October 21, 2019

Ms. Diane Trautman
Harris County Clerk
201 Caroline Street, Suite 302
Houston, TX 77002
dtrautman@cco.hctx.net

Re: Ensuring that every Texas voter can cast a secure, auditable, & verifiable vote

Dear Ms. Trautman,

We commend you for taking important steps to implement a secure and reliable voting system in Harris County. This includes creating an Election Equipment Advisory Committee to engage the community as you decide the features that are essential to Harris County's next generation of election equipment. We believe that system should make use of paper ballots.

Decades of independent research and widespread bipartisan consensus confirm that the Hart InterCivic eSlate paperless voting machines the County currently uses for Election Day voting are insecure, unreliable, and not auditable. We would like to work with you to ensure that the County adopts secure and auditable voting systems at the earliest possible date. We are aware of the County's current (tentative) May 2021 deadline, but would urge that the county act expeditiously toward a goal of November 2020. To that end, this letter highlights the urgency of ensuring that Harris County voters have access to a secure and reliable voting system and lists resources available to facilitate this transition.

1. Harris County's Voting System Suffers from Serious Deficiencies

The Voting System is Aging, Insecure, and Cannot be Audited

Experts agree that outdated voting technology poses serious risks of leaving votes uncounted due to hacking or mechanical breakdown.[1] Direct Recording Electronic (DRE) systems, which cast and count ballots digitally, are doubly dangerous: they are more likely to fail (because they offer

[1] *See, e.g.*, National Academies of Sciences, Engineering, and Medicine, et al. *Securing the Vote: Protecting American Democracy* (National Academies Press, 2018), https://www.nap.edu/download/25120# ("NAS Report"); Lawrence Norden and Christopher Famighetti, "America's Voting Machines at Risk" 13, Brennan Center for Justice at New York University School of Law (2015), *available at* https://www.brennancenter.org/publication/americas-voting-machines-risk.

pathways that malicious hackers can exploit and rely on obsolete technology that is increasingly likely to malfunction), and they produce no record outside their software that can be used to catch mistakes through audits or recounts.

Outdated DRE machines are not good enough for Texas voters and should be phased out. Last year, the Senate Intelligence Committee found that DRE machines, like the eSlate, "are at highest risk for security flaws" and urged their replacement.[2] Similarly, the National Academy of Science convened a group of leading national experts to assess the needs of U.S. election systems to operate reliably in the current threat environment. Their report concluded that "[v]oting machines that do not provide the capacity for independent auditing . . . should be removed from service as soon as possible." Their consensus was that "[e]lections should be conducted with human-readable paper ballots."[3] And leading computer scientists and cybersecurity experts at Texas's most preeminent institutions have delivered the same message loudly and clearly: "paper records (collected in a secure, private way) are indispensable to a secure elections system."[4]

None of this is breaking news. Texas's insecure voting machines, and particularly the eSlate, have been covered in Texas Monthly,[5] Vice Magazine,[6] and Politico.[7] Hart's eSlate machines are particularly outdated, insecure, and susceptible to error. Over a decade ago, independent researchers identified significant security flaws in the eSlate machines that you use today.[8] First,

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[2] Staff of S. Select Comm. On Intelligence, 115th Cong., *Russian Targeting of Election Infrastructure During the 2016 Election: Summary of Initial Findings and Recommendations*, at 4 (2018), *available at* https://www.burr.senate.gov/imo/media/doc/RussRptInstlmt1-%20ElecSec%20Findings,Recs2.pdf. The same committee reaffirmed that finding in a report issued earlier this year: "Aging voting equipment, particularly voting machines that had no paper record of votes, were vulnerable to exploitation by a committed adversary." S. Select Comm. on Intelligence, 116th Cong., "Russian Active Measures Campaigns and Interference in the 2016 U.S. Election, Volume 1: Russian Efforts Against Election Infrastructure," at 4 (2019) ("SSCI Report"), *available at* https://info.publicintelligence.net/SSCI-RussianAttacksElectionInfrastructure.pdf.

[3] NAS Report at 80.

[4] Letter to Secretary Pablos and Director Ingraham from Texas Computer Scientists and Cybersecurity Experts (May 10, 2018), *available at* https://www.cs.rice.edu/~dwallach/voting-experts-letter-may-2018.pdf (and attached).

[5] Michael Agresta, *Can Hackers Mess with Texas's Elections?*, Texas Monthly (Oct. 10, 2018), available at https://www.texasmonthly.com/politics/can-hackers-mess-texass-elections/

[6] Kim Zetter, *Texas's Voting Machines Have Been 'a Known Problem' for a Decade*, Vice Magazine (Oct. 30, 2018), *available at* https://www.vice.com/en_us/article/negayg/texas-voting-machines-have-been-a-known-problem-for-a-decade.

[7] Eric Geller, *How an Election Security Push is Running Aground in Texas*, Politico (Aug. 5, 2019), *available at* https://www.politico.com/story/2019/08/05/election-security-texas-1445537

[8] Srinivas Inguva *et al*, Source Code Review of the Hart InterCivic Voting System ("Source Code Review") (July 20, 2007), *available at* https://votingsystems.cdn.sos.ca.gov/oversight/ttbr/Hart-source-public.pdf

the eSlate's network interface—that is, the port used to network machines together at polling places—is not secured against a direct attack, and researchers were able to read and write to the machines' memory through the port. This is not a bug, but a "feature[] intentionally designed into the system which can be used in a fashion for which they were never intended."[9] Second, the machines contain basic programming errors that can allow malicious code to run on a machine.[10] Third, the machines use no or insecure cryptography (the computer code that is supposed to secure a machine's communications).[11] Worse, "[m]any of these attacks can be mounted in a manner that makes them extremely hard to detect and correct," with "many of them [able to] be carried out in the field by a single individual, without extensive effort, and without long-term access to the equipment."[12] Taken together, these risks—known to the election community for over a decade—make the eSlate particularly vulnerable to attack and malfunction.

The fact that your machines are nearing their manufacturer-recommended lifespan only makes matters worse. Aging equipment increases the cybersecurity risk because older systems fall well behind the current state of the art in cybersecurity measures, and software or the operating system used to run the systems may no longer be receiving security updates.[13]

The Shortcomings of Harris County's Voting System Are Exacerbated by the Threats Facing U.S. Elections

Election security is a national security issue—and there is widespread, bipartisan agreement that U.S. elections are at risk. The U.S. Director of National Intelligence recently appointed an election threats executive, explaining that election security is "a top priority for the intelligence community—which must bring the strongest level of support to this critical issue."[14] The FBI agrees, and has said that "the threat from nation-state actors remains a persistent concern."[15] And on September 24, 2019, a leading cyber threat intelligence organization issued a report warning: "It is unequivocally clear . . . that the Russians invested a significant amount of money and effort

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[9] *Id.* at i.

[10] Kim Zetter, *Texas's Voting Machines Have Been 'a Known Problem' for a Decade*, Vice Magazine (Oct. 30, 2018), *available at* https://www.vice.com/en_us/article/negayg/texas-voting-machines-have-been-a-known-problem-for-a-decade.

[11] Source Code Review at i-ii.

[12] Source Code Review at ii.

[13] *See* NAS Report at 92.

[14] Ken Dilanian, *U.S. Spy Chief Creates New Head of Election Security for Intelligence Agencies*, NBC (July 19, 2019), *available at* https://www.nbcnews.com/politics/national-security/u-s-spy-chief-creates-new-head-election-security-intelligence-n1031841.

[15] Josh Lederman & Mike Memoli, *2020 Campaigns Get Trump Administration Help on Cybersecurity, Counterintelligence*, NBC (Sept. 23, 2019), *available at* https://www.nbcnews.com/politics/2020-election/2020-campaigns-get-trump-administration-help-cybersecurity-counterintelligence-n1057366.

in the first half of this year to build large-scale espionage capabilities. Given the timing, the unique operational security design, and sheer volume of resource investment seen, . . . we may see such an attack carried out near the 2020 U.S. Elections."[16]

This threat environment adds stress to outdated voting systems where none is needed: systems must accurately count every valid ballot while sophisticated adversaries seek to undermine them. And, voting systems with longstanding and well-studied vulnerabilities, like the eSlate, face greater risks than other systems.

To meet this threat, jurisdictions should administer elections on modern systems using paper ballots. At least 122 Texas counties will use paper systems this November;[17] and 40 out of 50 states will use *only* paper systems by November 2020.[18]

2. The U.S. Constitution Requires Voting Systems that Ensure that Every Voter Can Cast an Effective Vote

The only way to make sure all Texans' votes are counted is to have a record that cannot be altered by machine failure or hacking. Every voter deserves to vote on a voting system that meets independently developed best practices for modern voting systems.[19] Most importantly, whatever machines Harris County adopts should provide voters with the means and opportunity to verify human-readable marks on paper that correctly represent their intended selections, before casting their ballot.

Not doing so impermissibly burdens the voting rights of Harris County voters. The constitutional right to vote is not satisfied by simply allowing a voter to place a ballot in a ballot box or enter selections on a touchscreen. "[I]ncluded within the right to choose . . . is the right of qualified voters within a state to cast their ballots *and have them counted*."[20] In that manner, the federal Constitution guarantees each voter the right to cast an *effective vote*—a ballot that is counted

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[16] Check Point Research, *Mapping the Connections Inside Russia's EPT Ecosystem* (Sept. 24, 2019), *available at* https://research.checkpoint.com/russianaptecosystem/.

[17] John Dabkovich, *Travis Co. Hopes Paper will Protect Votes From Hackers*, KXAN (Oct. 2, 2019), *available at* https://www.kxan.com/news/local/travis-county/travis-co-hopes-paper-will-protect-votes-from-hackers/.

[18] Verified Voting, *The Verifier - Polling Place Equipment - November 2020*, *available at* https://www.verifiedvoting.org/verifier/ (last accessed Oct. 4, 2019).

[19] *See, e.g.*, Verified Voting, Principles for New Voting Systems, *available at* https://www.verifiedvoting.org/voting-system-principles/.

[20] *United States v. Classic*, 313 U.S. 299, 315 (1941); *see also United States v. Saylor*, 322 U.S. 385, 387–88 (1944) (emphasis added).

correctly towards the outcome of the election. Moreover, it also prohibits states from subjecting voters to arbitrary disparities in the effectiveness of their votes.[21]

A federal district court in Georgia recently applied these principles to rule that plaintiffs challenging a similar DRE system will likely succeed in their case. The plaintiffs in *Curling v. Raffensberger*[22] challenged Georgia's DRE voting system on the grounds that it violated the constitutional rights of Georgia voters. Like the eSlate system, Georgia's system suffers from significant security flaws due to vulnerabilities in its hardware and software.[23] The plaintiffs in *Curling* claim that the continued use of Georgia's DRE voting system violates their right to vote under the First and Fourteenth Amendments.[24] In August, a federal judge concluded that Georgia's DRE voting system does likely "burden[] and deprive[] [Plaintiffs] of their rights to cast secure votes that are reliably counted, as guaranteed under the First and Fourteenth Amendments of the United States Constitution."[25] In doing so, the court highlighted its prior conclusion that Georgia's "continued reliance on the use of DRE machines in public elections likely results in 'a debasement or dilution of the weight of [Plaintiffs'] vote[s],' even if such conduct does not completely deny Plaintiffs the right to vote."[26]

The right to vote, the cornerstone of our democratic system of government, depends on a system of election administration that provides all eligible voters an effective opportunity to participate—not just those who happen to live in a jurisdiction that uses an adequate voting system. At minimum, this means ensuring that the machinery of democracy has the capacity to record and count each vote consistently, fairly, effectively, and accurately. And that means ensuring that there is a paper record of every vote.

3. Implementing a New Voting System by the 2020 Election is Still a Practical Option

In light of the urgency of ensuring that all Harris County voters have access to a secure and reliable voting system, we urge you to consider expediting the process of implementing a reliable voting system, if at all possible. That system should make use of paper ballots—just as the systems in 122 Texas counties will by this November. Though we recognize and are pleased that your office is committed to implementing new voting systems by the May 2021 election, we respectfully ask that you reassess the possibility that this could be done by Election Day 2020.

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[21] *See Bush v. Gore*, 531 U.S. 98, 104–05 (2000) ("Having once granted the right to vote on equal terms, the State may not, by later arbitrary and disparate treatment, value one person's vote over another.").
[22] *Curling v. Raffensberger*, No. 1:17-CV-2989-AT, 2019 WL 3822123 (N.D. Ga. Aug. 15, 2019) (attached).
[23] *Id.* at *2-3.
[24] *Id.* at *1.
[25] *Id.* at *54.
[26] *Id.* at *54 (quoting *Bush v. Gore*, 531 U.S. 98 at 105 (alterations in original)).

From our standpoint, this is a difficult but not an impossible task: many Texas counties have recently and smoothly transitioned to paper-based systems.[27] In fact, the state of Virginia moved many of its precincts from paperless DRE voting machines to a paper-based systems in just 3 months.[28] In Pennsylvania, following a February 2018 directive[29] ordering that all new systems employ a paper vote record, approximately 75% of counties deployed new systems (with the remaining counties set to transition by the 2020 primary). And South Carolina completed an RFP for a new, statewide system in July of this year. New machines have already been delivered to South Carolina counties.[30]

All signs suggest that help is coming—Congress is on track to appropriate substantial funding to upgrade states' voting systems.[31] A bipartisan coalition recognizes the importance of ensuring that all voters have access to reliable voting systems. But ultimately, county officials bear responsibility for making sure every voter can cast a ballot that will be counted.

We thank you for your attention to this important matter, and would welcome the opportunity to discuss this further. We—and the computer and cybersecurity experts who have spoken out on the need to secure Texas's infrastructure—are available to serve as resources to Harris County or to answer any questions about steps it can take to ensure that its voters have secure, reliable, and auditable systems at the earliest possible date. We can be reached at the contact information below.

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[27] At least 15 Texas counties have purchased and/or deployed paper-based systems since the beginning of 2018, including Washington, Cooke, Caldwell, Atacosta, Rusk, Starr, Bastrop, Orange, Rockwall, Bowie, Johnson, Ellis, Smith, Bell, and Washington Counties. In addition, Dallas, Tarrant, Bexar, and Collin Counties—four of the largest counties in Texas—will be deploying paper-based systems beginning in November 2019.

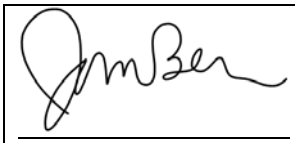
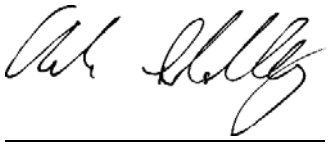
[28] *See* Byron Tau, *Virginia Ends Use of Touch-Screen Voting Machines*, Wall Street Journal (Sept. 11, 2017), *available at* https://www.wsj.com/articles/virginia-ends-use-of-touchscreen-voting-machines-1505167555.

[29] *Wolf Administration Directs that New Voting Systems in the Commonwealth Provide Paper Record* (Feb. 9, 2018), *available at* https://www.media.pa.gov/Pages/State-Details.aspx?newsid=261.

[30] *See* Kayland Hagwood, *New Voting Machines Unveiled in Sumter County*, WLTX19 (Oct. 4, 2019), *available at* https://www.wltx.com/article/news/local/street-squad/sumter/new-voting-machines-unveiled-in-sumter-county/101-850a4196-afb9-4133-ae31-9bee5d9b22cd.

[31] Carl Hulse, *After Resisting, McConnell and Senate G.O.P Back Election Security Funding*, NYT (Sept. 19, 2019), *available at* https://www.nytimes.com/2019/09/19/us/politics/mcconnell-election-security.html?module=inline. Although a federal appropriation for voting systems is not yet final, the House of Representatives recently appropriated $600 million for states to upgrade voting systems, and the Senate is on track to appropriate $250 million. In all likelihood, this year Congress will approve an amount between those figures for states to use in replacing and upgrading voting systems.

Most sincerely,

 Jamila Benkato Protect Democracy	 Edgar Saldivar Andre Segura ACLU Foundation of Texas, Inc.
 Adrian Shelley, Director Public Citizen – Texas	 Sophia Lin Lakin Adriel I. Cepeda Derieux American Civil Liberties Union

Attachments:

1. Letter to Secretary Pablos and Director Ingraham from Texas Computer Scientists and Cybersecurity Experts (May 10, 2018), *also available at* https://www.cs.rice.edu/~dwallach/voting-experts-letter-may-2018.pdf.
2. *Curling v. Raffensberger*, No. 1:17-CV-2989-AT, 2019 WL 3822123 (Preliminary Injunction Order) (N.D. Ga. Aug. 15, 2019).