August 27, 2015

Shane Burgos
1 Dr. Carlton B. Goodlett Place
City Hall, Room 48
San Francisco, California 94102

RE: RFI # REG2015-01
The City and County of San Francisco's Voting System

Dear Mr. Burgos:

Enclosed is Hart InterCivic's response to the Request for Information by the City and County of San Francisco for a Voting System, RFI number REG2015-01.

Hart's solution affords San Francisco the following advantages that no other vendor can provide:

- All-new, fully integrated, federally certified system
- Highest customer satisfaction and customer loyalty ratings of any election solution provider in the U.S.
- Unmatched transparency in pricing, with no hidden costs or fees
- Unique cost-saving knowledge transfer approach that allows San Francisco to be as independent as you choose, while having ample support readily available

Our Verity Voting system is an easy-to-use, secure system designed to improve the voting experience and streamline election administration. Unlike systems offered by other vendors, Verity is a complete, integrated system that incorporates the latest technology and features while providing the assurance of EAC certification to VVSG 1.0 (2005) standards. With a platform based on the Microsoft Windows operating system and using enterprise-grade commercial-off-the-shelf components, the system offers cost-effective adaptability to changes that the City and County of San Francisco will inevitably face.

In adopting a new elections system, San Francisco faces significant change. A transition of this scale is best managed with the support of a solution provider experienced in managing complex, large-scale transitions while minimizing risks.

Hart is well known in the elections industry as a trustworthy partner. Our hundreds of customers – including the State of Oklahoma, the State of Hawaii and two of the five largest counties in the U.S – rely on Hart to manage complex, large scale voting system implementations and to conduct all the support services necessary to sustain smooth ongoing election operations, including many with election requirements identical to San Francisco's.

With Hart, San Francisco gains a solution provider with the highest customer satisfaction ratings in the elections industry. In our 2015 Customer Satisfaction Survey, 94 percent of Hart customers rated our service as excellent or above average. We believe it is even more telling that 92 percent said they would recommend us to an industry colleague.

As we continue to learn about the requirements of the City and County of San Francisco for a new Voting System, we will tailor the flexible Verity Voting system described in this response to offer the solution that provides the highest value and best supports San Francisco's goals.

Sincerely,

Phillip W. Braithwaite
President/CEO

A. SUMMARY STATEMENTS OF PROPOSED SYSTEM AND REFERENCES

1. Provide organization's or firm's legal name and address.

The legal name of the corporation put forward in this request for information is Hart InterCivic, Inc., located at 15500 Wells Port Drive, Austin, Texas 78728.

2. Provide the name, title, address, telephone number, and email address of the person(s) who will serve as the contact(s).

RFI Contact Name/Title	Julie Wickert, Proposal Manager
Address	15500 Wells Port Drive, Austin, Texas 78728
RFI Contact Phone	512.914.6882
RFI Contact Email	jwickert@hartic.com

3. Provide a letter of introduction with a brief description of the organization or firm, including organizational structure, experience in the industry, number of years providing voting systems and election support services to federal, state, or local governments.

Please see the letter of introduction located at the front of our response.

4. Provide a summary of the products and services offered, including annual license fees, annual support fees, and/or annual subscription fees. Include third party applications that are being recommended. List prices are acceptable.

Hart's Verity Voting system features a forward-thinking design that unifies the needs of the voter and election officials. Verity uses advanced technology to deliver best-in-class usability, adaptability and transparency.

All vendors will offer voting equipment. Only Hart will deliver truly modern technology that meets today's needs while enabling adaptability for the future. Our turnkey Verity solution blends in-person paper ballot scanning and accessible ballot marking devices with high-speed central paper ballot scanning for absentee/by-mail ballots. In addition, it includes an option for remote transmission of cast vote records directly from polling places to the central elections office, for fast, accurate Election Night tabulation and reporting.

Verity can be configured to deliver the functionality the City and County of San Francisco needs, including:

- State-of-the-art, integrated software based on the Windows operating system, to streamline end-to-end election management tasks and provide affordable adaptability over the years to come
- Data import/export capabilities in CSV, XML, and PDF formats
- Support for ranked-choice voting
- Highly filterable results reports
- Faster, more intuitive ballot definition and production software, which saves time and reduces costs
- On-screen adjudication technology for accurate, transparent, streamlined ballot resolution

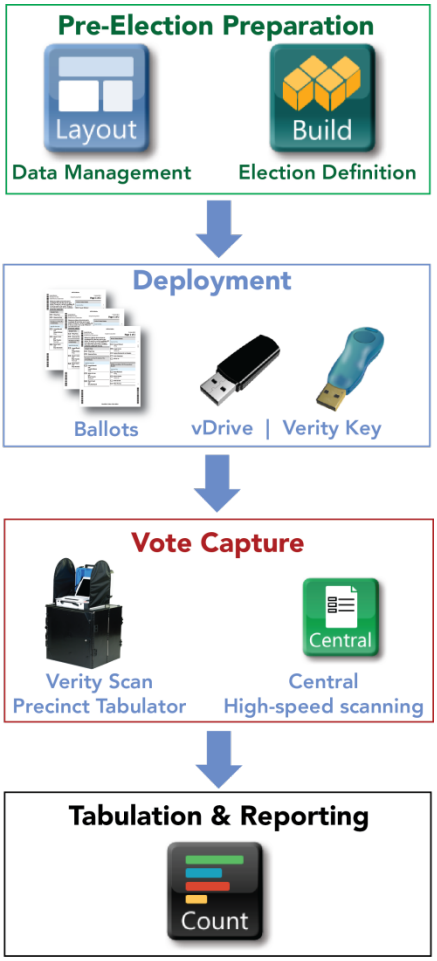
- High-performance tabulation software for fast reporting of results on Election Night, with user-friendly dashboards that display real-time progress toward completion
- Comprehensive, plain-language audit reporting that provides transparency into all election operations and results
- Universal accessibility for all voters
- Compact, portable hardware for easier, less costly equipment storage, transportation, setup and use
- Unique "defense-in-depth" security strategy

Licensing and Support

Annual license and support fees will be based on the software acquisition price of the Verity system. This usually averages 20 percent of the total cost of the software components purchased.

Verity Voting System Components – Overview

The following diagram illustrates the main hardware and software components of the Verity Voting system.



VERITY PROVIDES AN INTEGRATED ELECTION WORKFLOW.

Verity Voting System Hardware

Verity Touch Writer with Access

Verity Touch Writer is an accessible ballot marking device that provides superior usability and accessibility at the polling place. Verity Touch Writer provides true equality of access, with the same paper ballot for all voters; there are no segregated ballots, and no bottlenecks that can result in long lines in the polling place like some "all-in-one" devices. Verity Touch Writer uses a modern, intuitive, plain-language interface based on EAC/AIGA Design for Democracy styles.

For reduced cost and easy maintenance, Touch Writer is paired with a commercial off-the-shelf (COTS) printer. After the voter uses the electronic interface to mark and review selections, the device prints a marked, full ballot from blank stock. This innovative hybrid of on-demand printing with the best electronic interface for accessibility means that no preprinted ballots are necessary, there are no ballots to load into the machine, and Touch Writer prints only the ballots you need, reducing waste.

Touch Writer is equipped with the Verity Access controller, which includes tactile buttons and audio ballot capability, as well as compatibility with other adaptive devices, such as jelly switches or sip-and-puff devices. Like Verity Scan, Touch Writer includes a compact and durable integrated storage case, for secure, easy transportation and storage.

Verity Scan

For use at polling places, Verity Scan is a digital scanning solution for paper ballots. After marking a paper ballot, the voter feeds it directly into Verity Scan. Scan uses a modern, intuitive, plain-language touchscreen interface based on EAC/AIGA Design for Democracy styles, for the very best voting experience.

Verity Scan can print ballot count totals or tabulated results in the polling place. The ballot image is stored as a cast vote record (CVR) on a Verity vDrive flash memory device that can then be read by the Verity Count tabulation and reporting software. Like Verity Touch Writer, Verity Scan includes a compact and durable integrated storage case for secure, easy transportation and storage.

Instead of physically transferring CVR data from the polling place to the central elections office on vDrives, CVR data can be electronically transmitted directly from Verity Scan to the central elections office.

Secure Ballot Box

Designed to work seamlessly with the Verity Scan device, the Verity Ballot Box is secure, light-weight, and easy to deploy. Using an innovative folding design, the durable ballot box includes separate secure compartments for scanned and un-scanned ballots, and it folds to just 5 inches thin for easy transportation and storage. Because the digital Verity Scan captures and segregates marked write-in images electronically, a mechanical diverter is not needed in the secure ballot box.

Accessible Voting Booth for Touch Writer

Like the Verity Ballot Box, the voting booth especially designed for Verity Touch Writer is light-weight and easy to set up. The booth includes minimal parts for quick setup and it can be locked into place in one easy motion. The Verity Voting booth includes durable fabric privacy screens and complies with VVSG requirements for accessibility and controls within reach.

High-Speed Scanner – Verity Central

An enterprise-grade COTS Canon scanner is the hardware component of the Verity Central application that provides high-speed scanning of absentee/by-mail ballots. Verity Central's COTS scanner provides not only easy maintenance and lower costs, but Verity Central is also scalable, to accommodate multiple networked scanning client workstations, if desired.

Optional Hardware

Ballot printer

An optional administrative ballot printer is available for use at city offices or at polling places. The printer's capabilities include:

- Automatic duplex printing
- Black-and-white or color printing
- Uses commercially available paper stock

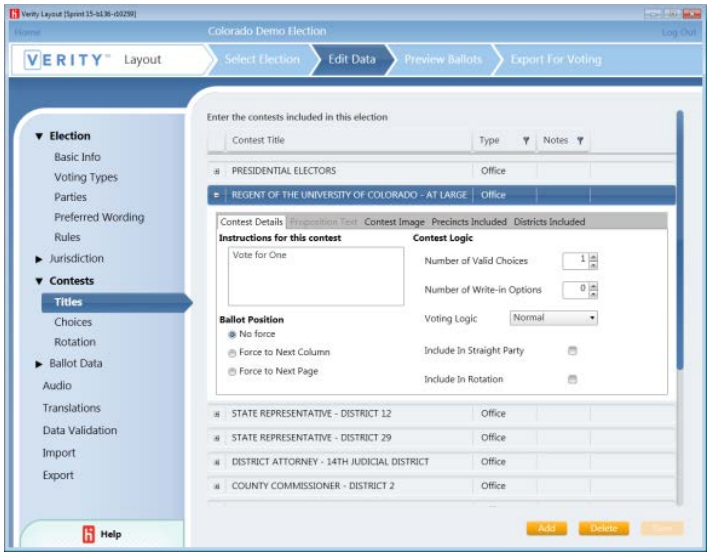
Verity Voting System Software

Verity software components provide a consistent, user-friendly interface to election management functions. Descriptions of these components follow:

Verity Layout – ballot design software

Verity Layout is part of Verity Election Office, which is distinct from EAC/VVSG-compliant Verity Voting software such as Build and Count. Although Verity Layout is not part of the certified voting system, it works hand-in-hand with Verity's VVSG-compliant software to format import files for use with the voting system.

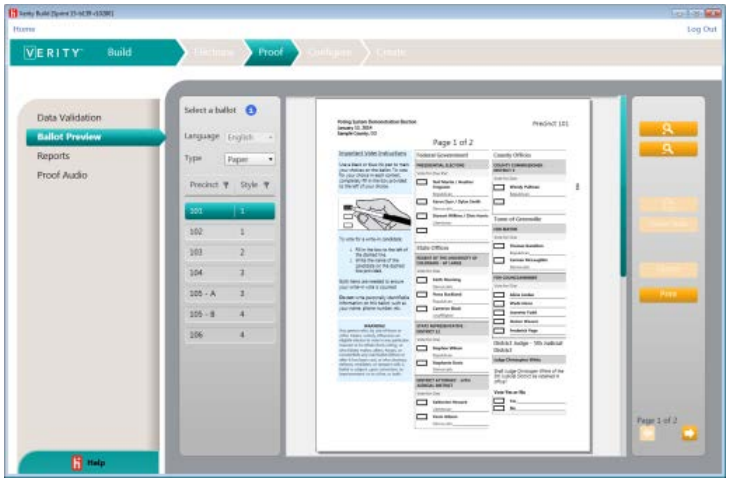
Verity Layout lets users easily design ballots and configure election data, which is then exported in XML format for import into the Verity Build election definition and deployment application.



Verity Layout accepts jurisdiction- and election-related data through a fresh, modern, highly usable interface, enabling users to design ballot layouts and display previews of how ballot styles will look in the Verity Voting system. Ballot layout formats support best practices authored by EAC/AIGA Design for Democracy styles, as well as recommendations from the Brennan Center for Justice. To ensure system security, Layout is always installed on a workstation separate from certified voting workstations, thereby preserving an "air gap" at all times.

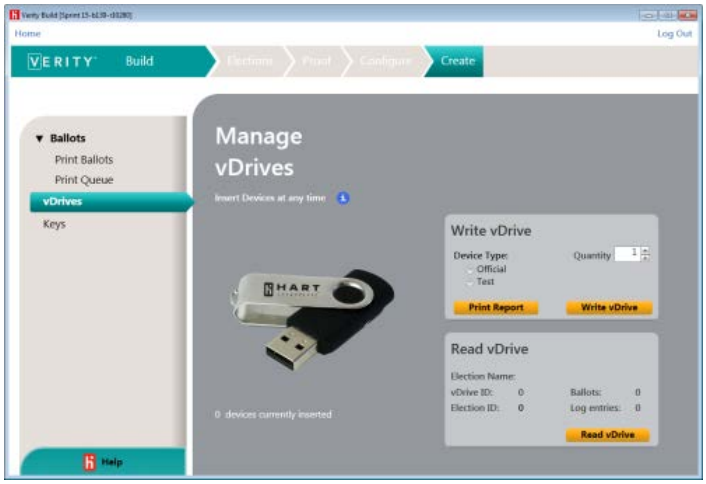
Verity Build – election definition software

Verity Build is the Verity Voting software application that enables users to define ballot styles, and generate and deploy election definitions. Verity Build employs a unique design that was specifically built to accommodate the data integration needs of large jurisdictions or statewide implementations. Instead of forcing users to manually input data through a user interface, Build provides choices: the software application can accept XML imports that include data from a variety of other software sources such as statewide data management tools or Hart-designed tools such as Verity Layout (for more information about Layout, see below).



In addition to producing paper and electronic ballot styles, Build allows users to program voting device behavior in a variety of ways.

Once the ballots and other components of the election definition are complete, Build writes the election data file (including all ballot styles) to portable flash media, Verity vDrives. The vDrives are then physically transported to polling places for use with Verity Touch Writer and Verity Scan or to the central elections office for use with Verity Central (for processing absentee ballots, for example).

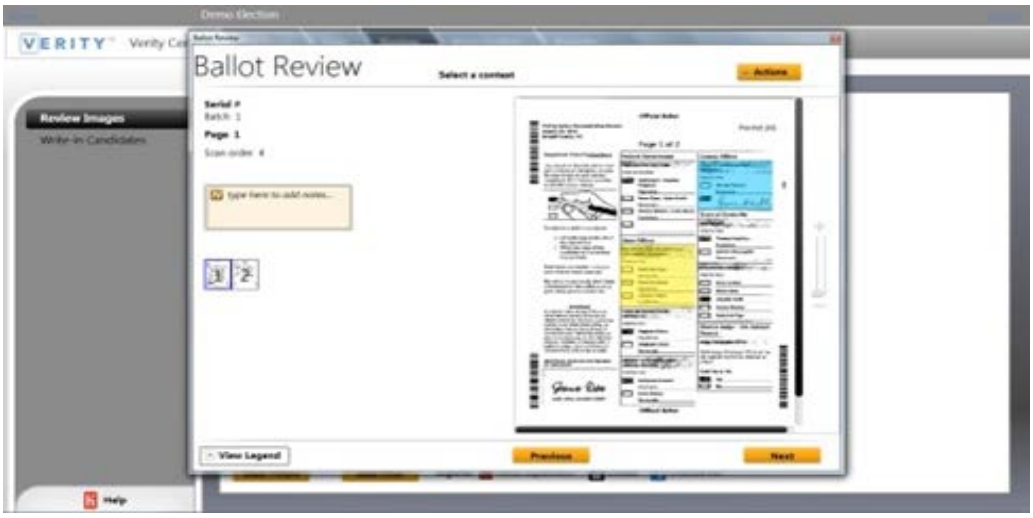


After generating election definitions, Verity Build can print ballots or output them electronically for third-party printers. Verity Build is scalable, to accommodate multiple networked ballot printing client workstations, if desired.

Verity Central – high-speed scanning software

Verity Central is the software application that provides high-speed scanning of absentee/by-mail ballots with a COTS Canon scanner. Every aspect of Verity Central is designed for efficiency, fast throughput, and a high degree of transparency in working with scanned ballot images.

Verity Central's onscreen digital adjudication features are especially powerful and noteworthy. Instead of forcing users to outstack and hand-count ballots with questionable voter marks, as is the case with older systems, with Verity Central, ballots with questionable marks can be adjudicated by means of an innovative onscreen adjudication process. This process color-codes contests with marks that require attention (for example, overvotes, undervotes, invalid marks, blank ballots, etc.) and allows authorized users to determine the disposition of unresolved marks without needing to handle the original marked ballot or re-make and re-scan outstacked ballots. In this way, Verity Central greatly boosts efficiency and accelerates reporting of results.



Verity Central also supports robust auditability, with highly filterable ballot image searches and access to original and annotated ballot images. When all ballots have been scanned and resolved, Central writes cast vote records to vDrive portable flash media and can then be tabulated in Verity Count tabulation and reporting software.

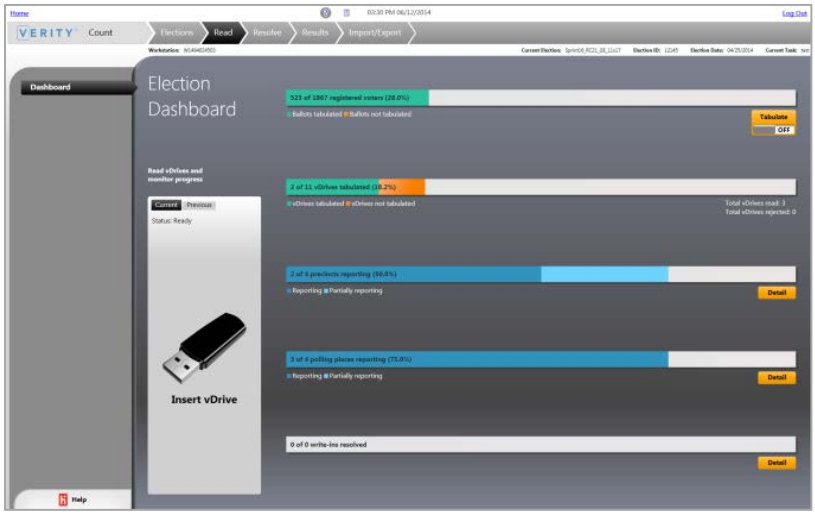
Because Verity Central does not tabulate votes – it simply scans and records cast vote records, jurisdictions are able to begin scanning before the close of polls on Election Day, thereby greatly accelerating results reporting.

Verity Count – tabulation and reporting software

Verity Count is the Verity software application that tabulates and reports cast vote records. Verity Count also provides reporting capabilities for a wide variety of system information gathered from other voting system components. vDrives inserted into the Verity tabulation workstation can contain polling place votes from Scan devices, or by-mail/absentee votes from Verity Central.

Once the data from vDrives has been read and tabulated, Count can produce a variety of standard and customized reports. Verity Count 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 (because Verity Count receives audit records from all voting devices).

Verity Count also includes intuitive, attractive, easy to use dashboards to monitor progress on Election Night, or to perform post-election audits, in a highly filterable way.



We designed Verity with Election Office software alongside the Verity Voting system for one reason – adaptability. With this unique, adaptable architecture, San Francisco can have more flexibility as its needs change over time, whether in ballot formatting rules, customized integration or reporting needs, and other election management tasks. Placing election management and voting system functions under one Verity "umbrella" provides the best of both words – flexible adaptability in a living software platform (Verity Election Office), plus the reassurance of certification for voting functions (Verity Voting). This flexible combination is particularly well-suited for the data integration needs of large jurisdictions, as data used for ballots on the front end and results data on the back end typically pass through diverse pathways of IT infrastructure.

Third-Party Software Components

Verity is provided as a turnkey computing system with all required third-party software preinstalled by Hart. All third-party components used are integrated into the Verity software and cannot be accessed outside of Verity. The County is not required to add or maintain any software components.

Customer-Focused Services

Hart's services include the project management, training and on-site support needed to deploy Verity and support San Francisco in conducting successful elections and meeting your goals for election management. Our off-the-charts customer satisfaction ratings illustrate that the services we deliver yield the results our customers require. For information about the services we provide, please see our response to requirement **5**, below.

5. Describe any election-related services that the organization or firm offers, including, without limitation, integration assistance, training, and ongoing support. Provide a rate structure or other costing information (i.e. hourly rate or pricing methodology) for the professional services offering. List prices are acceptable.

Hart has always been a service-centered election company. And with the Verity family of technology, we extend that service-centric focus to the human-centered usability needs *behind* modern election technology. Our Professional Services Team offers a variety of election-related services as well as custom development projects. The following

serves as an overview of our Professional Services rate structure. Upon clarification of services we would work with you to define the services needed and the appropriate suggested rates.

- Hourly Professional Services Rate: $250.00
- Daily Rate for onsite services: First Day: $3,250 / Additional Days: $1,250
- Ballot Production Services. For ballot production support Hart's Service Bureau pricing includes ballot layout, audio, proofs, programming and printed ballots. Scheduling is handled by request. You may enter into an ongoing agreement for the services or one election at a time. Pricing is driven by the number of contests on the ballot and other elements (languages, shading, color, etc.) Timelines will be agreed upon for each election needed.

Project management. Hart Project Managers receive training that instills the ethic of meeting client expectations. We use the Project Management Body of Knowledge (PMBOK), developed by the Project Management Institute (PMI) and adhere to industry-standard project management practices.

Training and documentation. Hart's team of professional educators design the training program and documentation that support installations of the Verity system. The training staff has experience in elections procedures, instructional technology, software application training, working with adult learners, and training for diverse backgrounds.

Technical support. By choosing Hart as your provider, San Francisco gains a partner with the highest approval ratings in the industry, in great part due to the excellent technical support we provide. Hart support personnel are fully trained in the technical aspects of the Verity system and are further supported by technical staff at Hart's Customer Support Center (CSC).

Implementation. Hart has extensive experience implementing complex voting system solutions for the State of Hawaii and the State of Oklahoma, and we have provided comprehensive election equipment and management for numerous additional large city and county jurisdictions.

Integration with legacy systems. Hart has worked with jurisdictions to facilitate the import and export of data to legacy systems.

Change management. As San Francisco transitions from the election system of its current vendor to Hart's Verity Voting system, our established change management approach and experience in assisting more than 700 jurisdictions make such transitions will ensure that the process goes smoothly.

Warehouse management and logistics. Many Hart customers have benefited from our analysis and evaluation of warehouse workflow and storage needs. In fact, Hart has implemented warehouse preparation sub-projects during implementation phases for some of our largest customers, including Orange County, California. In addition, Hart runs a fully operational warehouse in Honolulu, Hawaii as part of our turnkey election operation for the State.

Research and development. Hart's research and development group has focused on the use of technology in elections for many years. Their skills include designing, engineering, programming, and testing, as well as writing technical documentation.

6. Describe the different implementation approaches (i.e. big bang vs phased roll out) that the organization or firm can offer to the City to fully implement a particular solution. Include the benefits and/or risks of each.

Hart uses a low-risk phased approach to project implementation, using a project management framework approach based on the Project Management Institute (PMI) framework. This approach is enhanced through customization and application of best practices tested and proven during our extensive experience managing technology deployment for government agencies.

The Project Manager facilitates the creation of a comprehensive project plan and works with cross-functional teams to plan and manage customer programs using proven best practices.

The project is managed in the three following overlapping phases:

- Phase I: Plan/Design
- Phase II: Build/Deploy
- Phase III: Manage/Support

Phase I: Plan/Design

This phase begins during proposal/negotiation activities where the scope and approach are planned and described. At contract award, the Project Manager reviews the final proposal/agreement and begins scheduling project setup/initiation activities. The Project Manager coordinates a project kickoff meeting with the City and County's designated Project Manager/Team and begins compiling the following components of the comprehensive project work plan and schedule:

- Scope/Definition: Summary of the scope of the project as defined in the final proposal/agreement documents, identifying all the components necessary to meet the City and County's requirements
- Project Team: Identification of key individuals, including their roles/responsibilities
- Communication Plan: Contact information for project team members and management, proposed schedule/format for standing project management meetings, escalation protocol for critical communications, proposed schedule/format of written communications, such as meeting notes, required reports, and so forth
- Issue Management Plan: Procedures for identification, tracking, and resolution of project issues including escalation protocol, as well as identification of known open issues
- Risk Management Plan: Initial identification of known risks, risk mitigation strategies, and contingency plans
- Integration Plan: Identification of "work packages/processes" necessary based on defined scope and any related requirements/expectations including the following:
  - Shipping/delivery
  - Asset management
  - System acceptance
  - Deployment planning
  - Polling place setup
  - On-site support
  - Equipment retrieval (post-election)
  - Equipment processing (post-election)
  - Equipment maintenance
  - Schedule: Identification of known timeframes and key milestones
  - Test Plan: Procedures for ensuring that the software integration operates successfully in the City and County's environment
  - Quality Management Plan: Identification of performance standards, triggers, remedies, and escalation protocol
  - Change Control Plan: Procedures for identification, review and approval of changes to the project plan

The project work plan and schedule provides guidance for managing the project and developing detailed activities, tasks and a detailed work plan to manage the project. The project work plan and schedule is revised as necessary to properly manage the project. A working draft of the project work plan and schedule is reviewed in the project kickoff meeting to promote the refinement and mutual acceptance of the draft project plan.

The Project Manager is responsible for engaging the appropriate resources necessary to execute the project work plan and schedule, and for the implementation of custom processes necessary to meet San Francisco's requirements.

Successful deployment of a new system depends on a mutual understanding of current processes and the City and County's objectives. Therefore, San Francisco's elections staff will be involved in planning the project in a collaborative effort. These activities are necessary to establish a detailed integration plan that addresses all aspects of the project. The results of these planning activities are used to develop a migration plan, which defines each step necessary to incorporate the use of Verity in San Francisco's election activities, while addressing risk areas and carrying out mitigation activities defined by the risk management plan.

Typical on-site support events included in Phase I include:

- Event Resource On-site
- Kickoff Meeting Project Manager, Training Specialist
- Work Process Analysis – Process
- Interviews and information gathering Project Manager

Phase II: Build/Deploy

This phase includes placement of orders, shipping of equipment, delivery and customer acceptance. During this phase, Hart's Project Manager works closely with San Francisco's Project Manager to implement the project work plan and schedule, identify and resolve issues, manage risks, monitor Hart's performance, and ensure clear communication with the entire project team.

This phase also includes initial on-site training of San Francisco elections staff. Other key activities include initial system configuration, acceptance testing, and preparation of voter education materials (if applicable). This continues through the first scheduled election event.

Typical on-site support events included in Phase II include:

- Warehouse Preparation/Equipment Delivery
- Initial Staff Training
- Equipment Acceptance Testing
- System Configuration and Acceptance
- Initial Train the Trainer Training

Phase III: Manage/Support

Following acceptance, the project enters Phase III: Manage/Support, which includes election-specific data management, deployment plans, voter education, final training, Election Day field support, reporting, data archiving and management, post-election auditing, and storage and warehousing.

During this phase, the Project Manager focuses initially on resolving any issues that remain open and ensuring stable ongoing support processes. Typical Phase III on-site support events may include:

- Early Voting Support
- Election Day Equipment Preparation

- Public Test Support
- Election Day Support
- Post-Election Support (Reporting, Audits, Warehousing)

7. Provide a brief description of the overall software and architectural design of applicable products.

The Verity Voting system incorporates the latest state-of-the-art technology, with a foundation based on the proven, robust legacy of the first generation Hart Voting System.

Verity is based on the open platform Windows operating system, providing flexible adaptability for the future.

Verity's right combination of enterprise-grade commercial-off-the-shelf and proprietary hardware offers the best of both worlds: Hart propriety technology that performs above and beyond what is possible with COTS components, while using COTS components where they provide the best dollar value and long-term adaptability. While the all-COTS approach may be attractive at first glance, in reality, virtually all the burden of testing, certifying, monitoring and detecting malware, and managing all those individual components as their manufacturers upgrade them and replace them with newer versions will be the ongoing responsibility of the City and County of San Francisco– regardless of whether you have the money and resources to do so.

Designed for Usability

Verity offers intuitive hardware and software that is a pleasure to use. Every aspect of Verity has been designed to help election staff and voters accomplish their tasks easily and efficiently. At Hart, we know that usability is a critical value. For example:

- If a ballot designer wants to make the title of a ballot proposition appear bold (or italicized, or underlined; or a different ballot size for voters with disabilities), Verity Layout makes it easy to see how the ballot will look, right away, with an onscreen ballot preview.
- If poll workers learn how to use one Verity component, such as the Verity Scan ballot scanner, that knowledge helps them understand other devices in the polling place – the Verity Touch Writer ballot marking device, for example. All devices have a common look and feel.
- Monitoring Election Night progress is simple, with intuitive, color-coded dashboards to monitor precincts reporting, instead of having to rely on numerous printed hard-to-read reports.
- Auditing election results is efficient and easy, with ready access to scanned ballot images and granular focus on corresponding cast vote records, at the level you need.

Engineered for Adaptability

With Verity, Hart has re-imagined voting systems in a completely new way, mitigating some of the challenges of using a tightly-regulated, certified technology product that is hard to change. Certification ensures that the system is tested to meet high standards. Certified systems are, however, hard to change. For example, it can be difficult to customize standard reports to meet your specific needs, or to change the format of ballots. Verity is engineered to be lean and agile by clearly distinguishing between helpful election management features and functions of the certified voting system. Instead of the certified system being a "kitchen sink" where all the functionality resides for all time, Verity puts flexible functionality in Verity

Election Office, a complementary software platform that provides the flexibility to meet your changing needs over time.

Verity hardware is also designed for adaptability. The Verity Scan precinct scanning device and Touch Writer ballot marking device are designed and built on a common, shared platform that maximizes the use of similar parts and modular components. This innovative, adaptable design not only enhances usability, it allows devices to be reconfigured and deployed in new ways as your capacity needs change – at a fraction of the cost of purchasing entirely new equipment.

Defense-in-Depth Security

From the outset, security has been a core design goal for Verity. Indeed, this is one of the greatest benefits of Verity's status as a uniquely modern voting system; throughout the design, development and testing process for this all-new system, unlike older, first-generation voting technology, Hart has been able to leverage the newest, most up-to-date technologies and best practices for security. Verity's best practices for security include:

- Secure BIOS ("verified boot software")
- Only verified components can be installed
- Only verified components can be executed
- Intrusion detection – physical and application security
- Flexible, strong role management
- Data is signed to verify source
- Two-factor authentication
- NIST-compliant encryption
- Redundancy, randomization of cast vote records

Trusted Transparency

Verity's comprehensive audit and reporting capabilities provide transparency into the election process for voters and all other stakeholders.

- User-accessible audit logs
- Comprehensive, uniform logging
- Easy, efficient audits
- Paper records for software-independence
- Documented standards for data exchange and reporting
- Conformance to VVSG 1.0 (2005) federal standards

8. Describe the recommended operating environment(s) required to install and use any relevant systems and the minimum system requirements necessary to run such systems. Include any suggested production, development/test, and disaster recovery environments.

Verity operates as a standalone system. We provide a secure server-grade work station environment as part of our certified package.

9. Describe how the organization or firm envisions its software and hardware solutions changing over the next five to ten years.

Hart is committed to continual innovation in election technology. We have a distinct product vision that we believe is also a strong fit for the practices and values reflected in the City and County of San Francisco and many other forward-looking jurisdictions across the country. Unlike small start-up companies that may be solely focused on a limited number of "niche" innovations, as a major manufacturer of election technology with more than 100 years of experience, Hart has the knowledge and resources to think broadly and deeply about comprehensive election management.

Verity was designed for adaptability. Hart recognizes the ever-changing nature of election statutes and rules. For an election solution to remain viable over its years of use, it must be able to adapt to accommodate these changes. When we designed Verity, adaptability was one of its core values, and from the outset we consciously sought to architect a platform that will be extended in the future. Verity was designed to include not only components typically found in certified voting systems (such as ballot definition, central scanning, and tabulation), but also to anticipate development of more comprehensive election management tools. Many of the most fertile areas for new election technology are concerned not merely with vote capture and vote tabulation, but with solutions and concepts to increase the efficiency of election administration, voter participation, and transparency.

Data integration across many systems = efficiency. Part of the future product vision for Verity is to increase the use of election management utilities that streamline data exchange between disparate systems. We believe that taking advantage of software architecture that lies outside of certified system components, offers many possibilities to increase integration, automation, and "election intelligence" or data gathering (including metrics related to costs, usage and efficiency). Such integration can be tailored and customized to the specific needs of San Francisco. Increased data integration can also accelerate the administration of elections by re-using data from disparate sources (rather than requiring "double-work" or re-entry), as well as increasing the overall uniformity of practices and reporting.

Enhance voter participation by providing information in more modes and formats. A second critical part of our future product vision is to explore additional methods to enhance voter participation and/or visibility on election-related information. Such methods include: alternative methods of ballot delivery, including electronic presentations; accessible information about calendar dates and deadlines; detailed information about ballot styles that are accessible through many modes of technology (such as smartphones); and real-time ballot tracking. While a variety of solutions from different niche vendors have made some inroads in one or more of these areas in piecemeal fashion, at Hart, we are especially interested in integrating these additional types of functionality into the Verity family, as seamlessly as possible.

Automated, customized audits – done efficiently. A third and final part of our future product vision is to leverage Verity's current features for auditability (including highly filterable ballot image exports and data exports) to design even more customized methods to execute audits in a highly automated fashion, according to specific user requirements. Today, Verity makes it easy to search for, identify, review and export precisely the images and cast vote records that a jurisdiction desires. We want to make it even faster and easier, with greater configurability and additional methods to execute audits according to customized, standardized rules.

We have roadmaps and formal processes to deliver on our innovative thinking. To design and implement these types of concepts and features in the future, Hart does maintain product roadmaps and a formal process to incorporate customer feedback into our product planning process. Our product roadmaps are used to define and track current development efforts, as well as ideas for possible future development that remain under review. Hart's Product Management team maintains these roadmaps as living documents, and they are regularly reviewed and edited based on collaborative input from the Operations, Sales, and Engineering teams.

Customers can submit enhancement requests through Hart Support 24/7, and we really use them. All Hart customers can directly input and submit ideas and enhancement requests through our CSC. When customers email an enhancement request, we request all relevant information, such as the problem to be solved, the system component(s) affected, and the specific catalyst for the request. Hart Product Management regularly reviews enhancement requests.

In fact, a comprehensive review of ideas from real-world users of the first-generation Hart Voting System was one of the most valuable inputs for the design of Verity, our second-generation system.

Sales provides feedback all the time. Hart also captures customer feedback is through communication from Hart's Sales team to Product Management. The Product Management team maintains formalized, ongoing tracking lists of user pain points and enhancement ideas, and these are regularly reviewed as we assess the scope and timelines allocated to various system releases.

10. If applicable, submit at least two (2) references of federal, state or local governments equal in size or larger than the City and County of San Francisco that have implemented the proposed system, or, a similar system, within the last five (5) years. Include:
a. Name of the client
b. Contact information (name, address, phone, email)
c. Date system fully implemented
d. Total # of employees
e. Technical environment, i.e. commercial off-the-shelf (COTS), proprietary, mixture of COTS and proprietary. If your organization's or firm's voting system is a combination of elements that are COTS and proprietary, note which items are COTS and those that are proprietary.

Reference 1 – Orange County, California

Name of the client	Orange County, California (1.6 million registered voters)
Contact information	Neal Kelley Registrar of Voters 1300-C South Grand Avenue Santa Ana, California 92705 (714) 567-5139 Neal.Kelley@rov.ocgov.com
Date system fully implemented	2003 – (ongoing)
Total # of employees	1,753,684 Registered Voters (Total # of employees unknown)
Technical environment, i.e. commercial off-the-shelf (COTS), proprietary, mixture of COTS and proprietary. If your organization's or firm's voting system is a combination of elements that are COTS and proprietary, note which items are COTS and those that are proprietary.	**Technical environment:** combination of COTS and purpose-built components. Orange County is the nation's fifth-largest county, with some 2,200 precincts. The Hart Voting System installation for the County covers every facet of the elections process including by-mail voting, Early Voting, and Election Day balloting in five languages: English, Spanish, Vietnamese, Korean and Chinese. It is one of the largest electronic voting system installations in the country. Hart provided a large number of units of our first generation voting system. The County has since purchased Verifiable Ballot Option (VBO) units to provide a voter verifiable paper audit trail. In recent years, Hart has worked with Orange County to implement a ballot audit utility tool, which helped the County implement extensive risk-limiting audit capabilities after each election.

Reference 2 – State of Hawaii

Name of the client	State of Hawaii (705,668 registered voters)
Contact information	Mr. Scott Nago Chief Election Officer 802 Lehua Avenue Pearl City, HI 96782 808-453-8683 Scott.Nago@hawaii.gov
Date system fully implemented	2004 – (ongoing; contract recently extended through December 2020)
Total # of employees	203,694 Registered Voters (Total # of employees unknown)
Technical environment, i.e. commercial off-the-shelf (COTS), proprietary, mixture of COTS and proprietary. If your organization's or firm's voting system is a combination of elements that are COTS and proprietary, note which items are COTS and those that are proprietary.	**Technical environment:** combination of COTS and purpose-built components. In September 2004, Hart completed a project for the use of our voting system to support accessible voting for the State of Hawaii. Hart worked closely with the State to implement the system for use as desired, including integration with the legacy ES&S system. The September 2004 Primary Election was the initial use of accessible Hart electronic voting units for the State of Hawaii. The project included deployment, setup, and management of Hart's equipment at each of the 353 Election Day polling places. Hart also provided services for ballot setup, poll worker training, and tabulation. Twelve regional substations were established across seven islands for the transfer via modem of results to the State Counting Center. The November 2004 General Election marked the full use of the Hart system, including 12 absentee Walk-In sites and 353 Election Day polling locations. Each of the absentee Walk-In sites was equipped with an average of five voting devices. Each Election Day polling place included two voting devices. Regional substations were again used for the transfer via modem of results to the State Counting Center. Hart again provided services for ballot setup, poll worker training, and tabulation. Key to this project was Hart's provision of tabulation integration between the State's legacy ES&S Unity 2.1 tabulation system and the Hart tabulation application. The result of the integration was vote tabulation reports that merged totals from the two systems. Reports were generated centrally on Oahu, and Hart developed the system to provide these reports to the County Counting centers on the islands of Hawaii, Kauai, and Maui. Given the aggressive timeframe to execute processes for the 2004 Primary Election, Hart provided a proprietary consolidation product to integrate the ES&S ASC file output with the Hart tabulation output and provide the merged results in a delimited text file. The Hart system received the hand-carried ES&S ASC file data at one location on Oahu, merged this data with Hart results on the entire State election, and provided this delimited text report to the State at the one location on Oahu.

B. SPECIFIC CRITERIA FOR NEW VOTING SYSTEM

1. FUNCTIONALITY

a. Approved by the Secretary of State for use in California before the City obtains the new system.

The Hart Voting System is certified for use in the State of California, and we are working with the State to certify our all-new Verity system. We expect certification to be complete prior to the City's plan to obtain a new system.

b. Designed for votes to be cast and tabulated using paper ballots.

Yes. Verity Layout makes it easy for elections staff to design paper ballots and view them onscreen. Ballot styles are then imported into Verity Build, where they are included as part of the specific election definition. Paper ballots can be printed directly from Build or by third-party printers. Election definition data is transferred from Build to Verity Touch Writer ballot marking devices at polling places and to the central elections office for processing paper absentee and by-mail ballots. After a voter uses Touch Writer to make his/her selections, a COTS printer connected to the device prints the ballot. The voter then inserts the printed ballot into the Verity Scan precinct scanner to create the cast vote record (CVR). CVR data is then transported to the Verity Count tabulation and reporting application.

Hart has many years of experience providing voting systems to jurisdictions that perform central tabulation of paper ballots. All our customers do some central paper ballot scanning and tabulation for their by-mail ballots. Six of our California customers use our products for central scanning and tabulation of their by-mail ballots, and 70 percent or more of their ballots are by-mail. This includes Orange County, one of the largest jurisdictions in the country. Forty-five of the 64 Colorado counties using our products for by-mail ballots receive at least 90 percent of their returns by mail. Before Colorado went by-mail as a state, Boulder County used our system for central scanning and tabulation in traditional Early Voting and Election Day voter service centers, using multiple COTS production-level high speed scanners. Twenty-six of the 39 Washington counties using our products for central scanning and tabulation of by-mail ballots receive at least 99 percent of ballots by mail (or through drop boxes). A small number of Hart customers in Texas, Idaho and other states collect all paper ballots from the polls during Election Day and scan centrally using either precinct scanners or production-level high speed scanners.

c. Designed so that all or part of the system's software operates using open source software.

Yes. Verity is designed to use open source software.

d. Assigns the least restrictive software license so that third parties may also utilize the code.

Yes. The open source software used in Verity is available to third parties to use.

e. Incorporates ranked-choice voting and allows for the formatting and tabulation of ballots that list the same number of selections as there are candidates, including qualified write-in candidates.

Yes. As a modern, second-generation voting system, Verity was designed from the outset to support innovative, less traditional forms of voting logic, including ranked-choice voting. In order to support ranked-choice voting, the voting system must address two needs: vote capture for ranked-choice contests, and tabulation of the captured marks according to specific rules, many of which vary from jurisdiction to jurisdiction (for example, the establishment of specific vote thresholds and rules for reallocation are often customized by jurisdiction). Unlike first generation voting systems that were designed years ago, before ranked-choice voting was a topic of discussion in U.S. elections technology, Verity's election definition logic, ballot designs, and voter user interfaces accommodate ranked-choice voting methods. In addition, Verity can store images of scanned paper ballots, to support the need to review and/or hand count ballots that contain ranked-choice contests.

For all the reasons above, Hart's Verity system offers a firm foundation to meet the needs of San Francisco. Because the specific implementation of ranked-choice voting and rules for reallocation and tabulation are customized by jurisdiction, Hart would propose to extend Verity's native capabilities through customized software development and to tailor the system to your needs. As part of the implementation process, Hart's subject matter experts and product development team would go through a rigorous requirements gathering process to design and implement a customized tabulation application to meet Francisco's reporting needs. This workflow has been a conscious Verity design choice from the beginning – the EAC-certified Verity Voting system was architected to capture ranked-choice voting selections "on the front end," and to store cast vote record data in a manner that allows it to be processed by customized "back-end" reporting applications, to enable greater adaptability. As described below, Verity's current capabilities are already a strong fit for many of your specific requirements, and we have extensive experience with the types of custom engineering projects that will further enhance Verity to ensure that it is specifically tailored to meet San Francisco's needs.

f. Accommodates the formatting of multiple-language ballots and is designed to integrate additional languages with minimal preparation of and modification to the overall system.

Yes. Verity Voting currently supports the formatting, use, and tabulation of ballots in English and Spanish. Verity was designed with the capability to support multiple languages, including English, non-English languages using a Western European font, and ideographic languages. The system's capability to support new languages in the future is based upon architectural features associated with template design, character sets, audio, and features that accommodate updates to data.

g. Requires the staging of one piece of equipment per precinct for each polling place and supports all voters.

No. To reduce costs, maintenance, and the likelihood of bottlenecks at polling places – and to ensure the accuracy of cast vote records – the Verity Voting system components at each polling place include the Verity Touch Writer ballot marking device paired with a COTS printer, and Verity Scan, the device that scans the printed ballots and records the cast vote records. Election definition information is loaded into both Touch Writer and Scan, ensuring that votes are recorded reliably, accurately, and transparently. Both devices have small footprints and include compact and durable integrated storage cases, for secure, easy transportation and storage.

h. Utilizes high-speed scanners to tabulate vote-by-mail ballots.

Yes. Verity Central provides high-speed scanning of absentee/by-mail ballots using COTS scanners that can be located at central ballot processing locations anywhere in the City and County. Verity Central is unique in that it does not "count" votes – it scans and records cast vote records, preparing them for rapid tabulation in Verity Count tabulation software. This innovative and flexible approach allows jurisdictions to begin scanning before the close of polls on Election Day, thereby greatly accelerating the reporting of results. Verity Central also provides robust, user-friendly on-screen adjudication of ballots. Every aspect of Verity Central is designed for efficiency, fast throughput, and a high degree of transparency in working with scanned ballot images.

i. Creates a digital image of all (paper) ballots cast and facilitates the posting of the images on the Department's website while allowing for quick referencing between the paper ballot and its digital image.

Yes. Verity retains the electronic image of each voted paper ballot in a non-proprietary format. Ballot images can be stored in PNG format. In addition, Verity Central includes a unique onscreen, color-coded ballot adjudication feature that increases the efficiency and accuracy of ballot adjudication and avoids the necessity to alter the original paper ballot in any way. Verity Central identifies ballots requiring adjudication (write-ins, mismarks, overvotes, undervotes), according to parameters set by the election officials. Adjudication occurs by reviewing the ballot's digital image on the computer screen to record write-in votes or resolve questions of voter intent. As issues are resolved, election officials use a simple menu-driven interface to make and record decisions. An audit log, including the user ID, records all resolution decisions, providing a complete record of the adjudication process.

j. Meets or exceeds the most recent security standards set as minimum requirements for voting systems by the Election Assistance Commission and the California Secretary of State.

Yes. From the outset, security has been a core design goal for Verity. Indeed, this is one of the greatest benefits of Verity's status as a uniquely modern voting system; throughout the design, development and testing process for this all-new system, unlike older, first-generation voting technology, Hart has been able to leverage the newest, most up-to-date technologies and best practices for security.

Verity's best practices for security include:

- Secure BIOS ("verified boot software").
- Only verified components can be installed.
- Only verified components can be executed.
- Intrusion detection – physical and application security.
- Flexible, strong role management.
- Data is signed to verify source.
- Two-factor authentication.
- NIST-compliant encryption.
- Redundancy, randomization of cast vote records.

k. Allows for automated formatting of ballots with minimal manual manipulation of content by importing candidate information from the Department's existing election management system.

Yes. Verity offers a variety of flexible and innovative capabilities that make it capable of importing office and candidate information. These capabilities exist in Verity Layout, the system's ballot design software, and in Verity Build, the system's election definition and deployment software.

Verity Build employs a unique design that was specifically built to accommodate jurisdictions' data integration needs. Rather that forcing users to manually input data through a user interface, Build provides choices: the software application can accept properly-formatted XML imports that include data from a variety of other software sources, including statewide data management tools, as well as from Hart-designed data management tools such as Verity Layout.

Verity Layout works hand-in-hand with Verity's VVSG-compliant software to create XML files in a format that is suitable for import into Verity Build election definition software.

Whether data is imported into Layout or into Build, the approach is the same: as long as data meets the import file specifications for Layout or Build, respectively, the Verity system can accommodate it. Layout imports for discrete election elements (such as office and candidate information) are in TXT format; Build can import entire election definitions that meet its published XML format.

Verity Layout accepts jurisdiction- and election-related data through a fresh, modern, highly usable interface, and it displays previews of how ballot styles will look in the Verity Voting system. Ballot layout formats support best practices authored by EAC/AIGA Design for Democracy styles, as well as recommendations from the Brennan Center for Justice. To ensure system security, Layout is always installed on a workstation separate from certified voting workstations, thereby preserving an "air gap" at all times.

l. Includes auxiliary battery power to run polling place equipment for at least two hours of continuous use.

Yes. Verity Touch Writer includes an internal battery that provides a minimum of two hours of power to protect against power failure. The device includes a battery indicator icon that provides election judges or officials the status of the current battery state.

Verity Scan includes an onboard internal battery capable of providing backup power for a minimum of two hours. If power has not been restored by the time the backup battery has been fully discharged, Scan commences a graceful shutdown process. Once power is restored, the device can be rebooted and resume normal operations. Scan does not retain tabulated results, but images can be recovered. For additional reliability, extra batteries can be available at the polling place. 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. This system can be more reliable than systems that depend on an integrated battery for power. In case of battery failure, poll workers can simple replace the battery – not the entire device.

The COTS ballot printer requires an uninterruptible power supply (UPS) to provide two hours of backup power.

m. Designed with minimal moving parts to reduce maintenance and associated costs of any mechanical operations.

Yes. Verity voting devices utilize solid-state technology capable of withstanding transport conditions that may include extremely bumpy roads, exposure to extreme heat, cold, humidity and dust without incurring damage during transportation or becoming inoperable as a result of such transport.

In addition to the durable, convenient carrying/storage case that is an integrated part of the Scan design, corrugated plastic cases are also available for transportation and storage, as well as durable canvas bags for the voting booth and ballot box.

Verity voting devices are also capable of withstanding frequent loading and unloading, stacking and unstacking, assembling, disassembling, reassembling, and other routine handling in the course of normal storage and operation. All Verity Voting devices are designed for secure, easy transportation and storage.

n. Includes clearly written documentation available before implementation for both hardware and software functions and provides instruction and reference materials for all system-related processes.

Yes. Hart's team of professional educators designs the training program and all the user-friendly documentation that support installations of the Verity system. The training staff has experience in elections procedures, instructional technology, software application training, working with adult learners, and training for diverse backgrounds.

o. Permits the auditing of ballot cards at multiple points in the tabulation process and with minimal disturbance of operations to reduce the reliance on post-Election Day audits and to affirm the system is operating successfully.

Yes. When a voter casts a ballot using Verity Touch Writer and Verity Scan, the information is recorded in three physically separate locations:

- Internal memory (a compact flash card that is housed inside the device, and that is not customer accessible)
- Paper ballot
- On the vDrive removable memory device.

Verity Central saves the image that is used to analyze the ballot in the election database. Central also saves cast vote records to a removable vDrive.

Audit logs for each Verity Voting device are saved to the vDrive for that device. When the vDrive is read into the Verity Count tabulation and reporting application, the logs are transferred to the datastore for that election and are available for the jurisdiction to review independently.

Throughout all phases of operation, all Verity System components maintain complete audit logs. Each Verity application logs all user authorization/authentication, data entry, user interaction, and system events. Application logs can be printed or exported from each application.

p. Produces easily customizable reports containing any audit data or other information collected by the system.

Yes. Verity provides user-friendly, flexible user-defined reports in addition to a variety of standard, pre-defined reports. Elections staff can create customized reports without requiring professional data processing assistance or the use of an external tool or report writer.

The Verity Count tabulation and reporting component allows users to easily create customized reports based on user-selected filters (such as only certain precincts or contests). No other tabulation and reporting software offers such an array of user-selectable filters:

District filter	Batch ID filter
Precinct/split filter	Voting Device Type filter
Contest filter	Voting Device ID filter

Ballot options filter
Flash Memory Device (vDrive) ID filter
Polling Place filter
Voting Type filter

Verity Count provides the following standard reports:

Cumulative Report
Canvass Report
Polling Places Report
Write-In Report
Flash Memory Device (vDrive) Status Report
Residual Votes Report
Device Log Report
Precinct Report
Voting Device Reports
Alias Report
Precincts Reporting Report
Manual Vote Recording Report
Audit Log Report

Verity Layout, the ballot design and data management component of the system, provides the following standard reports:

Jurisdiction Configuration Report
Polling Place List, with Details
Contest Associations
Validation Summary Report
Polling Place List, Summary
All Contests
Ballot Style Associations
Rotation Report

Verity Build, used for election definition and production of official ballots, provides the following standard reports:

Jurisdiction Configuration Report
Polling Place List, with Details
Contest Associations
Rotation Report
Flash Memory Devices (vDrives) Created
Polling Place List, Summary
All Contests
Ballot Style Associations
Ballots Printed

Verity Central, used for high-speed scanning and on-screen ballot adjudication, provides the following standard reports:

Configuration Report
Precinct Detail Report
Audit Log Report
Batch Detail Report
Deleted Ballots Report
System Log Report

q. Logs all normal and abnormal events and ensures that event logging cannot be disabled or altered.

Yes. Throughout all phases of operation, all Verity components maintain complete audit logs via a process that may not be disabled or altered. Every Verity application logs all user authorization and authentication, data entry, user interaction, and system events. Application logs can be printed or exported from each application.

On the Verity Scan and Verity Touch Writer voting devices, audit logs and cast vote records are redundantly stored to the vDrive and to a partition on the compact flash card. The audit log for each device includes a record of each event occurring on the device, including:

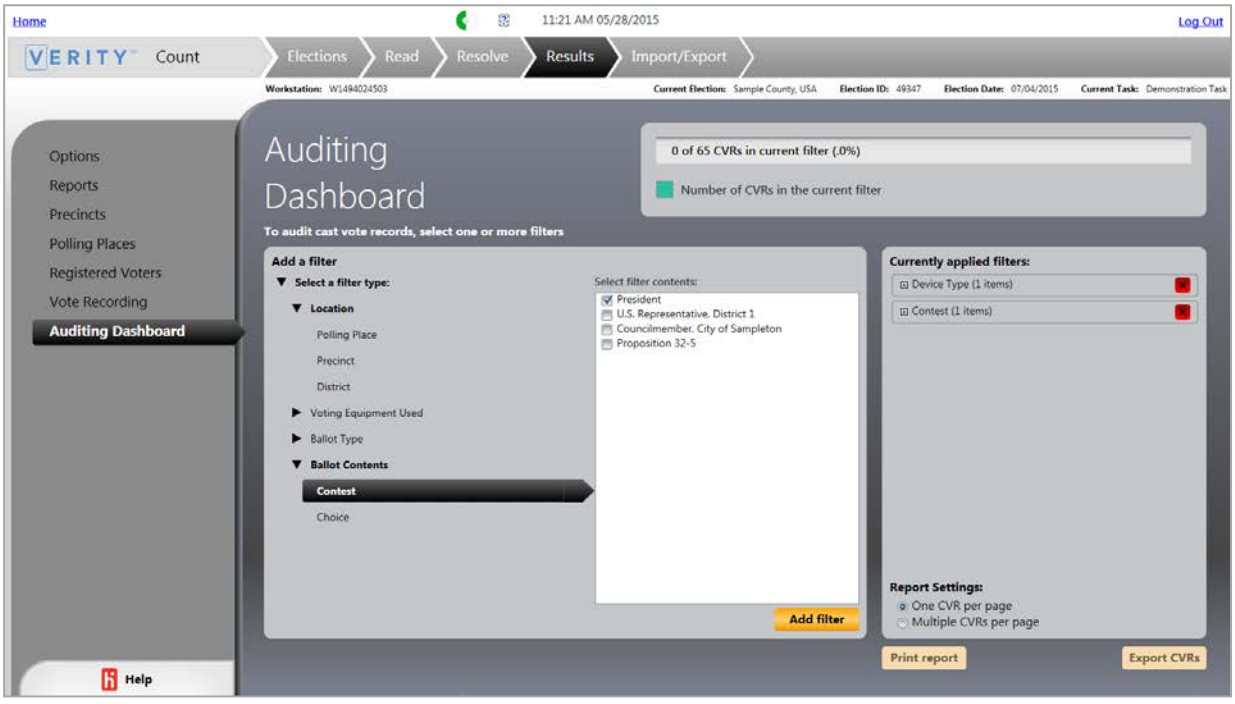
- Date and time of the event
- Option selected by the voter where applicable
- Action performed on the unit
- Tabulation input events
- Device serial number

When the vDrive is read into the Verity Count tabulation and reporting application, the audit logs are transferred to the datastore for that election.

Each Verity user must have unique login credentials, with role-based access levels that permit access to only the components of the system assigned to the user by the Verity system administrator. In addition, access to hardware components that contain audit data, such as vDrives, is protected by a two-factor authentication method, requiring both a physical key and the correct login credentials.

r. Seamlessly supports risk limiting auditing of results by generating random samples, reconstructing electronic records for comparison, and handling statistics.

Verity Count tabulation and reporting software includes an easy-to-use Auditing Dashboard that is a native feature of the software application.



The auditing dashboard enables users to select the subset of cast vote record data to be included in the audit, by simply selecting from a robust set of user-defined filters.

Auditing filters include:

District filter

Precinct/split filter

Party filter	Contest filter
Ballot options filter	Flash Memory Device (vDrive) ID filter
Batch ID filter	Voting Device Type filter
Voting Device ID filter	Polling Place filter
Voting Type filter	Workstation ID filter

Once the desired set of cast vote record data has been selected with filters, the CVR data can be exported as raw data in XML format, which can be reviewed and tabulated using common third-party tools, or the data can be printed as human-readable cast vote record reports (one per page, in PDF format), so they can be hand-counted.

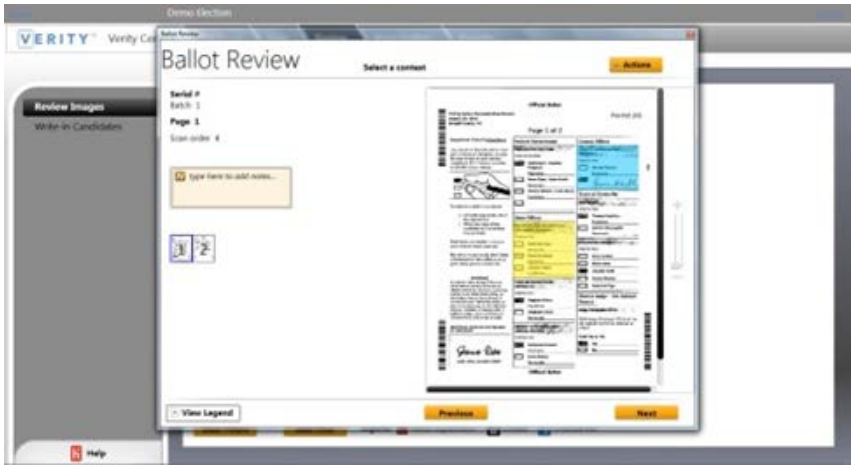
Because the list of auditable filters for cast vote record data is robust, Verity's auditing capabilities can support a wide variety of state and local procedural rules that govern any type of audit, regardless of what specific subset of ballots is to be audited, how many rounds of auditing may be required, whether a fixed percentage, "risk limiting," or other method is used, and other factors.

s. Facilitates the review of voted ballots or contests by election personnel using digital images to resolve issues when possible using a digital interface, and subsequently facilitates the posting of such actions on the Department's website.

Yes. Verity Central's onscreen digital adjudication features are especially powerful and noteworthy.

If a ballot cannot be read or identified, that ballot is rejected during the scanning process and segregated for adjudication.

Instead of forcing users to outstack and hand-count ballots requiring adjudication (write-ins, mismarks, overvotes, undervotes, blanks), as is the case with older systems, Verity Central identifies such ballots according to parameters set by election officials. Ballots with questionable marks can be adjudicated through an innovative onscreen adjudication process. This process color-codes contests with marks that require attention and allows authorized users to determine the disposition of unresolved marks without needing to handle the original marked ballot or re-make and re-scan outstacked ballots.



As issues are resolved, election officials use a simple menu-driven interface to make and record decisions. An audit log, including the user ID, records all resolution decisions, providing a complete record of the adjudication process. The reasons for the rejection, as well as the scan sequence number, are identified in an easy-to-read "Batch Scan" report.

In Verity Count tabulation and reporting software, write-in images can be consolidated and managed. When the vDrives containing write-in images are loaded into Verity Count tabulation and reporting software, users are informed of the number of write-in votes that require review and adjudication. The images are listed as Unresolved and are associated with specific contest titles. Users then have the ability to select from the available unresolved items and review each image. Based on the handwritten entry (or blank line), each write-in can be accepted and included in the tabulated totals by assigning it to a specific candidate name, or it can be rejected and placed in a class of entries that are not included in tabulated totals.

t. Allows for reporting results in near real time in such manner that does not require elections personnel to manually prepare and post results-related information.

Yes. Once tabulation is complete, Verity Count produces results reports in PDF format. These reports can be posted on the County's website and disseminated to media without requiring manual intervention on the part of election staff.

u. Designed so that the Department can transport equipment using minimal resources and requires a small footprint inside delivery vehicles.

Yes. All Verity Voting system components are compact, lightweight devices that are easy to store, transport, and deploy. Verity Touch Writer and Verity Scan each include a compact and durable integrated storage case for secure, easy transportation and storage, and the Verity Ballot Box folds to just 5 inches thin.

v. Allows elections personnel to set voting patterns when preparing logic and accuracy testing.

Yes. Verity provides a more efficient way to mark patterns for test ballots than producing a spreadsheet. Ballot marking is automated in the Build application by producing a configurable pre-marked test deck. This automation frees election staff from spending time hand-marking ballots.

w. Operates in a manner that is compatible with the Department's existing election management system from DFM Associates.

Hart is familiar with the DFM election management system and currently interfaces with this data set on behalf of other California counties. San Francisco will find integration in and between Verity and DFM to be very straightforward.

x. Allows elections personnel to meet the pre-election testing requirements for automated reporting established by the California Secretary of State in such a manner that does not require manual results generation.

Hart is familiar with the Auto-County Certification process that must be completed as part of the logic and accuracy testing (LAT) process to prove to the State that the County is capable of exporting the election data in the required format. Verity will support this process and does provide for automated test deck generation.

2. USABILITY/TRANSPARENCY

a. Accessible to all voters to cast ballots in an independent and confidential manner.

Yes. The Verity Voting system ensures accessibility, independence, and confidentiality for all voters. The Verity Touch Writer ballot marking device provides true equality of access, with the same paper ballot for all voters – there are no segregated ballots. Touch Writer is equipped with the Verity Access controller, which includes tactile buttons and audio ballot capability. Verity Access also provides compatibility with other adaptive devices such as jelly switches or sip and puff devices. In the privacy of the Verity Voting Booth, the voter uses Touch Writer to make his/her selections. Verity Touch Writer uses a modern, intuitive, plain-language interface based on EAC/AIGA Design for Democracy styles. In addition, Verity supports easily switching between languages. For example, the voter can look at contests in English and switch to Spanish for questions.

After completing the ballot and printing it on the printer connected to Touch Writer, the voter inserts the ballot into the Verity Scan scanner, which also includes plain-language instructions and audio capability, with patented indicator lights that inform the user when the system is ready for the ballot to be inserted.

b. Provides fully accessible and intuitive features for all voters and includes connections and ports to fit all currently known types of assistive devices.

Yes. Verity Touch Writer is equipped with the Verity Access controller, which enables voters with or without the ability to use their hands to vote in a manner compliant with the requirements of the Americans with Disabilities act. The controller includes tactile buttons and audio ballot capability as well as compatibility with other adaptive devices such as jelly switches or sip-and-puff devices.

c. Promotes intuitive setup and operation of equipment in the polling places so that poll workers do not require specialized training on the equipment.

Yes. Verity Touch Writer and Verity Scan include step-by-step, plain-language instructions for poll workers and voters. However, training for elections staff and poll workers, as well as train-the-trainer courses, are included as part of the Verity Voting system solution.

d. Indicates how the system tallied each vote on every ballot card and indicates if any votes were unreadable while ensuring the confidentiality of each voter's ballot.

Yes. Verity Central tallies each vote on every ballot card, rejecting and segregating any ballots that require adjudication, according to parameters set by election officials. Ballots with questionable marks can be adjudicated through an innovative onscreen adjudication process. This process color-codes contests with marks that require attention and allows authorized users to determine the disposition of unresolved marks without needing to handle the original marked ballot or re-make and re-scan outstacked ballots.

To protect voter confidentiality, each CVR is assigned random filename, and the modified/ created timestamps are all set to be identical. It is impossible to reconstruct voting order and thus identify the voter.

e. Indicates any action taken for every ballot card or contest that elections personnel reviewed and generates a digital audit log for posting on the Department's website that records such actions.

Yes. Verity Central's audit log includes a record of every event, including the user ID and a record of all resolution decisions, providing a complete record of the adjudication process.

Verity Central also supports highly filterable ballot image searches and access to original and annotated ballot images. When all ballots have been scanned and resolved, Central writes Cast Vote Records to vDrive portable flash media. CVRs can then be tabulated in Verity Count tabulation and reporting software. When the vDrive is read into the Verity Count tabulation and reporting application, the audit logs are transferred to the datastore for that election.

Count can produce a variety of standard and customized reports. Verity Count 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 (because Verity Count receives audit records from all voting devices).

Verity Count also includes intuitive, easy to use dashboards to perform post-election audits, in a highly filterable way.

f. Issues all result reports, ballot tally files, audit logs, in open data formats (machine-readable) and human-readable formats to increase the scope of election transparency.

Yes. The Verity system can export data in XML, PDF, and CSV formats, all of which can be easily converted to other formats.

g. Creates and facilitates the posting of ballot image files on the Department's website so that members of the public can tabulate the same vote information that the Department uses when tallying the official results.

Yes. Verity retains the electronic image of each voted paper ballot in a non-proprietary format. Ballot images can be stored in PNG format for posting on the Department's website.

h. Collects and then converts the election information in a manner that facilitates the Department's ability to provide reports in data formats and styles requested from other agencies, the media, and members of the public.

Yes. Verity produces election reports in printed and PDF formats. Hart will work with you to determine the most efficient process to create the file formats provided by the Department to these groups.

a. Produces rapid, versatile, and easily customizable reports, including in real-time, when issuing results reports on Election Night.

Yes. Verity Count tabulates results for individual canvasses and integrates the results from selected or all canvasses into cumulative results. This means Count accumulates ballots discretely cast on precinct ballot counters and central ballot counters, according to Election Day, and pre-election day groupings, and compiles the votes cast by precinct.

Verity Count also supports a wide array of user-definable features that allow election administrators to group results in the manner that meets your needs (for example., according to voting types, precincts, special groupings, etc.), and more generally to create customized reports in addition to Verity's standardized reports.

Verity Count has the ability to create summary reports of votes cast by precinct, by municipality, by district, and by county for each office and question on the ballot.

Among Verity's most powerful reporting functions is the long list of filters that can be applied to standard reports. Available filters include the following:

District filter	Batch ID filter
Precinct/split filter	Voting Device Type filter
Contest filter	Voting Device ID filter

Ballot options filter	Polling Place filter
Flash Memory Device (vDrive) ID filter	Voting Type filter

b. Provides easily customizable reports for a wide variety of purposes, including the reporting of partial election returns throughout Election Night, final unofficial election returns, and canvass reports.

Yes. Please see our response to requirement **B.1.p**, above.

c. Organizes and exports data in a variety of formats including but not limited to TXT (delimiter-separated), CSV, XLSX, PDF, and XML/EML that the Department can upload to its website and provide to the Secretary of State, the media, etc. with minimal intervention.

Yes. Verity supports results exports in a variety of formats. These exports are highly filterable, which allows the Department the ability to create uploads to upload to your website and to meet the reporting requirements of the Secretary of State and outside groups. Verity produces attractive, ready-to-view reports in PDF. The system exports a Detail Vote Total data export in CSV. Verity County's auditing dashboard exports raw CVR data in XML.

Verity can create and preserve backup electronic files of compiled vote totals, though the use of standardized or customized reports. Reports can be saved in PDF format, or printed as hard copies. Verity Count produced the following standard reports:

Cumulative Report	Write-In Report
Precinct Report	Precincts Reporting Report
Canvass Report	Flash Memory Device (vDrive) Status Report
Voting Device Reports	Manual Vote Recording Report
Polling Places Report	Residual Votes Report
Alias Report	Audit Log Report
Device Log Report	

Verity also allows users to easily create customized reports based on user-selected filtered data (e.g., only certain precincts, contests, etc.). Available filters include:

District filter	Flash Memory Device (vDrive) ID filter
Precinct/split filter	Batch ID filter
Contest filter	Voting Device Type filter
Ballot options filter	Voting Device ID filter
Polling Place filter	Voting Type filter

3. ADAPTABILITY

a. Anticipates the City modifying its use of the system or the system's components in response to changes in law such as the possible implementation of Senate Bill 450 that would allow the City to conduct mail-ballot elections with voting centers staged at multiple locations in the City.

Yes. Verity is a robust solution for central tabulation of paper and by-mail ballots. Hart has many years of experience with jurisdictions that perform central tabulation of paper ballots. **All** Hart customers do some central paper ballot scanning and tabulation for their by-mail ballots.

Six of our California customers use our products for central scanning and tabulation of their by-mail ballots, and 70 percent or more of their ballots come in by-mail. This includes Orange County, one of the largest jurisdictions in the country.

To fully serve voters requesting an accessible ballot marking device at a voting center, Verity Touch Writer with Access is capable of presenting all ballot styles utilized by the County in a given election on a single ballot marking device.

b. Implemented in the City under a possible final agreement that institutes a purchase, lease, lease-to-own, or any other mechanism that best suits the City's interests in obtaining a new system.

Yes. Hart provides flexible financing options included those mentioned here.

c. Allows the City to obtain the new system and its components and also provides the City with the flexibility throughout the term of the agreement to upgrade components, including software, when improvements to the new system become available, including an option to fully replace the new system.

Yes. Hart may provide product release upgrades to licensed Hart software products during the warranty period. These upgrades may be produced as a result of changing federal or state requirements, or as enhancements that improve the product. After software capabilities that are required to maintain compliance with standards are incorporated into the system, the updated software is typically reviewed for any applicable certifications, and then delivered to customers under the terms of the Verity Master Agreement. Upon request, Hart will provide San Francisco with a sample agreement.

Because the robust, scalable and adaptable Verity is the newest federally certified system on the market, it will be many years before you have to consider fully replacing the system.

d. Allows the Department to continue to select how all voting-related services are obtained such as for ballot printing and translations without restrictions from the design of the new system.

Yes. Hart will comply with this requirement.