

CalPERS Board of Administration Election Voting Methods – Review of Findings

July 5, 2023

Background

The California Public Employees’ Retirement System (CalPERS) is reviewing current and alternative voting methods to use in elections for the CalPERS Board of Administration. The Policy Research & Data Analytics (PRDA) team has developed an assessment of voting methods as they pertain to board elections. Prior to 2001, CalPERS used the plurality voting method to elect board members. The majority voting method was approved in 2001 and implemented in 2005. CalPERS staff has since presented research on other election methods in 2007, 2010, 2011, and 2012.

Scope

PRDA is investigating voting systems that have been practiced with some frequency in other state or local jurisdictions. These include the majority, plurality, modified plurality, and rank choice voting (RCV) methods. This review intends to provide an educational overview of these options, including the benefits and risks posed by each.

Research

Industry and Public Jurisdiction Practices

The plurality voting system, in which the candidate with the highest number of votes wins, appears to be the most popular voting method to elect board members at peer pension systems. Like CalPERS, some pension systems use the majority method, including the Milwaukee Employees’ Retirement System and the Public Employees’ Retirement System of Mississippi. PRDA was not able to identify any pension systems using the modified plurality method or RCV to elect board members.

Table 1: Peer Pension System Board Election Voting Methods

Pension System	Board Election Voting Method
California State' Teachers Retirement System	Plurality ¹
Los Angeles County Employees' Retirement System	Plurality ²
Milwaukee Employees' Retirement System	Majority ³
Public Employees' Retirement System of Mississippi	Majority ⁴
Municipal Employees' Annuity and Benefit Fund of Chicago	Plurality ⁵
New Jersey Public Employees' Retirement System	Plurality ⁶
Sacramento County Employees' Retirement System	Plurality ⁷
San Francisco Employees' Retirement System	Plurality ⁸
Sonoma County Employees Retirement Association	Plurality ⁹

The plurality and majority systems dominate most U.S. elections at all levels; however, alternative voting methods are increasing in popularity. RCV, in particular, has seen a rise in use over the last 20 years. Since 2005, FairVote estimates that there have been over 500 RCV elections in the U.S., reaching 13 million voters in 63 cities, counties, and states.¹⁰ Six California cities have implemented RCV, including Albany, Berkeley, Oakland, Palm Desert, San Francisco, and San Leandro. Eureka and Redondo Beach plan to hold RCV elections in the coming years, and Ojai and Davis have both passed referendums supporting RCV.

Several professional associations and educational organizations use RCV to elect board members or other representatives.¹¹

Public jurisdictions employ the modified plurality system with less frequency. PRDA found examples in North Carolina and South Dakota that implemented modified plurality voting with the thresholds of 40% and 35%, respectively.¹²

Majority Voting

Voters may select one candidate per seat. The winning candidate must receive 50% plus one vote. Should no candidate reach this threshold, a runoff election is held between the top two candidates to ensure the winner is supported by a majority of voters.

¹ [California Code of Regulations](#) (westlaw.com)

² [LACERA Election Board Letter-Adopted 4-18-23](#)

³ [Board Rules and Regulations](#) (cmers.com)

⁴ [27 Miss. Code. R. § 210-17-103 - Election Procedure | State Regulations | US Law | LII / Legal Information Institute](#) (cornell.edu)

⁵ [2022 Rules of Election](#) (meabf.org)

⁶ [Section 17:2-1.4 - Election of member-trustee, N.J. Admin. Code § 17:2-1.4 | Casetext Search + Citor](#)

⁷ [Retirement Board Election Policy - Sacramento County Employees' Retirement System](#) (scers.org)

⁸ [HSS Charter and Admin Codes](#) (sfhss.org)

⁹ [Election Procedure](#) (scretire.org)

¹⁰ [Research and data on RCV in practice - FairVote](#)

¹¹ [RCV in Private Organizations and Corporations - FairVote](#)

¹² [Codified Law 12-6-51.1 | South Dakota Legislature](#) (sdlegislature.gov), [GS_163-111.pdf](#) (ncleg.gov)

History at CalPERS

In 2001, the board adopted a regulation for a majority voting system. The majority voting system was first implemented in the 2005 Member-at-Large Election. Since implementation, 26 races resulted in six runoff elections, totaling 32 elections.

Benefits and Risks for CalPERS

The majority voting method ensures that a majority of voters support the winning candidate over the candidate in second place. This method does not guarantee that the winner has the strongest support. A majority of voters could have opted for a candidate that does not land in the runoff election. Consider the following example.

Table 2: Example Primary Outcome

Candidate	% Of Votes for First Choice
A	32%
B	30%
C	20%
D	18%

Using the majority method, candidates A and B would land in a runoff. However, if all of candidate D's supporters would have supported candidate C as their second choice, candidate C is the most preferred candidate with 38% of the vote. The issue often arises as a result of contests with two like-minded candidates who split the vote of a majority of voters. This is sometimes referred to as vote splitting or the spoiler effect.

Critics of the majority voting system point to the cost of runoff elections. Since the majority system was implemented in 2005, CalPERS has spent a total of \$6,965,251 on six runoff elections, averaging \$1,160,875 per runoff election.

Opponents also note that in state and local races, runoff elections see significantly lower voter turnout than primary elections.¹³ However, historically, the opposite has been true for CalPERS board elections. Since 2005, board election runoff turnout varied little from primary turnout. In fact, most runoff races saw an increase in voter turnout over the primary race. On average, 0.38% more voters participated in the runoff than the primary.

¹³ [Primary Runoff Elections and Decline in Voter Turnout - FairVote](#)

Table 3: Turnout and Cost for CalPERS Primary and Runoff Elections

CalPERS Board Elections resulting in Runoffs	Primary Turnout	Runoff Turnout	Change in Turnout	Total Cost of Runoff
2005 Member-at-Large Primary	16.67%	17.08%	0.41%	\$853,582
2007 Retired Member Primary	32.42%	31.58%	(0.84%)	\$497,170
2009 Member-at-Large Primary	15.72%	17.19%	1.47%	\$1,095,947
2011 Special Member-at-Large Primary (Position B)	15.60%	15.00%	(0.60%)	\$1,102,699
2017 Member-at-Large Primary	9.14%	10.66%	1.52%	\$2,526,760
2022 Retired Member Primary	17.21%	17.51%	0.30%	\$889,093

Plurality Voting

Voters may select one candidate per seat. The winning candidate receives the highest portion of votes, even if they receive less than half of the votes.

History at CalPERS

Prior to 2005, CalPERS used the plurality voting system. Critics argued that the plurality system favored incumbents, and the board believed that a board selected by a majority would be more representative than one selected by a plurality.¹⁴

Benefits and Risks for CalPERS

The plurality voting system does not require the winning candidate to win a majority of votes. In an election with multiple candidates, a small portion of voters could determine the winner. It is a less resource intensive option because the plurality voting system does not require runoff elections.

Of the six runoff elections held since 2005, five candidates with a plurality of votes in the primary also won the runoff. Advocates for the plurality method might argue that the runoff rarely changes the results.

Implementation

If CalPERS decided to return to the plurality voting system, no changes would be required to the existing voting, ballot development, or ballot processing processes. CalPERS would not have to plan or budget for potential runoffs.

Modified Plurality Voting

Voters may select one candidate per seat. The winning candidate must receive a pre-determined portion of votes in order to win (e.g., 40% of votes). Should no candidate reach this threshold, a runoff election is held between the top two candidates.

History at CalPERS

CalPERS has never used the modified plurality voting system.

¹⁴ [Public Feuding At Pension Fund; Dirty Laundry Keeps Flying At Calpers, No. 1 Plan in U.S.](#), NY Times 2001; CalPERS Finance & Administration Committee Agenda Item 5b February 14, 2012

Benefits and Risks for CalPERS

A modified plurality system ensures that a substantial portion of voters opts for the winning candidate. Compared to the majority voting system, the modified plurality system reduces the chances of a runoff election, and therefore may reduce costs associated with an additional election.

CalPERS has held six runoff elections since 2005. Had a threshold of 40% been in place, CalPERS would have held only two runoffs for the 2009 Member-at-Large election and the 2011 Special Member-at-Large election. In other words, of the six primaries, four had candidates who received more than 40% of the votes. In one case, a candidate received the most votes in a primary with over 40% of the vote but did not win the runoff. This instance demonstrates the risk with modified plurality that the winning candidate may not be preferred by a majority of voters.

Implementation

The modified plurality method would require no changes to the existing voting, ballot development, or ballot processing operations. CalPERS would still have to plan and budget for runoff elections, though they would be less likely due to the reduced threshold.

Rank Choice Voting

RCV is an election method commonly described as a single election that determines the candidate who is elected by the majority of voters, without the need for a separate runoff election. In elections with more than two candidates, voters rank candidates in order of preference, instead of choosing just one. If a candidate receives more than 50% of first choice votes in the first round of vote counts, they are declared the winner. Under the instant runoff voting method, a type of RCV, if no candidate receives more than 50% of first choice votes, then an elimination process begins, where the candidate receiving the fewest first choice votes is eliminated. In the second round, voters who selected the eliminated candidate as their first choice have their vote redistributed to their second choice. The votes are then recounted. This process is repeated until a candidate receives more than 50% of the vote.

History at CalPERS

RCV has never been used by CalPERS. CalPERS recently received feedback from three stakeholders requesting the board consider RCV as a method for CalPERS board elections. These stakeholders suggest that RCV “would save tens of millions of dollars in administrative expenses, would make elections less acrimonious, and is also likely to turn out more voters.” CalPERS staff has presented research on other election methods, including RCV for the board’s consideration in 2007, 2010, 2011, and 2012. In these previous years, the board did not adopt the RCV election method for various reasons which included but were not necessarily limited to the lack of a Secretary of State approved RCV voting system at the time, no guarantee a majority winner would result from RCV, and higher up-front fixed costs to conduct RCV elections.¹⁵

¹⁵ [FAC Agenda Item 5f, 2021-22 CalPERS Board Election Program Review](#)

Benefits and Risks for CalPERS

Because RCV eliminates the need for runoff elections, in some cases, it can reduce the cost of elections. Because of the number of CalPERS board election runoffs, CalPERS may not realize this benefit. See *Cost* section for additional information.

RCV proponents also reason that RCV increases voter turnout because voters are only asked to participate in one election rather than an additional runoff. However, research on the impact of RCV on voter turnout is scant and conclusions are mixed.¹⁶ Further, as previously discussed, CalPERS sees consistent voter turnout between primaries and runoffs.

Proponents additionally suggest that RCV leads to more positive campaigning because candidates are vying to rank second on a voters' ballot. RCV may reduce polarization, as it demands the candidate with the broadest support win. Depending on how votes are tabulated, RCV may eliminate the spoiler effect, allowing similarly aligned candidates to compete without ruining each other's chances of winning.

In terms of voter understanding, a study of voter experience during a 2020 Democratic primary election using RCV reported that 68% of voters found RCV voting very or somewhat easy, and 20% found the experience somewhat or very hard. Older voters were more likely to report difficulty with RCV voting.¹⁷

Because RCV cannot be used in elections with only two candidates, if CalPERS were to implement this approach, the voting method may change from year-to-year, requiring ongoing voter education and possibly leading to voter confusion. Had RCV been in place since 2005, nine CalPERS elections would have required a RCV ballot, six elections would have utilized the rankings due to the initial round of tabulation not resulting in a majority winner, and this would have resulted in 26 total elections rather than the 32 elections conducted under the majority method.

Implementation

Ballot Production

Elections with only two candidates do not require ballot changes. However, an election with multiple candidates, where RCV could be implemented, requires changes to the design and layout. Candidates are listed on a grid rather than a list, which would likely lengthen the ballot. These factors increase production and print time for mail-in ballots. CalPERS' current board election administrator, K & H Printers-Lithographers, Inc. dba Integrity Voting Systems (IVS), indicated that additional development time is required to emulate the same voting experience online. IVS is currently certified by California's Secretary of State to print RCV ballots.

Under the RCV method, voting via telephone is unfeasible due to the complex nature of ranking candidates using a keypad.

Ballot Processing

Like ballot production, a longer, more complex ballot would increase the time and cost of ballot processing. A more complex ballot may also lead to more ballot errors that need to be adjudicated. Under the RCV method,

¹⁶ [Ranked Choice Voting in Practice: Implementation Considerations for Policymakers \(ncsl.org\)](https://ncsl.org/2020/05/14/ranked-choice-voting-in-practice-implementation-considerations-for-policymakers/)

¹⁷ [Demographic Disparities Using Ranked-Choice Voting? Ranking Difficulty, Under-Voting, and the 2020 Democratic Primary | Article | Politics and Governance \(cogitatiopress.com\)](https://www.cogitatiopress.com/politics-and-governance/article/demographic-disparities-using-ranked-choice-voting-ranking-difficulty-under-voting-and-the-2020-democratic-primary/)

there are a multitude of approaches to adjudicate residual ballots (e.g., voter voted for too many or too few candidates or more than one candidate was given the same ranking).

In order to tabulate RCV results, the vote counting process requires significant changes. Because IVS does not have its own RCV tabulation system, it may need to work with an existing vendor to build a secure tabulation system that accepts CalPERS mail-in and online ballots. Considering the development required, it may take a year or more to create the system necessary to implement RCV at CalPERS.

As RCV increases in popularity, tabulation technology may become better developed and more affordable in years to come.

While most jurisdictions using RCV have reported success, the 2022 Oakland school board race highlights the challenges that can arise with RCV tabulation. About two months after the election, the Alameda County Registrar of Voters, which administered the race and certified the results, announced that a school board candidate was wrongly declared the winner due to a programming error in the tabulation system. The system should have been configured to advance ballots based on the next immediate ranking if no candidate was selected for a particular round. This means that if no candidate was selected first, the system should have counted the second-ranked candidate as the voter's first-ranked candidate. Instead, the system registered no vote for that round. 200 ballots were miscounted.¹⁸

Depending on the method used to count votes, CalPERS may choose to release varying levels of election results. For instance, the City and County of San Francisco releases preliminary RCV results twice on election night as well as a preliminary report each day the ballots are tabulated. The City of Berkeley releases a detailed report once results are certified. The report includes the order that candidates were eliminated and the distribution of the votes at each round.

A recount would be particularly challenging in the case of an RCV election. CalPERS would have to determine in advance the recount policy for an RCV election and must work with IVS to ensure the necessary technology is developed to conduct the recount. Because of the complexity of the tabulation process, a recount by hand would be unreliable.

It should be noted that CalPERS' Board Election Regulations requires the recount requester to pay for recounts in which the results do not change the election.¹⁹

Voter Education

A change in voting method would likely require voter education regardless of method. Unlike the plurality and modified plurality methods, RCV would require changes to the voting process and may demand a more comprehensive voter education campaign. Little research examines the effectiveness of voter education for RCV elections. The National Conference of State Legislatures (NCSL) conducted a small study of jurisdictions that use RCV. Election offices participating in this study reported that they use a wide variety of voter education methods, but no method stands out as critical or unnecessary.²⁰

¹⁸ [Alameda County admits tallying error in ranked-choice voting, flips one result and raises big questions](#) – SF Chronicle

¹⁹ [Title 2 California Code of Regulations §554 through §554.11](#)

²⁰ [Ranked Choice Voting in Practice: Implementation Considerations for Policymakers \(ncsl.org\)](#)

PRDA contacted several jurisdictions that have implemented RCV to inquire about their voter education costs. Cambridge, MA reported the lowest voter education cost at \$0.33 per voter which funded a voter education pamphlet for each household. The pamphlet explained the voting and tallying process. Staff time used to conduct voter outreach over social media, phone, press releases, or at community events is not factored into this cost.

Alaska, which had the highest cost of voter education per voter at \$4.69, shared voter education materials widely via traditional media, digital media, direct mail, and educational videos. They partnered with RankedVote to build an app to host a mock election and provide voter guidance. This figure does not include staff time and translation costs, though the election office did note there were considerable expenses required to translate materials into as many as 10 languages.

Some localities, such as Palm Desert, CA, chose to partner with a consulting or marketing firm to head educational efforts. Palm Desert partnered with Tripepi Smith, a marketing consultant. Their contract included the cost of mailers, flyers, and all advertising. Voter education costs came out to \$3.36 per voter.

Berkeley, CA noted that voter education costs have come down significantly since their first RCV election because voters are now familiar with the system.

Table 4: Approximate Cost of Voter Education²¹

Jurisdiction & Election	Size of Jurisdiction ²²	Education Cost per Registered Voter ²³
Alaska 2021 special general election & 2022 general election	734k	\$4.69
San Francisco, California 2002 local election	777k	\$2.72
Berkeley, California 2010, 2012 election cycle	119k	\$0.75
Cambridge, Massachusetts 2021 municipal election	118k	\$0.33
Palm Desert, California 2022 primary and general election	52k	\$3.36

Can a majority winner lose with RCV?

There are multiple means to tabulate RCV results. The most popular is instant runoff voting (see Figure 1), in which candidates with the fewest first-place votes are eliminated, and votes are redistributed until a majority winner emerges. Other tabulation methods include the Condorcet method, Borda Count, minimax, and Coombs' method, to name a few. Note that the tabulation method does not change the voter experience; the voter ranks candidates in order of preference in each system.

²¹ Approximate costs provided by election offices

²² [U.S. Census Bureau QuickFacts: United States](#)

²³ Approximate costs provided by local election offices. Most exclude in-house staff time costs.

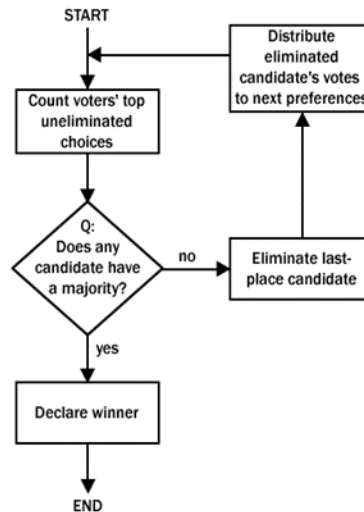


Figure 1 Instant runoff tabulation process

Although rare, the instant runoff voting method can result in a winner that is not preferred by a majority of the electorate.²⁴ Consider the following example.

Table 5: Example RCV Outcome

Candidate Preference	Number of Votes
A > B > C	35
C > B > A	34
B > C > A	31

Under the instant runoff voting method, candidate B is eliminated in the first round, and candidate C wins the transferred votes from candidate B in the second round. Candidate C wins. However, even though candidate B received the fewest first place votes, voters still prefer candidate B to candidate A by 65 to 35 votes, and voters prefer candidate B to candidate C by 66 to 34 votes. Voters most prefer candidate B. In other words, a majority of voters agree that they would rather see candidate B in office than candidate C or candidate A.

Several tabulation methods are designed to address this issue, the most popular of which is the Condorcet method. Condorcet rules put each candidate in a head-to-head contest. The candidate that wins the majority of votes in every contest wins the election, ensuring that the majority of voters prefer the winning candidate. In the example above, candidate B is the Condorcet winner.

Cost

The price of vendor services would likely not vary between the majority, plurality, and modified plurality voting systems. CalPERS would ultimately realize cost savings using the plurality or modified plurality methods (because runoffs would be eliminated or reduced); however, services such as ballot production, online voting system development, and tabulation would remain the same. RCV would require more extensive changes to these processes and therefore would affect the price of vendor services.

²⁴ [Research and data on RCV in practice - FairVote](#)

Based on estimates provided by IVS and CalPERS' current contract, Table 6 provides the approximate cost per voter for an election which does not require a runoff, a primary and a runoff, and a RCV election. Compared to an election that requires a runoff, a RCV election would save CalPERS about 3%, or \$0.13 per voter. However, RCV is about 60% more expensive per voter than an election that does not result in a runoff. The difference accounts for \$1.37 per voter. RCV provides the greatest savings when it eliminates the need for multiple runoffs. For example, the three largest elections in a given cycle would have to result in a runoff in order to realize cost savings from RCV.

Table 6: Average Cost of Election per Voter

Election resulting in no Runoff	Primary and Runoff	RCV
\$2.35	\$3.85	\$3.72

Only about a fifth of CalPERS board elections since 2005 have required a runoff. Had the estimated RCV cost schedule and CalPERS' current contract been applied to the past five election cycles, RCV would have cost CalPERS 11% more per election cycle. The plurality and modified plurality methods would have saved CalPERS 23% and 14% respectively, over a majority election. See Table 7.

Table 7: Average Hypothetical Cost of an Election Cycle Based on Historical Frequency of Runoffs

	Majority	RCV	Plurality	Modified Plurality
Cost of election cycle	\$8,370,349	\$9,250,100	\$6,464,049	\$7,229,499
Difference compared to majority	\$-	\$879,750	(\$1,906,300)	(\$1,140,850)
% Change over majority	-	11%	(23%)	(14%)

It is important to note that CalPERS undergoes a competitive bidding process every election cycle which does not guarantee a continued partnership with IVS. Because vendors may change from one election cycle to another, it is impossible for CalPERS to know if they will be able to benefit from a one-time setup investment made with the current vendor. The estimates above do not include voter education or potential recount expenses.

Summary of Findings

The table below summarizes the outcomes (or theoretical outcomes of past elections) if CalPERS implemented each of the voting methods. Most CalPERS' elections are either unopposed or result in a clear majority winner. Using the majority voting system, CalPERS aligns with many other jurisdictions and organizations. Stakeholder engagement might shed additional light on members' voting preferences and experiences.

Table 8: Voting Method Runoff, Cost, and Use Comparison

Voting Method	# Of Theoretical Runoffs Required Since 2005 (Of 26 Primary Elections)	Change in Cost	Use in U.S. State and Local Jurisdictions
Majority	6	No change (current system)	Widely used
Plurality	0	Cost reduced (no runoffs)	Widely used
Modified Plurality	2 (at 40% threshold)	Cost reduced (fewer runoffs)	Little use
Rank Choice Voting	0	Cost likely increased (costs of development exceed savings from elimination of runoffs)	Some use

Appendix

Table 9: Estimated Cost Per Service

Election	Vendor Service	Majority	RCV	Plurality	Modified Plurality
Member-at-Large	Notice of Election inc. postage	\$504,625	\$504,625	\$504,625	\$504,625
	Print & mail ballots inc. postage	\$1,771,125	\$2,130,000	\$1,771,125	\$1,771,125
	Online voting system	\$900,000	\$1,500,000	\$900,000	\$900,000
	Consultation & modification	\$36,000	\$100,000	\$36,000	\$36,000
	<i>Recount</i>	\$42,500	\$100,000	\$42,500	\$42,500
	<i>Runoff inc. postage</i>	\$1,913,625	\$-	\$-	\$1,913,625
Public Agency	Print & mail ballots inc. postage	\$317,062	\$420,375	\$317,062	\$317,062
	Online voting system	\$162,000	\$250,000	\$162,000	\$162,000
	Consultation & modification	\$24,000	\$100,000	\$24,000	\$24,000
	<i>Recount</i>	\$13,000	\$25,000	\$13,000	\$13,000
	<i>Runoff inc. postage</i>	\$454,062	\$-	\$-	\$454,062
State	Print & mail ballots inc. postage	\$317,062	\$420,375	\$317,062	\$317,062
	Online voting system	\$162,000	\$250,000	\$162,000	\$162,000
	Consultation & modification	\$24,000	\$100,000	\$24,000	\$24,000
	<i>Recount</i>	\$13,000	\$25,000	\$13,000	\$13,000
	<i>Runoff inc. postage</i>	\$454,062	\$-	\$-	\$454,062
School	Print & mail ballots inc. postage	\$404,562	\$573,125	\$404,562	\$404,562
	Online voting system	\$210,000	\$350,000	\$210,000	\$210,000
	Consultation & modification	\$24,000	\$100,000	\$24,000	\$24,000
	<i>Recount</i>	\$13,000	\$25,000	\$13,000	\$13,000
	<i>Runoff inc. postage</i>	\$541,562	\$-	\$-	\$541,562
Retired Member	Notice of Election inc. postage	\$504,625	\$504,625	\$504,625	\$504,625
	Print & mail ballots inc. postage	\$776,500	\$983,125	\$776,500	\$776,500
	Online voting system	\$420,000	\$700,000	\$420,000	\$420,000
	Consultation & modification	\$36,000	\$100,000	\$36,000	\$36,000
	<i>Recount</i>	\$26,000	\$50,000	\$26,000	\$26,000
	<i>Runoff inc. postage</i>	\$938,500	\$-	\$-	\$938,500

Table 10: Once-Per-Cycle Licensing Fees

Vendor Service	Majority	RCV	Plurality	Modified Plurality
Once-Per-Cycle Fee*	\$964,000	\$2,400,000	\$964,000	\$964,000

*IVS charges a once-per-cycle fee, usually included as part of the Member-at-Large consultation and modification item. For the purposes of estimating election costs, PRDA has separated this cost from the standard Member-at-Large consultation and modification fee.