The State of Texas

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Secretary of State

MEMORANDUM

TO: Christina Adkins, Director of Elections, Texas Secretary of State

FROM: Chuck Pinney, Staff Attorney, Elections Division, Texas Secretary of State

DATE: October 27, 2025

RE: Hart Intercivic – Vanguard 1.0 Voting System Examination

In accordance with my appointment by the Texas Secretary of State as a voting system examiner under Tex. Elec. Code §122.067, I present my report on the voting system examination which took place on September 16-18, 2025, in the offices of the Texas Secretary of State at the James E. Rudder Building, 1019 Brazos, Austin, Texas 78701.

On September 16-18, 2025, the examiners appointed by the Texas Secretary of State and the Texas Attorney General examined Vanguard 1.0, a voting system that was presented by Hart Intercivic ("Hart") for certification in Texas. The following hardware and software components were examined at the Office of the Secretary of State:

Component	Version	Previous Texas Certification Date
Vanguard Define	1.0.1	N/A
Vanguard Deploy	1.0.1	N/A
Vanguard Capture	1.0.1	N/A
Vanguard Results	1.0.1	N/A
Vanguard Settings	1.0.1	N/A
Vanguard Users	1.0.1	N/A
Vanguard Manage	1.0.1	N/A
Vanguard Libraries	1.0.1	N/A
Vanguard Test Decks	1.0.1	N/A
Vanguard Boost	1.0.1	N/A

Vanguard Flex	1.0.1	N/A
Vanguard Vault	1.0.1	N/A
Vanguard Adapt	1.0.1	N/A

For the reasons outlined below, I recommend that this system be certified by the Texas Secretary of State under Tex. Elec. Code §§122.031 and 122.039.

Background

Hart previously received certification in Texas for the HVS voting system and the Verity voting system. The Vanguard 1.0 system is Hart's latest voting system, and the vendor's first system that was certified to the Voluntary Voting System Guidelines ("VVSG") 2.0 standard.

Other voting systems in Texas were certified to the VVSG 1.0 standard. The U.S. Election Assistance Commission ("EAC") adopted the VVSG 2.0 standard in 2022, and all new systems that are presented for certification at the federal level are now tested against the VVSG 2.0 standard, which includes several new requirements for the functionality and security of voting systems.

The Hart Vanguard 1.0 system was the first system certified by the EAC to the VVSG 2.0 standard. The Vanguard 1.0 system was certified by the EAC on July 7, 2025.

Summary of the Examination

The examination of Vanguard 1.0 took place on September 16-18, 2025.

On September 16, 2025, the exam began with the decryption of the trusted build from the hard drive provided to our office by the Voting System Test Laboratory ("VSTL"). The software and firmware for Vanguard 1.0 system was installed onto the voting devices and workstations from the files contained on the trusted build.

After completing the installation, we performed a hash validation on each piece of equipment using the procedures provided by the vendor. Two different methods of hash validation were performed on the system as described in the vendor's documentation. These two methods are described in more detail in my analysis below. The examiners compared the generated hashes from each device to the trusted hashes provided to our office by the EAC. That hash validation was successful.

On September 17, 2025, a logic and accuracy test and tabulation test of the system was performed by employees of the Secretary of State's office under the observation of the

examiners. The examiners reviewed the test script and expected results for the test before the test was conducted. The results of the test matched the expected results, and the test was successful.

On September 18, 2025, the vendor conducted their presentation of the Vanguard 1.0 system. Because this is a new system that had not been previously certified in Texas, the vendor explained each of the system components, the security features of the system, and the features that were designed to meet the requirements of specific aspects of the VVSG 2.0 standards.

After the vendor presentation, the examiners asked questions of the vendor regarding various components of the system, the security features of the system and the system's compliance with the legal requirements of Texas law.

Following the vendor presentation, the examiners conducted open-ended testing of the system to address specific questions about the system's functionality, security, and performance.

The examiners also conducted accessibility testing on each of the voting devices included with the system, and verified that those devices are in compliance with the accessibility requirements of Texas law.

My conclusions and observations about the system are outlined in more detail below.

Analysis

The standards for a voting system in Texas are outlined in Texas Election Code Chapter 122. Specifically, the system may only be certified for use in Texas if it satisfies each of an enumerated list of requirements contained in Texas Election Code §122.001. Because the system satisfies each of those requirements, I would recommend that this system be certified, subject to the conditions outlined below.

The Hart Vanguard 1.0 system is the first VVSG 2.0 system presented for certification in Texas. These new federal standards require systems to provide additional security features, additional functionality, and additional auditability and transparency features that go beyond the previous requirements outlined in VVSG 1.0. As the first iteration of the new generation of voting systems, the Hart Vanguard 1.0 system achieves these benchmarks well.

However, I have a few specific observations from the examination that are worth noting. Some of these items relate to recommendations for the Secretary of State's Office to consider as conditions on certification, some are recommendations to the vendor for future development of the system, and others are recommendations to jurisdictions that are considering acquiring this system on the ideal procedures for the use of this system.

Vanguard Adapt

The Vanguard Adapt system is designed to function as an all-in-one accessible voting device. The purpose of the device is to allow a voter with disabilities to be able to independently mark, review, and cast their ballot all within a single device and without requiring assistance. A voter makes their selections electronically on the device, which then prints a printed vote record of the voter's selections. The printed ballot is placed in front of the voter to review, and the voter is also given the opportunity to have the system read the selections on the ballot to the voter using the audio playback features. When the voter is satisfied with their printed selections, they can cast the ballot, which sends the ballot into a separate ballot box on the back of the unit. The ballot is stored in the ballot box in the order in which the ballots were cast, but the ballots are not scanned.

While Texas law does require voting systems to provide a mechanism for voters with disabilities to independently mark a secret ballot, there is currently no certified paper-based system that allows a voter to cast a ballot without needing to physically remove the paper ballot from the ballot marking device and insert it into a separate ballot box or scanner.

The development of this feature is important, and it is important that vendors continue to develop technology that provides greater privacy and independence to voters with disabilities. Voting systems be innovated in a way that provides all voters with an equal opportunity to experience the same rights and benefits at the polling place and in the voting process.

Unfortunately, the implementation of the process for casting a ballot on the Adapt presents legal compliance issues in the way that the voter's cast ballot is handled in situations where the voter is casting a provisional ballot or is spoiling a multipage ballot. These issues preclude me from recommending certification of this component without specific modifications to the operation of the device.

Under Texas law, when a voter casts a provisional ballot, the provisional ballot must be placed in a provisional ballot affidavit envelope, and it is not deposited directly into the same ballot box as other voted ballots. When a voter votes provisionally, the ballot must be delivered to the voter registrar for review, and then the early voting ballot board will determine whether the ballot may be accepted for counting or whether the law requires rejection of the ballot.

When the Adapt processes a provisional ballot, the ballot is deposited into the same ballot box as the regular ballots and is comingled with those regular ballots. With the current design of this device, it is not possible for a provisional ballot to be cast in the manner required by Texas law unless election officers opened the ballot box on the device to retrieve the provisional ballot and place it in its proper envelope every time that a provisional voter uses the device.

From a practical standpoint, this presents several difficulties during the early voting period. Early voting ballot boxes must have two locks on the ballot box containing voted ballots. Only one of the two keys is in the possession of the presiding officer at the polling location, while the

other key is in the possession of the custodian of keys designated by Election Code 66.060, which is typically the sheriff. From a practical standpoint, having the sheriff present at the polling location to open the ballot box every time a provisional ballot is cast is impractical for counties.

Due to the method of handling provisional ballots used by the Adapt, I cannot recommend this specific device for certification at this time. If the vendor were to develop a method of dealing with provisional ballots that did comply with Texas law, such as by outstacking the provisional ballot so that it can be retrieved and place in the appropriate envelope rather than placing it directly into the same ballot box as the regular voted ballots, then that would likely change my recommendation on the certification of the Adapt.

Another concern is the manner in which the Adapt handles a situation where the voter spoils the second page of a multipage ballot. When a voter spoils a ballot, the spoiled ballot should be returned to the election officer so that the spoiled ballot is not deposited into the ballot box and is stored in a separate locked container. If the voter properly spoils their ballot, then the voter can be issued a new ballot since the spoiled ballot was not cast.

On the Adapt device, the voter reviews each sheet of a multipage ballot individually. If the voter reviews the first sheet of their ballot, and determines that it is acceptable, then the first page would be cast and deposited into the ballot box. If the voter determines that the second sheet is unacceptable, and wishes to spoil the ballot, then that spoiled sheet is outstacked, but the first sheet would remain in the ballot box. The first page of the ballot would not be able to be retrieved and spoiled by the election worker without opening the ballot box. This presents similar practical concerns to what I described for provisional ballots above.

It is also worth noting that there are minor formatting differences between the printed vote record that is generated by the Adapt unit compared to the printed vote record that is generated by the Flex unit. Some of these distinctions are likely designed to help accommodate the Adapt's method of allowing voters to review their printed ballot on the device.

However, when ballots that are used by voters with disabilities are formatted differently from the ballots used by other voters in the polling place, it presents a greater risk that the ballot secrecy for those voters could be violated. As vendors develop additional accessibility features for voting systems, the design of those systems should account for the need to provide similarly formatted ballots for all voters to protect the secrecy of each voter's ballot.

The vendor should also consider developing a method for the ballots to be deposited in the ballot box in a non-sequential order. If the ballots are deposited into the ballot box in the same sequential order that the ballots are cast on the machine, then this also presents a potential ballot secrecy issue if the order of those ballots is the same as the order in which the voters voted on the device.

The general accessibility requirements of Texas law are addressed by the use of the Flex device, which provides accessibility features that allow a voter with disabilities to independently mark a secret ballot.

RLA Imprinter

Imprinters are components that are used with voting systems to print a unique identifier onto a ballot. Typically (and as implemented in the Vanguard system), the system will print the unique identifier on the ballot at the time that the ballot is scanned. The purpose of this process is to allow a unique identifier to be assigned to the ballot in a manner that allows the identifier to be stored in the cast vote record for that ballot, but does not allow the unique identifier to be associated with an individual voter.

By doing so, the unique identifier can be used for a risk-limiting audit ("RLA") that is conducted using ballot comparison. By linking a unique identifier on the printed ballot to a unique identifier stored in the cast vote record, an individual printed ballot can be compared to its corresponding cast vote record to verify that the system tabulated that specific ballot correctly.

Texas is currently piloting a statewide RLA program. While ballot comparison is not the method that will be used for this RLA pilot program, there is value in allowing voting systems to provide functionality that will facilitate additional methods of auditing. Imprinters can provide tools that allow these types of audits to be performed.

In my reports for other voting systems that have been considered for Texas certification, I recommended against the use of an imprinter for those specific systems. Those systems were certified under VVSG 1.0, which did not have specific standards relating to the use of imprinters or the areas of the ballot where the imprinter could print an RLA number.

Under VVSG 2.0, imprinters are optional, but there are specific standards in VVSG 2.0 that address some of the concerns that I had regarding the use of imprinters with VVSG 1.0. Specifically, in Section 9.1.5-G of the VVSG, if the system has a method for applying a unique identifier to a paper ballot for auditing purposes (i.e. an imprinter), then the system should do so in a way that only allows the unique identifier to be printed outside the bounds of the ballot selection area. Because this requirement is outlined in the VVSG and included in the federal testing process, it alleviates the concerns that I expressed with the usage of these devices under the prior standards in VVSG 1.0.

I would recommend that the use of imprinters be optional with this system in Texas. Ballot comparison audits are not part of the current design for the RLA process in Texas, but there is value in allowing the system to provide tools that can be used in the event that those procedures are adopted to allow local jurisdictions to perform additional audits to verify the accuracy of the system.

Hash Validation Methods

The Vanguard 1.0 system offers multiple methods of hash validation for each of the components used with the system. The system offers one method of hash validation that is performed using a validation tool on the devices and workstations, and another method of hash validation that is performed by manually extracting the system files from the storage devices on the system and performing the comparison directly.

Texas law requires a hash validation to be performed at multiple times throughout the jurisdiction's ownership of the system. The jurisdiction must compare a hash generated from their system components to the trusted hash that was created by the EAC during federal testing. After a jurisdiction first acquires a voting system, they must perform acceptance testing on each device that is included in the system, and that testing must include a hash validation. During the jurisdiction's Public Logic and Accuracy Test that is conducted for each election, the jurisdiction must also perform a hash validation on a representative sample of each type of device that will be used in the election.

For many jurisdictions, the system validation tool will likely be the most user-friendly method, as the system provides very clear direction on how to conduct the validation and it does not require extensive technical expertise or any disassembly of the system. The manual validation method is also an important validation method, though it requires greater technical knowledge and requires the CFAST card to be physically removed from the voting devices to perform the validation process. Both methods are sufficient for purposes of the hash validation requirements of Texas law. I would recommend that jurisdictions consider using some combination of the two methods throughout their ownership of the system.

The manual method of hash validation is generally not feasible on the workstations, however. The format of the file that contains the exported hash when using the manual method is not formatted in the same way as the trusted hash that is provided by the EAC. While the hashes themselves are identical, because the files are formatted differently, there is no way to do a comparison using a standard tool, and the only comparison that could be performed would be to visually compare each individual file hash between the trusted hash and generated hash. From a practical standpoint, this will not be feasible for most jurisdictions.

At the time of this report, the vendor has submitted ECO-1720 to the EAC for review and approval. This modification is designed to create documentation on the manual method of hash validation for workstations that would format the generated hash file in a way that allows for comparison using standard tools. This modification has not yet been approved by the EAC or reviewed by our office. Unless and until that modification is approved, I would recommend that jurisdictions use the system validation tool to perform a hash validation on the workstations.

System Documentation

In the course of the examination, the examiners made several recommendations relating to system documentation. Those recommendations were discussed with the vendor and with the EAC. I would like to highlight a few specific recommended documentation changes.

In the course of the examination, the vendor demonstrated a utility that is used to configure the workstations to assign unique serial numbers and client names for each workstation. The configuration utility was included on the trusted build provided by the VSTL, but the EAC's documentation did not specifically reference the utility in the Scope of Conformance or the VSTL's test lab report.

The EAC should include the configuration utility in their documentation as being tested as a part of the certified system. The EAC and the vendor both indicated that this utility was included in the federal testing process by the VSTL, and the utility itself was included on the trusted build provided by the VSTL, but the EAC should update their documentation to reflect that.

In addition, as I discussed in the section on Hash Validation above, the documentation for the manual method of hash validation on workstations should provide for the generated hash file to be formatted in a way that allows for comparison using standard tools. The vendor is already seeking approval of this modification in ECO-1720.

Conclusion and Recommendation

Because Vanguard 1.0 complies with the necessary requirements for a voting system under Texas law, I would recommend certification of this system, with a recommendation that the following condition be placed on the certification of this system:

- That the Vanguard Adapt device not be included as a certified system component in Texas unless the vendor receives approval for a modification that modifies the manner in which the device handles provisional ballots.