BRENNAN CENTER
FOR JUSTICE *at New York University School of Law*

Testimony before the New Jersey Assembly, State and Local Government Committee

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I.   Introduction

Good morning. I appreciate the invitation to speak with you today. My name is Edgardo Cortés, and I am an Election Security Advisor for the Brennan Center for Justice. The Brennan Center has been working to highlight the need to replace aging voting equipment and promote other steps to enhance the security of election administration processes. These improvements to election administration ensure the integrity of the process while also enhancing the voting experience for eligible voters.

Prior to joining the Brennan Center, I served as the Commissioner of Elections in Virginia during Governor McAuliffe's tenure. In this role, I served as the Chief Election Official for the Commonwealth. Virginia has 133 local election jurisdictions and over 5 million active registered voters. During my tenure, the Department had three priorities: using technology to create a better voting experience for eligible Virginians, reducing the administrative workload for local election officials, and increasing security and accountability in electoral processes.

During the McAuliffe administration, the Department accomplished a great deal to modernize elections. I am before you today to focus on just one aspect of these wide-ranging efforts – strengthening the security and reliability of Virginia's voting equipment. The Virginia Information Technologies Agency (VITA) conducted reviews of the state's voting systems and, based on its findings, Virginia decertified Direct Recording Electronic Voting Machines (DREs) twice within a 60-day period preceding an election. The second decertification, in September 2017, prohibited jurisdictions from using any paperless DRE equipment, and mandated the use of a state-certified paper-based voting system. These steps were not taken lightly, and they placed financial and administrative stress on the electoral system. They were, however, essential to maintaining the public's trust in the integrity of Virginia elections.

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I am pleased to be here with you today as New Jersey contemplates finally moving away from outdated paperless voting equipment and implementing secure paper-based voting equipment – coupled with appropriate post-election auditing – to increase confidence and transparency in the voting process and create a better experience for New Jersey voters.

II.   Virginia Election Administration Ecosystem Overview

The structure of Virginia's election administration ecosystem is comparable to several other states in that local officials administer and, for the most part, pay for elections, while the state supervises and coordinates this work and ensures uniformity. Regarding voting equipment specifically, the state is responsible for certifying voting equipment, such as voting machines and electronic pollbooks; local officials are responsible for choosing their equipment from the state menu of certified options. Virginia's state certification requirements are based on existing federal criteria and once a system is certified, no additional testing is currently required by the state to retain certified status.

III.   WINVote Decertification

When I became Virginia's Commissioner of Elections in 2014, approximately 113 of Virginia's 133 localities used paperless DREs that were over a decade old and already past their expected end of life. The first map you have provides an overview of DRE usage in Virginia at that point. State legislative efforts to curtail the use of the machines had been ineffective, and complaints related to this equipment were increasing. To address these problems, Governor McAuliffe proposed $28 million in the state budget for new voting equipment during the 2015 legislative session. Unfortunately, the General Assembly refused and left financial responsibility for new voting equipment with local officials.

In response to a variety of issues involving DREs during the 2014 election, the Department of Elections conducted a review of the voting equipment complaints reported in 2014.[1] During that review, the Department discovered that one of the certified DRE machines, the WINVote, was operating while its wireless network was turned on. With no prior state decertification history to rely on, I asked the state IT department, VITA, to assess the equipment's security. A VITA staff member who lacked experience with voting equipment was able to manipulate a WINVote machine – located in an office down the hall from her. This discovery necessitated immediate action, as the June Primary Election was a few short months away. The approximately 30 localities that used WINVote machines, which accounted for about

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[1] Memorandum from Virginia Commissioner of Elections Edgardo Cortés to Members of the State Board of Elections, "Interim Report on Voting Equipment Performance, Usage & Certification," April 1, 2015, https://www.elections.virginia.gov/WebDocs/VotingEquipReport/1.pdf.

20 percent of precincts in the state, had no money in their local budgets to procure new, more secure, voting equipment.

The Department contacted the affected localities, informing them that it might decertify the machines. We also contacted the organizations representing local officials and the voting equipment vendors, which promptly confirmed sufficient inventory and capacity to equip the localities with new machines immediately. The vendors, in competing for each affected locality's business, offered creative financial incentives.

In response to VITA's findings, the Department decertified the WINVote 55 days prior to the 2015 June Primary. We made the decision despite having received much criticism predicting "certain failure" – comments which I assume are similar to the ones you've received about potentially transitioning voting equipment in a short timeframe. However, with lots of teamwork, the June Primary Election was administered without issue related to the new voting equipment. The most important factors in this successful transition were the partnerships with the individuals and entities mentioned above and the ongoing and constant communications with all interested parties.

IV.   September 2017 Decertification

As part of the McAuliffe administration's emphasis on cybersecurity, the Department of Elections focused on strengthening the security of our voting processes, including encouraging remaining localities using paperless DREs to transition to new equipment as quickly as possible. In the wake of the WINVote decertification and in the lead up to the 2016 presidential election, almost every locality with sufficient financial resources had procured new voting equipment; however, there were several localities that continued to use one of the approximately five different DRE models still certified in Virginia. This is illustrated in the second map I have provided. The Department learned that DEF-CON, the annual hacker conference held in Las Vegas, planned a "Voting Village" exhibit at their July 2017 conference. The public reporting from DEF-CON created substantial security concerns.[2] When my CIO alerted me that a DEF-CON attendee posted the password for one of the voting systems in use in Virginia, I knew immediate action was necessary in advance of the upcoming election. The third map you have represents DRE usage at that point. This same piece of equipment with a hard-coded password that has been publicly disseminated, the iVotronic, is still in use in New Jersey today.

As you can see in the third map, there were only about 30 localities that had not updated their voting equipment and were still using one of five old DRE voting systems, such as the

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[2] Matt Blaze et al., *DEFCON 25 Voting Machine Hacking Village: Report on Cyber Vulnerabilities in U.S. Election Equipment, Databases, and Infrastructure*, DEFCON, September 2017, https://www.defcon.org/images/defcon-25/DEF%20CON%2025%20voting%20village%20report.pdf?data1=v1.

Sequoia Edge and the TSX Accuvote. What this map also shows are the real consequences of the decision to not provide federal or state funding for equipment: generally, only the poorer and more rural localities were forced to continue to use antiquated and problematic voting machines because they couldn't afford new ones.

While we knew that a transition to more secure machines was possible because of prior experience, this time, decertification faced some slightly different challenges. For example, we now needed to have testing performed on five *different* voting systems, yet the state had no way to compel the vendors or localities to provide equipment for VITA testing. Through relationships with the locals, we obtained equipment for all but one type of system: the Hart eSlate. The machine's vendor also refused to provide the equipment. This was a big problem.

On the other hand, we also had additional partners to help implement this decertification. While the equipment was being tested, but before the official decertification, the Voter Registrars Association of Virginia ("VRAV") wrote to its membership. It expressly acknowledged that any voting equipment almost two decades old was unlikely to withstand any review under today's IT security standards, and officially recommended that all localities move forward immediately with obtaining new equipment. Verified Voting also served as a resource and provided the Department and VITA, under exceptionally tight timelines, with helpful information about the equipment's vulnerabilities.

Approximately 10 weeks prior to the 2017 November General Election, VITA provided preliminary information related to the machines, which was very concerning. When reviewing its options, the Department asked whether VITA would be willing to confirm the accuracy of results cast on any of the machines in the event that future election results were called into question. In response, VITA asserted that they would not, at that time, be willing to provide unqualified statements of support. The next week – 59 days prior to the election – the state decertified all paperless DREs in Virginia.[3] All affected localities promptly obtained new voting equipment. In-person absentee voting began as scheduled – approximately two weeks after the decertification – and was conducted without incident related to the new voting equipment. The November 2017 General Election was also administered effectively, and without any reports of voting equipment issues. The transition to paper-based voting systems on a truncated timeline was incredibly successful, and it increased the security of the election significantly.

Although it's clearly possible to transition quickly, doing so is less than ideal. As the New Jersey legislature considers mandating a transition to more secure paper-based voting

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[3] "Virginia Decertifies Paperless Voting Equipment," Virginia Dept. of Elections, September 8, 2017, https://www.elections.virginia.gov/Files/Media/ELECTNewsRelease9-8-17.pdf.

equipment and coupling that with the implementation of appropriate post-election audits, here is some additional information that I hope proves useful to your efforts:

1) The Brennan Center's cost estimates for voting equipment replacement in New Jersey is between $40.4 million and $63.5 million.[4] This estimate includes the purchase of one optical or digital scanner and one ballot marking device for each precinct for a cost of between $6,200 and $10,000 per precinct. While some local jurisdictions may want to provide ballot marking devices as the primary means of voting, which increases the overall replacement costs, we believe the legislature should focus on providing the amount necessary to obtain legal compliance. This would still allow local governments to provide additional equipment but at their own expense.

2) Funding elections is a shared responsibility at the local, state, and federal level. Congress has recently provided some funding to improve election security in the states. One possible use for these funds is the replacement of paperless DREs with paper-based voting systems. Based on the Brennan Center's estimates, the current round of federal funding would provide between 15% and 24% of the necessary funding to replace paperless DREs statewide.[5] This would reduce the amount of state funding needed by a significant amount. Alternatively, the federal funds can also be used to implement robust post-election audits designed to minimize risk and increase transparency and accountability in the process once the state has transitioned to paper-based voting systems. The paperless voting machines currently in use in New Jersey cannot be meaningfully audited because there is no independent record of the votes cast to use as a means of ensuring the accuracy of the vote totals.

3) There is more than sufficient time for all local election officials to transition to new voting equipment prior to the 2020 presidential election. In fact, transitioning to new equipment statewide by the 2019 general election would not only ensure implementation issues are resolved prior to the presidential election, but would also provide assurance to all of you and your colleagues in the legislature that your elections are being administered as securely as possible. Like Virginia, New Jersey's off year state legislative races make you a focal point of media coverage and public attention. Any security-related issues regarding the state's outdated voting equipment would take on increased visibility in 2019.

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[4] Brennan Center for Justice and Verified Voting, "Federal Funds for Election Security: Will They Cover the Costs of Voter Marked Paper Ballots?" March 23, 2018, 3, https://www.brennancenter.org/sites/default/files/analysis/Federal_Funds_for_Election_Security_analysis.pdf.
[5] Ibid.

4)   You should utilize the transition to new equipment as an opportunity to hold voting equipment vendors more accountable for security, including adding requirements to procurement contracts that mandate provision of equipment for testing when requested by state and local election officials. In addition, moving forward with procuring systems at the state level can bring additional benefits, including cost reductions and creative financing options for local governments.

5)   As you are aware, deploying paper-based voting systems is only one part of the equation to achieving greater security in the voting process. Implementing effective post-election audits that validate the accuracy of the vote totals are a critical corresponding step. I would urge state election officials to take advantage of the resources available from organizations like the ones represented here today to minimize the cost of creating appropriate auditing standards and procedures.

Thank you again for inviting me to join you today to discuss your efforts to secure New Jersey's voting systems. The Brennan Center is pleased to serve as a resource to legislators and election administrators in New Jersey and offer any assistance we can in moving forward with this critical piece of election security.
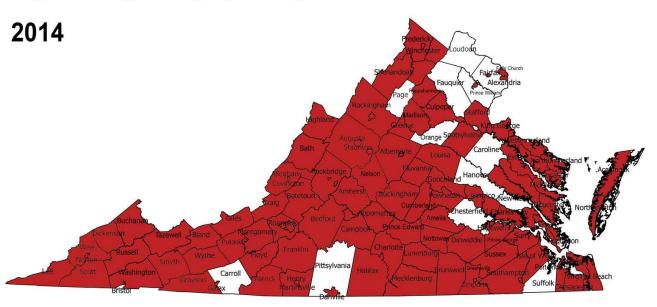
★ VIRGINIA ★
DEPARTMENT *of* ELECTIONS

Legend

Voting System Type

■ Direct Recording Electronic (DRE)
□ Optical/Digital Scan

Any DRE Usage v. Fully Optical/Digital Scan

2014

★ VIRGINIA ★
DEPARTMENT *of* ELECTIONS

Legend

Voting System Type

■ Direct Recording Electronic (DRE)
□ Optical/Digital Scan

Any DRE Usage v. Fully Optical/Digital Scan

August 2017

Frederick
Winchester
Loudoun
Shenandoah
Falls Church
Fairfax
Alexandria
Fauquier
Prince William
Rappahannock
Page
Culpeper
Rockingham
Madison
Stafford
Greene
King George
Highland
Orange Spotsylvania
Westmoreland
Augusta
Albemarle
Caroline
Essex
Northumberland
Bath
Staunton
Louisa
Lancaster
Rockbridge
Nelson
Fluvanna
Hanover
Middlesex
Alleghany
Goochland
Covington
Amherst
Buckingham
Powhatan
Henrico
New Kent
Gloucester
Northampton
Botetourt
Craig
Cumberland
Chesterfield
Charles City
Buchanan
Giles
Roanoke
Bedford
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Hopewell
York
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