Research Report

How to display results for multi-winner ranked choice voting elections

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Center for Civic Design

Contents

Why did we conduct this research project?

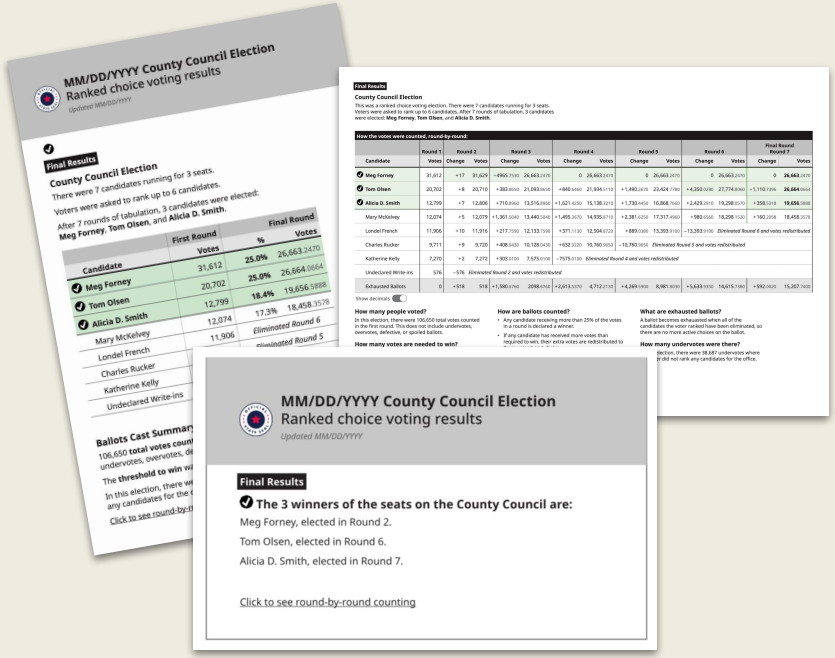
Voters who are new to **Multi-winner Ranked Choice Voting** (also known as Proportional RCV) are unfamiliar with how candidates are elected in this voting system.

When voters don't understand how to interpret election results displays, it increases the potential for distrust in the election process.

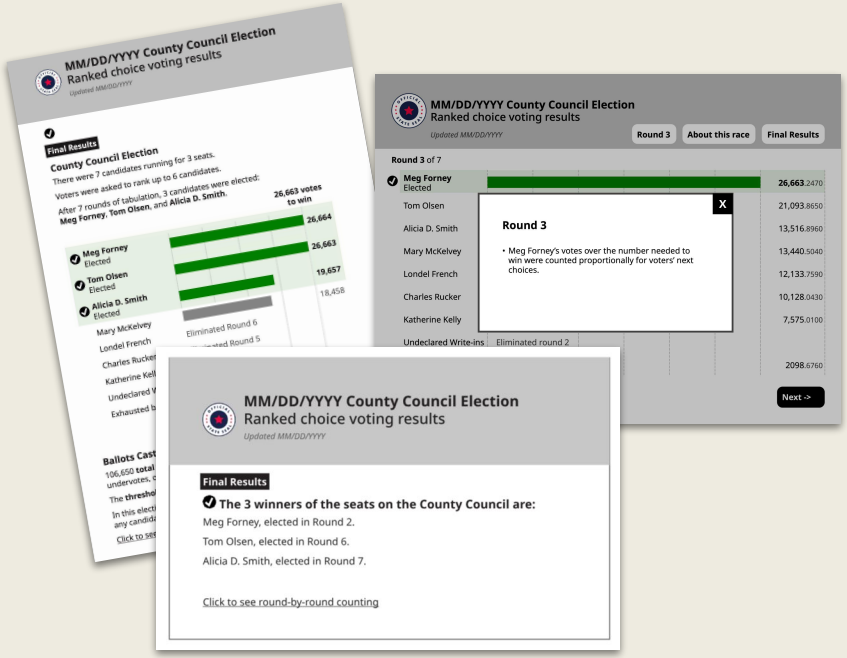
What we tested

We tested 2 sets of multi-winner result displays: a summary table and bar charts.

What did we test?

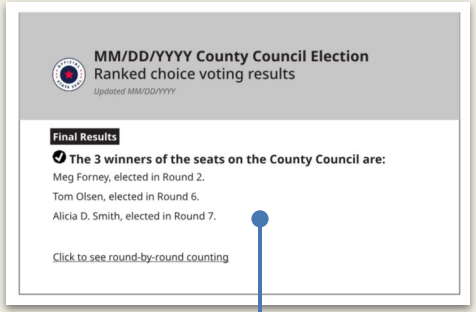


This set of result displays features a summary table in print prototypes to compare and contrast candidates' votes.

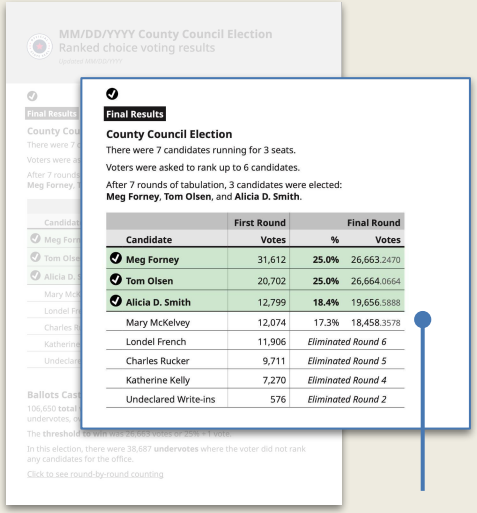


This set of results displays features bar graphs in print and digital prototypes to compare and contrast candidates' votes.

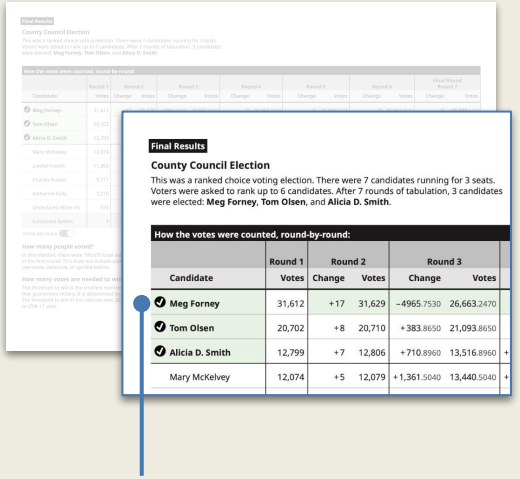
What did we test? (cont.)



The "Bite" is the smallest information that tells voters the critical message.



The "Snack" adds more context, and is usually enough for most voters.



The "Meal" has everything, including information about particular cases.

Bite-Snack-Meal is a voter-centered content framework about organizing and presenting information to voters. Both sets of prototypes use this framework since it divides a large amount of information into different scales. This allows the audience to understand and navigate topics effectively.

What we learned

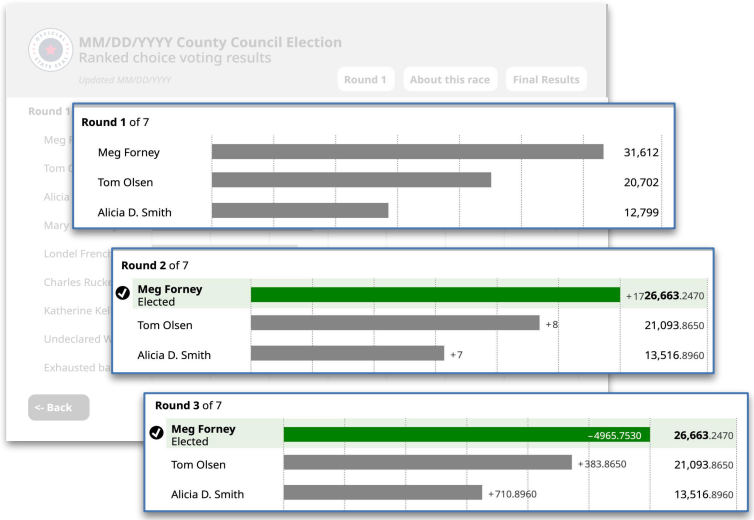
An overview of the insights from usability testing sessions in Multnomah County, OR

People find data displayed in bar charts easy to understand

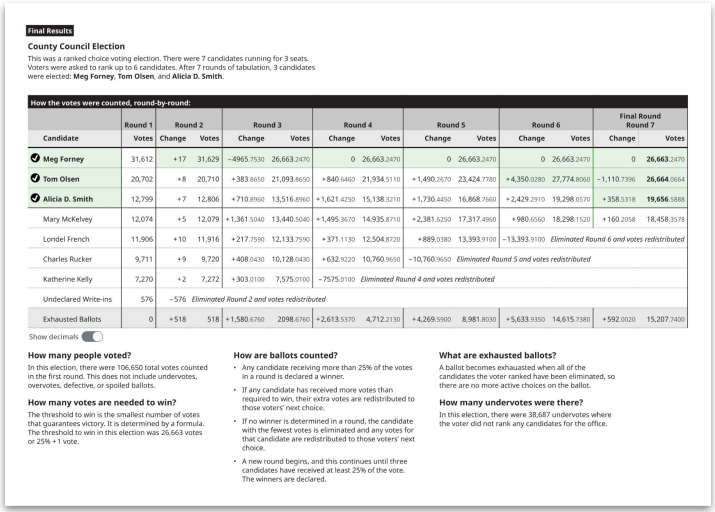
The visuals of a bar graph allows voters to **more easily and quickly understand how the votes "moved" in each round**. People found it easier to compare and contrast how candidates were faring against each other in each round.

When shown different visual displays, many participants found the summary table with all rounds of tabulation to be "transparent" and trustworthy results, but also found them overwhelming and difficult to process.

People find data displayed in bar charts easy to understand (cont.)



A results display with bar charts, which show how the votes transfer among candidates across rounds of tabulation.



Final Results

County Council Election

This was a ranked choice voting election. There were 7 candidates running for 3 seats. Voters were asked to rank up to 6 candidates. After 7 rounds of tabulation, 3 candidates were elected: **Meg Forney**, **Tom Olsen**, and **Alicia D. Smith**.

How the votes were counted, round-by-round:

Candidate	Round 1 Votes	Round 2 Change	Round 2 Votes	Round 3 Change	Round 3 Votes	Round 4 Change	Round 4 Votes	Round 5 Change	Round 5 Votes	Round 6 Change	Round 6 Votes	Final Round Round 7 Change	Final Round Round 7 Votes
✓ Meg Forney	31,612	+17	31,629	−4965.7530	26,663.2470	0	26,663.2470	0	26,663.2470	0	26,663.2470	0	**26,663**.2470
✓ Tom Olsen	20,702	+8	20,710	+383.8650	21,093.8650	+840.6460	21,934.5110	+1,490.2670	23,424.7780	+4,350.0280	27,774.8060	−1,110.7396	**26,664**.0664
✓ Alicia D. Smith	12,799	+7	12,806	+710.8960	13,516.8960	+1,621.4250	15,138.3210	+1,730.4450	16,868.7660	+2,429.2910	19,298.0570	+358.5318	**19,656**.5888
Mary McKelvey	12,074	+5	12,079	+1,361.5040	13,440.5040	+1,495.3670	14,935.8710	+2,381.6250	17,317.4960	+980.6560	18,298.1520	+160.2058	18,458.3578
Londel French	11,906	+10	11,916	+217.7590	12,133.7590	+371.1130	12,504.8720	+889.0380	13,393.9100	−13,393.9100	*Eliminated Round 6 and votes redistributed*		
Charles Rucker	9,711	+9	9,720	+408.0430	10,128.0430	+632.9220	10,760.9650	−10,760.9650	*Eliminated Round 5 and votes redistributed*				
Katherine Kelly	7,270	+2	7,272	+303.0100	7,575.0100	−7575.0100	*Eliminated Round 4 and votes redistributed*						
Undeclared Write-ins	576	−576	*Eliminated Round 2 and votes redistributed*										
Exhausted Ballots	0	+518	518	+1,580.6760	2098.6760	+2,613.5370	4,712.2130	+4,269.5900	8,981.8030	+5,633.9350	14,615.7380	+592.0020	15,207.7400

Show decimals

How many people voted?

In this election, there were 106,650 total votes counted in the first round. This does not include undervotes, overvotes, defective, or spoiled ballots.

How many votes are needed to win?

The threshold to win is the smallest number of votes that guarantees victory. It is determined by a formula. The threshold to win in this election was 26,663 votes or 25% +1 vote.

How are ballots counted?

- Any candidate receiving more than 25% of the votes in a round is declared a winner.
- If any candidate has received more votes than required to win, their extra votes are redistributed to those voters' next choice.
- If no winner is determined in a round, the candidate with the fewest votes is eliminated and any votes for that candidate are redistributed to those voters' next choice.
- A new round begins, and this continues until three candidates have received at least 25% of the vote. The winners are declared.

What are exhausted ballots?

A ballot becomes exhausted when all of the candidates the voter ranked have been eliminated, so there are no more active choices on the ballot.

How many undervotes were there?

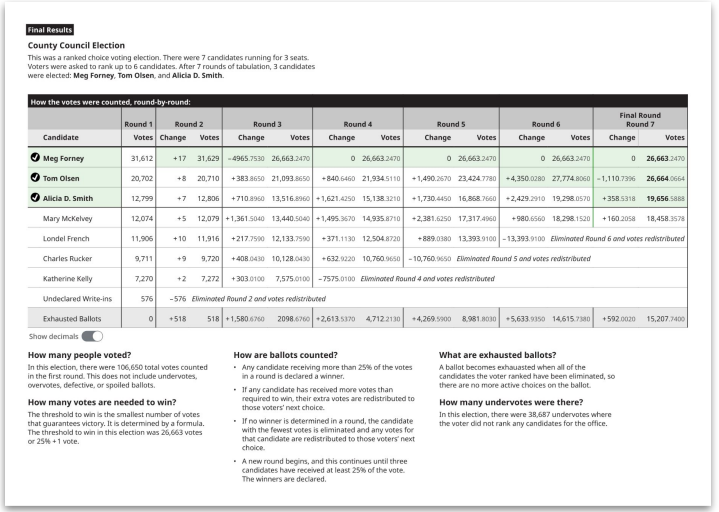
In this election, there were 38,687 undervotes where the voter did not rank any candidates for the office.

A results display without bar charts. It took participants more time to make sense of the change in votes across rounds of tabulation.

Detailed information sources promote trust and transparency for voters

Voters like having access to a table that displays all the rounds of tabulation.

When **voters have the ability to look at the "raw data," it can lead to greater trust in the tabulation process.** If voters only have access to election summaries, those who want to see more about the tabulation process will lose a resource that may be able to answer their questions.



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The "meal" version of the results display. Color and icons help viewers identify the winning candidates.

Detailed information promotes trust and transparency for voters (cont.)

“I think it’s trustworthy. This is really the breakdown of everything that happened.”

— White non-binary voter familiar with STAR voting and RCV

“It's comprehensive. it's better than a regular ballot because you can see the total votes.”

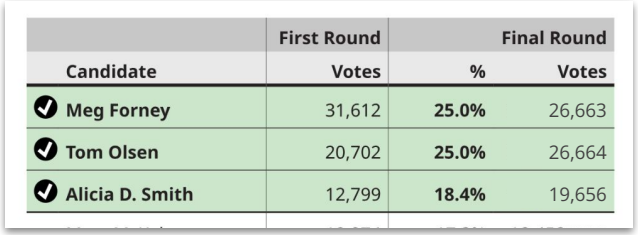
— Black male voter in his 20s

Voters desire ways to easily compare and contrast final votes among candidates

Voters are curious to know who the "**most popular" candidate** is.

People questioned why the final round votes among winning candidates were almost the same numbers. When people are unfamiliar with multi-winner RCV, it can be difficult to understand how the process of transferring votes impacts final round votes.

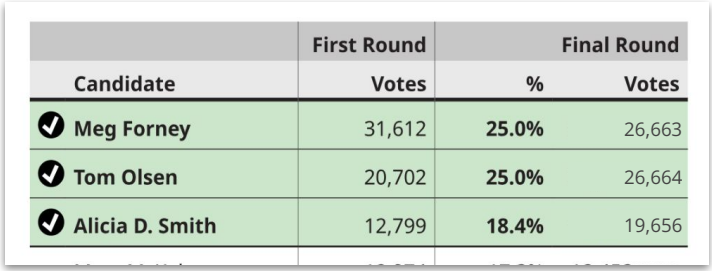
Despite multiple people being elected to a position, voters want to see how winning candidates compared against each other in easily understandable numerical terms.



	First Round		Final Round
Candidate	Votes	%	Votes
✓ Meg Forney	31,612	**25.0%**	26,663
✓ Tom Olsen	20,702	**25.0%**	26,664
✓ Alicia D. Smith	12,799	**18.4%**	19,656

This excerpt from the "snack" version of the results display shows the percentage and total number of final round votes. Participants were confused or surprised that candidates Meg Forney and Tom Olsen appeared to have a difference of 1 vote between them.

Voters desire ways to easily compare and contrast final votes among candidates (cont.)



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"Looking at the final votes, Meg lost by one. Tom won."

One participant incorrectly identified Meg Forney as a losing candidate. They thought that among the winning candidates, Tom Olsen literally got 1 more vote than Meg Forney.

"It's confusing that the top 2 people received 26,000 votes…I guess it doesn't matter as long you're in the top 3."

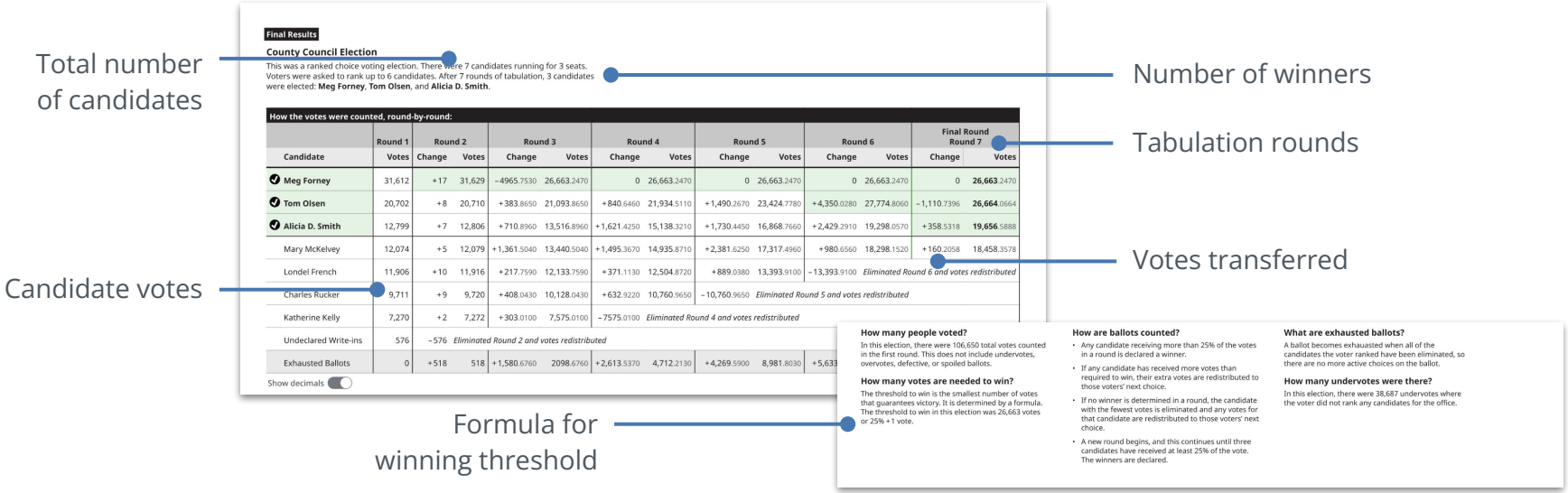
This participant correctly understood that the top 3 candidates with the most votes are the winners. However, this participant did not see detailed information about the tabulation process. As a result, they didn't understand the numbers under final round votes.

"Meg was a more popular candidate. It only took her 2 rounds to be elected."

This participant correctly identified that Meg Forney was a winning candidate. They interpreted popularity by examining who reached the threshold to win first.

Voters want to understand quickly and easily what is happening in each round of tabulation

Voters **need a digestible recap** of what is happening in each of round of tabulation to understand how multi-winner RCV works. In a multi-winner RCV contest, voters are presented with much more numerical data than in a non-RCV contest.



Voters want to understand quickly and easily what is happening in each round of tabulation (cont.)

These numbers overwhelmed voters. Some participants scanned the page, somewhat understood tabulation rounds, and moved on. Other participants saw the page and barely examined the content.

> ***"It's overwhelming. I think it's the numbers – it's just a wall of numbers…It makes me go 'Ugh, I don't want to look at that.' It makes me less want to read all the details of how they won…If I was just seeing who won casually, I don't think I need all this information."***
>
> **— Latine voter in their 20s**

> ***"At first glance, it's confusing. I don't know anything about the RCV process…There is a lot of detail, but I don't understand it. I feel like I could be looking at it and still be confused."***
>
> **— White female voter in their 50s who votes by mail**

Voters struggle with the specialized terminology of RCV

For jurisdictions that are implementing multi-winner RCV for the first time, the vocabulary used to describe this form of voting is unfamiliar to voters. Participants either didn't know what a word meant or misinterpreted it. The words themselves may not hard, but the context of their use leads to confusion.

Words that are not hard, but are unfamiliar	*Ranked choice voting (RCV), threshold to win*	Participants quickly understood the meaning once seeing the word in context
Unusual or hard word	*Exhausted ballots*	Misinterpreted as an invalid ballot or that a voter reaches the maximum amount of candidates they can vote for
Common words with specialized definitions	*Round*	Some participants thought "round" meant that they had to vote multiple times

Additional findings

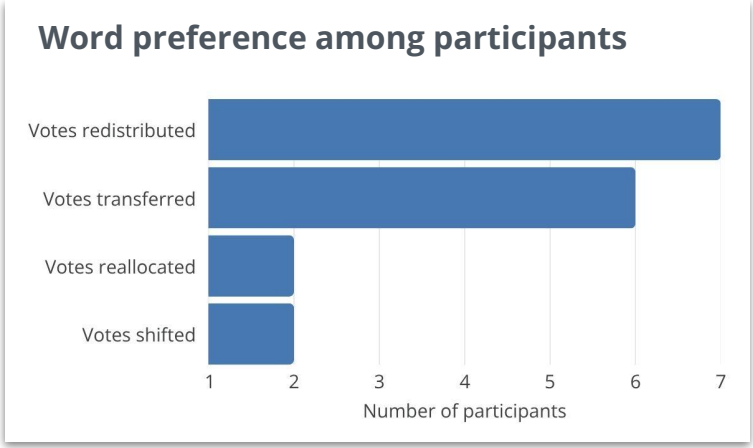
Additional observations and emerging learnings gathered from the research

Voters need additional support to understand terms like "votes transferred" or "votes redistributed"

We asked participants which term they liked best to describe how RCV moves votes from elected or eliminated candidates to voters' next-ranked choices.

No single term emerged as a clear frontrunner by a wide margin.

Participants pointed out an array of secondary meanings they interpreted for each term, and expressed feelings ranging from distrustful to neutral to positive.



During research sessions, participants selected the term they preferred the most. The top choices were "votes redistributed" and "votes transferred."

Participants shared various interpretations for each term and expressed feelings that ranged from distrust to neutrality to positivity

	Positive reactions	Negative reactions
Votes redistributed	*"Redistributed – It's the word that I understand the most out of them.* — White male non-voter in his 30s	*"Redistributed…someone might say that's some kind of government conspiracy."* — White female voter in her 50s who votes by mail
Votes transferred	*"This is the easiest to understand. A person reached their cap and excess votes were transferred.* — White non-binary voter familiar with STAR voting and RCV	*"I think people would be confused."* — Bilingual white female voter in her 40s

Participants shared various interpretations for each term and expressed feelings that ranged from distrust to neutrality to positivity (cont.)

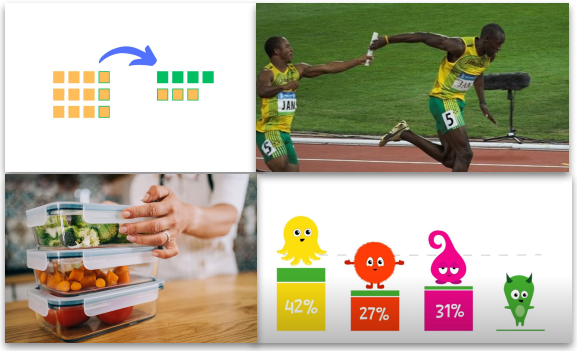
	🤔	❌
Votes reallocated	*"None of them really jump out at me as something I like. If I had to pick I would pick votes reallocated."* — White male voter in his 70s who has read many news articles about RCV	*"'Reallocated' almost seems like they're going away."* — Latine voter who is familiar with RCV
Votes shifted	*"Besides 'votes shifted,' the rest of the terms sounds like someone was trying to win, cheat, or switch the votes."* — Black male voter in his 20s with some RCV knowledge	*"Shifty…I don't like it it. It feels negative. Did someone come in the middle of the night and shift them?!"* — White male voter in his 60s with some RCV knowledge

Animations or analogies help voters understand parts of the RCV process

There are two parts of the RCV process that voter education can focus on addressing:

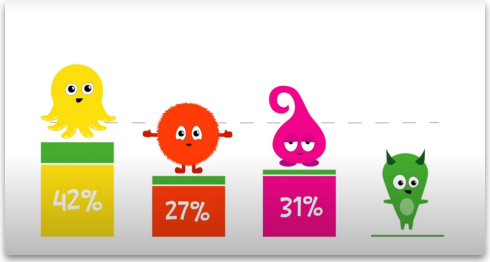
- How does a candidate cross the threshold to win?
- How are votes transferred among candidates?

People gained a clearer understanding of RCV mechanics after looking at visuals that clearly show a “winning line” or communicate the movement of votes among candidates.



During research sessions, participants viewed a variety of images and selected the ones they felt best reminded them of the act of ranking or the act of transferring votes.

Animations or analogies help voters understand parts of the RCV process (cont.)



"This line is like 'making the cut' so the three friends above the line have different numbers but they are all 'qualified' but this other friend who doesn't have votes isn't making the cut."

— Latine voter who is familiar with RCV

"It's like leftover food. The votes are in the original place and then there's leftover or a change in where they're going but they're still being used.

— White female voter with some knowledge of RCV

Recommendations

Design and content approaches to educate and engage new audiences to multi-winner RCV

Bite-snack-meal framework

Despite varying information needs, **all voters need information that is clear, accessible, well-organized, and cleanly presented in an easy-to-read format**. The bite-snack-meal content framework breaks down how to provide the appropriate amount of information at the right time.

A content framework is a repeatable, structured blueprint for creating, organizing, and distributing information in formats that allow the audience to understand and navigate topics effectively.

Bite-snack-meal framework

Bite

The "Bite" is the smallest piece of information that tells voters the critical steps they need to take action.

E.g., date and name of election, list of winning candidates

Snack

The "Snack" adds more context around that smallest essential piece of information. A "Snack" is usually just enough information for experienced voters.

E.g., final round votes, explainer on threshold to win

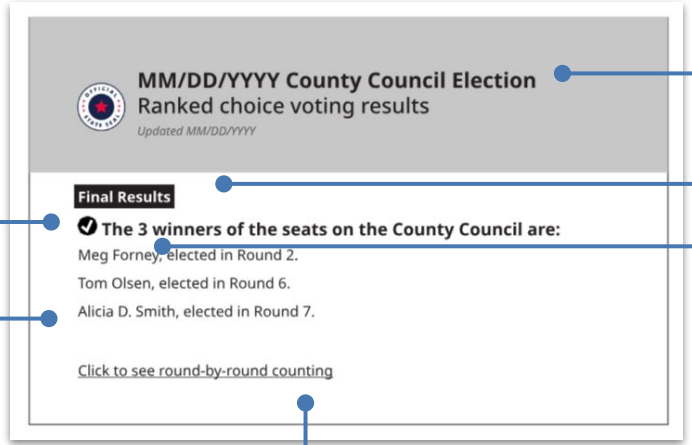
Meal

The “Meal” has everything, including information about particular cases/circumstances that only apply to some.

E.g., all rounds of tabulation, explainer on votes transferred

EXAMPLE

Include a “bite” that summarizes the finals results



Name the specific contest

Specify that these are the final results

Specify the number of winners

Use check marks to indicate winners

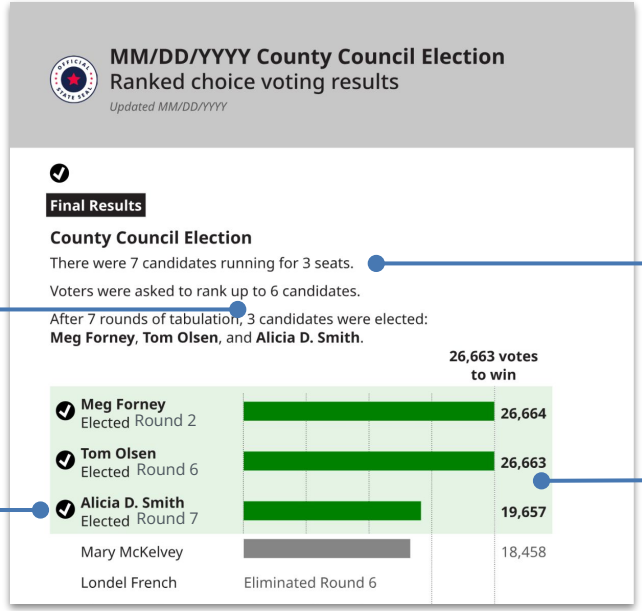
Name the winners and the round in which they passed the threshold to win

Include URL to more detailed tabulation or to a RCV explainer page

Provide several visual and written indicators that a contest has multiple winners

Repeat the number of winning candidates before listing the names.

Use a checkmark and bold candidate names to indicate the winning candidates.



Say how many candidates will be elected at the top of the summary page.

Use color to highlight the winners.

EXAMPLE

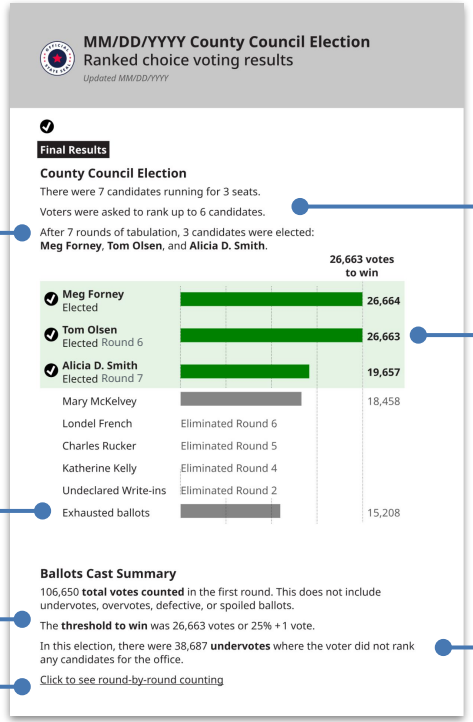
Include a “snack” that summarizes the finals results

Name the total rounds of tabulation

Include inactive ballots

Define “threshold to win” formula

Include URL to detailed tabulation or RCV explainer page



MM/DD/YYYY County Council Election
Ranked choice voting results
Updated MM/DD/YYYY

Final Results

County Council Election

There were 7 candidates running for 3 seats.

Voters were asked to rank up to 6 candidates.

After 7 rounds of tabulation, 3 candidates were elected: **Meg Forney**, **Tom Olsen**, and **Alicia D. Smith**.

		26,663 votes to win
✓ **Meg Forney** Elected		26,664
✓ **Tom Olsen** Elected Round 6		26,663
✓ **Alicia D. Smith** Elected Round 7		19,657
Mary McKelvey		18,458
Londel French	Eliminated Round 6	
Charles Rucker	Eliminated Round 5	
Katherine Kelly	Eliminated Round 4	
Undeclared Write-ins	Eliminated Round 2	
Exhausted ballots		15,208

Ballots Cast Summary

106,650 **total votes counted** in the first round. This does not include undervotes, overvotes, defective, or spoiled ballots.

The **threshold to win** was 26,663 votes or 25% +1 vote.

In this election, there were 38,687 **undervotes** where the voter did not rank any candidates for the office.

Click to see round-by-round counting

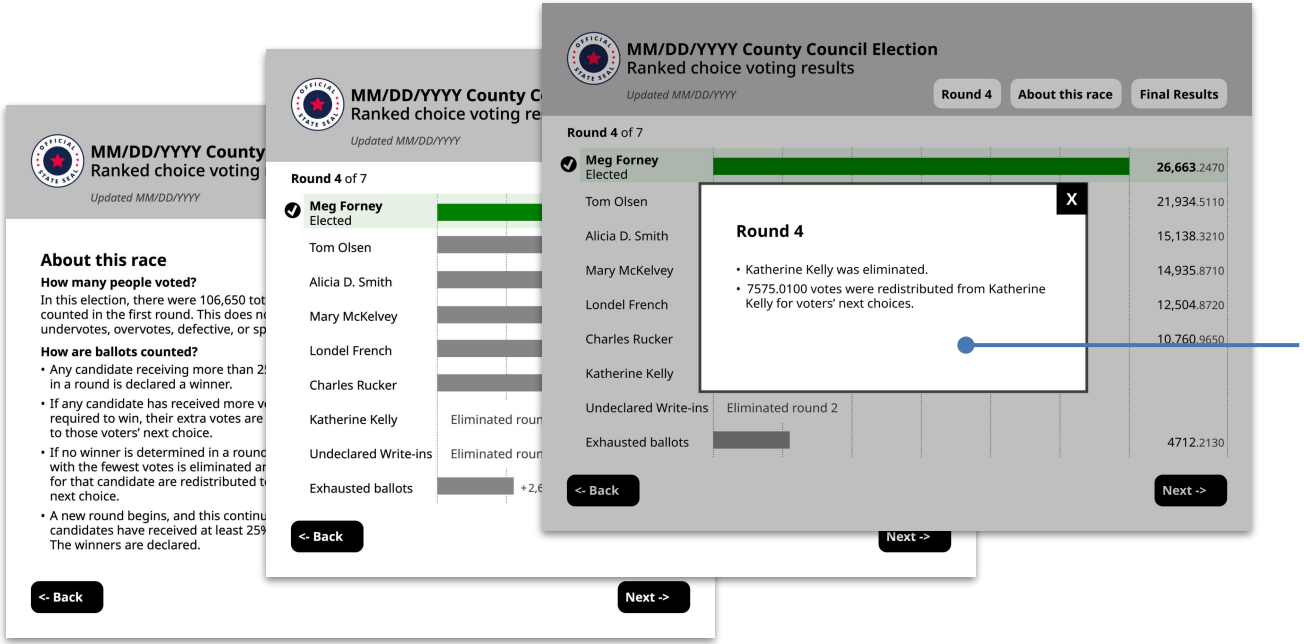
Place written summary before or above the visual chart

Show each candidate’s total votes

If included, define “undervotes”

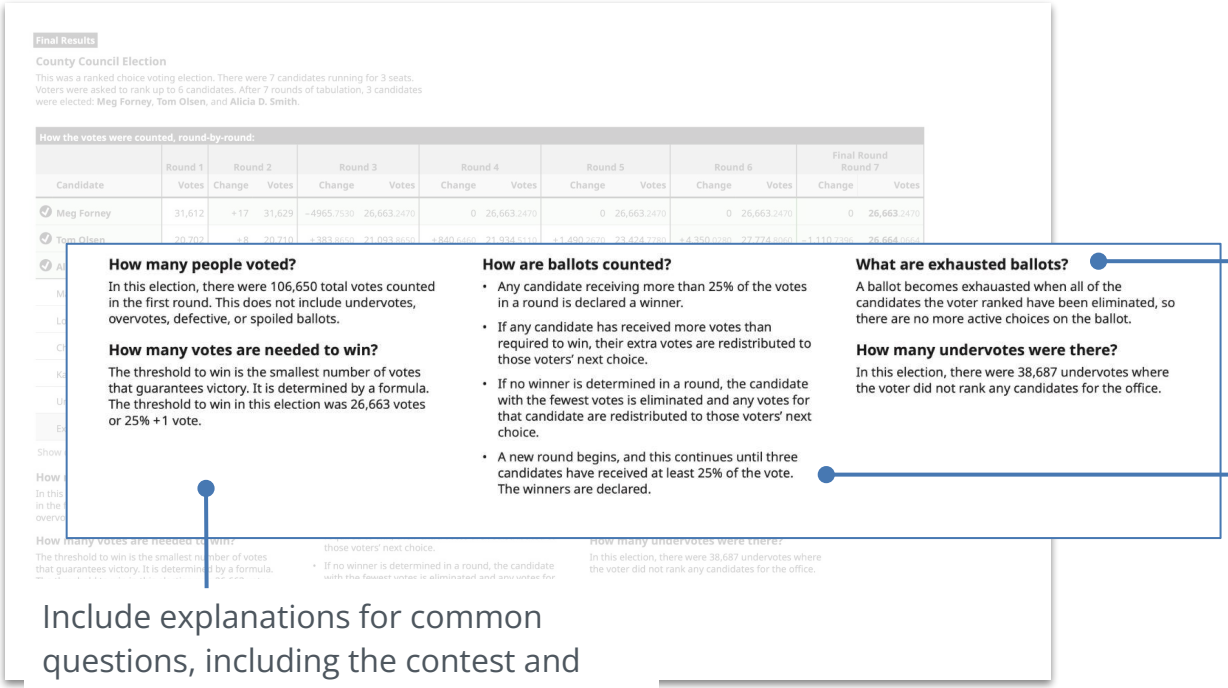
EXAMPLE

Include a “meal” that provides more details on how the process works and definitions of terminology



Include call-outs that summarizes the changes happening in each round (e.g. elimination of a candidate, how votes are transferred, etc.)

Include an easy-to-access RCV glossary to familiarize voters with this form of voting

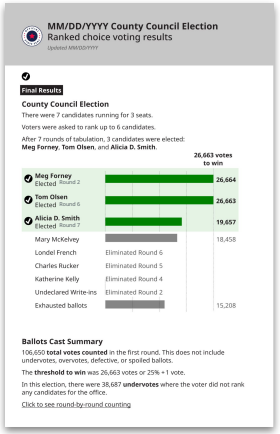


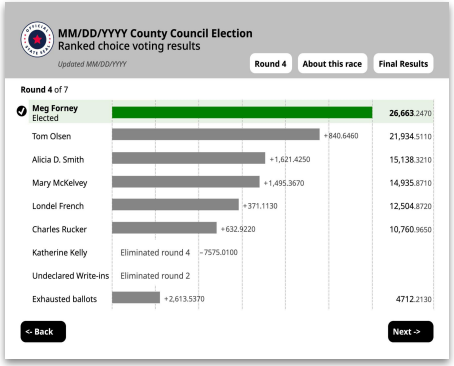
Include explanations for common questions, including the contest and how candidates become winners.

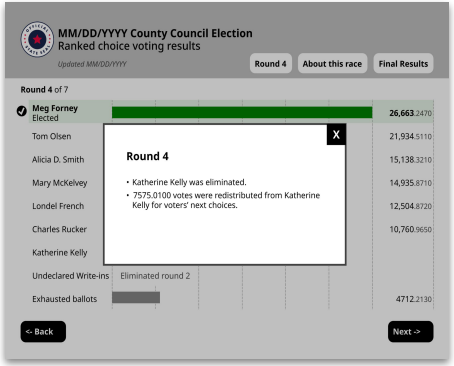
Use "inactive ballots" instead of "exhausted ballots" and explain the meaning.

Provide an explanation on the term "round" and clarify that it's about rounds of tabulation, *not* rounds of voting.

Use a bar chart to show candidates' votes throughout the rounds of tabulation





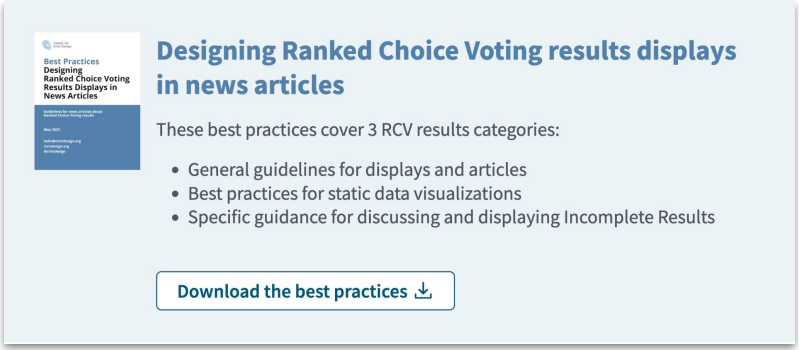


People find data displayed in bar charts easy to grasp. They help people quickly compare and contrast how candidates fare against each other in each round.

Review CCD's 2023 Best Practices Guide on how to display preliminary or incomplete election results

Takeaways include:

- Label results as preliminary or incomplete.
- Use cautious language about the outcome like "in the lead."
- Do not use a checkmark as an indicator until results are complete.
- Include the date of the results tabulation being shown.



This resource provides guidance on language and data visualizations to use when reporting preliminary or incomplete election results.

How we conducted this research

How does this project build on past CCD research?

1.

Subject Matter Expert interviews

April 2024

CCD interviewed 2 election officials from different jurisdictions to understand challenges and opportunity areas with displaying results from PRCV elections.

2.

In-person usability testing with existing results displays

May 2024

CCD conducted usability testing sessions with 18 Arlington County residents (a jurisdiction that has held PRCV elections) using A/B testing to interpret two samples of existing PRCV results displays.

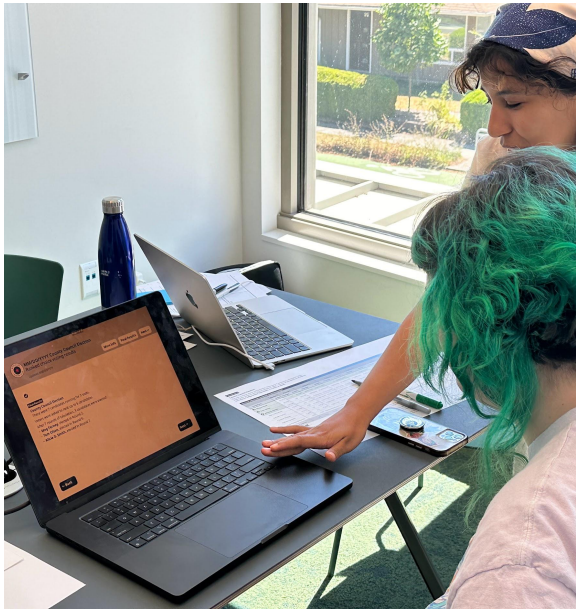
Our research methodology

In-person usability testing with prototypes

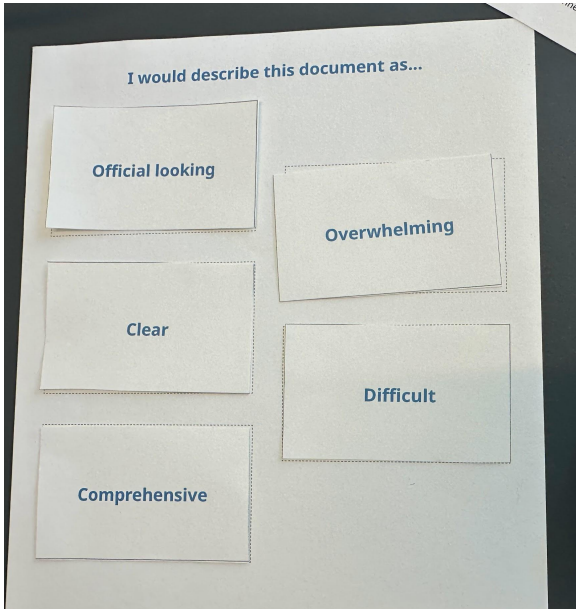
We asked 19 participants to interact with 2 sets of results displays and to share analogies that help explain multi-winner RCV. We pulled the data for both results displays from Minneapolis's 2021 multi-winner RCV contest for the Park and Recreation Commissioner At Large.

Participants joined sessions held at Holgate Public Library, which lies on the border between voting District 1 and District 3 in Portland, OR.

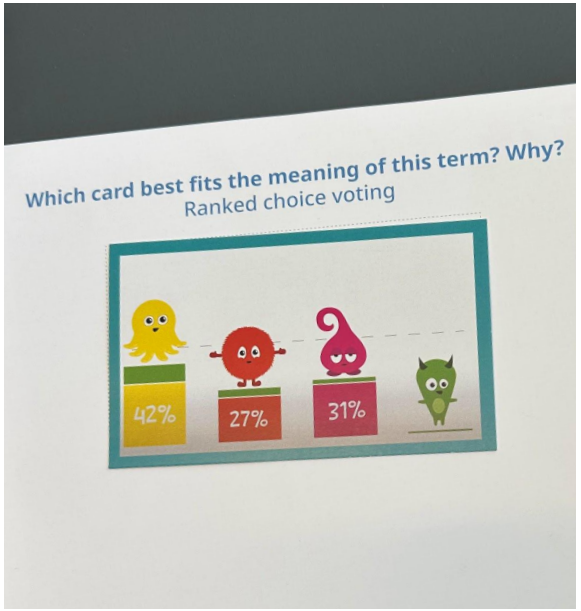
How we tested



Participants look at print and digital prototypes of a multi-winner results display



Participants select words that best describe the results display



Participants select an image that helps explain RCV terms

A snapshot of the 19 participants

Race or ethnicity

Black or African American	2
Latino/x	2
German & Puerto Rican	1
White or Caucasian	14

Gender

Male	9
Female	7
Non-binary	3

Age

18-24	1
25-39	8
40-64	7
65+	3

CCD leading a usability testing session at Holgate Library in Portland, OR.

Thank you

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