



February 22, 2022

Dear Secretary of State Sullivan,

As organizations that share your commitment to secure, trustworthy elections, we are writing to you to offer important information about existing proposals to add printers to Indiana's electronic voting devices to produce Voter-Verified Paper Audit Trails (VVPATs), and urge your office to support more secure, effective and cost-efficient paper ballot voting systems.

Indiana has wisely recognized the need for voting systems which provide paper ballots to increase security and voter confidence, but adding VVPAT printers to existing, outdated Direct Record Electronic (DRE)s is the not the right solution. We wish to share critical information about this system so that your office can explore better, more secure options for Indiana voters.

Indiana's VVPAT printers print voters' choices on small, cash register receipt thermal paper rolls that are difficult to read. **But even more problematic, because the thermal paper record is difficult to handle for audits and recounts, the VVPAT system is designed to record votes in indecipherable QR codes, and to perform audits and recounts from this digital record, not from the human readable text, contrary to all election security best practices. At \$2600 per printer, VVPATs represent an exorbitant investment in an election security dead end, which is why it is unlikely they will qualify for federal funding.**

We expand on these concerns in more detail below.

Why paper ballots matter – and how “VVPATs” miss the point

- Electronic voting systems inherently are vulnerable to errors, bugs and hacking, and because many voters lack confidence in such technology, it is essential to be able to check election results independently.
- Election security best practices dictate that all votes should be recorded on paper ballots that are verified by the voters to ensure their accuracy. These paper ballots should be used in tabulation audits and recounts to check vote counts.¹
- Indiana's VVPATs are installed next to voting machines, and print voter selections on thin, narrow rolls of thermal paper in hard-to-read font.
- Because votes are printed continuously on rolls, anyone with access to the VVPATs and the voter sign-in records potentially can determine how each voter voted, compromising ballot secrecy.
- The paper records appear behind a window that can display a limited number of contests and selections at a time. Voters – especially voters with disabilities – may not be able to read *any* of their putatively “voter-verified” selections.
- VVPAT rolls are ill-suited for audits and recounts. The lightweight thermal paper is prone to ripping, smudging, and fading.
- In light of these obstacles, the vendor has offered a plan to “audit” the VVPATs by randomly scanning some of the QR codes appended to each voter record.² **This approach defeats the purpose of paper ballots and audits: to check vote counts against voter-verified records of voters’ selections.**
- Voters may or may not have verified the text on the VVPATs, but no voter has any means to verify QR codes. Indeed, many voters distrust voting systems which encode vote selections in QR or barcodes.³ This will not improve confidence.

As researchers at the Center for Civic Design sum up:

Although there are still a small number of current voting systems that use this method of creating a verification record, it has fallen out of favor because of the challenges of using the spooled paper in an election audit and the difficulty of reading and verifying the VVPAT through glass (Appel, 2018) as well as its inaccessibility to some voters with disabilities.⁴

¹ “Securing the Vote,” The National Academies of Science, Engineering and Medicine, September 2018.

<https://www.nap.edu/resource/25120/Securing%20the%20Vote%20ReportHighlights-Federal%20Policy%20Makers.pdf>

² See: <https://microvote.com/products.html>, “VVPAT Paper Solution,” video which demonstrates the “audit” scanning system Indiana has contracted to purchase from Microvote which “audits” election results by scanning the QR code on each VVPAT record, and Microvote Professional Services Contract EDS A27 20-009 which includes purchases of audit scanners. Available at: <http://freespeechforpeople.org/wp-content/uploads/2022/02/2019-eds-a27-20-009-microvote-general-vvpas-services-final-9-11-19.pdf>

³ Emery P. Dalesio, “North Carolina allows bar code ballots despite voter outcry,” *Associate Press*, August 23, 2019. Available at: <https://apnews.com/article/nc-state-wire-north-carolina-voting-election-recounts-voting-machines-d2eebfe12cdc4e8c9f9c7465d523198f>

⁴ Whitney Quesenberry, Suzanne Chapman, Christopher Patton, Robert Sprenggiaro, Sharon J. Laskowski, “Voter Review and Verification of Ballots: Review of the Literature and Research Approaches,” Center for Civic Design. Available at: <https://civicdesign.org/wp-content/uploads/2015/05/Voter-review-and-verification-literature-review-draft-2020-05-27-post.pdf>

The VVPAT printers are unlikely to qualify for federal funding.

- Previous purchases of the VVPAT printers were funded by federal grant money, but Indiana cannot count on federal money to pay for additional VVPAT printers.
- Proposed federal legislation that would provide grants to states for the purposes of replacing voting equipment to provide paper ballots expressly prohibits using federal funds for Indiana's VVPAT style printers because of their failure to provide durable, voter-verified paper ballots.
- The federal appropriations bill, HR 4502, passed by the House Appropriations Committee explicitly bans states from using federal funds for VVPAT printers, with this clause:

...for purposes of determining whether a voting system is a qualified voting system, a voter verified paper audit trail receipt generated by a direct-recording electronic voting machine is not a paper ballot. ⁵

Voting system certification is insufficient to ensure voting device security.

- Indiana state law only requires an electronic voting system meet either the 2002 Federal Voting Systems Standards, the 2005 Voluntary Voting System Guidelines, or the 2015 Voluntary Voting System Guidelines.⁶ In other words, Indiana allows systems certified to standards developed 20 years ago.
- In practice all Indiana's voting systems are certified to the 2005 standards or older, and nothing is certified to 2015 standards. This means Indiana's voting systems are tested to profoundly old and outdated standards that do not address the current cyber security threat landscape.
- These outdated standards were developed before the National Institute of Standards and Technology (NIST) studied auditability under its role as advisor to the HAVA-established Technical Guidelines Development Committee (TGDC). NIST determined it was not possible to meaningfully or effectively audit DRE voting systems.⁷
- Indiana's DRE voting systems were certified to standards developed before the Department of Homeland Security (DHS) warned that electronic voting machines are unauditible and a "national security concern."⁸

Better solutions are available and permitted under Indiana law.

⁵ HR 4502, Title V, Election Security Grants. Available at:

<https://appropriations.house.gov/sites/democrats.appropriations.house.gov/files/documents/BILLS-117hr4502rds.pdf>

⁶ <http://iga.in.gov/legislative/laws/2021/ic/titles/003#3-11-15-13.3>

⁷ https://www.nist.gov/system/files/documents/itl/vote/AuditabilityReport_xml-7.htm

⁸ [Dustin Volz, Patricia Zengerle, "Inability to audit U.S. elections a "national security concern: Homeland Chief," Reuters, March 21, 2018. Available at: https://www.reuters.com/article/us-usa-trump-russia-security/inability-to-audit-u-s-elections-a-national-security-concern-homeland-chief-idUSKBN1GX200](https://www.reuters.com/article/us-usa-trump-russia-security/inability-to-audit-u-s-elections-a-national-security-concern-homeland-chief-idUSKBN1GX200)

- Indiana law could also be satisfied by providing pre-printed paper ballots marked by the voter either by hand or ballot marking device, a method of voting that is currently in use in 17% of Indiana counties.⁹
- Pre-printed ballots, marked by hand or assistive technology, provide a durable, verified record of voter intent, which is more secure, more reliable, less costly, and is suitable for conducting audits and recounts.
- For less than the cost of purchasing outdated VVPAT thermal printers, Indiana could have paper ballots and new ballot scanners across the state.

Overblown costs for outdated technology.

- The cost of the added VVPAT printers, with installation and software upgrades is approximately \$2600 per device,¹⁰ an extraordinary amount by any measure for the modest thermal receipt printer that is supplied by the vendor.
- The printers are like cash registers, printing a record that is small, difficult to read and likely to fade over time, making it inappropriate as permanent record of voter intent.

VVPATs do not provide a meaningful way to audit elections.

- Indiana has responsibly aimed to adopt Risk-Limiting Audits or post-election audits, which review a selection of paper records to provide a level of confidence that the election outcome is correct.
- The existing plan to conduct “audits” on the vendor’s VVPATs put forth by the prior Secretary of State fails to adhere to any foundational principles and best practices of post-election audits, let alone to RLA standards.
- Because of the difficulty involved in manually auditing spooled VVPATs, the vendor is selling to Indiana a scanning device that is meant to “audit” the paper VVPATs by randomly scanning the QRs on the printed ballots.¹¹
- The principles of any post-election audit dictate that the audit should be manually conducted on a record of the votes that the voter has verified. Even if voters review the text, voters cannot verify QR codes, making the audit meaningless.

Conclusion

We greatly appreciate efforts by the Elections Division and county clerks to upgrade election systems to provide Hoosier voters with more secure, auditable, transparent, and trustworthy

⁹ “Indiana’s Voting Machines are Vulnerable to Security Issues,” Indiana University Public Policy Institute, October 2020. Available at: <https://policyinstitute.iu.edu/doc/indiana-voting-security-brief.pdf>

¹⁰ Microvote VVPAT Equipment and Services Contract EDS – A27 – 20-009, Available at: Available at: <http://freespeechforpeople.org/wp-content/uploads/2022/02/2019-eds-a27-20-009-microvote-general-vvp-at-services-final-9-11-19.pdf>

¹¹ See *supra* note 2.

election processes. But, regrettably, the proposed VVPAT system does not actually achieve these goals.

Alternatively, Indiana elections would be much better protected, and Indiana voters better served, by pursuing options to adopt pre-printed paper ballots, marked by hand or by assistive ballot marking device, as are already used in fifteen Indiana counties.

We stand ready to offer information to the Secretary of State's office and to Indiana county clerks that would result in more secure, trustworthy, transparent, auditable election systems. Please do not hesitate to reach out to us if you have any questions or if we can be of assistance.

Sincerely,

Susan Greenhalgh, Senior Advisor - Election Security
Free Speech For People

Linda Hanson, Co-President
Barbara Schilling, Co-President
Indiana League of Women Voters

Barbara Tully, President
Indiana Vote By Mail

Pam Smith, Senior Advisor
Verified Voting