



State of Georgia

New Voting System

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GEORGIA AT THE FOREFRONT OF TECHNOLOGY

Georgia is known as a technological leader with a track record of attracting technically advanced companies. When it comes to voting system technology, Hart InterCivic leads with our all-new Verity® Voting system. Against a backdrop of other vendors' systems that still incorporate components that are as outdated as 10 years old, Verity is newly designed from the ground up. As the only system that was newly built and first federally certified by the Election Assistance Commission in 2015, Verity is the smart fiscal choice for Georgia.

Why is first certification in 2015 important? It is like buying a new car originally released in 2007 versus one introduced in 2015. Do you expect to get more features, security and longevity from the car new to the market in 2007 or the one that arrived in 2015?

By adopting a truly modern voting system, the State gains election technology that capitalizes on the latest security protocols, audit capabilities and usability standards. Designed as an all-inclusive platform, Verity provides a consistent interface across all hardware and software elements. This means learning the system is faster, using it is easier, and producing accurate results is more reliable.

The flexibility and capacity of the technologically advanced Verity platform best positions Georgia to address changing legislative requirements and evolving stakeholder expectations over the long term and guards against future budget constraints.

Not all Georgia counties' needs are the same. To meet the distinctive needs of each county, a one-size-fits-all approach will not work. We offer a flexible technology solution, flexible services and flexible pricing, enabling Georgia's new unified voting system to fit each county's configuration needs.

PROVEN ELECTIONS PARTNER

Customers choose Hart for the depth and breadth of elections know-how in our company, and for our secure, modern voting technology. Over the past six years, jurisdictions serving over seven million registered voters have selected Hart, including over three million registered voters who today use Hart's Verity Voting system.

Jurisdictions that have chosen to leave their former vendors to partner with Hart are satisfied with their choice. **A full 100% of customers who came to us from other vendors gave our service top rating in our 2017 customer satisfaction survey.**



Hart’s team is dedicated to continuing to provide our customers with exceptional service and technology in support of their successful elections.

Founded in 1912, Hart has been working side-by-side with election professionals for more than 100 years. We currently provide election solutions to more than 800 jurisdictions and serve as the statewide voting system solution provider for the State of Hawaii and the State of Oklahoma. We also provide full service voting solutions in a similar scale to two of the five largest counties in the United States, Harris County, Texas and Orange County, California. These large jurisdictions rely on Hart to manage complex, large scale voting systems and to conduct all the support services – training, repairs, Election Day assistance, and more – to sustain smooth ongoing election operations.

Georgia’s anticipated implementation of new voting system technology bears many similarities to Oklahoma’s successful adoption of a Hart system. Like Georgia, Oklahoma manages ballot production and election definition centrally. This longtime Hart customer appreciates our flexible service and support model, which is designed to empower our customers to operate independently while ensuring they have 24/7 access to expert support.

OPTIONS THAT MATCH GEORGIA’S VOTING METHODS

The State of Georgia is exploring future methods for in-person voting as well as other variables in moving to a truly modern, secure voting statewide system. Hart’s RFI response presents options that accommodate choices the State is considering. Each of these options includes the full Verity software suite – election management system, high-speed scanning/adjudication and tabulation/reporting, along with the Hart-integrated peripheral equipment needed. Regardless of the in-person voting method Georgia chooses, Hart has the voting system solution and expertise to assure the state of a successful transition.

3.6 QUESTIONS

1. Explain how your solution meets our needs for the following voting system components:

Election Management System

Ballot Marking Devices

Digital Scanners & Tabulators

High Speed Scanners and Tabulators

Statewide Electronic Pollbook System

Hart proposes to provide the State of Georgia with the Verity® Voting system, our highly efficient, cost-effective voting system that will instill confidence in voters and provide the State with secure, modern voting for years to come.

Verity Voting is the newest, easiest to use, and most versatile voting system on the market, delivered by Hart InterCivic, a proven partner with over 100 years of election experience. Verity provides a unified platform for the election management system, touchscreen ballot marking devices, digital scanners/tabulators and high-speed scanner/tabulators Georgia requires. The system integrates smoothly with most statewide electronic poll books.

Verity is a complete, next generation voting system. All system components work together with consistent, intuitive interfaces and common workflows. The quality of the experience for election officials is as seamless and efficient as for all voters.

Because Verity is all-new, with EAC certification, your buying decision is safe – your voting system will have a longer life and deliver more value. Verity provides modern security features and user-friendly software that break the old-fashioned mold of first-generation voting systems.

The State's elections team is proficient at managing elections in a centralized, coordinated manner. Hart's proven approach promotes vendor independence while ensuring ample support is available 24/7.

Regardless of the in-person voting method Georgia voters use, Verity meets the State's needs for the requested voting system components as follows.



ELECTION MANAGEMENT SYSTEM

Exceptionally easy to use, Verity's software suite streamlines election management. Intuitive, plain-language interfaces make it simple for elections staff to quickly get up to speed and efficiently run every aspect of every election. With a common look and feel across the entire system, the Verity software suite is holistic and integrated. With Verity, users create the election just once for all devices and all methods of voting – whether preparing for Election Day, early voting, central scanning, vote centers, or another scenario. No workarounds or duplicated effort are needed.

Ballot design/election data management. The election management system's ballot design/election data management element enables orderly management of all the data that goes into every election. Users save time because they can re-use polling location names and other repeated data from previous elections, and they can import data from outside sources. With Verity's centralized database, users enter election information just once for use by all devices, ballot styles, and elections.

Data imports, customizable ballot templates and a modern graphical interface make ballot layout easy and quick.

Election definition/deployment. The election management system's election definition/deployment element allows users to build the election once for all components – for any voting type. The State Entity will easily program, proof and print your own ballots – no vendor help is needed. Clear onscreen renderings let users preview ballots by precinct style and make corrections in real time.

With Verity's user-friendly interface, no programming skills are needed to define and deploy an election. The system provides options such as election type, ballot sizes, device settings and many others for deploying the election. Import of test deck marking patterns saves staff time for logic and accuracy testing.

Flexibility and ease of use offer choices. The State Entity is seeking efficiencies in the ballot production and election definition process. Verity's powerful data import capabilities, flexible deployment options and ease of use position the State Entity to manage the workflow in a variety of ways. These include allowing certain counties to conduct some or all of their own ballot production/election definition, assigning proofreading or media duplication tasks to local entities or allocating other tasks.

BALLOT MARKING DEVICES

Verity touchscreen ballot marking devices provide outstanding usability and accessibility at the polling place. After the voter uses the touchscreen or audio-tactile interface (ATI) to mark and review selections, the device prints a marked, full ballot from blank, non-proprietary stock.

This innovative hybrid of on-demand printing with the best electronic interface for accessibility means that no preprinted ballots are necessary, no ballots must be loaded into the machine, and only the ballots needed are printed, reducing waste. Most importantly, all voters use the same ballots, experiencing true equality of access. There are no segregated ballots, and no bottlenecks that can result in long lines at the polling place as can happen with “all-in-one” devices.

The Verity interface, consistent across all devices, is based on EAC/AIGA Design for Democracy styles, with a clean look and intuitive, plain-language instructions. Voters can quickly and easily switch between languages. For example, the voter can look at contests in English and switch to Spanish-language help.

Using Verity’s touchscreen ballot marking device in conjunction with the digital scanner/tabulator provides the voter with a complete, reviewable paper ballot that is accurately captured via scanning, reviewing, and acceptance for tabulation as the voter’s cast vote record.

DIGITAL SCANNERS AND TABULATORS

Lightweight and compact, consistent with all Verity devices, the digital scanner/tabulator is a vote capture solution for paper ballots. Georgia voters will appreciate the straightforward experience of casting their ballots using Verity. The system’s intuitive, plain-language touchscreen interface is based on EAC/AIGA Design for Democracy styles, making instructions and navigation easy to understand.

At the polling place, after marking a paper ballot, the voter feeds it directly into the Verity scanner/tabulator. After scanning, paper ballots are automatically deposited directly into the secure Verity ballot box.

The ballot image is stored as a cast vote record (CVR) on a Verity vDrive flash memory device that is later read by the Verity tabulation and reporting software. In addition, the digital scanner/tabulator can quickly tabulate results and print ballot count totals and summary or precinct-by-precinct reports on its built-in thermal printer, on COTS paper rolls.

HIGH SPEED SCANNERS AND TABULATORS

High-speed scanning/adjudication. The State of Georgia stands to gain significant efficiency in the high-speed scanning process using Verity's unique high-speed scanning and adjudication solution. With Verity, the high-speed scanning and the tabulation workstreams are separate. This means that, where allowed, jurisdictions can begin scanning absentee by mail ballots well before Election Day without the risk of prematurely tabulating results.

The Verity high-speed scanning/adjudication solution comprises a high-speed scanner and vote capture/ballot adjudication software. With our solution, users simply feed stacks of ballots, batched as desired, into the enterprise-grade, Hart-integrated COTS Canon scanner – the scanner we chose for Verity as the most efficient, reliable scanner for the price.

There is no need to pre-sort the ballots; Verity sorts them digitally, minimizing paper handling. Powerful filters enable users to quickly retrieve high-quality digital images of exactly the ballots needed, if needed.

Verity ballot adjudication features let election staff efficiently and accurately fulfill the responsibility to count each vote as the voter intended. Resolving voter intent issues with Verity is easy, precise, and transparent. Verity's flexible workflow lets users quickly auto-resolve groups of ballots by voter intent issue type or at the individual contest level for a detailed assessment of intent.

Users can choose to resolve write-ins within the high-speed scanning/adjudication application or defer them to the tabulation/reporting application without slowing down Election Night reporting.

It is easy to view, double-check, or audit the adjudication process. Color-coded flags indicate issues to be resolved, so ballot review board members can easily observe the adjudication process. Verity's extraordinary filtering capabilities enable team members to quickly zero in on the exact ballot or collection of ballot images needed for a quality assurance check, recount, or other task. Every action taken in Verity is tracked in a plain-language audit log, and you can view each ballot image in its annotated or original form. Verity provides full support for risk-limiting audits.

Tabulation/reporting. Sharing the same intuitive user interface as all Verity software applications, the tabulation/reporting solution tabulates cast vote records captured via the in-person scanning/tabulation devices in the polling place or the high-speed scanner and stored on flash memory modules.

This software application also provides reporting capabilities for a wide variety of system information gathered from other voting system components, including audit log from all devices including the ballot marking devices (which do not store votes but do capture auditing data).

Once the flash memory modules have been read and tabulated, the tabulation/reporting solution can produce a variety of standard and customized reports. The application can be used in conjunction with, and as a supplement to, polling place reporting of precinct results, and as an additional consolidation and auditing tool. It provides intuitive, attractive, easy-to-use dashboards to monitor progress on Election Night, or to perform post-election audits, in a highly filterable way.

With Verity, the State of Georgia will have access to an unprecedented number of standard and customized reports, enhancing the State's ability to oversee election operations across all counties.

STATEWIDE ELECTRONIC POLLBOOK SYSTEM

As the State Entity considers options for a statewide electronic pollbook system, Hart offers the assurance that our flexible Verity system integrates with nearly every electronic pollbook on the market. While we are resellers in many states for the acclaimed KNOWiNK Poll Pad, we have worked successfully with many electronic pollbook vendors.

2. Describe how your solution would accommodate each of the proposed methods of in-person voting described in Section 3.4. Discuss the pros and cons of each method as it relates to your solution.

As the State considers which voting system solution best serves Georgia's voters and other election stakeholders, it is important to evaluate the in-person voting experience. Regardless of the in-person voting method the State selects, Hart offers a Verity configuration that supports that voter experience.

Implementing a new voting system will be a significant change for Georgia election managers, voters and others. Based on Hart's extensive change management experience, gained through implementing voting systems for large jurisdictions across the U.S., we help minimize risk by:

- Offering a solution set that is tailored to your unique needs and provides exactly what is required without causing unneeded changes.
- Using an established process that has been tested and improved over thousands of implementations. Tools and libraries smooth the change process.

- Conducting a thorough business process analysis (BPA) that starts with listening to understand current processes, stakeholder roles, needs and intended outcomes.
- Providing training that ensures knowledge transfer, builds confidence and optimizes learner independence - and for leaders, training that explicitly addresses change management.
- Delivering ongoing support in a way that encourages vendor independence while providing responsive assistance when needed.

METHOD 1

For Method 1, voters hand-mark paper ballots for early and election day voting. Alternatively, voters can choose to mark ballots using Verity's accessible touchscreen ballot marking device; then print them. Voters cast their ballots by inserting them in the Verity scanner/tabulator, which captures the cast vote records and deposits the ballots into a secure ballot box.

Hart offers a cost-effective, laborsaving solution for Method 1 voting. In addition to our secure, easy to use Verity digital scanner/tabulator and touchscreen ballot marking device, we recommend the use of our innovative on-demand ballot-printing solution. Purpose-built for printing ballots as needed, our solution is easy to learn and easy to use, with the same simple, plain-language interface as all other components of the Verity Voting system. There are no per-click charges, and no proprietary paper is required. We also offer an optional barcode scanner that automates the selection of the right ballot using electronic poll book ballot style reports.

The ability to easily print ballots of any style, as needed, saves on guesswork and ensures voters receive the correct ballot during early voting. Even on election day, the addition of on-demand ballot printing capabilities at the polling place is a plus.

Pros - Method 1

- Significantly lower cost for State to acquire
- Lower cost and effort for warehousing, maintaining and deploying equipment
- Lower ongoing licensing cost

- Hand-marked ballots viewed by many election stakeholders as the most trusted method of voting (voter selections never tabulated from a bar code or QR code)
- Efficient tabulation and transparent, human-readable ballots for audits and recounts
- Fast voting without long lines at the polling places because voters do not have to wait for an available touchscreen ballot marking device
- Modern on-demand ballot printing streamlines early voting process and insures against running out of ballots on election day
- All voters (absentee, early, election day) vote on identical ballots whether hand marking or using a touchscreen ballot marking device

Cons - Method 1

- Preprinting of ballots for election day can require overprinting and added paper expense
- Voting devices must effectively alert voters to potential mismarks
- Voter education and outreach required for new voting method

METHOD 2

In Method 2, all voters mark their ballot choices using the intuitive touchscreen Verity ballot marking device exclusively, for early and election day voting. This device provides a full array of accessibility features. Voters cast their printed, marked ballots by inserting them in the Verity scanner/tabulator, which captures the cast vote records and deposits the ballots into a secure ballot box.

Pros - Method 2

- No paper waste by the overprinting of ballots due to voters printing individual marked ballots
- Ability to present any ballot efficiently on the device for each voter, regardless of voter's precinct
- Some voters may prefer familiarity of marking the ballot using a touchscreen

Cons – Method 2

- Significantly higher cost for State to acquire
- Significantly more upfront expense and effort for warehousing, maintaining and deploying equipment
- Higher ongoing licensing cost
- Machine marked ballots may be questioned for accuracy if the selections are captured in a bar code or QR code
- Possible long lines at the polling places as voters wait for available ballot marking devices
- Voter education and outreach required for new voting method

METHOD 3

Method 3 employs touchscreen ballot marking devices for all voters during absentee in-person (early) voting and hand-marked paper ballots with a single accessible ballot marking device as needed for election day voting. As with Methods 1 and 2, voters cast their ballots by inserting them in the Verity scanner/tabulator, which captures the cast vote records and deposits the ballots into a secure ballot box.

While Hart’s versatile Verity system can accommodate Method 3, Hart believes it is not the most favorable approach. Managing separate voting methods – touchscreen for early voting and hand-marked paper for election day – introduces complexities in voter, staff and poll worker training. The State can avoid these challenges by adopting a more modern approach such as those defined for Method 1 or Method 2. Verity’s ability to print ballots on demand efficiently and cost-effectively in the polling place replaces the need to have numerous touchscreen ballot marking devices for voters to cast ballots across all precincts and ballot styles.

This third method carries with it both the pros and cons of Method 2 for early voting and the pros and cons of Method 1 for election day.

3. Describe the paper stocks associated with your proposed solution. What are its storage requirements in regards to climate and space?

Hart recommends 28#/70# bond paper composed of virgin wood fiber with no recycled content for Verity ballots. This durable, document-quality paper is widely available in standard sizes in the commercial-off-the-shelf marketplace.

We offer Hart Official Ballot Paper to assure our customers of consistent ballot printing and tabulation results. We share full specifications for that paper with customers or printers who choose to purchase stock commercially.

The following additional specifications apply to the type and composition of the recommended paper:

- Weight: 70#
- Grain: Short
- Finish: Smooth Xerography
- Sheffield: 100-120
- Brightness: 91-94
- Florescent level: 4%
- Moisture content: 4.5%
- Packaging: Moisture resistant ream wrap
- Tolerance for trim and squareness: +/- 0.025"
- Ink: Any industry-standard black toner

For retaining optimum ballot stock performance, we recommend the following storage conditions:

- Store paper in a location that is raised off the floor.
- Store paper at a temperature of 68°F/20°C to 76°F/24.4°C and a relative humidity of 35 to 55 percent.
- Keep paper in its original containers until ready for use.
- Stack cartons no more than five high; stack pallets no more than three high.

4. Please provide a number of scanners and ballot-marking devices that Georgia would need for each proposed method of in-person voting described in Section 3.4, keeping in mind that currently voters are allowed to vote at any early voting location in the county during absentee in-person voting.

For Georgia's budget planning purposes, Hart's RFI response includes the following number of scanner/tabulators and touchscreen ballot marking devices. We will work with the State as needed to refine equipment counts, ensuring that each Georgia county has the appropriate number of devices.

Method 1. 2,500 scanners; 2,500 ballot-marking devices (also includes 2,500 on-demand ballot printing devices)

Method 2. 2,500 scanners; 20,000 ballot-marking devices

Method 3. Not recommended

5. Depending on the method of in-person voting described in Section 3.4 that Georgia adopts, it may have a need for ballot-on-demand printing capability. Please describe your solution to our potential need for ballot-on-demand printing.

During early voting, being able to print ballots as needed is essential to efficient polling place operations and voter-friendly service. On-demand ballot printing eliminates the risk of under- or over-estimating the number of ballots required, and it allows election workers to provide each voter with the correct ballot, regardless of the voter's precinct.

Hart offers an innovative on-demand ballot printing solution designed for ease of use in the polling place, precinct or elections office. Purpose-built for printing ballots as needed, our solution is easy to learn and easy to use, with the same simple, plain-language interface as all other components of the Verity Voting system.

We also offer an optional barcode scanner that automates the selection of the right ballot using electronic poll book ballot style reports.

With Verity, ballots are printed on non-proprietary paper, and there are no per-ballot "click charges." Compact and lightweight, the Verity on-demand ballot printing solution is easy and inexpensive to transport and store.

6. Explain how your solution meets each of the basic requirements in Section 3.5.

- An election management system, digital scanners and tabulators, and ballot-marking devices must be certified by the Election Assistance Commission to satisfy – at the minimum – the VVSG 1.0 standard.

Yes; Hart's Verity system is certified by the Election Assistance Commission to meet the VVSG 1.0 standard. The system, newly designed from the ground up, was certified as a unified suite of components including the election management system, digital scanner/tabulator, touchscreen ballot marking device, on-demand printing solution, high-speed scanning solution and tabulation/reporting software.

- Solution must have been deployed successfully in another state.

Yes; certified in 12 states, Verity is the voting system of choice for 87 jurisdictions across nine states.

- **Solution must have functionality to quickly and accurately audit voting records.**

Yes; Verity provides comprehensive, built-in auditing capabilities. Users can quickly and accurately audit voting records and can conduct risk-limiting audits.

Throughout all phases of operation, all Verity system components maintain complete audit logs. Every Verity device and application logs all user authorization/authentication, data entry, user interaction, and system events. Election managers can print or export audit logs from each device and application. Not every vendor's solutions include this comprehensive, built-in auditing capability.

Verity's tabulation/reporting software provides intuitive, easy to use dashboards to perform post-election audits, in a highly filterable way.

Referencing between the paper ballot and its digital image allows for post-election audits, including risk-limiting audits. By maintaining linkages between the cast vote record, the ballot image, and the ballot, Verity supports such audits. With Verity, auditors can compare the cast vote record that was tabulated with the original ballot.

Verity provides powerful filtering options to allow users to examine any subset of cast vote records they choose, so that the audit is truly independent of the voting system. Verity filters can be applied across the system to examine the cast vote records in your selected sample, run a tabulation report of just the votes in your selected sample, and view ballot images only from your selected sample.

- **Solution must support overlapping and concurrent elections.**

Yes. Verity supports all types of contest and measure elections, including statewide primary/general elections, presidential primary elections, and recall elections. The State will be able to manage multiple elections simultaneously with the reassurance that the right election is on the voting system and that the right ballot is scanned. Verity handles multiple elections by using multiple databases, and each database only accepts ballots from that database.

- **Solution must have write-in candidate capability.**

Yes; Verity provides write-in candidate capability, including true on-screen adjudication of write-ins, speeding resolution and helping ensure accurate interpretation of voter intent.

At the polling place, when the voter makes any mark in the designated write-in area, the digital scanner/tabulator software electronically "captures" that ballot as needing adjudication. (The ballot is not physically diverted).

When polls close, poll workers can use the built-in thermal printer to print the Write-In report, which shows an image of the Write-In area of every ballot that needs adjudication. Write-In reports can show write-ins sorted by contest. If required, poll workers manually tally votes for each write-in before they leave the polling place and deliver cast vote records to the tabulation/reporting software.

With Verity, election officials also have the option to resolve write-ins using the high-speed scanning/adjudication solution or the tabulation/reporting software.

- **Solution must incorporate encryption and digital signatures as security measures.**

Yes; Verity's unique architecture provides the reassurance of NIST/VVSG-compliant cryptographic modules, while maintaining human readability of cast vote records, for auditability. Verity security measures optimize the use of encryption and digital signatures to protect from modification all election data, cast vote records and audit logs on physical media.

With the Verity Voting system, all data for export or transport on removable media has a secure digital signature. All imported or transported data received by Verity applications can be used only after successful verification of the digital signatures.

Data transmissions via network communication between workstations are encrypted.

7. **Describe how your proposed solution provides unofficial results on Election Night at the polling place.**

Hart's Verity digital scanner/tabulator tabulates unofficial results on Election Night after polls close at the polling place. The scanner/tabulator prints tabulated results from its built-in thermal printer, using COTS paper rolls.

While the digital scanner/tabulator retains all cast vote records in redundant locations, it does not store tabulated results but instead stores cast vote records and tabulates those records each time reports are generated from the device. Unofficial results reports include:

- Precinct Totals Report (at close of polls)
- Tally Summary Report
- Write-In Report

Customization options for these reports include the following:

Typically, cast vote records are tabulated in Verity Count for official reporting purposes. The cast vote records are securely transferred to Verity Count using portable media devices, vDrives.

Customizable options for the printed results tape the scanner/tabulator produces include:

- Summary format or By-Precinct Results
- Sort within a contest by original ballot order or sort by winners
- Settings can also be applied differently for Zero Report, Ballot Count Report, and Tally Report

Hart was the first voting system provider to use digital image capture, and Verity is Hart's second-generation system that uses this technology. Our digital scanner/tabulator captures images of the complete ballot and can accept multiple ballot styles and tabulate results on a precinct-specific basis. Other vendors use older technologies that are slower, cannot handle multiple ballot styles, and are not backed by Hart's depth of experience with digital scanning.

8. Describe how your proposed solution transfers data collected from Ballot Marking Devices, Digital Scanners, High Speed Scanners, and Tabulators to the Election Management System and vice versa.

Authorized Verity users transfer election definition data from the election management system to the touchscreen ballot marking devices, digital scanners, on-demand ballot printers and high-speed scanners using Verity portable flash memory drives. These same portable drives are used to transfer audit log and cast vote record data collected from the ballot marking devices, digital scanners, on-demand ballot printers and high-speed scanners to the tabulation/reporting software.

- a. Include a description of the essential peripherals that are used in the data transfer process (i.e. flash drives, memory cards, and other items that will have to be replaced periodically). Are these items proprietary and are replacements purchased directly from the vendor or are they commercially available?

Verity's portable flash memory drives store the definition for each election for deployment to all devices. These memory drives are also used to securely transfer cast vote records and audit logs to the tabulation/reporting software workstation. For security and federal certification reasons, these peripherals are proprietary and must be purchased directly from Hart.

9. Does your solution include Election Night Reporting capabilities? If so, please describe your Election Night Reporting solution, including security features.

Verity provides user-friendly, flexible ad hoc reports for Election Night Reporting. The system's tabulation/reporting software provides a wide variety of standard reports for reporting results, as well as a long list of filters you can use to create reports that include precisely the information you need. Customized reports from within the Verity application interface require no professional data processing assistance or the use of an external tool or report writer.

To distribute results reports to outside entities, users can export reports in PDF, CSV and XLSX formats. In addition, the system can produce Cumulative, Canvassing, and Precinct results reports in HTML format.

Users can run reports at any time and printed directly to a connected commercial-off-the-shelf desktop printer or exported to PDF to be printed or archived later. Security is protected, because the tabulation/reporting workstation is not connected to the internet or any outside network.

10. Georgia plans to begin using the new voting system by the 2020 Presidential Preference Primary, which was last held in March. Please provide an approximate timeline to implement your proposed solution.

Using our proven implementation methodology, Hart's experienced Professional Services team will use a phased approach to smoothly transition Georgia's State Entity and each of Georgia's 159 counties to the modern, secure Verity system within the timeframe the State requires.

We understand this procurement involves many factors and many interested parties. The vendor chosen must have the agility to respond promptly as needs evolve. Hart is that vendor, as proven in our statewide voting system implementations for Oklahoma and Hawaii, as well as numerous other large-scale system deployments such as those for Orange County, California; Harris County, Texas. Last year, Hart implemented Verity for 11 Michigan counties – jurisdictions that selected us for our direct partnership service approach and advanced technology.

Built on the Project Management Institute (PMI) framework, our project management approach is proven to get jurisdictions up and running quickly with up-to-date election technology, while mitigating the risks inherent in any change.

Hart recognizes that no two implementations are alike. That is why Georgia's Verity implementation will begin with a business process analysis – a careful assessment of existing workflows and thorough planning to optimize the benefits of the new

system. Our highly qualified implementation team will work closely with the Georgia project team to learn what works well throughout each phase of your current election lifecycle and where there are opportunities to improve processes. Based on what we learn, we will tailor the Verity rollout to reduce risks and enhance the effectiveness of the new system and processes.

Hart's election-savvy team includes professionals with CERA, CERV and PMP certifications; also training specialists with formal education in instructional design.

High-level implementation activities and milestones include:

- Contract start
- Business process analysis
- Equipment delivery
- State-level training
- Regional training for counties
- Voter Education and outreach
- Election activities (election definition, ballot creation, early voting, election day)
- Project close

As the State advances further through the procurement process, Hart will refine our proposed approach for Georgia. Considerations that affect the implementation timeline include staged deliveries, staged phases, consolidation of activities centrally or within regions and other factors.

11. Georgia has a fairly centralized election creation process where the state builds the ballots for the counties. How does your election management system work efficiently in this state-centered model? Describe how your proposed solution transfers election data and ballot information created at a state level to local jurisdictions for execution, including security features.

The State can use the ballot design/election data management element of Verity's election management system to centrally create and manage elections for all of Georgia's 159 counties. Users create each election definition only once for each election, streamlining the process.

There are several options for the State to distribute election data sets and media to the individual counties. Regardless of the method chosen, all data is secured by password protection, user permission-levels, two-factor authentication and digital signatures. The flexibility in this design allows the State to determine the best

method of distribution, be it through secure data transfer or delivering media that is ready for voting devices. This method can vary based on the needs of individual counties or can be standardized statewide.

12. Describe the security features of your proposed solution including, but not limited to, cyber security; physical security; and data integrity verification and validation.

In designing a new system from the ground up, rather than building around old existing components, Hart was able to capitalize on the latest security protocols and features for Verity. The system presents a strong profile through a defense-in-depth, or layered, security architecture.

For security reasons, we do not publish complete details of Verity security features. The following is a high-level overview of Verity security highlights:

- Verity is in no way connected to: Internet, any intranet or in-office networks, voter rolls/registration, voter personal data, campaign/donor information, party/campaign volunteer information or schedules, Voter communications regarding times/locations for early or Election Day voting, or email systems.
- Verity software cannot be remotely accessed by Hart or anyone else, including remote access for troubleshooting (no remote desktop).
- Cast vote record data is digitally signed using NIST-compliant FIPS 140-2 cryptographic modules.
- Multiple redundant data backups ensure that any malicious data manipulation would be detected by comparing data sets during an audit (e.g., compare paper ballots to electronic cast vote records).
- Application whitelisting prevents unauthorized computer programs or code from being executed on voting devices and on computers that run Verity software. (Whitelisting is a more stringent anti-virus approach that looks at what IS allowed to run on the system, compared to traditional anti-virus applications that looks at what is NOT allowed to run on the system.)
- Systems running Hart's voting system software operate in "kiosk" mode, which means the user can only access those functions required by the software. This prevents user access to the operating system and prevents installation of any unauthorized programs or files onto the system. The system is "locked down" to prevent intentional or accidental misuse by the operator.
- On Verity voting devices, external cards, drives, cables or other devices cannot be inserted by voters.

- Multiple keyed locks restrict access to voting devices and memory devices.
- Devices are designed for use with tamper-evident seals.
- Devices use non-standard electrical wiring in strategic areas.
- Two-factor authentication is used to secure access to critical election management functions.
- Every application and device thoroughly logs all user authentication, data entry, user interaction, and system events. Election managers can print or export plain language audit logs from each application, using easy-to-use report filtering to access the precise information to be audited.
- Hart supports the most rigorous post-election audits, including risk-limiting audits. Audit features allow election officials to maintain and access a detailed electronic record of all activities that occur related to the system, as well as the ability to review cast vote data to verify the results and detect any errors. Auditing is not only a big part of election security and verification of results but is also instrumental in the ability to detect attempted data manipulation. We believe that every state should have mandatory and consistent audit requirements and that audits should be conducted for every election. Audits help to provide voter confidence in the electoral process.

13. Describe the accessibility features of your proposed solution for voters with disabilities.

To thrive, a democracy must hear all voters' voices. That's why voting system accessibility has long been a priority for Austin-based Hart InterCivic. With Verity, all voters, regardless of ability, can vote privately and independently to ensure their voices are heard. Verity features that ensure equal access for everyone include:

- **No segregated ballots.** All voters cast the same type of ballot
- **Controls within reach.** All parts of the accessible voting station are positioned to allow comfortable wheelchair access.
- **Audio ballots.** Voters can choose to listen to ballot choices and instructions using attached headphones.
- **Tactile navigation.** MOVE, SELECT, and HELP features have unique shapes, colors and tactile edges, as well as Braille labels.
- **Adaptive device compatibility.** Voters can use adaptive tools such as jelly switches and sip-and-puff devices.



14. Have any third party groups vetted the accessibility and/or security features of your proposed solution? If so, please provide their assessments.

Yes; in addition to third-party vetting inherent in the certification process at the federal and state levels, Hart engaged Bulletproof Solutions, a global IT security leader, to conduct a Threat and Risk Assessment of our Verity Voting platform. The objective of the assessment was to evaluate the Verity Voting platform's overall defense-in-depth security architecture, and to identify and mitigate any residual security risks. Hart commissioned this assessment as part of our ongoing focus on election security.

In conducting the assessment, Bulletproof Solutions consulted a variety of applicable guidelines and standards, including those from the U.S. Election Assistance Commission (EAC), as well as other resources. In executing the assessment, the Bulletproof team worked with Hart personnel to gain an in-depth understanding of the processes and technology deployed as part of the Verity Voting platform.

The following are excerpts of the report Bulletproof Solutions provided to Hart upon completion of the Threat and Risk Assessment. While the results of the assessment were highly favorable, the report is confidential. Hart is willing to share the full report with the Georgia Secretary of State's office upon a separate request.

2 SCOPE

Bulletproof was engaged to perform a Threat and Risk Assessment of the Verity Voting platform. The onsite interviews were held at the SLI Government Solutions office in Denver with Hart InterCivic staff. The system components that were in-scope to be assessed are as follow:

- Verity Central client/server
- Verity Count client/server
- Verity Data/Build client/server
- Verity Controller
- Verity Print
- Verity Scan
- Verity Touch
- Verity Touch Writer

3 APPROACH AND METHODOLOGY

Bulletproof employed industry-standard threat and risk modeling methodologies as a guideline for the collection and analysis of relevant data to determine risk levels and recommend the most appropriate safeguards, where necessary. Bulletproof used the following approach to deliver this engagement.

Step 1 – Identify and Characterize the System and Data of Interest

The first step was to identify and characterize the system and data of interest. The Bulletproof assessors used the assets defined in the scope for the engagement to set the boundaries of the TRA. Using the assets and boundaries, the assessors identified the system components and data in scope of the TRA.

Hart InterCivic personnel provided the overview of the system and relevant documentation for Bulletproof to understand the system operation. Through analysis and interviews, the assessors identified the types of inputs and outputs of data in the Verity Voting platform. Once the data was identified, Bulletproof worked to understand the storage location of data and the methods of transmission within the system. This analysis framed the system in a way that enabled assessors to comprehend the boundaries and authorized areas for the data and the people and processes authorized to access the data.

Step 2 – Identifying and Selecting the Attack Vectors

The second step involved identifying the potential attack vectors to the system and the data. The Bulletproof team brainstormed on potential attack vectors utilizing the analysis from Step 1 and referencing the *Center for Internet Security (CIS)[®] Handbook for Elections Infrastructure Security*. The CIS[®] Handbook lists predefined threats and risks for the different components of Election Infrastructure and Bulletproof used those as an input to this process. The attack vectors identified by the Bulletproof assessment were analyzed and a subset of attack vectors were captured.

Step 3 – Identification of Security Controls for Risk Mitigation

The Bulletproof team identified and documented Security Controls that mitigate the risks associated with the Attack Vectors identified in Step 2. The Security Controls were limited to the scope of the Verity Voting platform.

The Security Controls were reviewed against the respective Attack Vectors to determine the effectiveness of the control in mitigating the risk. This review allowed the team to identify effectiveness of the control and rank it on a scale from low to complex. The ranking is dependent on the level of mitigation provided, amount of Attack Vectors addressed and the complexity and cost of the control.

Step 4 - Analyze the Threat Model

The Bulletproof team assembled the data from the previous steps as input to the Threat Model. The Threat Modelling allowed the team to evaluate the effectiveness of the controls against the Attack Vectors. This assessment determines if a control should be applied to mitigate risk and if the mitigation outweighs the benefit. The mitigations can have impacts relating to cost, system impact and usability and were taken into consideration in the Threat Modelling exercise. The analysis produced a list of Attack Vectors that were not mitigated by the Security Controls implemented by Hart in the Verity Voting platform, which resulted in a list of residual risks.

Final Report and Recommendations

The aim of this final phase was to report on the many potential attack vectors that are currently mitigated by security controls already in place in Verity, as well as the residual risks as defined by the output of the TRA. The report is based on the Threat and Risk Assessment Methodology and Bulletproof's expertise delivering Cybersecurity services. The report includes recommendations to mitigate the identified residual risks.

4 SOLUTION OVERVIEW

The following section provides an overview of the Hart InterCivic Verity Voting platform upon which the TRA was performed.

4.1 SYSTEM OVERVIEW & DATA FLOW

In alignment with the *CIS® Elections Infrastructure Security Handbook*, Bulletproof divided the Verity Voting platform into three categories: Election Management System, Vote Capture and Vote Tabulation. The classification allowed for the mapping of the Threats and Risks from the *CIS® Handbook* to Hart's Verity Voting platform. Refer to Figure 1 for an illustration of the data flows between each of the system components described in the sections below.

7 CONCLUSION

Bulletproof provided Hart with a team consisting of senior information security resources with twenty plus years of combined information security experience. Using the knowledge attained from numerous industry leading certifications and information security training, in addition to extensive experience delivering similar assessments, the Bulletproof team analyzed and assessed the Verity Voting platform to report on residual risks. It is apparent that Hart utilized a risk-based development process during the ground-up development of its new Verity Voting platform. In conclusion, through the TRA process Bulletproof found:

- 1) The Verity Voting platform adequately mitigates the risk of known threats.
- 2) Verity Voting currently includes strong safeguards to mitigate known exploits.
- 3) Hart InterCivic has taken adequate steps to employ a risk-based development process, and to continually identify risks and mitigate them throughout the product lifecycle.
- 4) During the Verity development process Hart InterCivic identified and evaluated significant areas of risk, and Hart implemented appropriate security controls in the Verity platform.
- 5) Verity Voting maintains a balance of security and usability that meets the requirements of election staff and voters using the system and the governmental requirement to maintain the integrity of the election administration process within the scope of Hart InterCivic's control.

8 APPENDIX

8.1 STAFF INTERVIEWED

The following Hart InterCivic and SLI employees participated in discussions regarding the current development environment, along with existing and planned information security controls.

Organizational Role
Sr. Regulatory Compliance Engineer – Hart InterCivic
Certification Manager – Hart InterCivic
VP Operations – Hart InterCivic
VP Engineering – Hart InterCivic
IT Manager – Security Tester – SLI

8.2 PROJECT DOCUMENTATION REVIEWED

- Verity Voting 2.0 Technical Data Package (TDP) Initial Delivery documentation.

8.3 EXTERNAL REFERENCES CONSULTED

[1] B. Calkin, K. Coleman, B. de Valance, T. Duffy, C. Dukes, M. Garcia, J. Gilligan, P. Harrington, C. Hymel, P. Langlois, A. Montville, T. Sager, B. Spear, R. Suver, *Center for Internet Security A Handbook for Elections Infrastructure Security Version 1.0*, February 2018. <https://www.cisecurity.org/elections-resources/>

[2] B. G. Thompson, R. Brady, Rep. Z. Lofgren, Rep. J. R. Langevin, Rep. C. L. Richmond, Rep. V. Demings, *Congressional Task Force on Election Security Final Report*, January 2018. <https://democrats-homeland.house.gov/sites/democrats.house.gov/files/documents/TFESReport.pdf>

[3] TGDC Committee, U.S. Election Assistance Commission, *Voluntary Voting System Guidelines (VMSG) Volume 1 Voting System Performance Guidelines, Version 1.1*, March 2015. <https://www.eac.gov/assets/1/28/VMSG.1.1.VOL.1.FINAL1.pdf>

[4] TGDC Committee, U.S. Election Assistance Commission, *Voluntary Voting System Guidelines (VMSG) Volume 2 National Certification Testing guidelines, Version 1.1*, March 2015. <https://www.eac.gov/assets/1/28/VMSG.1.1.VOL.2.FINAL.pdf>

[5] TGDC Committee, U.S. Election Assistance Commission, *Voluntary Voting System Guidelines (VMSG) v2.0 Draft*. https://www.eac.gov/assets/1/6/TGDC_Recommended_VMSG2.0_P_Gs.pdf

[6] M. Blaze, J. Braun, H. Hursti, J. L. Hall, M. MacAlpine, J. Moss, DEF CON 25 Voting Machine Hacking Village, *Report on Cyber Vulnerabilities in U.S. Election Equipment, Databases, and Infrastructure*, September 2017. <https://www.defcon.org/images/defcon-25/DEF%20CON%2025%20voting%20village%20report.pdf>

[7] Joint Task Force Transformation Initiative, National Institute of Standards and Technology (NIST) Special Publication (SP) 800-30 Revision 1, *Guide for Conducting Risk Assessments*, September 2012. <https://nvlpubs.nist.gov/nistpubs/Legacy/SP/nistspecialpublication800-30r1.pdf>

[8] M. Souppayqa, K. Scarfone, National Institute of Standards and Technology (NIST) Draft Special Publication 800-154, *Guide to data-Centric System threat Modeling*, March 2016. https://csrc.nist.gov/CSRC/media/Publications/sp/800-154/draft/documents/sp800_154_draft.pdf

[9] Brennan Center Task force on Voting System Security, *The Machinery of Democracy: Protecting Elections in an Electronic World*, 2006. <https://www.brennancenter.org/sites/default/files/publications/Machinery%20of%20Democracy.pdf>

15. Does your solution include decommissioning of the existing voting system, including DREs, optical scanners, and electronic pollbooks? If so, please describe your decommissioning process.

Yes; Hart will decommission the State’s existing voting system, including DREs, optical scanners and electronic pollbooks. We follow an established process to properly decommission your equipment.

Hart uses only suppliers that follow the R2:2013 Certified Environmental Recycling Process for recycling and disposal of electronic waste. This ensures that all end-of-life material is properly disposed of by approved, certified downstream partners using the correct environmental processes to safeguard the environment. This environmental program includes certifications with R2:2013 (Responsible Recycling) and ISO 14001:2015.

If required, Hart provides a Certificate of Destruction. Delivered at the end of the decommissioning process, the Certificate itemizes how many pounds of each material is scrapped and recycled.

16. Provide a recommendation for a training plan that takes into account all stakeholders, which includes – at the minimum – state users, county election officials, voters, and voter advocacy entities.

Hart’s training program, designed by professional educators, enables all stakeholders to quickly and easily make the transition to the easy-to-use, easy-to-learn Verity system. Our training is based on a leadership strategy that comes from the adult education background.

Stakeholders in some of the largest voting jurisdictions in the United States have come up to speed quickly through our proven training approach and using our clear, concise voter education and outreach materials.

Regardless of the audience – state users, county election officials, voters and voter advocacy entities – our effective curriculum and materials are designed around the following objectives:

- **Task-orientation.** Our curriculum is designed in modules that reflect specific tasks commonly encountered during pre-election ballot programming; testing; equipment preparation, deployment and setup; and tabulation and reporting of election results. Our step-by-step procedures support specific tasks required to use the Verity Voting system successfully and efficiently.

- **Hands-on methods.** Our courses are designed to optimize hands-on training methods; each module of training includes hands-on exercises.
- **Development of skills.** Instead of “telling,” we train. In other words, we teach skills and we test that learners have achieved a basic facility with them. Retention of information and mastery of skills, which are key objectives of our training methodology, require a level of attention and care that goes beyond merely “telling.”
- **High activity level.** Our training curriculum is active, with a mixture of “classroom lecture” and “hands-on lab.” A variety of activities ensures that trainees remain engaged.
- **Repetition and practice.** Our training includes a separate simulation section during which trainees practice and review skills at their own pace. Written reviews are available as well.
- **Simulation of real-world procedures.** While training manuals are valuable resources, we are committed to training step-by-step procedures with materials, paperwork, and forms identical to those that will be used during real-world election operations. By gaining exposure to actual paperwork and procedures, elections staff, technical troubleshooters, and poll workers can feel more comfortable with the Verity Voting system and the associated Georgia elections-specific documentation.

Training courses include operations manuals, training manuals, and a variety of other media, including graphic presentations. All these are designed with a single objective: to help trainees achieve proficiency and self-sufficiency in the tasks required to conduct a smooth, successful election with the easy-to-use Verity system. Georgia voters will appreciate the illustrated, step-by-step instructions provided for casting their ballots on the easy-to-use Verity system.

Hart recommends a regional training approach for the Georgia Verity implementation. This approach has proven successful in our statewide voting system rollout for the State of Oklahoma and other large-scale implementations such as our recent 11-county implementation in Michigan. We will work with the State of Georgia to determine and refine the approach that best serves Verity users at the State Entity and county levels.

During the Planning phase of implementation, Hart’s program manager will work with State Entity leadership to refine the plan for training, tailoring the standard curriculum to local requirements and defining which staff members should attend each course.

17. Describe the useable components (e.g., paper and ink) of your voting system solution, including whether or not they are proprietary, have to be replaced by purchasing directly from you, or can be replaced commercially through other vendors?

The following is an example of the usable components of our Verity Voting system. The list of consumables may vary depending on the voting method and Verity configuration the State chooses.

Non-Proprietary:

- Thermal paper roll
- Toner cartridges
- Printer drum kits
- Headphone covers
- CMOS battery (coin battery for Verity voting device tablet)
- Ballot stock

Proprietary:

- Verity Key (security device)
- vDrive (portable media devices)
- Verity voting device battery

18. For budget purposes, please provide an estimated cost of your voting system solution, including hardware, software, any necessary licenses, peripherals, implementation, decommissioning, training, and maintenance.

REDACTED



REDACTED

19. For budget purposes, is there an option to lease equipment instead of purchasing equipment under your solution? If so, please provide an estimated cost to lease each component of your proposed solution where leasing is an option and whether the leasing option includes updates to the software.

REDACTED

20. Describe your proposed solution's technical support system, including, but not limited to, how it will provide ongoing software and system support; conduct regular source code auditing and analysis; escrow source code; share information about source code auditing and reviews; share information about each code release; and offer security enhancements for state and local officials.

In selecting Hart, the State of Georgia will have 24/7 access to expert support for your Verity system. Our Customer Support Center and Hartline tracking system provide elections personnel a consistent source for technical and operational support via phone or email through. Using these resources, customers can submit incidents, requests for repairs, change requests, and enhancement requests around the clock.

Knowledgeable Customer Support Center staff members are available live via phone from 7 a.m. to 7 p.m. Central, Monday through Friday. Customers can also reach a representative outside of these hours by leaving a voicemail. The receipt of a voicemail triggers a call forward to a Customer Support Center staff member, and

callers receive prompt service. During major election events, Hart provides extended Customer Support Center hours.

Our Hartline online tracking system enables us to track issues and equipment returned to Hart for repair. We also share best practices with customers through our Knowledge Base article series, customer bulletins, a quarterly newsletter, frequent webinars and more.

source code auditing and analysis are ongoing, and we hold all hardware, source code and documentation in escrow to ensure customers of uninterrupted use of the Verity system. These materials are updated with each new Verity release. Our escrow account provider supplies a semi-annual account history report and affords beneficiaries the right to audit written records at any time.

21. Describe the physical and power attributes of your Ballot Marking Devices, Digital Scanners & Tabulators, High Speed Scanners and Tabulators, and Statewide Electronic Pollbook System, including but not limited to:

Dimensions;

Weight;

Battery backup system capabilities; and

Power needs and ability to daisy chain equipment to a power source.

The following physical and power attributes apply to our touchscreen ballot marking devices, digital scanners/tabulators and high-speed scanners. Our tabulation/reporting software runs on a separate (included) workstation. We have not included information about a statewide electronic pollbook system in this response; however, our Verity voting system integrates with most electronic pollbook systems in the marketplace.

Ballot Marking Device



Item	Measurement
Height (closed) (inches)	7.7
Width (closed) (inches)	18.8
Depth (closed) (inches)	15.6 s
Weight (pounds)	28.5
Weight w/ batteries	29.3

Digital Scanner/Tabulator



Item	Measurement
Height (closed) (inches)	7.7
Width (closed) (inches)	18.8
Depth (closed) (inches)	15.6
Weight (pounds)	28.3
Weight w/ batteries	29.1

High-Speed Scanner

Item	Measurement
Height (inches)	18.9
Width (inches)	21.1
Depth (inches)	12.4
Weight (pounds)	50

The Verity polling place devices each include an internal, rechargeable 10.8V, 6.7A-hr Lithium-Ion (Li-Ion) battery as a backup to 120VAC main power. The battery can provide backup power for a minimum of two hours. While one battery is in use, an extra battery can be recharging at a nearby electrical outlet, ensuring a reliable source of continuous power for the unit. In case of battery failure, poll workers can simply replace the battery. Battery capacity, voltage, and weight are as follows:

- Capacity: 6140 mAh
- Voltage: 10800 mV
- Weight: 380 grams (approximate)

Batteries for Verity devices are charged by means of an external charger (included).

22. Describe any special storage requirements associated with the components of your proposed solution including climate control specifications and stacking restrictions.

Storage requirements

The optimal (and allowable) environmental controls for the hardware associated with Verity are as follows:

Operational Temperature

Optimal: 72 to 75°F

Allowable: 50 to 95°F

Storage Temperature

Optimal: 72 to 75°F

Allowable: -40 to 150°F

Operational Relative Humidity

Optimal: 55 to 65% RH non-condensing

Allowable: 45 to 85% RH non-condensing

Storage Relative Humidity

Optimal: 55 to 65% non-condensing

Allowable: 45 to 95% RH non-condensing



Stacking Restrictions

Verity's durable, compact polling place devices can be stacked five units high if stationary, three units high for transport.

23. In what states and jurisdictions therein, has your proposed solution been installed?

REDACTED

REDACTED

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RFX Addendum Form

RFX Number: 47800-SOS0000035	RFX Title: New Voting System
Requesting State Entity: Secretary of State	
Issuing Officer: Verneicher Favors	RFX Initially Posted to Internet: See GPR
eMail Address: vfavors@sos.ga.gov	Telephone: 404-656-0998
Addendum Number: 1	Date: 08/20/2018

The purpose of this addendum is to post the responses to questions.

All other information remains the same.

Note: In the event of a conflict between previously released information and the information contained herein, the latter shall control.

A signed acknowledgment of this addendum (this page) should be attached to your RFX response.

Hart InterCivic

Supplier's Name

Signature

Julie Wickert, Proposal Manager

Printed Name and Title

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