Oregon Legislative Assembly
House Committee on Rules
March 16, 2023

Testimony of Ranked Choice Voting Resource Center on House Bill 2004

On behalf of the Ranked Choice Voting Resource Center (RCVRC), we are pleased to offer this informational testimony on House Bill 2004.

The RCVRC is a 501(c)(3) nonpartisan nonprofit that supports ranked choice voting implementations across the country by providing best practices, software tools, educational material, and other resources for ranked choice voting implementation to anyone interested in the voting method. With decades of experience administering elections, the RCVRC team members have also administered statewide, municipal, and district ranked choice voting elections. As our focus is education and sharing administration practices, this testimony will introduce what ranked choice voting is and discuss some key elements of ranked choice voting implementation.

I. Introduction

With ranked choice voting, voters rank candidates in order of preference. Candidates running in ranked choice voting elections do best when they attract a strong core of first-choice support while also reaching out for second, third, and later choices. When used to elect a single candidate like a mayor or governor, ranked choice voting helps elect a candidate that better reflects the preferences of most voters.[1] Ranked choice voting can also be used for multi-winner contests in a form known as proportional ranked choice voting. Proportional ranked choice voting creates proportional representation where majorities will still elect a majority of seats, but larger minority groups can also elect representatives.[2]

Ranked choice voting, in both its single-winner and proportional forms, has now been implemented in elections of all types in the United States. This includes local elections in cities such as Eastpointe, Michigan, and Minneapolis, Minnesota, as well as state and federal contests in Alaska and Maine.[3] In Oregon, single-winner RCV has already been implemented in Corvallis (2022) and Benton County (2020). Additional implementations are currently underway for single-winner RCV in Multnomah County (2026) and both forms of RCV in Portland (2024). Local practice from these implementations will help set the stage for state and federal RCV elections under HB2004.

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[1] *How Ranked Choice Voting Works*, City of Portland, Maine (May 12, 2021), https://www.youtube.com/watch?v=4UtDFAqLC0Y.
[2] *How Do We Elect MLAs?*, Northern Ireland Assembly, https://education.niassembly.gov.uk/post_16/how_do_we_elect_mlas/video.
[3] *Where It's Used*, Ranked Choice Voting Resource Center, https://www.rcvresources.org/where-its-used.

While election administration practices vary across the country, updates necessary to implement ranked choice voting fall into a few standard categories:

- Voting systems (software and/or hardware)
- Ballot design;
- Voter education;
- Results centralization; and
- Results display.

Each of these updates will be discussed briefly below.

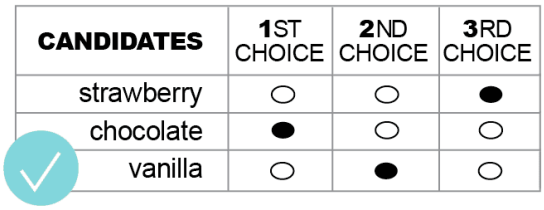
II. Voting Systems

Voting systems are the software and hardware used to run elections. Among other functions, they provide election administrators the ability to design ballots, program machines to capture votes, and efficiently count up results totals in elections.[4] The current voting systems used in Oregon are Clear Ballot ClearCount machines; Election Systems & Software (ES&S) DS450s, DS850s, and M650s; and Hart InterCivic Verity Central.

To run ranked choice voting elections, voting systems must produce data known as a cast-vote record. According to our conversations with each of the voting system vendors, all modern voting systems are ranked choice voting capable.[5] We have also developed ranked choice voting counting software, known as RCTab, which can be used in addition to voting systems to produce ranked choice voting results.[6] The RCTab software is available for free via this link: http://github.com/brightspots/rcv. Based on the voting equipment listed above, 16 counties may require software updates to run RCV election, 15 counties need software updates (which are currently under development now), and five counties are using legacy equipment (M650s) and need to upgrade their equipment regardless of whether RCV is adopted or not.

III. Ballot Design

Ranked choice voting elections require voters to interact with a style of ballot that allows them to rank candidates in order of preference. A simplified version of a ranked choice voting ballot is pictured here. The Center for Civic Design (CCD) produced best practices reports for designing and introducing ranked choice voting ballots.



CANDIDATES	1ST CHOICE	2ND CHOICE	3RD CHOICE
strawberry	○	○	●
chocolate	●	○	○
vanilla	○	●	○

[4] Election Terminology Glossary, "Voting System," Nation
https://pages.nist.gov/ElectionGlossary/.
[5] *Major Voting Equipment Vendors' Ranked Choice Votir*
Center (May 2019),
https://drive.google.com/file/d/0B3K2g6IIQMWsWmJDY\
-G190NcMhPsQ.
[6] RCTab can also be used as a verification tool post-elec
results.

These should be relied upon for designing any ranked choice voting ballots. Those reports are available on our website, as well as on CCD's website.[7]

IV. Voter Education

Educating the public about ranked choice voting is a necessary part of administering a successful ranked choice voting election. Specifically, voters need to be taught two things: how to mark the ballot and how votes are counted. Up to and on election day, voters are most interested in learning how to mark their ballot. Voter education should focus on this aspect during that time frame. Materials, such as videos and handouts, describing how votes are tabulated should be made available during this time but will be most valuable after polling places close. Ideally, ranked choice voting education and outreach will complement existing efforts for voters, candidates, and election officials. Such efforts also benefit from coordination with community and civic organizations throughout the State. Previous implementations have proven that the most impactful and inexpensive voter education method is verbal and written instruction when the voters present themselves to vote. The RCVRC website provides links to a variety of education and outreach methods that have been used by jurisdictions.[8] In addition, organizations like Democracy Rising provide voter education support for ranked choice voting jurisdictions.[9]

V. Ranked Choice Voting Results

Determining the winners in a ranked choice voting election requires producing a round-by-round count to determine the winner or winners in an election. Running this round-by-round count means election administrators need to have the candidate ranking order on each ballot to know 1) who has the fewest votes in the election and 2) who is ranked next on each of those ballots. Election administrators also need to know how many ballots were cast in total to determine how many votes candidates must have to win. This means two things for producing ranked choice voting results: all ballot data must be available, and it must be centralized. Ranked choice voting requires that election officials centralize ballot data known as cast vote records (CVRs) to run the round-by-round count. After these cast vote records are centralized, that data can be run through ranked choice voting counting software, such as RCTab, to produce round-by-round results – which only takes seconds or minutes – and determine which candidates emerge with the most votes.

The timeline for centralizing final cast vote record data and determining final round-by-round results depends on the size of the jurisdiction producing results, the technology available to

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[7] *Reports*, Ranked Choice Voting Resource Center, https://www.rcvresources.org/reports (at the bottom of page); *Design principles for ranked choice voting,* Center for Civic Design, https://civicdesign.org/projects/rcv/.
[8] *Voter Education and Outreach*, Ranked Choice Voting Resource Center, https://www.rcvresources.org/blog-post/voter-education-outreach.
[9] Democracy Rising, https://www.wearedemocracyrising.org/.

centralize results data, and any laws regulating when ballots can arrive after election day and still be counted in an election. Jurisdictions using ranked choice voting now produce round-by-round results as early as election night, with regular updates to those election night results as more ballots are counted and more cast vote record data is centralized.[10] All jurisdictions using RCV use paper ballots for their elections and centralize their election data using standard election material centralization processes. Election administrators in the City of Minneapolis, for example, scan in or hand count paper ballots at precincts on election day. They then send ranked choice voting data or ranked choice ballots to the city elections office, who produces round-by-round results the day after election day.

In Oregon, voters cast their ballots by mail.[11] Ballots are centralized to a single counting center where County Clerks may begin scanning ballots in a week before election day.[12] Ballot data from those systems is then uploaded to the state's results reporting system for unofficial results for state and federal contests or uploaded by counties to their own unofficial reporting systems for county and other local contests. Oregon election law does not appear to further regulate publication of unofficial results. Given that Oregon has a high level of centralization because all ballots in a county are scanned and counted in a single location, this would permit results reporting of RCV races to begin quickly on election night. It is unclear, however, whether the counties or the state rely on cast-vote records to produce results. County and State officials will likely need to adopt new procedures for processing cast-vote records in order to produce round-by-round election results in RCV elections.

When the cast vote records begin to arrive, they could be uploaded to a secure, non-internet-connected, computer which could then process the round-by-round count and produce unofficial ranked choice voting results. Depending on how long polling places take to wrap up counting on election night, these unofficial round-by-round results could begin to be produced within hours after polls close. Results could be updated as ballots are added to totals. The timing of those updates depends on how Oregon chooses to adapt any existing results reporting procedures to ranked choice voting.

Before unofficial round-by-round results are produced, first-choice totals can be reported as unofficial results. First-choice totals are simple to produce: results tapes from voting equipment can print out first-choice totals in ranked choice voting elections, just as they print out vote totals in non-ranked choice voting elections. As with non-ranked choice voting elections, those results can be reported back to the appropriate elections office, which can combine totals and publish just first-choice totals. First-choice results can only serve as temporary unofficial results,

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[10] Dept. of Elections, *Nov. 3, 2020 Election Results - Detailed Reports*, City and County of San Francisco, https://sfelections.sfgov.org/november-3-2020-election-results-detailed-reports (Preliminary Reports are uploaded on a regular basis starting on election day and continuing daily thereafter); Utah County Elections Division, *Ranked Choice Election Results*, Utah County, https://www.utahcounty.gov/Dept/ClerkAud/Elections/2021RankedResults.asp (results uploaded on election night and on a regular basis thereafter).
[11] Or. Rev. Stat. § 254.465.
[12] Or. Rev. Stat. § 254.478.

however. Ranked choice voting results will ultimately require round-by-round results to determine final winners.

After round-by-round results are produced, displaying them in an easy-to-understand format is fundamental to ensuring voters understand and accept the results. RCVis.com implements best practices for displaying those results and is free to use. It is compatible with results data from ES&S, Dominion, and RCTab ranked choice voting contests.[13] CCD has also produced a report describing best practices for results reporting.[14]

VI. Post-Election Audits of Ranked Choice Voting

Election officials conduct post-election audits to ensure votes are recorded and tallied as cast and to help ensure public confidence in elections. Two primary types of audits exist: conventional audits and risk-limiting audits. Ranked choice voting elections in the United States are regularly subject to conventional audits. Conventional or traditional audits have two major steps:

1) Election administrators randomly select voting machines used in a given election; then,
2) Election administrators compare the paper record of ballots from the machines being audited to the digital results produced by those voting machines.[15]

Single-winner and proportional RCV races in the Bay Area and Minneapolis are regularly audited using conventional audit procedures. For example, Minneapolis randomly selects two RCV contests to audit – one single-winner and one proportional. The City then selects one precinct from each contest and city staff review every ballot in that precinct by hand. City of Minneapolis staff compare the total number of rankings each candidate received in that precinct to digital records from the scanners used in each precinct. If these totals match, the audit is complete. If vote totals differ, the audit will expand. Bay Area audits follow similar procedures.[16]

Risk-limiting audits (RLAs) are the gold standard of post-election tabulation audits. They review a randomized sample of ballots to provide strong evidence that the election outcome is correct.

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[13] RCTab is the RCVRC's open-source ranked choice voting counting software which can be used alongside voting systems to produce ranked choice voting results. The RCTab software is available for free via this link: http://github.com/brightspots/rcv.

[14] Whitney Quesenbery and Taapsi Ramchandani, *Best Practices for Ranked Choice Voting Ballots and Other Materials*, Center for Civic Design (Feb. 28, 2017), https://drive.google.com/file/d/1T_u5h4RZ1rTu6_0BXnxBVDSrndsGF0V9/view; *Reports*, Ranked Choice Voting Resource Center, https://www.rcvresources.org/reports.

[15] Audit laws may be written to audit precincts or to audit machines. Either way, voting machines are the things being reviewed – in a precinct-based law, the voting machines used in that precinct are audited. In a voting machine law, a random assortment of machines from across the election jurisdiction (city, county or state) are audited, instead of a specific precinct.

[16] For more on conventional audits of RCV, see our Auditing RCV webinar. Ranked Choice Voting Resource Center, Auditing Ranked Choice Voting, https://www.rcvresources.org/auditing-ranked-choice-voting (March 29, 2018).

Risk-limiting audits are the most efficient type of audit (regardless of voting method) and can be implemented through a variety of methods in single-winner RCV contests. RLAs are reliable and efficient, but they are uncommon in the United States and have rarely been used in RCV elections. Additional RLAs of RCV need to be conducted to firmly establish RCV RLA practices and tools and to ease RCV RLA adoption across the United States.[17]

VII. Conclusion

HB 2004 offers a valuable opportunity for Oregon to adopt ranked choice voting for its local, state, and federal elections. As discussed in this testimony, there are concrete, actionable steps Oregon can take to implement ranked choice voting. The RCVRC stands ready to assist Oregon with any ranked choice voting implementation, free of charge.

Thank you again for the opportunity to comment.

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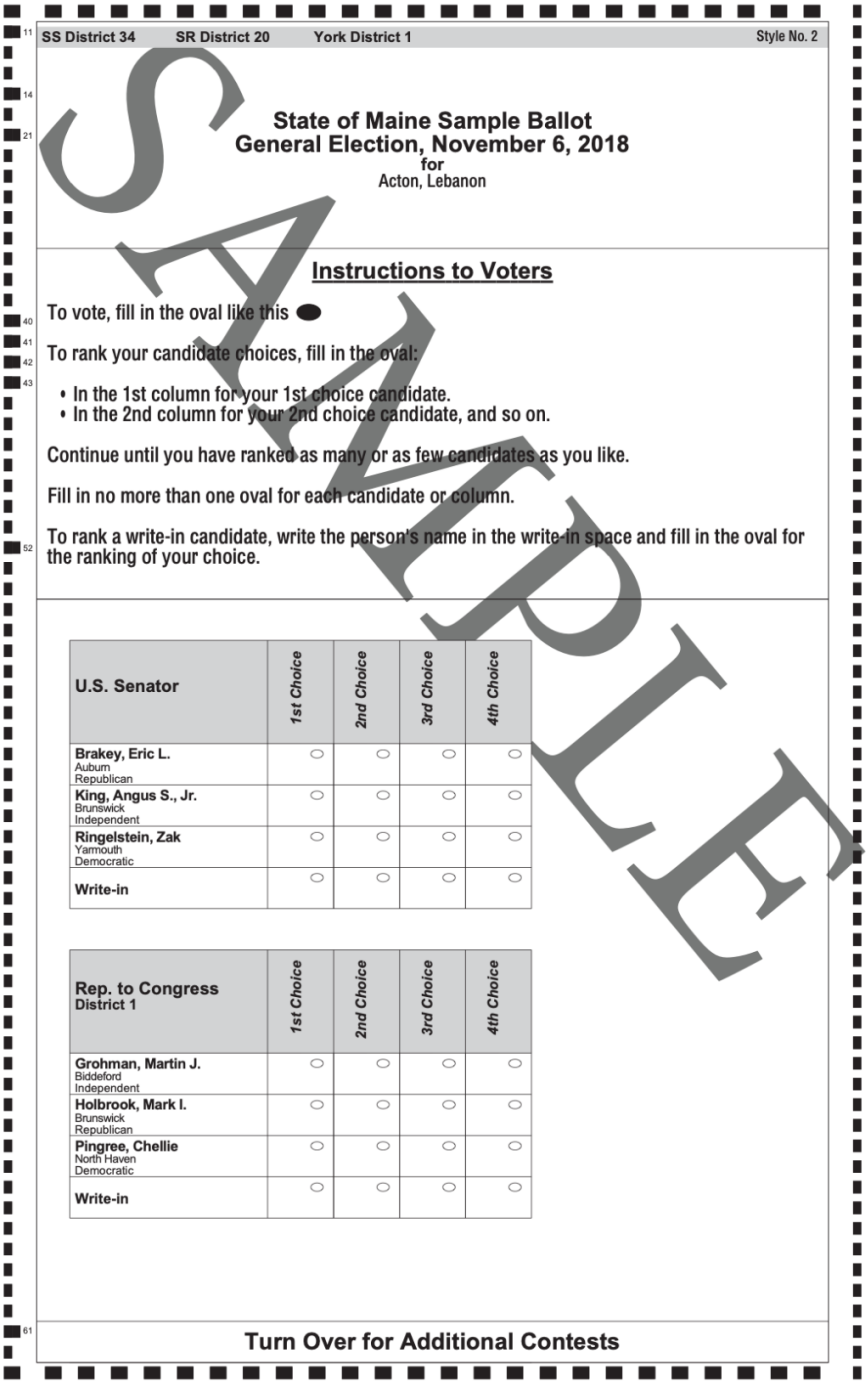
[17] For more on RLAs of RCV, see our Post-Election Audits and RCV policy brief. Chris Hughes & Ryan Kirby, Post-Election Audits and Ranked Choice Voting, https://www.rcvresources.org/blog-post/post-election-audits-and-ranked-choice-voting (Sept. 19, 2022).

Appendix

Exhibit 1. ES&S Ballot, Maine Congressional District 1, Nov. 6, 2018.



SS District 34 SR District 20 York District 1 Style No. 2

State of Maine Sample Ballot
General Election, November 6, 2018
for
Acton, Lebanon

Instructions to Voters

To vote, fill in the oval like this ●

To rank your candidate choices, fill in the oval:

- In the 1st column for your 1st choice candidate.
- In the 2nd column for your 2nd choice candidate, and so on.

Continue until you have ranked as many or as few candidates as you like.

Fill in no more than one oval for each candidate or column.

To rank a write-in candidate, write the person's name in the write-in space and fill in the oval for the ranking of your choice.

U.S. Senator	1st Choice	2nd Choice	3rd Choice	4th Choice
Brakey, Eric L. Auburn Republican	○	○	○	○
King, Angus S., Jr. Brunswick Independent	○	○	○	○
Ringelstein, Zak Yarmouth Democratic	○	○	○	○
Write-in	○	○	○	○

Rep. to Congress District 1	1st Choice	2nd Choice	3rd Choice	4th Choice
Grohman, Martin J. Biddeford Independent	○	○	○	○
Holbrook, Mark I. Brunswick Republican	○	○	○	○
Pingree, Chellie North Haven Democratic	○	○	○	○
Write-in	○	○	○	○

Turn Over for Additional Contests

RANKED CHOICE VOTING RESOURCE CENTER | ELECTION ADMINISTRATION RESOURCE CENTER

Exhibit 2. ES&S Results Report, Maine Congressional District 2, Nov. 6, 2018.

Report Name	**Summary Report**
Election Name	**General Election**
Election Date	**11.06.18**
Office Title	**Congressional District 2**

	Round 1			Round 2	
Candidate Names	**Votes**	**Percentage**	**Transfer**	**Votes**	**Percentage**
Bond, Tiffany L.	16552	05.71%	-16552	0	00.00%
DEM Golden, Jared F.	132013	45.58%	**10427**	**142440**	**50.62%**
Hoar, William R.S.	6875	02.37%	-6875	0	00.00%
REP Poliquin, Bruce	**134184**	**46.33%**	**4747**	138931	49.38%
Ballot Exhausted					
By Overvotes	435		98	533	
By Undervotes	6018		7820	13838	
By Exhausted Choices	0		335	335	
Continuing Ballots	289624		0	281371	
TOTAL	**296077**		**0**	**296077**	
Winning threshold by round	144813			140686	

Generated: 11/21/2018 19:36

Total = Ballot Exhausted by Overvotes + Ballot Exhausted by Undervotes + Exhausted Ballot + Continuing Ballots

Winning Threshold = [Continuing ballots/(Vote for [number] +1)] + 1

"*" symbol signifies elimination due to Tie Resolution.

RANKED CHOICE VOTING RESOURCE CENTER | ELECTION ADMINISTRATION RESOURCE CENTER

Exhibit 3. Dominion Voting Systems Ballot, Cambridge City Council, Nov. 5, 2019.

CANDIDATES FOR CITY COUNCIL
for Term of Two Years
SPECIMEN BALLOT

Cambridge
November 5, 2019

Election Commissioners

INSTRUCTIONS TO VOTERS

Mark your choices by completely filling in the numbered ovals like this ● using a black pen.

- Fill in the number one (1) oval next to your first choice.
- Fill in the number two (2) oval next to your second choice.
- Fill in the number three (3) oval next to your third choice, and so on.
- You may fill in as many choices as you please.
- Fill in no more than one oval per candidate.
- Fill in no more than one oval per column.

To Vote for a write-in candidate:

- Fill in a numbered oval next to the name you have written, showing your choice as a number for a candidate.
- Record write-ins from the top line down.

If you spoil this ballot, return it for cancellation to the election officer in charge of the ballots and get another from such officer.

Only one vote per candidate. Only one vote per column.		DO NOT USE RED TO MARK BALLOT
SUKIA AKIBA, 343 Walden Street		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
BURHAN AZEEM, 91 Sidney Street		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
DENNIS J. CARLONE, 9 Washington Avenue	Candidate for Re-election	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
CHARLES J. FRANKLIN, 162 Hampshire Street		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
CRAIG A. KELLEY, 6 Saint Gerard Terrace	Candidate for Re-election	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
DEREK ANDREW KOPON, 8 Wright Street		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
ILAN LEVY, 148 Spring Street		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
ALANNA M. MALLON, 3 Maple Avenue	Candidate for Re-election	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
MARC C. MCGOVERN, 17 Pleasant Street	Candidate for Re-election	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
JEFFERY MCNARY, 116 Norfolk Street		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
RISA MEDNICK, 20 Maple Avenue		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
GREGG J. MOREE, 25 Fairfield Street		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
ADRIANE MUSGRAVE, 48 Haskell Street		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
PATRICIA M. NOLAN, 184 Huron Avenue		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
JOHN PITKIN, 18 Fayette Street		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
SUMBUL SIDDIQUI, 283 Sidney Street	Candidate for Re-election	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
E. DENISE SIMMONS, 188 Harvard Street	Candidate for Re-election	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
BEN SIMON, 67 Bishop Allen Drive		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
JIVAN SOBRINHO-WHEELER, 19 Trowbridge Street		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
TIMOTHY J. TOOMEY, JR., 88 6th Street	Candidate for Re-election	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
NICOLA A. WILLIAMS, 8 Brewer Street		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
QUINTON Y. ZONDERVAN, 235 Cardinal Medeiros Avenue	Candidate for Re-election	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
WRITE-IN		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Exhibit 4. Dominion Results Report, San Francisco Board of Supervisors District 11, Nov. 3, 2020

San Francisco

Candidate	Round 1			Round 2			Round 3		
	Votes	Percentage	Transfer (Elimination)	Votes	Percentage	Transfer (Elimination)	Votes	Percentage	Transfer
JOHN AVALOS	13,412	42.78%	1	13,413	42.79%	1,057	14,470	46.92%	0
AHSHA SAFAI	15,135	48.28%	7	15,142	48.30%	1,225	16,367	53.08%	0
MARCELO COLUSSI	2,788	8.89%	6	2,794	8.91%	-2,794	0	0.00%	0
JASON CHUYUAN ZENG	15	0.05%	-15	0	0.00%	0	0	0.00%	0
Continuing Ballots Total	**31,350**			**31,349**			**30,837**		
Blanks	2,795		0	2,795		0	2,795		0
Exhausted	0		1	1		502	503		0
Overvotes	117		0	117		10	127		0
Non Transferable Total	**2,912**			**2,913**			**3,425**		

* Tie resolved in accordance with election law.