AMENDED

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Re: PICO NEIGHBORHOOD ASSOCIATION et al., Plaintiffs and Respondents, v. CITY OF SANTA MONICA (No. B295935; S263972)

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BRIEF OF AMICUS CURIAE

INTRODUCTION

[This amended brief of October 31, 2022 was previously amended August 10, 2022. This new amendment was prompted by Justice Scalia's criticism of "majority-minority" districts in *Holder v. Hall* (1994).] We are supporting both parties to the current dispute because we see our proposed remedy for the votes currently diluted in Santa Monica as having the potential to satisfy both parties. As will be fully explained, our remedy guarantees that every citizens' vote will continue equally to count in the council through the voice of the elected candidate they are likely to see as representing their hopes and concerns most accurately. This should satisfy both parties because both those candidates who head their platform with serving the needs of their local community and those with serving the common good of the whole city as they see it, have an equal opportunity to be proportionally elected to the council.

ARGUMENT

Concisely put, my co-authors and I argue that electing the seven members of Santa Monica's Council by at-large evaluative proportional representation (EPR) provides the most democratic remedy. EPR does not "dilute" any citizen's

vote. That fact makes it certain that no vote by a member of any protected class will be diluted.

Thus, when contrasted with the number of votes that would be wasted if EPR were used instead (0%), the election of the current Council of Santa Monica needlessly diluted an average of about 47% of all the votes cast when electing the council in 2018 and 2020. We suggest that either of two alternative voting methods would clearly have represented many more citizens' votes. The method second best to EPR, when seven members are elected at-large by "proportional ranked-choice voting" (PRCV), dilutes only about 12% of all the votes cast. This method is described and supported by FairVote (OBM 54-56; Brief of Fairvote as Amicus Curiae at pp. 22-33.) In his brief to the Court, Attorney General of California, Rob Bonta, also reminds Californians to consider using methods other than districting as a remedy: "As other briefs detail more fully, there are non-districting remedies that could, in a specific case on specific facts, be an appropriate remedy." (Brief of Rob Bonta as Amicus Curiae at p. 18.)

Expressed positively, in contrast to the 53% of all the votes cast in the existing 2018 and 2020 at-large plurality elections, seven-seat PRCV would enable about 88% of all the votes cast to help elect the seven favored council members.

Unfortunately, many people are blind to the fact that existing plurality voting methods inherently lead to extensive vote-wasting because many of these votes do not help to elect a representative of their choice. The votes of some members of protected classes do not have an equal opportunity to elect members of their choice, which violates the guarantee of United States Code 52, Chapter 10301, the Voting Rights Act of 1965, and the California Voting Rights Act of 2001 (CVRA).

Structurally, plurality voting enables a majority of voters, intentionally or not, to prevent everyone else from being represented in a legislative body. This truth is exemplified by Santa Monica's elections. In 2018, the three winning candidates were elected by a combined total of 62.84% of all the votes cast. In 2020, the four winning candidates were elected by a combined total of 44.04%.

Santa Monica: total combined percentage of votes received by:

	All Winners	All Losers
2018	62.84%	37.15%
2020	44.04%	55.96%

When compared with EPR as the best alternative voting method, this means that all seven members of the

Santa Monica council were elected by an average of 53%, needlessly diluting 47% of the votes. The above 2020 example also shows that plurality voting can sometimes allow a minority to exclude a majority from being represented.

Instead, we suggest the use of evaluative proportional representation (EPR) because it is an improved version of multi-seat PRCV. Again, while PRCV would dilute about 12% of all citizens' votes cast in Santa Monica, EPR would dilute none (0%). Only EPR guarantees that every citizen's vote will proportionally add to the voting power in the council of the member they are likely to see as representing their scale of values most faithfully.

EVALUATIVE PROPORTIONAL REPRESENTATION IS THE OPTIMAL REMEDY TO VOTE DILUTION

INTRODUCTION

The Court invites us to answer the following question: "What must a plaintiff prove in order to establish vote dilution under the California Voting Rights Act (Elec. Code § 14025 *et seq*)?" We answer that the plaintiff must prove that votes cast by members of a "protected class" are being needlessly "diluted" by the existing electoral system in question. That such dilution exists in Santa Monica hinges

on our acceptance of a key element of Justice Wiley's Appeal Court opinion:

> "One cannot speak of the dilution of the value of a vote until one first defines a standard as to what a vote should be worth. Justice Frankfurter made this point in his long and bitter dissent from the landmark decision in *Baker v. Carr* (1962) 369 U.S. 186, 300 (dis. opn. of Frankfurter, J.). Frankfurter thought his point was a reason to reject that decision, but the case law in its wake accepted his wisdom and built it into a standard litigation practice. (E.g., *Reno v. Bossier Parish School Bd.* (1997) 520 U.S. 471, 480 [plaintiffs must postulate an alternative voting practice to serve as the benchmark undiluted voting practice, because the concept of vote dilution necessitates the existence of an undiluted practice against which the fact of dilution may be measured].)" (*Pico Neighborhood Association v. City of Santa Monica* (2020) B295935, page 30.)

Needlessly, many city and state legislative bodies in the US and elsewhere have been elected using plurality voting by less than half of the votes cast by citizens – resulting in more than half the votes being wasted ("diluted") – leaving citizens feeling unrepresented and disenfranchised. Such waste is needless because PRCV has been a reasonable and practical option for more than a century. Evaluative proportional representation (EPR) was published in 2020.

Only EPR completely guarantees what each citizen presumably wants: their vote equally to increase the voting

power of the elected candidate they see as likely to represent their hopes and concerns most faithfully. Consequently, EPR also helps to elect a higher quality council, a council more likely to seek the common good by making decisions only after discussions and debates between the many perspectives in society proportionally represented. Every member of an EPR city council is elected proportionally to represent each citizen who grades at least one candidate's suitability for office as either Excellent, Very Good, Good, or Acceptable. The same grade can be given to more than one candidate. Each winner has a different weighted vote in the council equal to the number of citizens' votes exclusively counted for them. (For more detail, see the section How EPR Works.)

Consequently, an EPR council is supported by 100% of the votes cast so that no citizen's vote is wasted or diluted. Each vote from a "protected class" member counts in the council like the vote of every other citizen, proportionally represented in the legislative body without having to agree with other members of their "protected" class or anyone else in particular. In this way, only EPR fully remedies existing vote-dilution, which is the aim of the Voting Rights Act of 1965 and the CVRA.

Justice Kennedy led the *Holder v. Hall* (1994) majority opinion by confirming the need under § 2 of the Voting Rights Act of 1965, for the Court to "find a reasonable alternative practice as a benchmark against which to measure [the dilutive quality of] the existing [or proposed] voting practice" (p.5). Similarly, Justice Scalia quotes Justice O'Connor in *Thornton v. Gingles* (1986) 478 U.S. 30: "The phrase vote dilution itself suggests a norm with respect to which the fact of dilution may be ascertained" (p.5). An "allegedly dilutive mechanism must be measured against the benchmark of an alternative structure or practice that is reasonable and workable under the facts of the specific case" (O'Connor, J., p.51).

Of course, these are alternative expressions of the same point made by our earlier quotation from Justice Wiley's Appeal Court Opinion in which he reports Justice Frankfurter's assertion that such a "benchmark" is a necessity. We see EPR as providing the best such benchmark.

Justice Scalia criticizes the use of districts to address vote dilution in *Holder v. Hall* (1994). "[W]e have devised a remedial mechanism that encourages federal courts to segregate voters into racially designated districts …. [W]e have collaborated in what may aptly be termed the racial

"balkaniz[ation] of the Nation" (pp. 17-18), “systematically … segregating the races into political homelands … nothing short of … political apartheid…. gerrymandered electoral districts according to race" (p.25). He goes on to say, “That practice now promises to embroil the courts in a lengthy process of attempting to undo, or at least to minimize, the damage wrought by the system we created” (p.25). “The assumptions upon which our vote dilution decisions have been based should be repugnant to any nation that strives for the ideal of a color-blind Constitution” (p.26).

We agree with J. Scalia regarding the many issues related to using districts to address vote dilution. We go on to argue that using the voting remedies offered by EPR or PRCV are key to allowing a corrective “process” to be successfully achieved. We see that these threats to our democracy could have been avoided, and could now be mended, by instead using the vote dilution remedies offered by EPR or PRCV. Because both voting systems are entirely color blind, using their remedies for vote dilution would not result in racial gerrymandering. Official credence would no longer be given to the insulting view that race defines political interest and that members of racial and ethnic groups must all think alike.

In particular, EPR would enable more voters and candidates to build bridges between racial and other groups to form voting coalitions. Using EPR would greatly strengthen our representative democracy. Elected officials would more likely see themselves as representing their constituency as a whole.

Given that EPR had not been developed by 1994, theoretically at least, plaintiffs could have chosen to use PRCV instead of plurality voting to largely remedy the dilution of their votes. Perhaps the plaintiffs and courts were ignorant of the availability of PRCA. Perhaps out of tradition and habit, they were entrenched within a plurality-voting mindset in which plurality voting is uncritically assumed to be the only way to conduct elections.

At the same time, we must note that Justice Scalia did show some understanding of ranked-choice voting (RCV, pp.27-28). He saw that it could be used for multi-member districts (PRCV). At the same time, he seems not to have appreciated its considerable advantages over the uses of plurality voting that he regards as "repugnant."

Also, we note that against Justice Scalia's doubts, the dissenting justices, including Justice Ginsburg, agreed that § 2 of the Voting Rights Act of 1965 permits "minority voters [to] challenge ... dilutive effects … by demonstrating their

[better] potential to elect representatives [of their choice] under an objectively reasonable alternative practice …." (p.48).

In addition, Justice Ginsburg's dissenting opinion observes that in § 2, there is an "inherent tension between what Congress wished to do and what it wished to avoid — between Congress' inten[t] to allow vote dilution claims to be brought under § 2 and its intent to avoid 'creat[ing] a right to proportional representation for minority voters'" (p.55). She sees the court as simply having to live with that tension.

However, we note that while this last phrase does not "establish" a legal right to demand proportional representation, neither does it outlaw proportional representation. With regard to this issue, we see that choosing EPR instead of plurality voting to elect a city council at-large need not suffer at all from the above-mentioned tension. This is firstly because an EPR election would completely satisfy § 2 by preventing any further dilution of citizens' votes to occur. At the same time, it would elect a council composed of members with weighted votes in the council exactly equal to the number of citizens' ballots counted for each winner. This complete proportionality would necessarily result from counting the EPR ballots, not from any claim that "establishes a right to have members of

a protected class elected in numbers equal to their proportion in the population." (52 U.S.C. § 10301(b).)

Exactly how the benefits claimed above are provided by EPR or PRCV is explained below, but first we describe more completely how plurality voting needlessly wastes citizens' votes. Regrettably, most of the legislative bodies in the US are chosen in plurality elections.

PLURALITY VOTING

As another example of plurality voting, in 2018 and 2020, the current seven-member city council of Santa Cruz, California was elected by an average of 46% of all the votes cast. This means that about 54% of the votes cast by citizens can be said to be wasted because they are not represented in the council. Like many other cities, this council is elected at-large by plurality voting.

This means that a 4-to-3 "majority" in a council elected by the above plurality of 46% would be supported by only 26% of all the votes cast (four-sevenths of 46%). This is not "majority rule." In contrast, a 4-to-3 majority of such a council elected instead by EPR would be supported by 57% of the votes cast (four-sevenths of 100%).

Many cities use plurality voting to elect their councils from districts. However, these elections can waste even more citizens' votes. This is illustrated by candidate C being

elected from a district when candidates A, B, and C received the following percentages of all the votes cast in that district: 33%, 33%, and 34%. Therefore, 66% of the votes are wasted – these citizens can rightly feel disenfranchised.

This wasting of votes can be somewhat lessened by having a primary election to reduce the number of candidates to two. However, this in turn reduces the number of candidates from which citizen can choose in the general election. By instead electing the single winner from many candidates using either simple ranked-choice voting (RCV) or the single-winner version of EPR called Majority Judgment, no primary is required and fewer votes are wasted. RCV makes it likely that the winner will be elected by a majority of all the votes cast. But using Majority Judgment makes it almost certain that the winner is supported by at least a majority of the ballots, each awarding the winner the grade of at least Acceptable.

HOW EVALUATIVE PROPORTIONAL REPRESENTATION WORKS

EPR invites you to vote most expressively by grading at least one candidate's suitability for office as either Excellent, Very Good, Good, or Acceptable. You can grade Poor or Reject for any candidates you find unacceptable to hold office. You can award the same grade to more than one candidate. You are guaranteed that your one EPR vote of at

least Acceptable will quantitatively increase the voting power (weighted vote) in the council of the elected candidate who you awarded your "highest grade." This candidate is discovered by following the rules of the count.

COUNTING THE GRADES

For an EPR at-large election of a seven-member council, each of the seven elected candidates must have received one of the seven largest numbers of grades of at least Acceptable from all the ballots cast. Your vote and every other citizen's vote is added to one of the different weighted votes that will be held by one of the elected members of the council. The council represents 100% of the votes cast – no vote is wasted or "diluted."

Except in two circumstances, your one vote adds to the weighted vote in the council of the highest-graded candidate on your ballot. If you awarded this highest grade to more than one candidate, it is exclusively added to the candidate who will have the largest number of grades as a result. This is justified by the democratic assumption that, other things being equal, the candidate with a larger number of votes is probably better.

The first exception is when that candidate has received too few grades of at least Acceptable from all the ballots cast to be elected. In this event, your ballot is automatically

transferred to the candidate on your ballot to whom you awarded your remaining highest grade. If no such eligible candidate is graded on your ballot, your ballot automatically becomes your proxy vote. This proxy vote is finally added to the weighted vote of the elected candidate publicly judged by your highest-graded candidate to be most fit for office. You can prohibit this use of your proxy vote by specifying this on your ballot.

The second exception can result from your highest-graded candidate having received too many grades of Acceptable or above from all the ballots cast. To avoid the remote but anti-democratic possibility of an elected candidate being able to dictate to the council by retaining more than 50% of all the weighted votes in the council, our EPR algorithm does not allow a member to retain more than 20% of all the votes cast. This requires at least three members to agree before any majority decision can be made in the council. If the candidate to whom you gave your highest grade received more than 20% of the votes, your ballot could be selected by lot as one of the surplus ballots to be automatically transferred to the remaining highest-graded candidate on your ballot. If no such eligible candidate is graded on your ballot, your ballot automatically becomes your proxy vote and is transferred to the weighted vote of one of the eligible winners as described earlier. As a result,

your EPR vote equally adds to the weighted vote of the winner who finally receives your highest grade, remaining highest grade, or proxy vote – the winner you see as likely to represent your hopes and concerns most faithfully. As a result, each EPR council member has a different weighted vote in the council, exactly equal to the total number of ballots counted for them. [See below, the Supplemental Materials: Appendix A for a full description of the EPR count; the EPR algorithm; and the report of the output for the count of the simulated EPR election.]

PRCV CAN REDUCE VOTE DILUTION

Thankfully, electing city councils by plurality voting has been replaced in some locales by at-large elections using proportional ranked-choice voting (PRCV – https://www.fairvote.org/). PRCV invites citizens to vote by ranking the candidates, first preference, second preference, third preference, etc. This method is used in Cambridge, Massachusetts (http://vote.cambridgecivic.com/), and is now being used in California by Albany. PRCV (also called single transferable voting (STV) has been used in the Republic of Ireland, Northern Ireland, Australia, and Malta for many years (Types of Voting System (2019)).

In the context of PRCV, we must criticize the "Declaration of Justin Levitt in Support of the Plaintiff's

Proposed Remedies," *Pico Neighborhood Association v. City of Santa Monica* (2018) BC616804. We believe that this Declaration, intentionally or not, misled Pico Neighborhood Association.

That many Latino votes had been diluted in Santa Monica was already correctly demonstrated. However, this Declaration asserts that a district-based remedy would be best. Strangely, it does this even though key information is also supplied by the Declaration that logically supports instead the adoption of proportional ranked-choice voting (PRCV) as the superior democratic remedy.

Levitt makes the following unsubstantiated and vague assertions: the "practical context would still likely make such an at-large structure [e.g., PRCV] less effective ... than a district alternative" (p. 2, lines 26 to 28); "VI At-large Systems are More Likely to be Ineffective in Santa Monica…. the particular context in Santa Monica makes them less desirable in this case." (p.7, lines 1-15).

In the context of his above assertions, Levitt's order of presentation also makes it difficult for readers to see the truth that PRCV offers the superior remedy under the CVRA. He does this by reporting the most relevant different bits of information for PRCV on separate pages, and never

explicitly brings these facts together at one point so the superiority of PRCV could be seen easily.

For example, page 5 (line 18) informs us that "… the eligible electorate of Santa Monica is approximately 13.6% Latino." Page 8 starts to provide the following natural opportunity to bring all the most relevant bits of information together by correctly reporting that: "Ranked-choice voting [PRCV] allows voters to rank as many candidates as they wish …. the votes for eliminated candidates are transferred to other candidates according to the voter's stated preferences …. a multi-seat race results in the election of a majority's preferred candidates while still making room to seat the preferred candidate of a sufficiently large and cohesive minority. …. [to] win a seat [by receiving] the number of ballots [equal to] … the "threshold of exclusion" …. on Santa Monica's city council, the threshold of exclusion is 1/1+7 or 12.5% [of all the votes cast]" (p.8, lines 3 – 24).

At this point, Levitt should have recalled that the Latino 13.6% of the electorate in the city mentioned on page 5 would have a very good chance of electing their preferred candidate with the above threshold of 12.5%. He did not do this and effectively ignored this truth. He then compounds this flaw by immediately diverting attention of the reader to the less relevant truths that the "exclusion threshold" when

using PRCV to elect 3 or 4 winners is 25% or 20%, respectively, far out of the reach of the 13.6% (p. 9, lines 4-6). Needlessly, Levitt ignores that the city can choose to elect the seven councilmembers at the same time every four years rather than in a staggered fashion.

Finally, also without supplying any clear evidence or explanations, he asserts that "district-based elections [better "compensate" for] … the persistent ethnic and geographical disparities or practical limitations of campaign expenses that often result [in non-district-based elections]; in Santa Monica, those disparities appear to be pronounced. …. ranked choice voting … may be quite difficult to implement using existing ballot styles …." (p. 9, lines 9-26). Also, Levitt offers no discussion of how any such "difficulties" might easily be overcome.

Put simply, Levitt's presentation, intentionally or not, seems to minimize the chances that Pico would see for themselves that changing to PRCV would better guarantee that many fewer of their votes would be diluted in the future. This is especially true given that it is reported that Latinos constitute only about 30% of the voters in the planned district recommended by Levitt. This means that the chances of Latinos electing their preferred candidate in this district using plurality voting would be slim.

Independent of the above criticism of Levitt's report, we also now see that, taken out of context, California Government Code Section 34886 might be read mistakenly as seeing the CVRA as limiting vote "dilution" remedies to establishing district elections. However, this statute follows the opinion of Jauregui v. Palmdale (2014) that sees the CVRA fundamentally as aiming to facilitate cities to elect their councils more democratically if their current methods are shown needlessly to "dilute" the votes of a "protected" minority. More generally, we agree with that opinion's construction of the CVRA as helping to establish California's constitutional priority of having elections of "integrity" throughout the state: "to ensure that our electoral system is fair and open" (Opinion, p.17). This is a "statewide concern" (p. 3). When necessary, each city must make the practical changes to their elections that will enable the votes of members of minorities to have an equal opportunity "to elect representatives of their choice." This follows from our democratic belief in the fundamental equality of all citizens when it comes to voting.

EPR IS DEMOCRATICALLY SUPERIOR TO PRCV

While PRCV is not as good as EPR at reducing vote dilution, it is much better than plurality for electing a city council. EPR is best because PRCV needlessly wastes some citizens' votes both quantitatively and qualitatively. Its

qualitative wasting results from the fact that grades are more meaningfully and informatively expressive of each voter's judgments about the candidates, which determine their PRCV rankings of the candidates. For example, a first preference does not reveal whether the voting citizen judged that candidate to be excellent or least bad (a plurality vote is even less informative in this regard). At the same time, some quantitative loss stems from PRCV's needless assumption that each elected member of the council must have the same voting power in the council: one-member one-vote. Consequently, PRCV tries to count all the ballots so that each winner receives the same total number.

PRCV starts its count by calculating the smallest total number that each of the target number of winners must receive both to be elected and to exclude the possibility of any additional candidate being elected by the remaining votes that are not counted for any of the winners. This number is also called the quota (called the "exclusion threshold" by Levitt). For example, the Droop quota is equal to one vote more than the quotient resulting from dividing the total number of ballots cast (the dividend) by one more than the target number of winners. Therefore, when electing a seven-member council, the divisor is 8. This also means that not all the votes cast are used in order to elect the seven winners. These left-over ballots are said to be "exhausted" –

wasted in the sense that they are not represented in the council. Any ballot that happens not to rank any of the winners are also said to be exhausted. This is how about 12% of all the PRCV ballots cast to elect a seven-member council are wasted quantitatively.

Note that if all PRCV's preferences (ranked choices) were instead counted like EPR counts its grades (also including EPR's way of distributing proxy votes to winners), this modified PRCV would not waste any votes quantitatively. Also, preferences waste some of the evaluative meaning contained in the grades used by EPR. Some of the qualitative information contained in a grade is needlessly lost by a preference.

Readers may also want to consider the needless democratic deficits that would be caused by modifying EPR's algorithm so that each of the elected candidates would have only one vote in the council. We accept that such an arrangement is a practical possibility, but it is not as democratic. To make each winner instead receive the same number of grades of at least Acceptable, many more ballots would have to be needlessly transferred according to the same principles outlined in our earlier description of EPR's count. Also, possibly a larger total number of proxy votes might need to be publicly distributed to the winners to

ensure that each winner receives the same final total number.

The democratic deficits resulting from this modified EPR would follow from the different degrees of qualitative waste of any of the ballots having to be transferred from higher to lower graded winners. For example, a ballot grading one winner to be Excellent might have to be transferred to the weighted vote of a winner judged by that ballot to be only Acceptable (three ordinal grades below Excellent), or as a Reject (five ordinal grades below Excellent). This is still better than the greater quantitative and qualitative waste already shown to be inherent both in plurality and standard PRCV elections.

The democratic benefits offered by our unmodified EPR proposal are also enhanced by the additional information provide by EPR's post-election reports. Each such report can report all the grades anonymously awarded to each candidate by every voter. This enables analysts to help educate the public most comprehensively and reliably by informing everyone about the evaluative intensity and number of citizens who are pursuing each of the many different agendas in their society. The more candidates an EPR voter grades, the more fully complete and exact will be this qualitative information communicated to others

anonymously by such post-election reports. Of course, some understanding of the guiding sets of political values held by each plurality or PRCV voter can also be extracted from their similar post-election reports. However, the understanding that could be gained from these reports cannot have the same clarity and depth as those revealed from EPR reports.

Finally, we want to stress that the way a citizen marks their EPR ballot can be similarly as simple as voting by plurality or PRCV. Completing a plurality ballot requires you to vote for no more candidates than the number that must be elected. However, this can prompt a dilemma for a voter who correctly wonders if they should vote for fewer candidates so as to increase the possibility of their most favored candidate winning. At the same time, unlike EPR, no plurality vote guarantees to help elect a candidate. PRCV only requires you to prefer at least one candidate, although the more you rank, the more likely it is that one of your preferred candidates will be elected. Only EPR assures you that your one vote will strengthen the weighted vote in the council of the winner you are likely to see as representing your aims and worries most faithfully and skillfully.

CONCLUSION

Unfortunately, all multi-winner voting systems in use

today structurally and needlessly ignore or waste some citizens' votes. Everyone in a representative democracy is upset when they see their elected representatives fail to give voice to their concerns—and rightfully so. As a corrective measure, we have shown how every citizen's graded EPR ballot equally adds to the voting power of the city council member they see as likely to give voice and more weight to their hopes and concerns. Grading candidates from Excellent to Reject rather than voting by simple plurality or PRCV allows citizens to express more discerning, meaningful, and informative choices.

EPR improves representative democracy and optimally promotes the common good by making it as likely as possible that the highest quality legislative bodies and candidates will be elected. In doing so, its implementation diminishes vote dilution to 0% and thus best meets the guarantees of the CVRA. EPR also helps to educate all citizens by enabling its most informative post-election reports to be analyzed; by satisfying any citizen's desire honestly and clearly to express their own judgments about issues and candidates; and by enabling each citizen to be confident that their one vote will equally add to the voting power of the elected candidate they see as likely to represent their hopes and concerns most faithfully.

Dated: October 31, 2022 Stephen Bosworth

CERTIFICATE OF COMPLIANCE

I hereby certify that this brief has been prepared using proportional 14-point Century Schoolbook typeface. According to the "Word Count" feature in Microsoft Word for Windows software, this brief contains 6968 words. I declare under penalty of perjury that this Certificate of Compliance is true and correct and that this declaration was executed on October 31, 2022.

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Stephen Bosworth

SUPPLEMENTAL MATERIALS

Appendix A: A Full Explanation of the EPR Count (see below)

EPRv3.r (available upon request)

Simulated Election Output from EPRv3.r (available upon request)

APPENDIX A. EVALUATIVE PROPORTIONAL REPRESENTATION DETAILED COUNT

Summary of Stages in The Evaluative Proportional Representation Count

The four stages in the evaluative proportional representation (EPR) count are summarized as follows.

Stage 1 performs the same steps repeatedly that examine all remaining unassigned ballots to determine the candidates with the most votes at the current grade level, starting with Excellent and continuing with Very Good, Good, and finally Acceptable. At the end of Stage 1, all ballots have been examined. One vote, called an affirmed evaluation, from each valid ballot is assigned to one of the candidates who received the highest grade on that ballot.

Stage 2 applies a limit on the percentage of total votes that a candidate can retain. This limit avoids the otherwise

anti-democratic possibility of one elected candidate being able to dictate to the legislative body by retaining at least 50% plus 1 of all the votes in the assembly. We suggest a limit of 20% so as to require at least three members of the assembly to agree before a majority decision can be made. The excess number of ballots counted for such a super-popular candidate in Stage 1 are selected randomly to transfer to the remaining highest graded (Acceptable or higher) candidate marked on each ballot who does not exceed the vote limit. Any ballot that cannot be transferred is marked as a proxy vote that will be handled in Stage 4 by the candidate that currently holds it.

Stage 3 determines the elected candidates to fill the number of open positions. These are the candidates that have the largest number of affirmed evaluations (votes). The losing candidates will have their ballots transferred to the highest graded elected candidate marked on each ballot who also must not exceed the vote limit. Any ballots that cannot be transferred are marked as proxy votes that will be handled in Stage 4 by the candidate (trustee) that held this ballot in Stage 1. Stage 3 concludes the programmatic vote count by printing a table that reports for which candidate each citizen's ballot was finally counted, or which candidate is the trustee for its proxy vote to be handled in Stage 4.

Stage 4 is a public event where the proxy votes held by both elected and losing candidates are transferred to elected candidates who must not exceed the vote limit. Each candidate that holds one or more proxy votes transfers them to the elected candidates they judge most fit for office. The final total of votes each elected candidate receives defines the weighted vote they will have in the legislative body.

The details of each stage in the EPR count are described below.

Stage 1 of the EPR Count

The Single Round Algorithm is used repeatedly at each grade level in the steps for Stage 1 of the EPR count.

Single Round Algorithm

(1) For the first round at this grade level, make all candidates eligible.
(2) Set the single round vote counts to 0 for each eligible candidate.
(3) For each uncounted ballot, add one to the single round vote count for each eligible candidate that is marked with the current grade.
(4) Select the candidate with the most single round votes as the winner of this round. If there is a tie, randomly select the winning candidate.

(5) Add the single round vote count to the count of affirmed evaluations for the winning candidate.
(6) Mark the ballots assigned to the winning candidate as counted.
(7) Mark the winning candidate as ineligible for the remainder of rounds at this grade level.

Steps for Stage 1 of the EPR count

(1) Mark all ballots uncounted and set the count of affirmed evaluations for each candidate to 0.
(2) While uncounted ballots remain at the Excellent grade level, repeat the Single Round Algorithm.
(3) While uncounted ballots remain at the Very Good grade level, repeat the Single Round Algorithm.
(4) While uncounted ballots remain at the Good grade level, repeat the Single Round Algorithm.
(5) While uncounted ballots remain at the Acceptable grade level, repeat the Single Round Algorithm.

Stage 2 of the EPR Count

(1) Determine the candidates that exceed a chosen percentage of the votes cast, referred to as the vote limit. For this brief, we decided that no elected candidate is allowed to retain more than 20% of all the votes in the legislative body. This limit requires a minimum of three candidates to pass legislation.

(2) For each candidate whose votes exceed the vote limit, and handling candidates in order of who holds the most votes (ties broken randomly), perform these steps:
    (a) Randomly select a number of ballots to transfer that brings this candidate's count of affirmed evaluations to the vote limit.
    (b) If possible, transfer each of these ballots and their associated affirmed evaluation to one of the highest graded (Acceptable or higher) candidates marked on the ballot (ties broken randomly), but only for a candidate that does not exceed the vote limit.
    (c) For each ballot that cannot be transferred, mark this ballot as a proxy vote that will be handled in Stage 4 by this candidate as its trustee.

Stage 3 of the EPR Count

(1) Determine the target number of candidates to elect as follows:
    (a) Sort the list of all candidates starting with the candidate with the largest number of affirmed evaluations (votes).
    (b) Provisionally select the number of candidates to elect who have the largest number of votes. If the selected candidate with the smallest number of

votes is not tied with any candidates not selected, elect all the candidates selected.

(c) For the candidates that are tied with the candidate who has the smallest number of votes, compute the sum of ordinal values on each of their ballots. These ordinal values correspond to the grades as follows: Excellent (6) down to Acceptable (4).

(d) Sort these initially tied candidates in order of their respective cardinally summed votes. If there are no ties between any of these candidates, elect those with the larger cardinal sums. If there remains a tie between a number of candidates in this list that is larger than the remaining number of candidates to be elected, select that remaining number of candidates randomly.

(2) For each unelected candidate, starting with the unelected candidate who holds the most votes (ties broken randomly), perform these steps:

(a) If possible, transfer the highest remaining grade (Acceptable or higher) on each of the ballots currently counted for this unelected candidate to the relevant elected candidate (ties broken randomly), but only to a candidate who does not exceed the vote limit.

(b) For each ballot that could not be transferred, mark this ballot as a proxy vote that will be handled in Stage 4 by its trustee: the candidate who received the highest grade on this ballot in Stage 1.

(3) Print a table that reports for which candidate each citizen's ballot was finally counted, or which candidate is the trustee for its proxy vote (the candidate who received this vote in Stage 1).

Stage 4 of the EPR Count

(1) Print a summary of the ballots that will be transferred by the proxy vote holders at a public event. This concludes the programmatic vote count.

(2) Though not carried out by the algorithm, the weighted votes of each elected candidate are finalized as follows: Each candidate that is a trustee of proxy votes, starting with the candidate with the largest number of affirmed evaluations (ties resolved by lot), publicly transfers their proxy votes to any of the eligible winners they judge most suitable for office.

STATE OF CALIFORNIA
Supreme Court of California

PROOF OF SERVICE

STATE OF CALIFORNIA
Supreme Court of California

Case Name: **PICO NEIGHBORHOOD ASSOCIATION v. CITY OF SANTA MONICA**
Case Number: **S263972**
Lower Court Case Number: **B295935**

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I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

11/14/2022

Date

/s/Stephen Bosworth

Signature

Bosworth, Stephen (Pro Per)

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