by-round RCV tabulation software. RCTab can process elections according to RCV counting rules from across the country and serves as a reference implementation for most RCV counting rules. Where relevant, this comment will reference RCTab's current capabilities and will discuss whether they do or do not meet any of the voting systems criteria mentioned. These discussions are used only to indicate whether the requirements proposed today are in line with typical RCV tabulation rules in the United States.

Ranked voting definitions:

Below are suggested updates to some of the ranked voting definitions. Celeste Landry's comment also suggests revisions to proposed 1.1.36, 1.1.49, 1.1.56, and 1.1.57, all of which we support incorporating.

- **1.1.50** "Skipped ranking" means a voter ~~did not rank candidates in numerical order (e.g., voter ranks top candidate with a "1" and second candidate with a "3", or leaves a ranking blank)~~ **has left a ranking unassigned but ranks a candidate at a subsequent ranking**.

The existing skipped ranking definition is vague and includes 1) ballots that rank candidates, skip intermediate rankings, and then rank additional candidates as well as 2) ballots that rank candidates and leave the rest of the rankings on a ballot blank. In RCV, skipped ranking is used to mean just the first meaning and not the second, which this suggested definition captures.

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- **1.1.64** "Winning candidate" **in a ranked voting contest** means a candidate who is elected after receiving at least 50 percent plus one vote **of the votes on active ballots** in an instant-run-off election, or after reaching the winning threshold required in a single transferable vote election, or because the number of continuing candidates and other winning candidates is less than or equal to the number of seats to be filled.

These revisions specify that this definition applies only to ranked voting contests and provides clarity on how the winning threshold in instant-runoff voting elections should be calculated. Standard practice in instant-runoff voting elections is to rely on active ballots in a given round to determine when a candidate crosses the threshold of election.

- **1.1.65** "Winning threshold" means the number of votes sufficient for a candidate to be elected **in a single-transferable vote contest**. In **such a contest** ~~any given election~~, the winning threshold equals the total votes counted in the first round of tabulation, divided by the sum of one plus the number of offices to be filled, then adding one, disregarding any fractions. Winning threshold = ((Total votes cast)/(Seats to be elected + 1)) +1, with any fraction disregarded.

This revision ensures that the winning condition for instant-runoff voting described in 1.1.64 creates no conflict with the winning threshold as described in 1.1.65.

- **1.1.30 "Inactive ballot" means a ballot that does not count for any candidate for any of the reasons given in Rule 26.7.**

A number of proposed rules and the discussion of those rules in this comment make reference to ballots exhausting, a ballot condition particular to ranked-choice voting elections. Exhausted ballots are also known as inactive ballots. Ballots go inactive in RCV elections when they run out of valid rankings. This can occur when all the candidates a voter ranked are eliminated or when a voter makes a ballot error (such as an overvote). Neither the current RCV Rule nor the proposed rule ever defines the term "inactive" or "exhausted" ballot. The current RCV Rule does, however, define "active ballot" as a ballot that counts for a winning or continuing candidate. We suggest adding a definition for "inactive ballot" to ensure this term is defined and to parallel existing terminology in the RCV Rule. If adopted, this definition will require additional renumbering of all definitions after current definition 1.1.29, "Immediate Voting Area."

**Voting System Requirements**

- **21.11.1(A)** THE VOTING SYSTEM MUST GENERATE A SUMMARY REPORT THAT LISTS THE TOTAL NUMBER OF VOTES FOR EACH CANDIDATE IN EACH ROUND. THE REPORT MUST LIST **AS SEPARATE TOTALS** THE NUMBER OF **BALLOTS THAT BECAME INACTIVE IN EACH ROUND BECAUSE THEY DID NOT CONTAIN ANY ACTIVE CANDIDATES, REACHED AN OVERVOTE, OR REACHED TWO CONSECUTIVE SKIPPED RANKINGS.** ~~AND BALLOTS WITH FEWER RANKINGS THAN THE MAXIMUM PERMITTED IN THE RACE.~~

The suggested revisions clarify what information to include in any results report. These revisions ensure the most relevant information is included in the results report - the total number of ballots in each round as well as the reason any given ballot inactivated in a round of counting.
The original proposed rule may create confusion when members of the public review any results reports. Many ballots in ranked-choice voting elections may include overvotes, skipped rankings, duplicate rankings, or use fewer rankings than available. Those voter behaviors only impact ballots if those conditions are reached during the rounds of counting and, in turn, cause a ballot to go inactive. In the proposed rule, the numbers of all ballots underusing or misusing rankings would be reported, regardless of whether those conditions caused a ballot to become inactive. For example: consider a ballot with an overvote after the first ranking, but that ballot is never transferred away from their first ranking. That overvote never came into play, so its existence does not impact the results of the election.

The rates of voters making overvotes, duplicate rankings, and skipped rankings is relevant information for understanding how voters interact with the RCV ballot but is not relevant in results reporting. It may be worthwhile to also provide standards for additional RCV contest analysis, to include the total number of ballots with overvotes, duplicate rankings, skipped rankings, and ballots running out of continuing candidates.

We suggest removing the requirement to report numbers of ballots with fewer rankings than the maximum allowed. While many voters use more than one ranking in RCV elections, few use every ranking. If reported, this number would likely include about 80% of ballots cast in the election. This ranking behavior is understandable: voters who prefer a leading candidate may wish only to rank that candidate and are confident that leading candidate will remain in the contest throughout all rounds of counting. Other voters may only want to rank a specific set of candidates who align with their views – those candidates may make up a small subset of all candidates running in a large field, again leading to voters using fewer rankings than are available.

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In addition, as discussed above with potential voter errors, the number of rankings voters used is not directly relevant to the results themselves but may be valuable information to include in post-election analysis of election data.

- **21.11.1(B)** THE VOTING SYSTEM MUST GENERATE A BALLOT IMAGE REPORT, **WHICH CAN BE FULFILLED BY EXPORTING A CAST VOTE RECORD** THAT LISTS THE ORDER IN WHICH THE ELECTOR RANKED THE CANDIDATES FOR EACH **CONTEST**~~BALLOT~~.

This requirement as drafted is confusing. As written, a ballot image report seems indistinguishable from a cast-vote record export, but the use of different terminology makes it unclear if they are meant to be distinct. In addition, "Ballot image" is used elsewhere in Colorado law to mean actual images of ballots. The suggested revisions make clear that a cast-vote record export can suffice as the ballot image report in order to reduce ambiguity.

- **21.11.2** Data Export Formats

No direct revisions are suggested to the Data Export Formats rule. Is it necessary, however, to require data to be exported in three different formats? Or could any of the formats suffice? Additionally, should any other CVR format requirements from Colorado law apply here? If so, we suggest adding in cross references to those requirements.

- **21.11.3(C)** THE VOTING SYSTEM MUST BE ABLE TO SUPPORT RANKING AT LEAST TEN NAMED CANDIDATES AND UP TO TWO WRITE-IN CANDIDATES PER INSTANT RUNOFF CONTEST.

Why this number of rankings? Center for Civic Design usability studies found that between 5-8 is good. Analysis of RCV ballots from across the country finds that voters have three typical ranking behaviors 1) as many candidates as there are seats up for election (to illustrate: in a single-winner election, one candidate; in a six-winner election, six candidates); 2) three candidates; 3) as many candidates as there are rankings available.

Hart Voting Systems's RCV functionality limits RCV contests to 6 rankings and, as far as we know, Dominion Voting Systems's standard RCV functionality limits RCV contests to 10 rankings. The requirement as drafted may be infeasible for current vendor systems to meet.

Note: Dominion developed a custom RCV ballot for Cambridge, Massachusetts allowing up to 15 rankings but has not made that custom ballot otherwise available.

- **21.11.3(D)** THE VOTING SYSTEM MUST ALLOW THE RANKED VOTING CONTESTS TO BE FORMATTED **WITH** ~~ON PAPER BALLOTS IN THE FOLLOWING WAYS:~~

~~(1) CANDIDATES LISTED IN COLUMNS AND RANKINGS LISTED IN ROWS.~~
~~(2)~~ RANKINGS LISTED IN COLUMNS AND CANDIDATES LISTED IN ROWS.

As written, this rule requires that voting systems be able to produce two distinct types of ballot designs, both of which are used in RCV elections in the US. 21.11.3(D)(2) requires what is known as a grid-style ballot. Example:

| Council Member<br>Rank up to 5 choices<br>Mark no more than 1 oval in each column<br>Miembro del Concejo<br>Clasifique hasta 5 opciones<br>Marque no más de un óvalo en cada columna<br>市議員<br>最多5個排名選擇<br>每項競選項目僅限標記一個橢圓 | 選擇 Choice Opción 1st | 選擇 Choice Opción 2nd | 選擇 Choice Opción 3rd | 選擇 Choice Opción 4th | 選擇 Choice Opción 5th |
|---|---|---|---|---|---|
| Aleta A. LaFargue<br>艾立達 A. 樂法格 | ⬭ | ⬭ | ⬭ | ⬭ | ⬭ |
| Arthur Z. Schwartz<br>亞瑟 Z. 史瓦茲 | ⬭ | ⬭ | ⬭ | ⬭ | ⬭ |
| Phelan D. Fitzpatrick<br>菲蘭 D. 費茨派翠克 | ⬭ | ⬭ | ⬭ | ⬭ | ⬭ |
| Marni Halasa<br>瑪爾妮 賀拉沙 | ⬭ | ⬭ | ⬭ | ⬭ | ⬭ |
| Leslie Boghosian Murphy<br>萊絲莉 波卡賢 默菲 | ⬭ | ⬭ | ⬭ | ⬭ | ⬭ |
| Erik D. Bottcher<br>艾利克 D. 巴徹 | ⬭ | ⬭ | ⬭ | ⬭ | ⬭ |
| Write-in<br>candidato por escrito<br>寫入未列名候選人 | ⬭ | ⬭ | ⬭ | ⬭ | ⬭ |

This type of ballot permits voters to rank more candidates than the style of ballot required by 21.11.3(D)(1), which is discussed more below. We suggest only requiring this style of RCV contest as it permits more rankings and uses space more efficiently than the column-style ballot required by 21.11.3(D)(1).

21.11.3(D)(1) appears to require what is known as a column-style ballot. Column-style ballots tend to limit the number of rankings available on a ballot to three or four rankings because each ranking column takes up a large amount of horizontal space. It is unlikely that a column-style ballot could meet the 10-ranking requirement from 21.11.3(C) given these space requirements.

It is unclear what precise format of ballot 21.11.3(D)(1) requires. One possible interpretation is that it requires a column-style ballot, pictured here:

| Council Member Ward Ten | Rank your first, second and third choice candidates in the columns below. One to be elected. | |
|---|---|---|
| 1 1st Choice Select One | 2 2nd Choice, if any Must be DIFFERENT from your 1st choice. Select One | 3 3rd Choice, if any Must be DIFFERENT from your 1st and 2nd choices. Select One |
| ○ David Wheeler Democratic-Farmer-Labor | ○ David Wheeler Democratic-Farmer-Labor | ○ David Wheeler Democratic-Farmer-Labor |
| ○ Chris Parsons Democratic-Farmer-Labor | ○ Chris Parsons Democratic-Farmer-Labor | ○ Chris Parsons Democratic-Farmer-Labor |
| ○ Alicia Gibson Democratic-Farmer-Labor | ○ Alicia Gibson Democratic-Farmer-Labor | ○ Alicia Gibson Democratic-Farmer-Labor |
| ○ Aisha Chughtai Democratic-Farmer-Labor | ○ Aisha Chughtai Democratic-Farmer-Labor | ○ Aisha Chughtai Democratic-Farmer-Labor |
| ○ Ubah Nur Democratic-Farmer-Labor | ○ Ubah Nur Democratic-Farmer-Labor | ○ Ubah Nur Democratic-Farmer-Labor |
| ○ Katie Jones Democratic-Farmer-Labor | ○ Katie Jones Democratic-Farmer-Labor | ○ Katie Jones Democratic-Farmer-Labor |
| ○ write-in, if any | ○ write-in, if any | ○ write-in, if any |

That is not the only possible interpretation, however. As written, 21.11.3(D)(1) could permit a grid-style ballot where candidates are listed along the top of the grid and rankings are listed along the side of the grid (their positions reversed from the grid ballot image provided above). No such RCV ballot has ever been used and that style of ballot would likely be challenging for voters to use. It would move candidates from their typical placement on the ballot (aligned in rows) to an atypical placement (aligned in columns at the top of a grid). This change would lead to additional ballot errors by voters.

The requirements in 21.11.3(D)(1) may be better suited as an alternative permitted ballot design as opposed to a required ballot design. The proposed revision in this comment removes this requirement entirely, but the text could instead be made an alternative by revising it to read:

"**OR, IN THE ALTERNATIVE**, RANKED VOTING CONTESTS COULD BE FORMATTED WITH CANDIDATES LISTED IN COLUMNS AND RANKINGS LISTED IN ROWS."

- **21.11.4(A)** THE VOTING SYSTEM MUST RECORD ALL ~~VALID~~ VOTER RANKINGS.

The proposed rule requires that voting systems record valid rankings, but the term valid rankings is never defined. In addition, voting systems need to also record potentially invalid rankings (those that would inactivate a ballot or that are in some way ambiguous) in order for election administrators to adjudicate ballots and for round-by-round counting software to process any voter errors/invalid rankings according to the relevant local rules.

Rules 21.11.4(F)–(J) describe a range of requirements for how voting systems could handle different ranking behaviors on RCV ballots. Before discussing those provisions, we have one suggestion on a related rule that is not touched on in the proposed rulemaking. This edit is relevant to our discussion of 21.11.4(F)–(J), which is why we include it first.

Rule 26.8.2 (proposed 26.7.2) requires ballots to become inactive if a single skipped ranking is encountered. 26.8.2 is the strictest skipped ranking rule in the country and will needlessly inactivate ballots where voters accidentally skipped a ranking. All other RCV jurisdictions follow one of two rules:

1) If voters skip two or more rankings in a row, the ballot will inactivate if those skipped rankings are encountered when transferring a ballot; or,
2) Voters can skip any number of rankings.

Inactivating ballots after two or more consecutive skipped rankings works because voters sometimes skip multiple rankings in order to rank a disfavored candidate last. This expressive use of a ranking indicates that the voter does not support the ranked candidate and is instead giving them a low ranking on the ballot as a show of disapproval. Inactivating a ballot after two consecutive skipped rankings ensures voters can engage in this expressive ranking without the risk that a disfavored candidate may receive their vote.

Permitting voters to skip any number of rankings is more forgiving and lends itself to simple voter education. Any ranking a voter makes could be counted, so be sure to only rank candidates you prefer. This same instruction could be given when ranking

To bring Colorado in line with standard practice, two revisions to 26.8.2 are possible:

1) 26.8.2 ~~A skipped ranking and any lower ranking must be ignored~~ **Two or more consecutive skipped rankings and any lower ranking must be ignored; or,**
2) Strike 26.8.2 entirely and renumber 26.8.3 to 26.8.2. This permits voters to skip as many rankings as they wish without inactivating any ballots.

In current Rule 26, 26.8.1, 26.8.2, and 26.8.3 provide clear guidelines for how to handle overvotes, skipped rankings, and duplicate rankings. While 26.8.2 should be revised to be more in line with existing practice, these clear requirements ensure that RCV ballots will be treated the same way across the state of Colorado. Proposed Rules 21.11.4(F)–(J), on the other hand, introduce ambiguity. They all require that voting systems be capable of a range of ballot inactivation options, at odds with the clearly defined requirements in 26.8.1, 26.8.2, and 26.8.3. We suggest providing a single specification for each of the requirements in 21.11.4(F)–(J) to provide uniformity in RCV elections in Colorado and to provide clarity to any voting system vendors submitting their systems to the State.

21.11.4(F) describes how voting systems should handle skipped rankings. As drafted, it requires that a voting system comply with current rule 26.8.2 as well as both of the proposals above. We suggest that 21.11.4(F) be redrafted to require that voting systems inactivate a ballot after two or more consecutive skipped rankings as described in the above proposed revision to rule 26.8.2. If that revision is not made to 26.8.2, 21.11.4(F) should still be revised to require just the current 26.8.2 skipped ranking rule: inactivating a ballot after a single skipped ranking.

The intent of 21.11.4(H) is not clear. It seems to propose two different requirements: 1) the ability to either fully tabulate an RCV election or to pause tabulation after each round and 2) the ability to manually resolve a tie if one occurs in a round of counting. As drafted it seems that the rule requests the ability to pause tabulation in order to resolve any ties, though that may not be the intent. If that is the intent, we suggest revising 21.11.4(H) to instead read:

- **21.11.4(H)** THE VOTING SYSTEM MUST ~~ALLOW THE USER TO DECIDE WHETHER TO PAUSE THE TABULATION SESSION AFTER EACH ROUND OR TO CONTINUE UNTIL A WINNER IS DETERMINED OR~~ **PAUSE TABULATION IN THE EVENT THAT ANY CANDIDATES TIE FOR THE FEWEST NUMBER OF VOTES AND** A MANUAL TIE BREAK FOR ELIMINATION IS REQUIRED.

If the two requirements in 21.11.4(H) are meant to operate independently, then they should be proposed as separate requirements broken out as described above.

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21.11.4(G) asks that voting systems be able to inactivate a ballot when a non-certified write-in is encountered. No other RCV jurisdiction in the US inactivates a ballot if a voter ranks a non-certified write-in. We advise against inactivating a ballot just because it ranks a non-certified write-in. The other option in text is to treat a write-in as a skipped ranking which, under current Rule 26.8.2, would also inactivate the ballot. As-is, RCV tabulation software such as RCTab treats rankings for non-certified write-in candidates as a ranking of a candidate already eliminated from the contest – ignoring any such ranking but not inactivating a ballot or treating the ranking itself as a skipped ranking.

Rule 21.11.4(J) asks that voting systems be able to inactivate a ballot if that ballot ranks a withdrawn or disqualified candidate. No RCV jurisdiction currently inactivates a ballot for ranking such a candidate. Colorado should not do this either, given that many voters will mark and return their ranked ballots before a candidate may withdraw or become disqualified. These rankings could be treated instead as a ranking for an eliminated candidate. RCTab, for example, permits users to mark candidates as “excluded” from a count. This means any rankings for an excluded candidate will be treated like rankings for any eliminated candidate – these rankings are ignored and any later rankings for eligible candidates are counted instead.

Rule 21.11.4(I) seems to take a more nuanced approach to overvotes containing a withdrawn or disqualified candidate. The rule also seems out of step with the current overvote rule in 26.8.1 (proposed 26.7.1). 21.11.4(I) focuses on overvotes that rank both a continuing candidate and a withdrawn or disqualified candidate at the same ranking. It suggests counting such a ranking for the continuing candidate ranked, given that the withdrawn or disqualified candidate cannot receive a vote. This level of complexity is likely to create confusion and may be difficult to explain to voters. We suggest keeping overvote rules as simple as possible by treating all overvotes the same regardless of which candidates are ranked at that overvote. The proposed rule also seems more forgiving of potential voter error and out of step with the more strict rules laid out in 21.11.4(F), 21.11.4(G), 26.8.1, and 26.8.2.

Rule 21.11.6 describes ballot adjudication requirements for ranked-choice voting. We do not know the current capabilities of existing RCV voting systems to queue ballots for adjudication under any of these requirements. Rules (A)(1) through (A)(4) ensure that any potential voter errors on the ballot will be adjudicable, however, so their adoption will be valuable. Rule (A)(5) requires that systems be able to queue contests in which a voter has ranked fewer candidates than the maximum permitted in a given ranked-choice voting contest. As mentioned above in the discussion of Rule 21.11.1(A), this will capture a large share of ranked-choice contests.

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Voters frequently choose to use fewer rankings than are available to them and adjudicating each of those ballots will be resource intensive. It seems unlikely that this sort of feature will be valuable or widely used given how many ballots tend to use fewer than all the available rankings. We suggest removing this requirement.

Thank you very much for your consideration of our comments. We are available to answer questions and provide the Department of State with any additional information necessary.

Sincerely,

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