

From: Commissioner Jerdonek

Date: August 7, 2022

SUBJECT: Election Results Reporting — History & Practice

This memo has three purposes—

1. To collect some of the Commission history on the topic of election results reporting, so people can see how this topic has come up before in the past,
2. To document (with screenshots) some of the Department's current election reporting practices that Commissioners have wanted to improve, and
3. To suggest some ways to improve the results reporting.

The memo is organized into the following sections:

1. Current Reporting Practices
 1. Tabulation progress / ballots remaining
 2. Contest winners
 3. Ranked-choice voting (RCV) results
 4. HTML RCV reports
2. Timeline of Commission Discussion
 1. December 7, 2016 – November 8, 2016 Election Observations Memo
 2. April 19, 2017 – Open Source Voting Technical Advisory Committee (OSVTAC) created
 3. June 5, 2018 – Media coverage of June 5, 2018 Election
 4. June 14, 2018 – TAC Open Source Voting Results Reporter (ORR) started
 5. June 28, 2018 – San Francisco Examiner op-ed by Elections Commissioners
 6. November 20, 2019 – TAC demo of ORR
 7. January 15, 2020 – TAC recommendations of next steps
 8. June 7, 2022 – Media coverage of November 5, 2019 District Attorney results
3. Suggestions for improvement
 1. Tabulation progress / ballots remaining
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1. Current Reporting Practices

This section documents some of the Department’s election results reporting practices that Commissioners have expressed interest in improving over the years.

1.1. Tabulation progress / Ballots remaining

Currently, the only indication of tabulation progress at the top of the results summary page is the precincts reported:

Precincts Reported: 613 of 613 (100%)
Last Updated: June 22, 2022 15:57:01
Registration and Turnout
Registered Voters: 229,229 of 495,498 (46.26%)

Total

	Ballots cast	Percentage
Election Day	22,180	4.48%
Vote by Mail	207,049	41.79%
Total	229,229	46.26%

However, seeing “Precincts Reported (100%)” can give the public the wrong impression about the number of ballots left. This is especially true when the fraction of ballots cast at polling places is small (9.7% in the above election). When the public and media think that all or nearly all ballots have been counted, this can lead to incorrect conclusions like the following (both of which have been perpetuated by the media):

- The election turnout is lower than it really is.
- RCV tabulation is the reason the results aren’t known.

Rather, turnout can seem low on Election night, and the results of some RCV contests might not be known, because it can take several days to receive, process, and count the remaining vote-by-mail and provisional ballots. For example, for the June 7, 2022 election, [44% of ballots were counted after Election night](#).¹ This is enough to significantly affect voter turnout numbers and the results of RCV contests (or any contest for that matter).

¹ https://sfgov.org/electionscommission/sites/default/files/Documents/meetings/2022/2022-07-20-commission/How_Voters_Cast_Their_Ballot_Jerdonek.pdf

1.2. Contest winners

The Department's results summary page doesn't indicate which local candidates would be elected, or which measures are passing (given the approval threshold), for the ballots counted so far. For example, here is a screenshot of the Board of Education contest, which has four winners, from the [November 3, 2020 results summary page](#).²

BOARD OF EDUCATION

	Ballots cast	Percentage
JENNY LAM	195,270	17.05%
MARK SANCHEZ	194,810	17.01%
KEVINE BOGGESS	175,302	15.3%
MATT ALEXANDER	149,212	13.03%
ALIDA FISHER	143,685	12.54%
MICHELLE PARKER	117,434	10.25%
NICK ROTHMAN	56,993	4.98%
GENEVIEVE LAWRENCE	56,878	4.97%
ANDREW DOUGLAS ALSTON	33,122	2.89%
PAUL KANGAS	22,720	1.98%
Write-in	0	0%
Total	1,145,426	100%
Under Votes	651,650	
Over Votes	2,388	

As another example, here is Proposition A, which has a 2/3 passing threshold, from the [June 7, 2022 results summary page](#).³

Proposition A - MUNI RELIABILITY AND STREET SAFETY BOND

[▶ more](#)

	Ballots cast	Percentage
Yes	138,730	65.11%
No	74,350	34.89%
Total	213,080	100%
Under Votes	16,632	
Over Votes	48	

This measure requires 66%% affirmative votes to pass.

² <https://sfelections.sfgov.org/november-3-2020-election-results-summary>

³ <https://sfelections.sfgov.org/june-7-2022-election-results-summary>

1.3. Ranked-choice voting (RCV) results

Like with non-RCV contests as described above, the Department’s results summary page doesn’t indicate which candidates are winning RCV contests. It also doesn’t show the final-round vote totals for RCV contests.

For example, here is a screenshot of the RCV contest for the D7 Board of Supervisors race, from the [November 3, 2020 results summary page](#).⁴

BOARD OF SUPERVISORS DISTRICT 7 - RCV first choice totals

Complete RCV results

	Ballots cast	Percentage
JOEL ENGARDIO	9,216	23.63%
VILASKA NGUYEN	8,195	21.01%
MYRNA MELGAR	7,852	20.13%
EMILY MURASE	4,851	12.44%
STEPHEN W. MARTIN-PINTO	4,562	11.7%
BEN MATRANGA	3,381	8.67%
KEN PIPER	951	2.44%
Write-in	0	0%
Total	39,008	100%
Under Votes	4,302	
Over Votes	116	

In this contest, the summary shows Joel Engardio as appearing to win with 24%, even though [Myrna Melgar won with 53% to Engardio’s 47% in the final-round tally](#) (see also the screenshot below).⁵

San Francisco

Candidate	Round 1			Round 2			Round 3			Round 4			Round 5			Round 6		
	Votes	Percentage	Transfer (Elimination)	Votes	Percentage	Transfer (Elimination)	Votes	Percentage	Transfer (Elimination)	Votes	Percentage	Transfer (Elimination)	Votes	Percentage	Transfer (Elimination)	Votes	Percentage	Transfer
JOEL ENGARDIO	9,272	23.57%	151	9,423	24.01%	968	10,391	26.72%	1,170	11,561	30.31%	2,558	14,119	38.55%	2,251	16,370	46.86%	0
KEN PIPER	969	2.46%	-969	0	0.00%	0	0	0.00%	0	0	0.00%	0	0	0.00%	2,251	0	0.00%	0
VILASKA NGUYEN	8,263	21.01%	141	8,404	21.41%	336	8,740	22.47%	1,070	9,810	25.72%	1,045	10,855	29.64%	-10,855	0	0.00%	0
BEN MATRANGA	3,414	8.68%	167	3,581	9.12%	-3,581	0	0.00%	0	0	0.00%	0	0	0.00%	0	0	0.00%	0
STEPHEN W. MARTIN-PINTO	4,599	11.69%	231	4,830	12.31%	767	5,597	14.39%	550	6,147	16.11%	-6,147	0	0.00%	0	0	0.00%	0
MYRNA MELGAR	7,881	20.04%	114	7,995	20.37%	672	8,667	22.28%	1,961	10,628	27.86%	1,024	11,652	31.81%	6,909	18,561	53.14%	0
EMILY MURASE	4,934	12.54%	77	5,011	12.77%	489	5,500	14.14%	-5,500	0	0.00%	0	0	0.00%	0	0	0.00%	0
Continuing Ballots Total	39,332			39,244			38,895			38,146			36,626			34,931		
Blanks	3,970		0	3,970		0	3,970		0	3,970		0	3,970		0	3,970		0
Exhausted	0		87	87		347	434		743	1,177		1,507	2,684		1,682	4,366		0
Overvotes	124		1	125		2	127		6	133		13	146		13	159		0
Non Transferable Total	4,094			4,182			4,531			5,280			6,800			8,495		

* Tie resolved in accordance with election law.

⁴ <https://sfelections.sfgov.org/november-3-2020-election-results-summary>

⁵ https://www.sfelections.org/results/20201103/data/20201201/d7/20201201_d7_short.pdf

The District Attorney’s race from November 5, 2019 is another example. Here is a screenshot of that RCV contest, from the [November 5, 2019 results summary page](#).⁶

DISTRICT ATTORNEY - RCV first choice totals

[Complete RCV results](#)

	Ballots cast	Percentage
SUZY LOFTUS	59,698	31.08%
LEIF DAUTCH	26,758	13.93%
NANCY TUNG	37,022	19.28%
CHESA BOUDIN	68,575	35.71%
Write-in	0	0%
Total	192,053	100%
Under Votes	13,590	
Over Votes	474	

In this contest, the summary shows Chesa Boudin appearing to win with a vote total of 36%, even though [he won 51% to 49% in the final-round tally](#) (see also the screenshot below).⁷

City and County of San Francisco

Candidate	Round 1			Round 2			Round 3		
	Votes	Percentage	Transfer (Elimination)	Votes	Percentage	Transfer (Elimination)	Votes	Percentage	Transfer
SUZY LOFTUS	60,007	31.06%	6,501	66,508	35.63%	17,364	83,872	49.17%	0
LEIF DAUTCH	27,031	13.99%	-27,031	0	0.00%	0	0	0.00%	0
NANCY TUNG	37,353	19.33%	9,277	46,630	24.98%	-46,630	0	0.00%	0
CHESA BOUDIN	68,805	35.61%	4,745	73,550	39.40%	13,162	86,712	50.83%	0
Continuing Ballots Total	193,196			186,688			170,584		
Blanks	12,396		0	12,396		0	12,396		0
Exhausted	0		6,439	6,439		15,981	22,420		0
Overvotes	525		69	594		123	717		0
Non Transferable Total	12,921			19,429			35,533		

* Tie resolved in accordance with election law.

To see the winner and final totals for one RCV contest, members of the public have to do the following from the summary page—

1. Click the link above the summary table that reads "Complete RCV results."
2. Locate the row that says "Short Report" for the contest they are interested in, and then click the PDF icon next to it in the square grid.
3. Scroll down in the PDF to the grid of round-by-round totals and look in the right-most column.

It’s also not clear from the summary page that viewers must click “Complete RCV results” to see the winner. A casual viewer of the website might think “Complete results” just shows more detail about the vote totals already listed, and not critical information like a potentially different winner or different vote totals.

⁶ <https://sfelections.sfgov.org/november-5-2019-election-results-summary>

⁷ https://www.sfelections.org/results/20191105/data/20191125/da/20191125_da_short.pdf

1.4. HTML RCV reports

Before 2019, the Department’s website showed the round-by-round totals for RCV contests as HTML. This can be seen, for example, on the [November 6, 2018 Detailed Reports page](#).⁸ Here is a screenshot of the [HTML page for the D2 Board of Supervisors race](#) for that election.⁹

Ranked Choice Voting Results Table

Contest: **Board of Supervisors, District 2**

Load Type: **Complete**

	Round 1			Round 2			Round 3			Round 4		
	Votes	%	Transfer	Votes	%	Transfer	Votes	%	Transfer	Votes	%	Transfer
NICK JOSEFOWITZ	13644	38.64%	0	13644	38.64%	+698	14342	41.83%	+1719	16061	48.09%	0
JOHN DENNIS	3108	8.80%	0	3108	8.80%	-3108	0	0.00%	0	0	0.00%	0
SCHUYLER HUDAK	4145	11.74%	0	4145	11.74%	+793	4938	14.40%	-4938	0	0.00%	0
CATHERINE STEFANI	14415	40.82%	0	14415	40.82%	+594	15009	43.77%	+2331	17340	51.91%	0
WRITE-IN	0	0.00%	0	0	0.00%	0	0	0.00%	0	0	0.00%	0
Exhausted by Over Votes	79		0	79		+5	84		+13	97		0
Under Votes	4515		0	4515		0	4515		0	4515		0
Exhausted Ballots	0		0	0		+1018	1018		+875	1893		0
Continuing Ballots	35312	100.00%		35312	100.00%		34289	100.00%		33401	100.00%	
TOTAL	39906		0	39906		0	39906		0	39906		0
REMARKS	*Tie resolved in accordance with election law.											

When the Department started leasing the newer Dominion system in 2019, HTML reports stopped being supported. The only human-readable format the newer system supported is PDF.

The PDF format is not as accessible as HTML (e.g. for website visitors that use a screen reader). PDF is also not as good from an open data perspective (e.g. when trying to copy and paste vote totals).

2. Timeline of Commission Discussion

1. December 7, 2016 – November 8, 2016 Election Observations Memo
2. April 19, 2017 – Open Source Voting Technical Advisory Committee (OSVTAC) created
3. June 5, 2018 – Media coverage of June 5, 2018 Election
4. June 14, 2018 – TAC Open Source Voting Results Reporter (ORR) started
5. June 28, 2018 – San Francisco Examiner op-ed by Elections Commissioners
6. November 20, 2019 – TAC demo of ORR
7. January 15, 2020 – TAC recommendations of next steps
8. June 7, 2022 – Media coverage of November 5, 2019 District Attorney results

⁸ <https://sfelections.sfgov.org/november-6-2018-election-results-detailed-reports>

⁹ https://www.sfelections.org/results/20181106/data/20181127/d2/20181127_d2.html

2.1. December 7, 2016 – November 8, 2016 Election Observations Memo

At the December 7, 2016 meeting of the Budget & Oversight of Public Elections Committee (BOPEC), I (Commissioner Jerdonek) included in the agenda packet a memo of observations about the November 8, 2016 election. Both observations are still true today, and one of them is about the same thing the Commission has been discussing today:

- “The main online results page did not indicate the number of winners (or “open seats”) for each contest, nor which candidates were the “winners” based on the latest totals shown.”
- “[For the] RCV contests, the page provided vote totals without saying what the numbers represented (namely the raw “first choices as marked”), and without providing an obvious pointer to the round-by-round totals showing the overall winner.” This led to the San Francisco Chronicle and SFist not mentioning the final-round vote totals in their coverage of one of the Board of Supervisors races.

The latter point is exactly what media outlets did last month when reporting on the results of the RCV District Attorney race from November 5, 2019. Thus, how RCV results are reported continues to be a source of confusion, even for reporters.

I included the three relevant pages of that memo at the end of this document as Attachment 1.

2.2. April 19, 2017 – Open Source Voting Technical Advisory Committee (OSVTAC) created

At its April 19, 2017 meeting, the Elections Commission created its San Francisco Open Source Voting System Technical Advisory Committee (OSVTAC), or TAC for short. This was a 5-member body made up of four members of the public appointed by the Elections Commission and chaired by a member of the Elections Commission (Commissioner Jerdonek for the duration of the committee). One of the things TAC did was work on an open-source election results reporter that is discussed further below.

2.3. June 5, 2018 – Media coverage of June 5, 2018 Election

After the June 5, 2018 election, several media outlets reported incorrect information about the election and the special mayoral contest. They reported—

- election turnout was very low, and
- the mayor’s contest was taking a long time to count because RCV takes a long time to count.

For example, a [June 5, 2018 piece](#)¹⁰ (updated June 6) in the San Francisco Chronicle by Heather Knight (“Voters tune out rather than turn out for tame San Francisco mayor’s race”) wrote—

¹⁰ <https://www.sfchronicle.com/news/article/SF-mayor-s-race-had-such-promise-but-with-12971049.php>

Political observers said overall turnout, which also won't be finalized for days, would be low. They estimated anywhere from 36 to 42 percent.

As another example, a [June 6, 2018 editorial in the San Francisco Chronicle](#) ("Editorial: S.F. mayor's race puts ranked-choice voting in harsh spotlight") said—¹¹

As San Franciscans are discovering, the system sometimes called "instant runoff" is an oxymoron. ... Whichever candidate emerges victorious in this non-instant counting has some bridge-building to do if he or she hopes to govern effectively.

The truth, however, was that turnout appeared low because the ballots counted on Election Night represented only a fraction of the total (61%, or 154,290 out of 253,583) due to the large number of vote-by-mail and provisional ballots that had yet to be counted. Similarly, the mayor's contest was taking a long time to count not because RCV takes a long time to count, but rather because the race was close. The vote-by-mail ballots that hadn't been counted yet could easily sway the election. Indeed, a [June 12, 2018 piece in The Atlantic](#) wrote a week later—¹²

"We are waiting until the remaining votes are counted," spokeswoman Zoë Kleinfeld said. "With a historically high turnout, we're going to honor every single voter."

The Department's results summary page didn't help to correct this misperception because it doesn't give any indication of the number of ballots that remain to be counted.

2.4. June 14, 2018 – TAC Open Source Voting Results Reporter (ORR) started

At its June 14, 2018 meeting, TAC voted to start working on its proof-of-concept [open-source voting election results reporter](#),¹³ which was later named Open Source Voting Results Reporter (ORR). It started work on the project for a few reasons:

- to show that useful progress could be made on an open-source voting system with little resources (e.g. using only volunteers, and without money or a heavy-weight planning process).
- to show how the Department's current results reporting pages could be improved upon, using the voting system's existing exported data files.
- to show how an open-source project could be run (e.g. using GitHub, proper open-source licensing, contributor license agreements, etc.).

¹¹ <https://www.sfchronicle.com/opinion/editorials/article/Editorial-S-F-mayor-s-race-puts-ranked-choice-12973844.php>

¹² <https://www.theatlantic.com/politics/archive/2018/06/san-francisco-mayor-race-uncalled-breed-leno-ranked-choice/562664/>

¹³ <https://github.com/OSVTAC/osv-results-reporter>

ORR is an open-source application written in Python that runs off-line. It reads data files exported from the Dominion voting system and outputs HTML pages of the results in a more human-readable fashion.

TAC's results reporter works the same way the Department's results summary page works. The Department's summary page is created by a computer program written in PHP. It reads data files exported by the Dominion voting system and outputs an HTML page of the results. Since the Department's program just re-displays numbers generated by the voting system and doesn't do any tabulation of its own, the program is not certified by the Secretary of State (and doesn't need to be). Though the PHP computer program used by the Department is written and maintained by the Department, the Department's program is not open source.

2.5. June 28, 2018 – San Francisco Examiner op-ed by Elections Commissioners

On June 28, 2018, Elections Commissioners Charlotte Hill, Chris Jerdonek, and Viva Mogi published an [op-ed in the San Francisco Examiner](#)¹⁴ to correct some of the media reports about the June 5, 2018 election mentioned above.

Below are two excerpts from the op-ed:

First, despite initial reports in local media that voter turnout was low, the Department of Elections estimates that turnout will in fact be about 53 percent of registered voters—the second highest vote total in San Francisco mayoral election history, and one of the highest rates of participation. Turnout across California, meanwhile, is expected to be around 36 percent.

And—

Some have expressed concern about the time it took to determine the mayoral winner. But this was due to the closeness of the race—a margin of 1 percent—and the large number of vote-by-mail and provisional ballots, which take longer to process than precinct-cast ballots. It was not due to the RCV system, as it takes only a minute to tally an RCV contest. Notably, San Francisco also had an RCV contest for District 8 supervisor, but the winner was clear on election night because the race was not especially close.

Both points above relate to the Department's results summary page not giving any indication of the large number of vote-by-mail ballots that remain to be counted.

2.6. November 20, 2019 – TAC demo of ORR

At the Commission's November 20, 2019 regular meeting, TAC Member Roan Kattouw gave a well-received presentation to the Commission on TAC's open-source results reporter.

¹⁴ https://www.sfexaminer.com/our_sections/forum/sf-elections-are-working-and-getting-even-better/article_2efe9b1b-de30-5938-858b-1737eb36b1ff.html

TAC's results reporter generates a results summary page that makes several improvements to the Department's summary page. For example, it—

- shows clearly which local candidates and measures have won, including for multi-winner elections and measures with an approval threshold other than 50% + 1.
- shows the winner of each RCV contest on the main summary page, along with their final-round vote totals.
- Includes an HTML version of the RCV round-by-round totals.

Screenshots for each of the above are included further below in this document.

Demonstration pages for past elections can be viewed at the following links:

- [March 3, 2020 Consolidated Presidential Primary Election](#)¹⁵
- [November 5, 2019 Consolidated Municipal Election](#)¹⁶
- [November 6, 2018 Consolidated General Election](#)¹⁷
- [June 5, 2018 Consolidated Statewide Direct Primary Election](#)¹⁸

¹⁵ <https://osvtac.github.io/osv-results-demo/2020-03-03/index.html>

¹⁶ <https://osvtac.github.io/osv-results-demo/2019-11-05/index.html>

¹⁷ <https://osvtac.github.io/osv-results-demo/2018-11-06/index.html>





















¹⁸ <https://osvtac.github.io/osv-results-demo/2018-06-05/index.html>

This is from the demo page for the [November 6, 2018 election](#), showing a contest with multiple winners:¹⁹

Member, Board of Education ¶

Vote for no more than Three

604 of 604 Precincts Reporting (100%) [\[Detailed results\]](#)

	Votes	Percent	
ALISON COLLINS ✓	122,865	32.95%	
GABRIELA LÓPEZ ✓	112,299	30.12%	
FAAUUGA MOLIGA ✓	107,989	28.96%	
PHIL KIM	76,017	20.39%	
MICHELLE PARKER	65,740	17.63%	
LI MIAO LOVETT	61,412	16.47%	
JOHN TRASVIÑA	46,601	12.50%	
ALIDA FISHER	37,735	10.12%	
MONICA CHINCHILLA	34,193	9.17%	
LENETTE THOMPSON	30,496	8.18%	
JOSEPHINE ZHAO	27,761	7.45%	
MIA SATYA	17,540	4.70%	
PAUL KANGAS	13,967	3.75%	
DARRON A. PADILLA	12,950	3.47%	
MARTIN RAWLINGS-FEIN	12,439	3.34%	
CONNOR KRONE	12,251	3.29%	
ROGER SINASOHN	12,018	3.22%	
LEX LEIFHEIT	9,605	2.58%	
PHILLIP MARCEL HOUSE	2,491	0.67%	
Write-in Votes (<i>not yet reviewed</i>)	1,551	0.42%	
Ballots Cast	372,848	100%	
Total Votes	817,920		
Overvotes	16,041	4.30%	
Ballots Cast	372,848	100%	

¹⁹ <https://osvtac.github.io/osv-results-demo/2018-11-06/index.html#member-board-of-education>




This is from the demo page for the [March 3, 2020 election](#), showing a local measure with an approval threshold other than 50% + 1:²⁰

Proposition B  - San Francisco Earthquake Safety and Emergency Response Bond, 2020

[▶ Question text](#)

Requires 66⅔% affirmative votes to pass

609 of 609 Precincts Reporting (100%) [\[Detailed results\]](#)






	Votes	Percent	
YES 	233,656	82.84%	
NO	48,387	17.16%	
Total Votes	282,043	100%	
Voted Ballots	282,043	92.49%	
Undervotes	22,838	7.49%	
Overvotes	59	0.02%	
Ballots Cast	304,940	100%	

This is from the demo page for the [November 5, 2019 election](#), showing an RCV contest:²¹

District Attorney 

Rank up to 4 candidates

474 of 474 Precincts Reporting (100%) [\[RCV rounds\]](#) [\[Detailed results\]](#)

	Votes	Round	Percent	
CHESA BOUDIN 	86,712	3	50.83%	
SUZY LOFTUS	83,872	3	49.17%	
NANCY TUNG	46,630	2	24.98%	
LEIF DAUTCH	27,031	1	13.99%	
Total Votes	192,053			
Voted Ballots	192,053	93.18%		
Undervotes	13,590	6.59%		
Overvotes	474	0.23%		
Ballots Cast	206,117	100%		

²⁰ <https://osvtac.github.io/osv-results-demo/2020-03-03/index.html#proposition-b>

²¹ <https://osvtac.github.io/osv-results-demo/2019-11-05/index.html#district-attorney>

In addition, this is a screenshot of the more detailed [HTML round-by-round report](#) for the contest above:²²

Change language: [English](#) | [Español \(Spanish\)](#) | [Pilipino \(Filipino\)](#) | [中文 \(Chinese\)](#)

Last published: April 16, 2020 2:01:20 AM

RCV Rounds - District Attorney

	Round 1			Round 2			Round 3	
	Votes	%	Transfer	Votes	%	Transfer	Votes	%
CHESA BOUDIN ✓	68,805	35.61%	+4,745	73,550	39.40%	+13,162	86,712	50.83%
SUZY LOFTUS	60,007	31.06%	+6,501	66,508	35.63%	+17,364	83,872	49.17%
NANCY TUNG	37,353	19.33%	+9,277	46,630	24.98%	-46,630	0	
LEIF DAUTCH	27,031	13.99%	-27,031	0				

2.7. January 15, 2020 – TAC recommendations of next steps

At the Commission’s [January 15, 2020 meeting](#), TAC presented a document of nine recommendations (called “Recommendations of Next Steps for the Open Source Voting System Project”). One of those recommendations was to encourage the Department to pilot TAC’s open source results reporter:

#8. Pilot open source results reporter. Pilot using TAC's open source results reporter in the November 2020 election. Work with TAC so that TAC can understand what additional features would be needed for the Department of Elections to be able to start using it. The experience of the RLA project shows that the Department can start using open source software without lengthy or expensive waterfall-style planning. This would be another low-cost way to start replacing non-open source software with open source software.

The full recommendations document is attached as Attachment 2.

2.8. June 7, 2022 – Media coverage of November 5, 2019 District Attorney results

Last month, following the June 7, 2022 election in which Chesa Boudin was recalled, three local media outlets reported that Chesa Boudin won his District Attorney contest on November 5, 2019 with only 36% of the vote. This is incorrect, or at best incomplete, since it doesn’t mention the final-round vote totals. However, this is not altogether surprising given that 36% is what the Department’s [results summary page](#) shows (see screenshot below).²³

²² <https://osvtac.github.io/osv-results-demo/2019-11-05/results-rcv/contest-339.html>

²³ <https://sfelections.sfgov.org/november-5-2019-election-results-summary>

DISTRICT ATTORNEY - RCV first choice totals

Complete RCV results

	Ballots cast	Percentage
SUZY LOFTUS	59,698	31.08%
LEIF DAUTCH	26,758	13.93%
NANCY TUNG	37,022	19.28%
CHESA BOUDIN	68,575	35.71%
Write-in	0	0%
Total	192,053	100%
Under Votes	13,590	
Over Votes	474	

First, a [June 28, 2022 piece in The San Francisco Standard](#) (“Willie Brown Thinks DA Chesa Boudin Should Run Again. And Says He’d Win”) wrote—²⁴

Boudin took office in early 2020 after receiving just 36% of the vote, and his profile in the city—for better or worse—has grown substantially larger since his first campaign in 2019.

(The piece has since been corrected to read, “after receiving just 36% of [sic] first-choice vote.”)

Second, a [July 5, 2022 piece in the San Francisco Examiner](#) (“Run, Chesa, Run? For better or worse, Boudin could win back San Francisco DA’s office”) wrote—²⁵

Thanks to San Francisco’s absurd electoral system, it took over 50% of votes to remove him from an office he won with 36% of the vote.

Finally, a [July 7, 2022 article in the Chronicle](#) (“Brooke Jenkins, S.F.’s new D.A., says residents ‘don’t feel safe.’ What will she do about it?”) wrote—²⁶

Boudin’s [sic] won the office with 36% of the vote in a ranked-choice election, and implemented a vision that his critics saw as radical....

(This piece has since been corrected by deleting the first portion of the sentence.)

In each case, this would be like reporting the winner of a general election that followed a primary by reporting only the winner’s vote total in the primary.

²⁴ <https://sfstandard.com/politics/willie-brown-da-chesa-boudin-mayor-london-breed-appoint-election/>

²⁵ https://www.sfexaminer.com/news/run-chesa-run-for-better-or-worse-boudin-could-win-back-san-francisco-das-office/article_75bb0e86-fb32-11ec-a129-6bc3e0218643.html

²⁶ <https://www.sfchronicle.com/sf/article/S-F-s-new-district-attorney-says-residents-17291670.php>

3. Suggestions for Improvement

3.1. Tabulation progress / ballots remaining

The Department’s results summary page could show a progress bar or estimate of the percent of ballots that have been counted so far. For example, a simple text version with no progress bar could look something like this—

Ballots counted so far	127,926
Estimated percent of ballots counted*	56%

*Based on an average of the last three elections. [It will take at least 7 days to process most of the remaining vote-by-mail and provisional ballots.](#)

In the first days of reporting, if the number of vote-by-mail ballots in transit through the mail isn’t known, the progress could be estimated from past elections. For later days, the Department could provide a better estimate based on the actual number of ballots that have been received but not yet processed (like the press releases that the Department issues each day).

A date or number of days could also be provided so members of the public can know how long they may need to wait before most ballots are processed. A link to a page with more information about vote-by-mail and provisional ballot processing could also be provided.

1.2. Contest winners

To show the winners of local candidate contests and measures, the Department’s summary page could do something like what TAC’s results reporter does (shown in screenshots earlier in this document). This includes—

- Putting a check mark next to the winning candidate(s) or measure outcome
- For local measures, if a graphical bar is displayed for the vote total, a line could be drawn showing the approval threshold (e.g. for 2/3 or 50% + 1).

In addition, for multi-winner elections, the page could say explicitly how many winners the contest should have.

1.3. Ranked-choice voting (RCV) results

Again, for RCV contests, the Department’s summary page could do something like what TAC’s results reporter does. This includes—

- Putting a check mark next to the winner.
- Showing the final-round vote totals directly on the summary page.
- Providing a direct link to the page including the round-by-round vote totals.

TAC’s results reporter currently shows a “one-column” summary of the RCV results (shown earlier in this document). In this format, the vote total next to each candidate is the highest vote total the candidate received (e.g. before they were eliminated).

Another possible format would be to use a “two-column” format, like what is used in the certification letter. In a two-column format, the first and last rounds would be shown. (The certification letter shows three columns. In addition to the first and last rounds, it also shows a “Round 0,” which is the raw first-choice totals.)

Below is a screen shot of this format for the D7 Board of Supervisors contest, from the certification letter for the November 3, 2020 election. (This is the same contest used for the screen shots in Section 1.3 of this document.)

D. BOARD OF SUPERVISORS, DISTRICT 7

Candidates	Round 0		Round 1		Final Round (4)	
	Votes	%	Votes	%	Votes	%
→ MYRNA MELGAR	7,852	20.13%	7,881	20.04%	18,561	53.14%
JOEL ENGARDIO	9,216	23.63%	9,272	23.57%	16,370	46.86%
VILASKA NGUYEN	8,195	21.01%	8,263	21.01%		
EMILY MURASE	4,851	12.44%	4,934	12.54%		
STEPHEN W. MARTIN-PINTO	4,562	11.70%	4,599	11.69%		
BEN MATRANGA	3,381	8.67%	3,414	8.68%		
KEN PIPER	951	2.44%	969	2.46%		
Total Votes	39,008		39,332		34,931	
Undervotes	4,302		3,970		3,970	
Exhausted	116		-		4,366	
Exhausted by Overvotes	-		124		159	
Total Ballots Cast	43,426		43,426		43,426	

Unlike in the June 2016 election, this time the precincts were listed in numerical order. This made it much easier for members of the public to locate individual precincts in the list (and to check more easily that each precinct occurs somewhere in the list).

B. Suggestions and Other Observations

This section contains some possible suggestions for improvement or other observations.

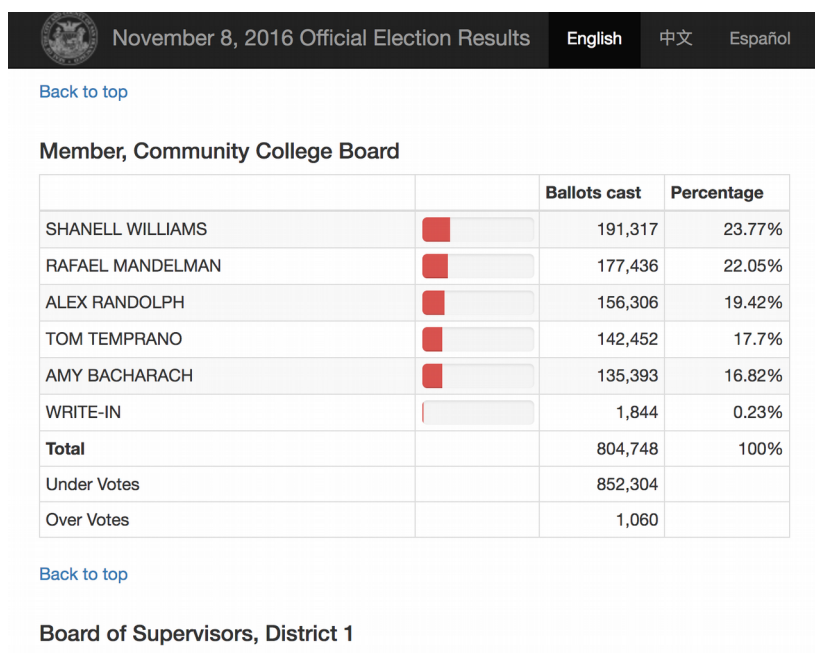
B.1. VBM Ballot Card Misprint?

My VBM ballot said 1/5, 2/5, 3/5, etc. at the bottom of each card even though my ballot was a 4-card ballot. This made it seem like a ballot card was missing. Also, some VBM voters (perhaps three or four throughout the day) remarked about this when they arrived to vote at the polling place at which I was an inspector.

B.2. Main Results Page – Number of Winners

The main online results page did not indicate the number of winners (or “open seats”) for each contest, nor which candidates were the “winners” based on the latest totals shown. This made it harder to tell who would be elected, unless you already knew this information off the top of your head.

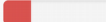
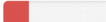
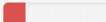
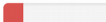
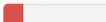
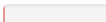
See for example the screenshot below of the Community College Board contest. This is a contest that had four open seats or winners.



November 8, 2016 Official Election Results English 中文 Español

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Member, Community College Board

		Ballots cast	Percentage
SHANELL WILLIAMS		191,317	23.77%
RAFAEL MANDELMAN		177,436	22.05%
ALEX RANDOLPH		156,306	19.42%
TOM TEMPRANO		142,452	17.7%
AMY BACHARACH		135,393	16.82%
WRITE-IN		1,844	0.23%
Total		804,748	100%
Under Votes		852,304	
Over Votes		1,060	

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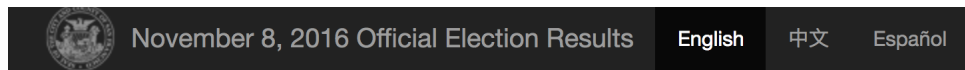
Board of Supervisors, District 1

B.3. Main Results Page – RCV Contests

The main online results page did not indicate which contests are RCV contests. Also, for those contests that were RCV contests, the page provided vote totals without saying what the


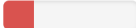
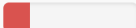
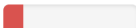
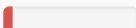
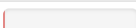
numbers represented (namely the raw “first choices as marked”), and without providing an obvious pointer to the round-by-round totals showing the overall winner.

See for example the screenshot below of how the D7 race for Board of Supervisors looked.



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Board of Supervisors, District 7

		Ballots cast	Percentage
NORMAN YEE		14,154	40.13%
JOEL ENGARDIO		7,630	21.63%
BEN MATRANGA		6,475	18.36%
JOHN FARRELL		4,927	13.97%
MIKE YOUNG		1,995	5.66%
WRITE-IN		93	0.26%
Total		35,274	100%
Under Votes		4,084	
Over Votes		128	

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It would be helpful for viewers if—

- a) each RCV contest were clearly indicated as RCV,
- b) there were a direct “quick link” to the round-by-round report for that contest,
- c) the meaning of the listed vote totals was explained, so that readers don't mistakenly think that they are the overall vote totals, and
- d) calls or press conferences with news media highlight the final-round totals and not just the first-round totals.

Perhaps because of this, some news reports after the election didn't seem to be aware of the existence of the round-by-round results.

For example, the Chronicle reported on the Supervisor races by reporting only on the first round totals and making no reference to the final round totals:

Sandra Lee Fewer was in the lead to replace termed-out Supervisor Eric Mar representing District One, which includes the Richmond. She had 8,247 votes or 38.6 percent of the vote. Marjan Philhour, a more moderate candidate, was close behind with 7,574 votes, or 35.5 percent.

(from <http://www.sfgate.com/politics/article/Some-S-F-races-still-days-from-being-decided-10605369.php>)

Similarly, SFist reported on the Supervisor races without giving any indication of vote totals beyond Round 1. For example—

District 1. With a current count of 38.61% of the vote, Sandra Lee Fewer appears to have beaten Marjan Philhour (35.53%) for the seat being vacated by Eric Mar.

(from http://sfist.com/2016/11/09/sf_candidate_races_ronen_crushes_ar_1.php)

If this were made clear on the results page, perhaps reporters would be more likely to report the final round totals instead of only the first round totals (and the public, in turn, would be better informed).

B.4. Ballot Instructions – RCV Contests

The instructions on the ballot for voting in an RCV contest do not tell voters that their second choice is only counted if their first choice is eliminated (and similarly for their third choice). To say this another way, additional choices are “backup” choices. They can only help the voter have their ballot count and not be exhausted.

Without this information, voters can mistakenly think that RCV is a “points-based” system and be led not to cast as effective a ballot. Under a “points-based” system, voters would have an incentive not to choose a second and third choice (because it could hurt their first choice).

See also the memo I circulated to the Commission as part of the agenda packet for the February 18, 2015 Commission meeting. It contains more information about this issue.

B.5. Main Results Page – Turnout vs. Counter Card

Currently, the results page uses the number of “counter cards” to report “turnout,” even though the number of voters is likely to be different from the number of counter cards.

If possible, it would be good to report the number of voters (e.g. from the election management system) independent of the number of counter cards.

B.6. Certification Letter – Reducing to Two

The certification letter did not “reduce to two candidates” for all RCV contests when reporting the final-round totals. For example, while the results table on the Department web page showed the results of the District 9 Board of Supervisors race up to Round 4 with two candidates, the certification letter only showed up to Round 1 with four candidates.

B.7. 1% Random Selection – Number of Rolls

While I was not able to attend the 1% random selection of precincts this election, my understanding is that it took over an hour and required over 100 rolls of three dice to select the needed precincts. This was due to needing to re-roll whenever the rolled number was outside of the desired range.

**OPEN SOURCE VOTING SYSTEM
TECHNICAL ADVISORY COMMITTEE**

Christopher Jerdonek, Chair
Roan Kattouw, Vice Chair
Carl Hage
Tony Wasserman



**ELECTIONS COMMISSION
*City and County of San Francisco***

January 13, 2020

To: Elections Commission
From: Open Source Voting System Technical Advisory Committee (OSVTAC)
RE: Recommendations of Next Steps for the Open Source Voting System Project

The Open Source Voting System Technical Advisory Committee (OSVTAC) adopted the recommendations below by a vote at its January 9, 2020 meeting.

Recommendations of Next Steps for the Open Source Voting System Project

With the Nov. 2019 election over, the start of the 2020 budget season, and the start of a new year, TAC would like to suggest the following recommendations of next steps for the open source voting system project.

TAC recognizes that the project does not currently have significant funding. Thus, the recommendations below were selected as things that could be done with relatively little cost while still having a noticeable impact.

TAC also recognizes that Los Angeles has done significant work that they are considering making open source. Thus, our recommendations were also selected not to duplicate any work that Los Angeles has already done. For example, Los Angeles County does not use ranked choice voting.

1. **Project website.** Use the Open Source Voting Project website (<https://opensourcevoting.sfgov.org>) to post project information. This can include things like—
 - Monthly status reports
 - Current project plans
 - Information about the Nov. 2019 risk-limiting audit pilot project, including links to the open source code that was used
 - Reports and draft reports

- Funds remaining
2. **Project plans.** Develop and keep current project plans for various funding scenarios. Such plans should include how the project could proceed and what could be built with different levels of funding. This would help advocates to advocate for funding at the local, state, and federal levels, and by providing transparency could help to attract additional partners.
 3. **Prioritizing components.** Prioritize working on system components that are both (1) essential for a voting system and (2) that would replace proprietary and/or non-open source software components currently in use. For example, while risk-limiting audit (RLA) software is useful, it is not a mandatory part of a voting system and would not replace the use of any non-open source software by the Department of Elections. Also refer to the “Recommended Implementation Order” of TAC's Recommendations document for further details:
<https://osvtac.github.io/recommendations/implementation-order#7-recommended-implementation-order>
 4. **Technical lead.** Hire a new technical resource with experience in developing open source projects.
 5. **Dialogue with TAC.** Allow a representative of the Department of Technology or Department of Elections to discuss technical issues with TAC in-depth and on a regular basis. Previously, when the Department of Technology had a technical lead for the project, the technical lead wasn't permitted to interact with TAC members.
 6. **Pilot open source RCV tabulator.** Pilot using the open source ranked choice voting “universal tabulator” that was federally certified and used in Eastpointe, Michigan in November 2019. The developers of the universal tabulator are based in San Francisco and have expressed interest in helping San Francisco at no charge:
<https://github.com/BrightSpots/rcv>
This would be a low-cost way to start replacing proprietary software with open source software.
 7. **Open source RCV tabulator certification.** Work with the Secretary of State to see what it would take to get the open source universal tabulator certified for use in San Francisco so that it could be used instead of the proprietary Dominion software.
 8. **Pilot open source results reporter.** Pilot using TAC's open source results reporter in the November 2020 election. Work with TAC so that TAC can understand what additional features would be needed for the Department of Elections to be able to start using it. The experience of the RLA project shows that the Department can start using open source software without lengthy or expensive waterfall-style planning. This would be another low-cost way to start replacing non-open source software with open source

software.

9. **Open source software contest.** After the Nov. 2019 election, the Department of Elections posted the complete set of ballot card pictures online. This gives people the ability to re-derive and check the vote totals for all contests from those pictures. San Francisco could hold a contest open to the public (to individuals or teams of people) to tabulate the ballot cards using new or existing open source software. This would have several benefits, including—
 1. it would provide more information about the cost and feasibility of using open source software to tabulate vote-by-mail ballots,
 2. it could provide more options for a more robust solution to tabulate vote-by-mail ballots using open-source software (as well as the image interpretation software for precinct scanners),
 3. it could let people discover if any errors were made by the Dominion software, and
 4. it demonstrates the usefulness of San Francisco's new open data policy.

As a leading city in the United States, San Francisco could draw a lot of attention, interest, and willing participants to a contest like this. Perhaps a small amount of prize money could even be used to help entice participants and draw attention to the effort.