Initial sample size

The initial sample size tool lets you enter the particulars of the contest(s) to be audited as a group: the total ballots cast across all the contests combined, and the vote totals for each candidate in each contest. The form helps you anticipate the number of randomly selected ballots that will need to be compared to their CVRs to attain a given limit on the risk, under assumptions about the rates of differences anticipated. It is completely legitimate to sample one at a time and check whether enough have been sampled using the "stopping sample size tool," (later in this page) but this form can help auditors anticipate how much work will be required and retrieve ballots more efficiently, by reducing the number of times a given batch of ballots is opened.

Enter the total number of ballots cast in all contests to be audited. Add candidates and contests as necessary until the results from all contests have been entered. Enter the desired risk limit and the expected rates of one- and two-vote differences. Select whether to round up the expected number of differences of each type. Finally, click "calculate" to find the starting sample size.

Initial sample size

Contest information

Ballots cast in all contests: `54546`   Smallest margin (votes): 78. Diluted margin: 0.14%.

Contest 1. Contest name: `STATE REPRESENTATIVE, DISTRICT 2`
Winners: `2 ▾`

Reported votes:

Candidate 1 Name: `GABALDON, ROSANNA`   Votes: `23449`
Candidate 2 Name: `HERNANDEZ, DANIEL`   Votes: `23527`
Candidate 3 Name: `ACKERLEY, JOHN`   Votes: `23735`

[Add candidate to contest 1] [Remove last candidate from contest 1]

[Add contest] [Remove last contest]

Audit parameters
Risk limit: `10%`
Expected rates of differences (as decimal numbers):
Overstatements.   1-vote: `0.001`   2-vote: `0.0001`
Understatements. 1-vote: `0.001`   2-vote: `0.0001`

Starting size
☑ Round up 1-vote differences. ☐ Round up 2-vote differences. [Calculate size] 12111.

By default, this form assumes that the rate of one-vote understatements and overstatements is one in a thousand (0.001) and that the rate of two-vote understatements and overstatements is one in ten thousand (0.0001). These values are conservative, in my experience, but the choice is up to the user. The larger these rates are assumed to be, the larger the initial sample size will be. Taking a larger initial sample can avoid needing to expand the sample later, depending on the rate of errors the audit actually finds. Avoiding "escalation" can make the audit less complicated.