

## **Risk-Limiting Audits: Efficient, Low-Cost Post-Election Audits**

A healthy democracy requires widespread trust in elections. **By conducting risk-limiting audits (“RLAs”) after each election, Texas can provide statistical assurance that outcomes are correct.** Despite diverse voting systems across counties, RLAs *can* work in Texas, and should be phased in as systems are replaced. While RLAs are not a complete solution to foreign attacks on our electoral process, election and cybersecurity experts across the political spectrum widely agree that they can prevent the threat of hacking and machine errors from eroding public confidence in election results:

- RLAs allow any reports of voting machines changing votes to be promptly addressed, and false reports to be discredited.
- If hacking or error did occur, RLAs can verify whether it changed the election outcome.
- If hacking or error did change an election outcome, an RLA will reveal that, and a proper recount can follow.

**RLAs are a more reliable and cost effective option than the traditional post-election audits of randomly selected paper-using precincts currently required in Texas.** While the mathematics that underlie RLAs might seem daunting at first glance, the only calculations required of local officials can easily be done with pencil and paper or a calculator. Because RLAs employ statistics that take into account both the margin of victory and the total number of votes cast, RLAs may sometimes require fewer ballots to be hand counted than what is required under Texas’s existing process, which calls for a set percentage of ballots to be counted irrespective of the margin of victory.

**Texas can benefit from the lessons learned by early adopters to ensure RLAs are implemented in a streamlined manner.** There is an abundance of resources – including model legislation, open source RLA software tools, and training for counties – that can be accessed to effectively and smoothly incorporate RLAs into Texas’s existing election framework.

RLAs can work only if the voting method leaves a paper trail. **Unfortunately, over 140 of Texas’s 254 counties use paperless direct-recording electronic (DRE) machines, which produce no auditable paper trail and are subject to no post-election audit!** It is imperative that Texas act quickly to replace paperless DREs with voting systems that produce an auditable paper trail. Texans deserve to be confident that their votes are properly counted.

## How RLAs work, step-by-step:

RLAs are flexible and can be adapted to the specific needs of a jurisdiction. But they basically take the following shape:

1. **RLAs start with a paper trail.** Paper ballots (or other paper record of a vote) are organized and a ballot manifest – or record – is used to detail how the ballots are organized, and where any ballot can be retrieved.
2. **RLAs occur immediately after machines tally the election outcome.** The audit process begins in the hours (and at most days) following the election.
3. **Auditors determine how many ballots need to be counted depending on the margin of victory.** A pre-set statistical calculation, based on existing, easily-accessible models, will determine the number of ballots to be counted in a given jurisdiction—usually a low number.
4. **Auditors randomly select which individual ballots to audit.** This is ideally done using a high-quality, public, pseudo-random number generator (but dice can work too!).
5. **Auditors perform an RLA according to a pre-set “risk limit” – in other words, auditors review paper ballots until they reach a pre-set level of statistical certainty that the reported result was correct.** An RLA with a small “risk limit” assures a large chance that an incorrect outcome will be detected and corrected.
6. **If sufficiently few errors are found, the audit ends.** Otherwise, additional ballots are audited.
7. **The results are reported in a transparent manner.** The simplicity of the audits and transparency of the process can increase public confidence by allowing anyone interested to check the calculations.

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Experts, including at top Texas universities, are available to answer questions and talk through the practical application and phasing-in of this best practice. Please contact Mark Miner at [MMiner@mwcllc.com](mailto:MMiner@mwcllc.com) to set up a call or meeting.

For more detailed, but very clear, explanation of how RLAs work in practice, please see the two resources below.

1. Mark Lindeman & Philip B. Stark, *A Gentle Introduction to Risk Limiting Audits*, IEEE Security and Privacy, Special Issue on Electronic Voting (Mar. 16, 2012), available at <https://www.stat.berkeley.edu/~stark/Preprints/gentle12.pdf>.
2. Jerome Lovato, *Risk-Limiting Audits - Practical Application*, U.S. Election Assistance Commission (June 25, 2018), available at [https://www.eac.gov/assets/1/6/Risk-Limiting\\_Audits\\_-\\_Practical\\_Application\\_Jerome\\_Lovato.pdf](https://www.eac.gov/assets/1/6/Risk-Limiting_Audits_-_Practical_Application_Jerome_Lovato.pdf).