Votem

RESPONSE TO THE REQUEST FOR PROPOSAL WEST VIRGINIA SECRETARY OF STATE CRFP SOS2200000001 ELECTION E-BALLOT DELIVERY TECHNOLOGY

November 15, 2021

Toby L Welch
Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

RE: Request for Proposal West Virginia Secretary of State CRFP SOS2200000001

Dear Mr. Welch,

Thank you for the opportunity to respond to the West Virginia CRFP SOS2200000001 for Election E-Ballot Delivery Technology for the 2022 Regular Election Cycle.

Votem meets all the mandatory requirements, and we believe we exceed your requirements in three critical areas; expertise, advanced accessibility features, and security..

Expertise - Votem (along with our predecessor, Everyone Counts) is one of the oldest online voting companies in the world. As shown in the table of completed federal elections below, our team has supported over 13 states, hundreds of counties, and thousands of elections over the past 14 years; very few other companies can say that.

Advanced Accessibility Features – Votem leverages artificial intelligence to improve the disability voting experience significantly - AI-powered automatic screen-reader adjustments, AI-powered automatic keyboard navigation adjustments, and personalized accessibility interface, to name just a few features.

Security - Our CastIron Platform was used by over 112 counties in the 2020 U.S. Presidential elections and was tested for security vulnerabilities (and passed) by the U.S. Department of Homeland Security (CISA) and several U.S. states. Unique only to Votem, CastIron leverages technology that uses groundbreaking Polymorphing and Polyscripting technologies that protect against zero-day attacks, unpatched systems, and even complex supply-chain attacks with no impact on system performance or operational procedures. It literally stops attacks before they start by scrambling our binary code, making it impossible for a hacker to identify vulnerabilities.

We also believe we have provided competitive pricing, and we look forward to the opportunity to serve the great state of West Virginia. Please note, the enclosed proposal is valid for the next 60 days.

Please feel free to reach out to me via email @ pmartin@votem.com or (216) 930-4860 if you have any questions.

Best regards,

Pete D. Martin

Pete Martin CEO
Votem Corp. (216) 930-4860
pmartin@votem.com

Votem

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EXECUTIVE SUMMARY

Votem is honored to respond to the West Virginia Secretary of State Request for Proposal CRFP SOS2200000001 Election E-Ballot Delivery Technology for the 2022 Elections. We certify that we meet all the qualifications stated in the RFP and have successfully supported federal elections in various states, including Alabama, Colorado, Montana, Washington, DC, and other comparable jurisdictions.

We are confident that you will find our CastIron platform secure, scalable, and easy to use by voters. We use security technology called Moving Target Defense that eliminates virtually any chance of being hacked. Developed by the former team that ran all the networks for Microsoft, we make it impossible for any potential adversary to inject malicious code into our system. No other elections vendor has this capability. Our platform is hosted on the Google Cloud Platform, so we take advantage of the same team that prevents Google from being hacked.

In addition to what we believe is industry-leading technology, we are most proud of our elections team with decades of experience running small and large, complex national elections. This broad and deep experience serves as the foundation for the passion in making you successful.

Votem is a trusted provider of secure election solutions with an unrivaled track record of supporting jurisdictions with greater accessibility to the ballot for voters. We are proud of our corporate attributes and are committed to delivering excellence to West Virginia with the solutions and services we offer.

Our team thanks you for the opportunity to respond, and we look forward to earning your trust and your business for 2022 and beyond.

ABOUT VOTEM CORP

Votem Corporation was founded in 2014 to foster and restore trust, access, and transparency in elections with a core focus on developing the most secure and verifiable voting platform available. Considering the range of security vulnerabilities exposed during national elections and the reveal of nation-state election meddling, Votem knew that it had to advance the state of security and end-to-end verifiability beyond those to compete in this market platforms already available.

Sharing Votem's vision to revolutionize and modernize the democratic process, Everyone Counts, Inc. was launched in 1996 and established itself as a global civic technology leader in election software. On October 1, 2018, Votem and Everyone Counts came together as one company, combining the most advanced and secure online and mobile voting platform with a team of internationally recognized elections experts that have run thousands of successful online elections over the past 20 years.

With the completion of the acquisition, the company offers the most secure, verifiable, and easy-to-use elections management platform in the market. Votem has architected our platform to be immune to external and internal threats and, most importantly, end-to-end verifiable by the academics, technologists, political parties, and advocacy groups that may question the integrity of an online voting system.

Combining the best of E1C with the best of Votem, we are now embarking on a new stage of growth and innovation in the election's environment, focusing on electronic ballot delivery and dedicated election operations services.

SECTION 4: PROJECT SPECIFICATIONS

4.1. Project Goals and Mandatory Requirements:

The electronic absentee ballot transmission and marking tool shall be prescribed for use by all 55 West Virginia counties. The Agency will serve in an administrative capacity by ensuring uniformity, providing support, and assisting with issue resolution when necessary. The tool shall comport with all goals and objectives set forth herein and as required by applicable West Virginia and federal laws.

Vendor should describe its approach and methodology to providing the service or solving the problem described by meet the goals/objectives identified below. Vendor's response should include any information about how the proposed approach is superior or inferior to other possible approaches.

Votem will deliver a solution that specifically meets the State of West Virginia's needs. Our consultative approach and agility in delivering customized election solutions are one of the key reasons jurisdictions choose Votem as their elections partner.

Votem's standard Election Services include all critical aspects of planning, running, and successfully closing an election. We use a proven project approach, including all the major phases shown below. We leverage various project management and communications tools, including Microsoft Project, Zoom, Slack, and Trello. We are flexible and can utilize whichever tools your jurisdictions prefer to use.

- Project / election management
- Election set-up
- Ballot Set-up
- Candidate & Slate Set-Up & Information
- Logic & Accuracy Testing
- End-User Testing
- End-to-End Encryption
- Voting instructions
- Voter Email Notification
- Help Desk (email, chat, and telephone support)
- Standard Reporting
    - Participation Reporting
    - Final Results

Proven, Risk-reducing Platform

Votem's CastIron voting platform empowers our customers to successfully deliver elections, serve their voters, and streamline and improve their election administration processes, helping to increase accessibility and reduce costs. Our solution is flexible, feature-rich, and secure but also intuitive and simple to use. In working with Votem, the State of West Virginia will be empowered to reduce costs and streamline election processes, with the full knowledge that our class-leading project management methodology and the team will provide the support that will ensure a successful voting experience.

4.1.1. Goals and Objective

Votem understands the goals and objectives related to this Request for Proposal for the implementation of an electronic absentee ballot transmission and marking tool for the 2022 election cycle:

- Provide a fully integrated and functional electronic absentee voting system for West Virginia's 55 counties
- The system will create the electronic ballots recognizing and reading each ballot style based on the "Ballot Design" files in the format provided by the Agency, a county, or a county's ballot programming vendor.
- The tool will be web-based, performs in real-time, and is simple, quick, reliable, secure, and efficient
- Provide the voting results accurately and in real-time while ensuring the anonymity of each voter.

Our voting platform, CastIron®, was built on our publicly released protocol, Proof of Vote™, an end-to-end, voter-verifiable (VVE2E) digital voting system that ensures verifiability and security transparency election. The protocol leverages an ElGamal re-encryption mixnet for anonymity, a multi-signature scheme for voter authentication and authorization, and verifiable distributed key generation and verifiable decryption for vote encryption and decryption.

Proof of Vote provides irrefutable evidence of the result of a valid vote that was cast as intended, substantiated by the user, and third-party validation for the benefit of both the voter and the elections administrative body and all other interested parties.

Every action taken as part of the Proof of Vote Protocol is a transaction on the blockchain. Every step is verified in real-time by the entirety of the blockchain network and is immutable once written to the blockchain. End-to-end verification of the election happens on a rolling, ongoing basis during the election process without sacrificing the voter's anonymity.

While blockchain allows for ongoing verification of an in-process election, it also allows for end-to-end verification of all election activities after the election has finished. Elections using Proof of Vote could be recreated in context and verified indefinitely after the election by validating the results and all signed vote transactions. This method contrasts with "public verification" methods such as 'Risk Limiting Audits,' which, in reality, only verifies that a ballot was counted, not that the ballot was cast as intended, nor individually correctly tallied.

4.1.1.1 **The Vendor provides an electronic ballot delivery and marking tool to all 55 West Virginia Counties in the State. The tool shall be ready for go-live use by no later than the statutory absentee ballot mailing deadline on March 26, 2022. All development, proofing, training, and other necessary actions shall be complete prior to that date.**

Votem completely complies with this requirement. The system will be ready to transmit electronic ballots for all 55 counties by the statutory absentee ballot mailing deadline of March 26, 2022. All development, proofing, training, and other necessary actions shall be complete prior to that date.

4.1.1.2 The tool satisfies all West Virginia and federal requirements for electronic absentee voting, including but not limited to W. Va. Code§ 3-3-1 et seq., the Uniformed and Overseas Absentee Voting Act, the Military and Overseas Voter Empowerment Act, and the Americans with Disabilities Act.

Votem will deliver a solution that explicitly meets all West Virginia and federal and state requirements for electronic absentee voting. Our consultative approach and agility in delivering customized election solutions are some of the key reasons jurisdictions choose Votem as their elections partner.

4.1.1.3. The tool's functionality allows convenient confirmation of voter eligibility, voter identity, and accessibility.

CastIron offers multiple ways to authenticate voters before they receive a ballot and can cast a vote. To access the ballot, voters simply navigate to the predetermined secure URL and enter their credentials to authenticate themselves against your voter registration database. Votem offers any combination of voter authentication methods such as name, date of birth, last four of their social security number, random PIN code, or even biometrics. We can configure the system to authenticate voters through a one or two-step process and balance security and ease of use.

4.1.2. Mandatory Project Requirements -The following mandatory requirements relate to the goals and objectives and must be met by the Vendor as a part of its submitted proposal. Vendor should describe how it will comply with the mandatory requirements and include any areas where its proposed solution exceeds the mandatory requirement. Failure to comply with mandatory requirements will lead to disqualification, but the approach/methodology that the vendor uses to comply, and areas where the mandatory requirements are exceeded, will be included in technical scores where appropriate. The mandatory project requirements are listed below.

SOLUTION FOR THE STATE OF WEST VIRGINIA

The Votem elections operations team is ready to promptly deliver the required services as described in the West Virginia RFP. These include the following items at a high level. For more detail, see our response to the Mandatory Requirements.

- Electronic ballot transmission of voted ballot return for the 2022 regular election cycle to be held on May 22, 2022, and November 8, 2022, with implementation and administration by county and state election officials
- Creation and proofing for accuracy of all electronic ballots for the elections with access provided to county and state elections officials for their ballot and website proofing
- Electronic transmission of absentee ballots to all 55 counties in the regular election cycle and issuance of electronic ballots to all eligible voters requesting receipt of their ballots electronically
- Help Desk services for voters and election administration personnel as detailed in the RFP, with support provided at a minimum by toll-free telephone and email, and with statistics maintained on volume, resolution, response time, and reporting provided to the Secretary of State upon request
- Security and privacy protections to guard against and mitigate threats against electronic ballot delivery systems

- Training for state and county election officials with follow-up training for all appropriate election personnel on the use and administration of the system

4.1.2.1 The tool is capable of recognizing and reading each ballot style based on the "Ballot Design" files in the format provided by the Agency, a county, or a county's ballot programming vender.

The CastIron Administration console allows for importing ballot definition files utilizing exported data files from numerous file formats. Using the exported data files, Votem's Election Administration team will import, build, and review the ballots utilizing the existing information from the Agency, the county, or the county's ballot programming vendor, along with the county ballot PDFs.

- The information that is imported includes (but is not limited to):
- Headers / Contests / Candidates / Write-ins
- Questions / Flexible Options (For/Against, For the Measure/Against the Measure)
- Ballot Style Names / Precinct/Splits, and Ballot Style mapping.

Additionally, Votem has experience parsing EMS ballot data from most tabulation vendors for import into CastIron Administration.

4.1.2.2 The tool includes a cloud server or equivalent backend which securely processes each electronic absentee ballot submission into a cast vote record (CVR) format, stores the records in a tamper-resistant manner, and enables all participating counties to access the CVRs as required by the election schedule and process for in-county tallying.

CastIron leverages the power of the Google Cloud Platform (GCP) for hosting both the backend and front-end of our application. CastIron takes advantage of the same secure-by-design infrastructure, built-in protection, and the global network that Google uses to protect your information, identities, applications, and devices by running on the Google Cloud Platform. Their cloud infrastructure builds security through progressive layers that deliver true defense in depth.

Each absentee ballot submission leverage public-key encryption and is tamper-proof in transit and at rest. Only private key holders (authorized County Admin personnel) can decrypt the cast vote records through our secure CastIron Customer Portal. We will work with each county to decrypt all submitted cast vote records in preparation for in-county tallying. This training typically takes 5-10 minutes per County election administrator.

4.1.2.3 The tool includes a web-based or equivalent administration console for reporting and tracking voter participation.

Verified and authorized state and county election administration personnel can use their login credentials to securely access the CastIron Customer Portal on any computer using a modern browser for reporting and voter participation.

4.1.2.4 The tool permits a voter to mark a ballot independently and without assistance.

The CastIron electronic ballot is designed with an intuitive interface and can be navigated independently and without assistance. Our design ensures that all electors can fully participate in the democratic process, and no voter encounters a usability barrier in casting their ballot.

4.1.2.5 The tool provides a voter the option to transmit a marked ballot, along with a return packet that includes the requisite forms and disclosures, to the county clerk electronically, or alternatively to print a voted ballot with the aforementioned return packet for return via other approved means to the county clerk.

Voters can easily transmit and/or print the return packet, including jurisdiction-specific instructions for returning their marked ballot. The entire return packet includes but is not limited to cover sheets, mailing and security envelopes templates, postal and email addresses, affidavits, and oath statements for returning their completed ballot by mail. The voter can choose their method of return, including electronically, postal mail, or fax. The entire return packet is encrypted before being sent electronically.

4.1.2.6 The tool includes a verification portal that permits a voter to review their marked, submitted ballot, in a secure and anonymous manner, and in a read-only format, affording the voter with the ability to confirm the ballot cast is the ballot received by the county.

CastIron uses verification technology based on our Proof of Vote® protocol. The voter can check that their vote was cast as intended and counted as cast (if desired). They can access the Voter Portal using the same credentials to confirm that their ballot was successfully received from their desktop or mobile device.

4.1.2.7 The Vendor provides training and support to the Agency and counties during the duration of the contract.

Votem will provide required training on the use and administration of the system to the Agency and all 55 counties before the first election cycle. If required, refresher training will be provided for subsequent elections or new employee training.

4.1.2.8 Section 508 Compliance

Section 508 of the Rehabilitation Act, as amended by the Workforce Investment Act of 1998 (P.L. 105-220) requires that when Federal agencies develop, procure, maintain, or use Information and Communication Technology (ICT), it shall be accessible to people living with disabilities. Federal employees and members of the public who have disabilities must have access to, and use of, information and data that is comparable to people without disabilities.

Products, platforms and services delivered as part of this work statement that are ICT, or contain ICT, must conform to the Revised 508 Standards, which are located at 36 C.F.R. § 1194.1 & Apps. A, C & D, and available at https://www.access-board.gov/guidelines-

andstandards/communications-and-it/about-the-ict-refresh/final-rule/text-of-the-standards and-guidelines.

4.1.2.8.1 Provide list of item(s) that contains ICT. For each item, the following requirements apply:

CastIron accommodates voters with disabilities or impairments and complies with applicable accessibility standards in effect. We are also certified compliant for international accessibility standards, including WCAG 2.1, ADA Title III Section 508, and EAA/EN 301549.

The voting site was designed with an intuitive interface and can be navigated using familiar adaptive accessories for those with disabilities. Our design ensures that all voters can fully participate in the democratic process, and no voter encounters a usability barrier in casting their ballot. Our capabilities include:

- Full accessibility of hidden elements
- ALT tag creation using image recognition technology
- Full adjustment to screen readers, including role building
- Forms accessibility, including label matching and error handling
- Full adjustment to keyboard navigation
- Advanced keyboard navigation using letter shortcuts
- Expression, slang, and phrases built-in dictionary
- Built-in accessibility statement
- Adjust font sizes and content scaling
- 12 built-in languages in the interface
- Built-in feedback form
- Links and clickable element accessibility
- Font replacement to more readable fonts
- Virtual keyboard for motor impairments
- Modify text spacing and alignments
- Accessibility of titles and paragraphs
- Quick skip to the main content and other areas
- Quick navigation for the blind and motorically impaired
- Emphasis focuses upon keyboard navigation or mouse hovering
- Icon and buttons accessibility
- Align content to the left, right, center or justified
- Accessibility of page and browser titles
- Complete tables accessibility
- Keyboard navigation including dropdowns and popups
- Change cursor to big black or big white
- Control of interface size and position
- Control over title, text, and background colors
- Contrast alteration: lighten, darken, inverse or grayscale

- Display and emphasize of image descriptions
- Hide images and background images (distracting elements)
- Muted mode (for people with hearing devices)
- Accessible printing mode

4.1.2.8.2 **All functional performance criteria apply when using an alternative design or technology that achieves substantially equivalent or greater accessibility and usability by individuals with disabilities, than would be provided by conformance to one or more of the requirements in Chapters 4-6 of the Revised 508 Standards, or when Chapters 4-6 do not address one or more functions of ICT.**

Votem complies with this requirement - please see Votem's enclosed Accessibility Conformance Report.

4.1.2.8.2 **Software features and components: All WCAG Level AA Success Criteria, 502 Interoperability with Assistive Technology, 503 Application.**

Votem complies with this requirement - please see Votem's enclosed Accessibility Conformance Report.

4.1.2.8.3 **Hardware features and components: All requirements apply**

This is a software-only based system that supports all major assistive devices.

4.1.2.8.4 **Applicable support services and documentation: All requirements apply.**

Votem complies with this requirement - please see Votem's enclosed Accessibility Conformance Report.

4.1.2.8.2 **Provide an Accessibility Conformance Report (ACR) for each commercially available ICT item offered through this contract. Create the ACR using the Voluntary Product Accessibility Template Version 2.1 or later, located at https://www.itic.org/policy/accessibility/vpat. Complete each ACR in accordance with the instructions provided in the VPAT template. Each ACR must address the applicable Section 508 requirements referenced in the Work Statement. Each ACR shall state exactly how the ICT meets the applicable standards in the remarks/explanations column, or through additional narrative. All "Not Applicable" (N/ A) responses must be explained in the remarks/explanations column or through additional narrative. Address each standard individually and with specificity, and clarify whether conformance is achieved throughout the entire ICT Item (for example - user functionality, administrator functionality, and reporting), or only in limited areas of the ICT Item.**

Votem complies with this requirement - please see Votem's enclosed Accessibility Conformance Report.

4.1.2.8.3 **Provide a description of the evaluation methods used to support Section 508 conformance claims. The Agency reserves the right, prior to making an award decision, to perform testing on some or all of the Vendor's proposed JCT items to validate Section 508 conformance claims made in the ACR.**

Votem leverages Accessibe to conform to all relevant Section 508 requirements and auditing of our user-facing sites to ensure continuous compliance. Any significant deficiencies from the ongoing site audits are evaluated for immediate versus long-term development priorities.

4.1.2.8.4 **Describe your approach to incorporating universal design principles to ensure ICT products or services are designed to support disabled users.**

Votem's UX team leverages Google Material Design principles which incorporates WCAG 2.1 standards. Our user experience design testing leverages a group of disabled users that test for usability with assistive devices, etc.

4.1.2.8.5 **Describe plans for features that do not fully conform to the Section 508 Standards.**

Votem has not applied complete Section 508 standards to its internal or customer administration portals yet but plans to begin incorporating more accessibility features into our customer election administration portal after the 2022 election cycle.

4.1.2.8.6 **Describe "typical" user scenarios and tasks, including individuals with disabilities, to ensure fair and accurate accessibility testing of the ICT product or service being offered.**

Votem uses the exact same logic and accuracy testing scenarios for non-disabled users as it does for disabled users to ensure that the voter experience is as identical as feasible for every type of voter.

4.1.2.9 **Prior to acceptance, the Agency reserves the right to perform testing on required ICT items to validate the Vendor's Section 508 conformance claims. If the Agency determines that Section 508 conformance claims provided by the Vendor represent a higher level of conformance than what is actually provided to the agency, the government shall, at its option, require the Vendor to remediate the item to align with the Vendor's original Section 508 conformance claims prior to acceptance.**

Votem accepts that the Agency has the right to test the system to ensure Section 508 conformance will work with the Agency to ensure conformance.

4.1.3 Cyber Security Systems and Controls

4.1.3.1 Cybersecurity systems and controls are essential to distinguish, counteract, or decrease security risks. These measures are required to manage threats targeting computer systems and networks. These measures must be adaptive and robust. To determine whether your cyber security systems and controls meet our desired standards:

As a founding member of the U.S. Elections Infrastructure Sector Coordinating Council (EISCC), and an active participant in several cybersecurity working groups, Votem advises the elections industry on cybersecurity best practices. Our work with the U.S. Department of Homeland Security (DHS) and the FBI means we have insider knowledge to guard your elections against the latest threats to the election ecosystem. In addition, the former Chief Information Security Officer for PayPal is on our Advisory Board and has been instrumental in ensuring that we have a robust security infrastructure, policy, and procedures.

Most recently, our CastIron Platform was used by over 112 counties in the 2020 U.S. Presidential elections and was tested for security vulnerabilities (and passed) by the U.S. Department of Homeland Security and several U.S. states. All data transmitted between client and server is done over HTTPS (TLS 1.2 or greater). Persistent data stores are not exposed to ingress from the open internet, and there is encryption at rest for all data stores. All confidential data is either encrypted or hashed at rest.

Vote submissions are stored in an encrypted form to protect anonymity. Digital signatures are used to ensure that a vote is submitted in a tamper-proof manner in transit. Votes are public-key encrypted on the client-side before submission, ensuring the vote cannot be tampered with while preserving the encryption. It also ensures that only knowledge of the private key can allow for decryption of the votes.

CastIron uses groundbreaking Polymorphing and Polyscripting technologies that protect against zero-day attacks, unpatched systems, and even complex supply-chain attacks without impacting system performance or operational procedures. It literally stops attacks before they start by scrambling our binary code, making it impossible for a hacker to identify vulnerabilities.

Communications over the internet are encrypted in transit and use cutting-edge technology and multiple layers of protection to defend against denial-of-service attacks. Advanced tools protect access to sensitive data like phishing-resistant security keys, and data is automatically encrypted at rest and distributed for availability and reliability.

4.1.3.1.1 Please complete Attachment B - OWASP Application Level Security Verification Levels I -3. For all listed requirements please provide 2 pieces of supporting documentation. For any requirements that are lacking supporting documentation, please add to Attachment F - POA&M Tracker.

Please find Attachment F - POA&M Tracker attached to this proposal.

4.1.3.1.2 Please complete Attachment C - OWASP Mobile Application Level Security Verification if applicable. For all listed requirements please provide 2 pieces of supporting documentation. For any requirements that are lacking supporting

documentation, please add to Attachment F - POA&M Tracker. If not applicable, please put NIA by all requirements.

Please find Attachment F - POA&M Tracker attached to this proposal.

4.1.3.1.3 **Please complete Attachment D - Security Requirements for Databases. For all listed requirements please provide 2 pieces of supporting documentation. For any requirements that are lacking supporting documentation, please add to Attachment F - POA&M Tracker.**

Please find Attachment F - POA&M Tracker attached to this proposal.

4.1.3.1.4 **Please complete Attachment E - Select Controls from NIST SP 800-171. For all listed requirements please provide 2 pieces of supporting documentation. For any requirements that are lacking supporting documentation, please add to Attachment F - POA&M Tracker.**

Please find Attachment F - POA&M Tracker attached to this proposal.

4.2. Qualifications and Experience:

Vendor should provide information and documentation regarding its qualifications and experience in providing services or solving problems similar in size, scope and complexity to those requested in this RFP. Information and documentation should include, but are not limited to, proposed staffing plans, descriptions of past projects completed (descriptions should include the location of the project, project manager name and contact information, type of project, and what the project goals and objectives where and how they were met.), references for prior projects including the value and period of performance of past projects, and any other information that Vendor deems relevant to the items identified as desirable or mandatory below.

4.2.1. **Qualification and Experience Information: Vendor should describe in its proposal how it meets the desirable qualification and experience requirements listed below.**

Votem and our corporate predecessor, Everyone Counts, launched its first voting system in 1997 and has since served international public and private organizations with modern election solutions reaching millions of election officials and voters. Our team of seasoned and highly successful technology and industry veterans ensures that we maintain our position as a leader in election modernization.

We are proud of our elections team which has decades of experience running small and large, complex national elections. Our experienced team understands the pressures you face in and around election time. This broad and deep experience serves as the foundation for the passion in making you successful.

Votem offers the most secure, verifiable, and easy-to-use elections management platform in the market. We have architected our platform to be immune to external and internal threats and, most importantly, end-to-end verifiable by the academics, technologists, political parties, and advocacy groups that may question the integrity of an online voting system.

Our standard blockchain-based platform (CastIron®) has processed over 13 million voters for both public (government) and associations across the US and world without fraud, compromise, attacks nor hacking of any kind.

For the voter-facing application, CastIron's progressive web application provides the best possible user experience for both web and mobile devices. The voting application is accessible via a standard browser as a web app and acts as a native mobile app in both the Android and Apple app stores. This allows a voter to use the system with a desktop, laptop, tablet, or smartphone; the functionality and feel of the voter flow through the system will be the same/similar on all devices.

QUALITY CONTROL PROCEDURES

Votem EC uses comprehensive and industry-accepted testing processes to ensure full testing coverage of all aspects of the system. Our Quality Assurance team tests all aspects of the system, including functionality, features, running in multiple browsers/operating configurations, software configuration, software installation and deployment, and administrative and voter experience, including reporting and voter management.

PERFORMANCE TESTING

Votem routinely validates system performance utilizing industry accepted tools and strategically created test suites to ensure that we deploy our software in a configuration that exceeds anticipated turnout volumes.

DATA ACCURACY AND RELIABILITY TESTING

To ensure security, accuracy, and reliability of election data, Votem conducts Logic & Accuracy (L&A) testing on each part of the solution, including:

- A comprehensive check of each ballot configuration
- Verification of all content and functionality of the election
- Creation of digital keys for locking and unlocking the election

This audit is conducted before the election opening after the election has been approved and software has been locked down to ensure that our processes, management, and actual system provide accurate election results.

4.2.1.1. Vendor's tool has been reviewed by at least one (1) independent, nationally recognized organization supporting the Disability Community for its user acceptance and Section 508 conformity for voters living with disabilities. Copies of any reports or public statements by the organization(s) should be provided to the Agency for Confidential review.

Votem leverages independent, nationally recognized Accessibe (accessibe.com) to conform to all relevant Section 508 requirements and for auditing our user-facing sites to ensure continuous compliance. Although the platform and user experience are essentially the same for West Virginia as they would be for our past customers, we would perform a new conformance audit for the West Virginia specific site if selected.

4.2.2. Mandatory Qualification/Experience Requirements - The following mandatory qualification/experience requirements must be met by the Vendor as a part of its submitted proposal. Vendor should describe how it meets the mandatory requirements and include any areas where it exceeds the mandatory requirements. Failure to comply with mandatory requirements will lead to disqualification, but areas where the mandatory requirements are exceeded will be included in technical scores where appropriate. The mandatory qualifications/experience requirements are listed below.

Votem meets all the mandatory requirements and **exceeds these requirements** in three areas: expertise, advanced accessibility features, and security.

Expertise - Votem (along with our predecessor, Everyone Counts) is one of the oldest online voting companies in the world. As shown in the table of completed federal elections below, our team has supported over 13 states, hundreds of counties, and thousands of elections over the past 14 years; very few other companies can say that. We have literally "seen it all" and understand that our role is to make our customers' heroes by running elections without incident and supporting you when the inevitable critics emerge.

Advanced Accessibility Features

a.) AI powered automatic screen-reader adjustments - Votem uses automatic screen-reader adjustments powered by artificial intelligence (AI), which uses contextual understanding and image recognition to scan and analyze the functionality of every element on our website and adjusts it for screen reader accessibility, including Alt Attributes, State Controls, ARIA Attributes, Icons & Buttons, Roles & Landmarks, Forms & Validations.

b.) AI-powered automatic keyboard navigation - We leverage a Contextual Understanding AI engine that matches our voting site's behavior, style, and structure against millions of past experiences to provide unique keyboard navigation and operation functionality, including Dropdowns, Menus, Forms, etc Skip Links and Buttons.

c.) Personalized accessibility interface – The Votem accessible voting experience is tailored to the individual need of every user, regardless of their disability, while supporting a range of UI and design adjustments from content and colors to display and orientation, including Content & Display, Color & Contrast, Stop Animations, Mute Sounds, Focus & Emphasis to name a few.

Security

Over 112 counties used our CastIron Platform in the 2020 U.S. Presidential elections. It was tested for security vulnerabilities (and passed) by the U.S. Department of Homeland Security (CISA) and several U.S. states. Unique only to Votem, CastIron leverages technology that uses groundbreaking Polymorphing and Polyscripting technologies that protect against zero-day attacks, unpatched systems, and even complex supply-chain attacks with no impact on system performance or operational procedures. It literally stops attacks before they start by scrambling our binary code, making it impossible for a hacker to identify vulnerabilities. We included a snapshot of CISA Report Out below, which showed virtually no vulnerabilities.

4.2.2.1. **Implemented tool in at least two (2) previous federal elections. A list of all previous federal elections, including the jurisdiction, shall be provided to the Agency.**

Federal Elections conducted by Votem and our predecessor Everyone Counts 2010 - 2020

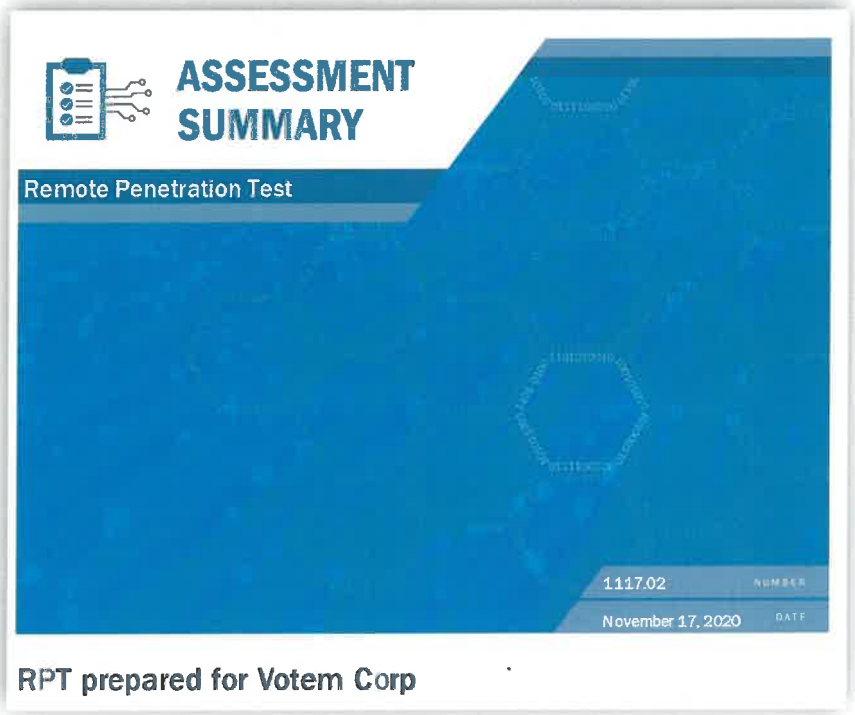
Election Type

PP = Presidential Preference
PR = Primary
RO = Runoff
GE = General
SP PR = Special Primary
SP RO = Special Runoff
SP GE = Special General

Year	2010			2011	2012				2014			2016			2017			2018			2020			Total 2010 - 2020
Election Type	PR	SP PR	GE	SP PR	SP GE	PP	PR	GE	PR	RO	GE	PR	RO	GE	SP PR	SP RO	SP GE	PR	RO	GE	PR	RO	GE	
State	Number of Counties																							
State of Alabama									67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	1,005
State of Arizona									13		11													24
State of Colorado			1				29	62	62		64	64		64				64		64				474
State of Florida						1	4	4	1		2													12
State of Illinois							2	2	2		2	2		2										12
State of Montana												56		56				56		56	56		56	336
State of New Jersey												21												21
State of Oregon			1	5	5		36	36																83
State of South Dakota											66													66
State of Utah			11				14	15	11		10	8		8										72
State of Washington							4	4	10		11	9		9				8		8				63
State of West Virginia	3	4	5																					12
Washington DC												1		1				1		1	1			5
Total	3	4	18	5	5	1	89	123	166	67	233	228	67	207	67	67	67	196	67	196	124	67	123	2,190

4.2.2.2. **Vendor's applicable network and systems or tool have been assessed for security vulnerabilities by at least two (2) independent, federally recognized, certified, of industry specific equivalent technology or cybersecurity auditors. Copies of all assessments or equivalent reports shall be provided to the Agency.**

Most recently, our CastIron Platform was used by over 112 counties in the 2020 U.S. Presidential elections and was tested for security vulnerabilities (and passed) by the U.S. Department of Homeland Security (CISA) and several U.S. states in November 2020. We included a snapshot of the most recent CISA Report Out below, which showed virtually no vulnerabilities.



Appendix A.1: Findings Breakdown

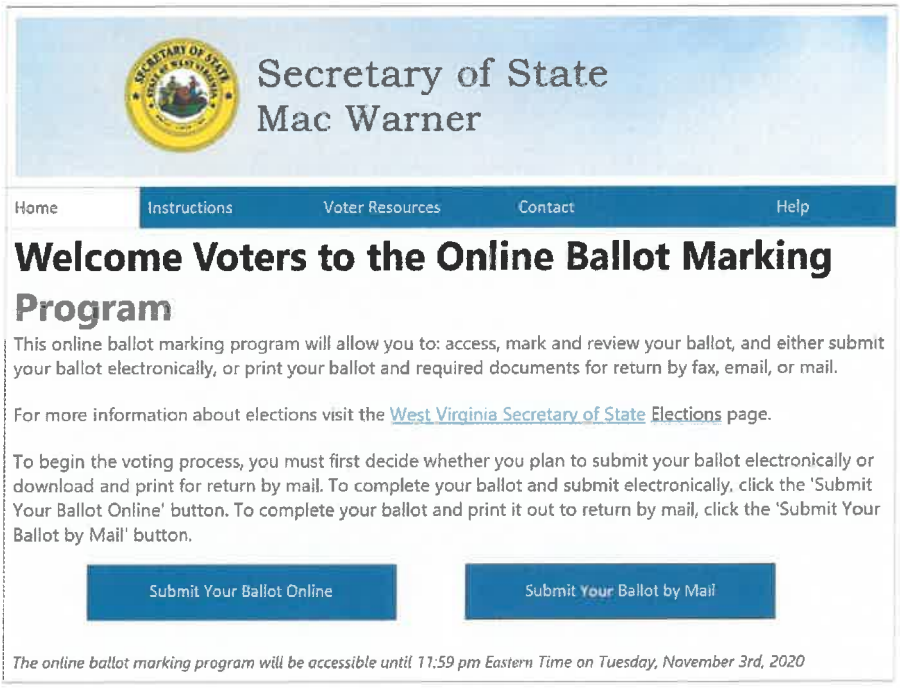
Assessment	Critical	High	Medium	Low	Informational
Open Source Information Gathering	0	0	0	0	0
Phishing Assessment (Infrastructure Only)	0	0	1	0	0
Web Application Assessment	0	0	0	0	0
Total	0	0	1	0	0

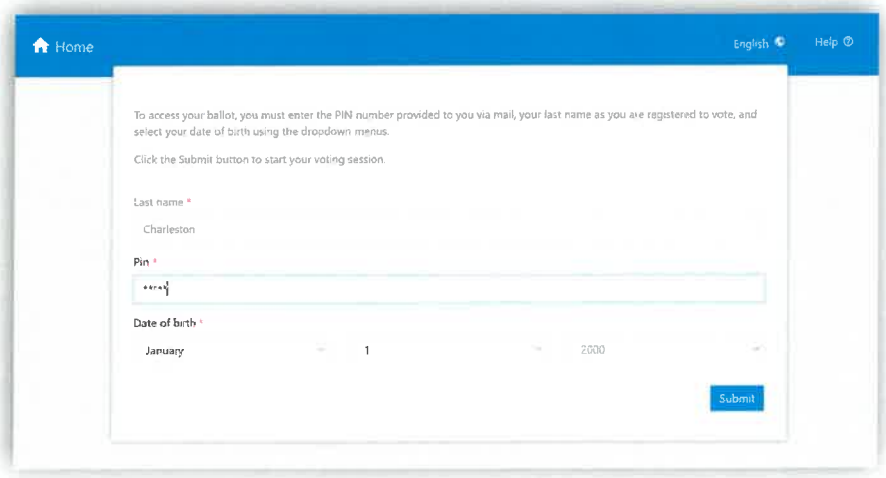
Figure 10: Findings Breakdown

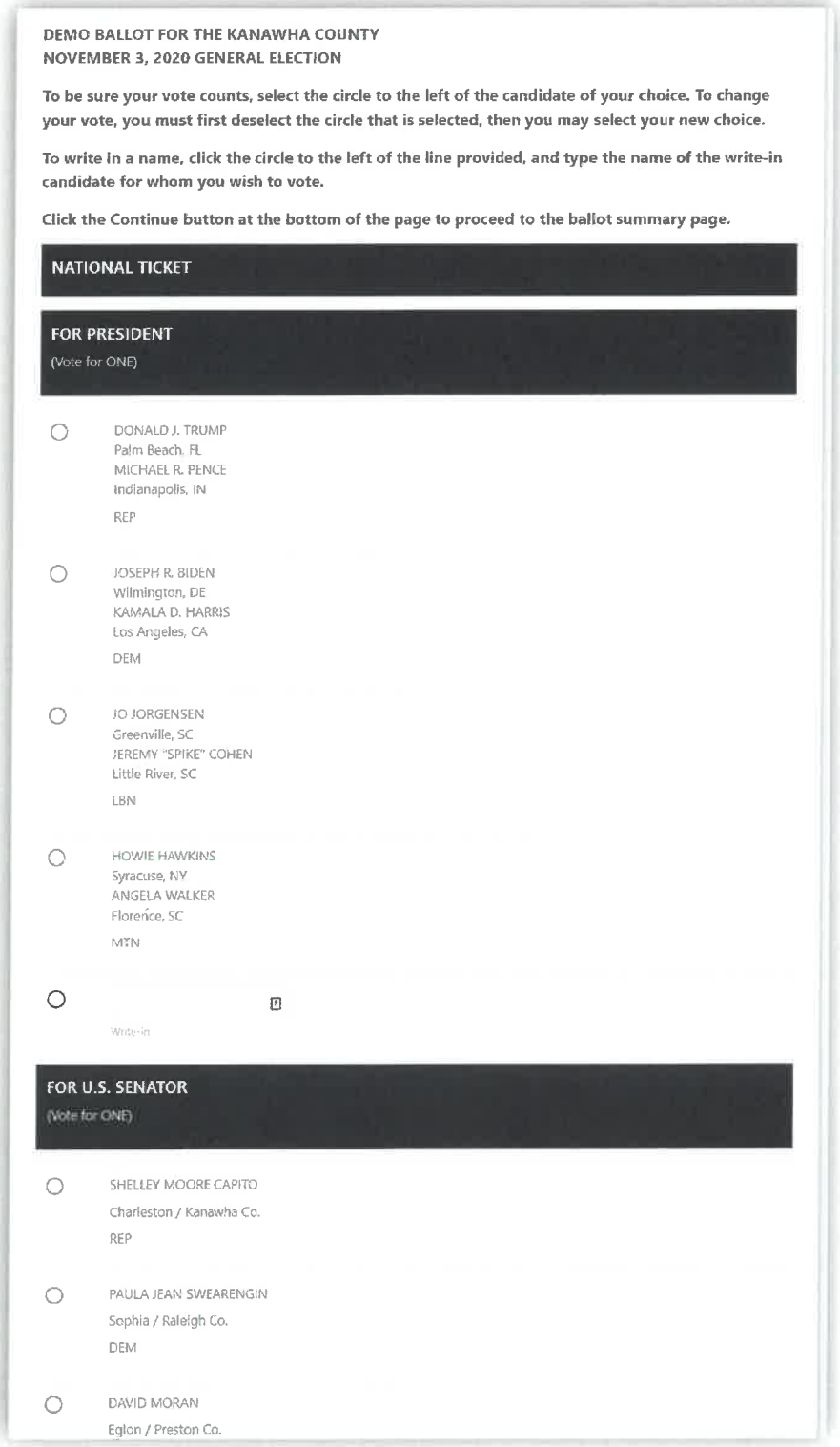
See AppA4_Severity for definitions of each level of severity (Critical/High/Medium/Low/Informational).

VOTER SYSTEM FLOW SCREENSHOTS

We have included sample screenshots of your new system but would work with the Agency to customize the ballot layout and instructions to meet your federal, state, and count requirements.







DEMO BALLOT FOR THE KANAWHA COUNTY
NOVEMBER 3, 2020 GENERAL ELECTION

To be sure your vote counts, select the circle to the left of the candidate of your choice. To change your vote, you must first deselect the circle that is selected, then you may select your new choice.

To write in a name, click the circle to the left of the line provided, and type the name of the write-in candidate for whom you wish to vote.

Click the Continue button at the bottom of the page to proceed to the ballot summary page.

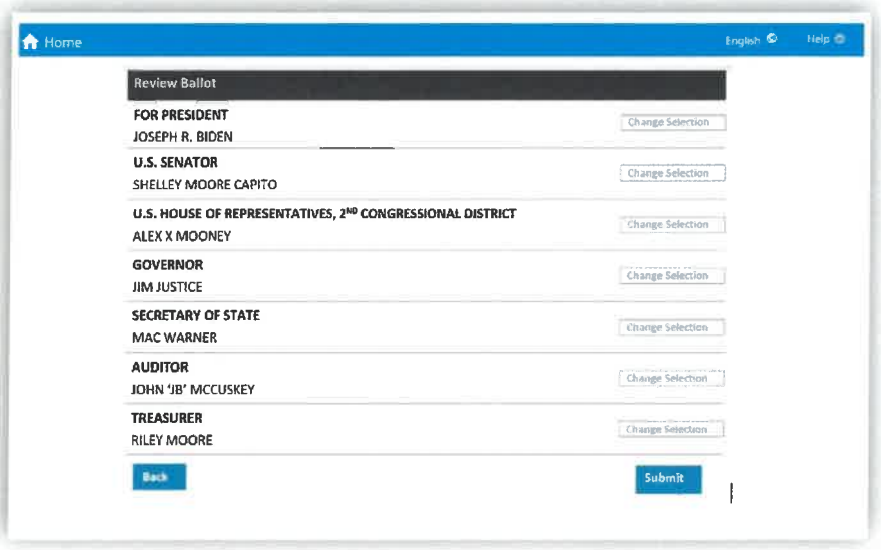
NATIONAL TICKET

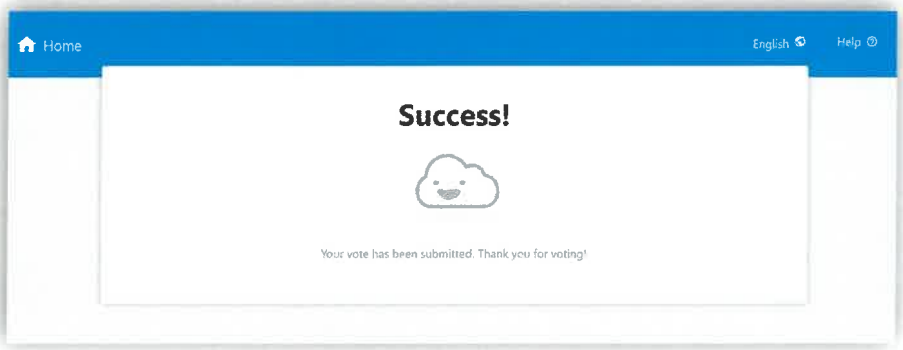
FOR PRESIDENT
(Vote for ONE)

- DONALD J. TRUMP
  Palm Beach, FL
  MICHAEL R. PENCE
  Indianapolis, IN
  REP
- JOSEPH R. BIDEN
  Wilmington, DE
  KAMALA D. HARRIS
  Los Angeles, CA
  DEM
- JO JORGENSEN
  Greenville, SC
  JEREMY "SPIKE" COHEN
  Little River, SC
  LBN
- HOWIE HAWKINS
  Syracuse, NY
  ANGELA WALKER
  Florence, SC
  MTN
- Write-in

FOR U.S. SENATOR
(Vote for ONE)

- SHELLEY MOORE CAPITO
  Charleston / Kanawha Co.
  REP
- PAULA JEAN SWEARENGIN
  Sophia / Raleigh Co.
  DEM
- DAVID MORAN
  Eglon / Preston Co.


Home
English
Help
Review Ballot
FOR PRESIDENT
JOSEPH R. BIDEN
Change Selection
U.S. SENATOR
SHELLEY MOORE CAPITO
Change Selection
U.S. HOUSE OF REPRESENTATIVES, 2ND CONGRESSIONAL DISTRICT
ALEX X MOONEY
Change Selection
GOVERNOR
JIM JUSTICE
Change Selection
SECRETARY OF STATE
MAC WARNER
Change Selection
AUDITOR
JOHN 'JB' MCCUSKEY
Change Selection
TREASURER
RILEY MOORE
Change Selection
Back
Submit


Home
English
Help
Success!
Your vote has been submitted. Thank you for voting!

System Name: Castiron

POA&M ID	Type	Governing Control	Weakness Description	Source Identifying Weakness	Original Detection Date	Scheduled Completion Date	POC	Resources Required	Vendor Dependency	Last Vendor Check-in Date	Vendor Dependent Product Name	Planned Milestones	Milestone Changes	Status Date	Original Risk Rating	Adjusted Risk Rating	Mitigating Factors	Comments
MA	MA - Mobile App	OWASP	Not applicable - we do not use native mobile apps				K Jensen		N/A					Complete	N/A	Low		
WA	WA - Web App	OWASP	N/A	CISA Vulnerability Scan	11-Nov-20	N/A	K Jensen		Polyverse	11/4/2021	Polymorphing			Complete	N/A	Low	Protection against code-injection attacks—the biggest web-application security risk.	Protects Castiron against zero-day attacks, unpatched systems, and even complex supply-chain attacks
NETW	NETW - Network	Network Control	N/A	CISA Vulnerability Scan	11-Nov-20	N/A	M Anev		Google	11/10/2021	Google Cloud Platform			Complete	N/A	Low		
DB	DB - Database	SRG Database Control	N/A	CISA Vulnerability Scan	11-Nov-20	N/A	M Anev		Progress	9/20/2021	ProgressDB			Complete	N/A	Low	Phishing could create access to internal development systems	Provided cyber risk training to all employees and provided USB security keys for accessing all DEV and PRD systems as mandatory 2FA
OFF	OFF - Office Tools	OWASP	Potential phishing vulnerability in email system	CISA Vulnerability Scan	12-Nov-20	12/31/2020	L. Curtis		Google	10/17/2021	Gmail			Complete	Medium	Medium		