

HALIFAX

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Item No. 2

Halifax Regional Council
May 8, 2018

TO: Mayor Savage and Members of Halifax Regional Council

Original Signed by 

SUBMITTED BY:

John Traves, QC., Director, Legal Services, Municipal Clerk & External Affairs

Original Signed by 

Jacques Dubé, Chief Administrative Officer

DATE: February 14, 2018

SUBJECT: Electronic Voting Security and Increasing Voter Participation

INFORMATION REPORT

ORIGIN

Request for additional information made on June 13, 2017, regarding security around electronic voting, and increased voter participation.

LEGISLATIVE AUTHORITY

Municipal Elections Act, R.S.N.S. 1989, c. 300, (MEA), including section 146A:

- (1) A Council may by by-law authorize voters to vote by mail, electronically or by another voting method.

BACKGROUND

On June 13, 2017, Regional Council approved amendments to the Alternative Voting By-law, and approved the use of telephone and internet voting for the next special election (if required) prior to the general election in 2020. During the discussion, members raised questions regarding security protocols when preparing telephone and internet technologies (electronic voting, or e-voting) for voting purposes. In addition, while

recognizing that the use of e-voting methods does not necessarily increase voter participation, members had questions regarding HRM's efforts to increase voter participation.

Remote voting has been used by Halifax Regional Municipality (HRM) since 2008, for five electoral events, consisting of three general elections and two special elections. In using this technology, procedures have been put into practice over time that ensure that the technology is functional, secure, and that the process and technology is accountable to the public.

Participation rates for using remote voting methods has been approximately 60% of total votes cast; however, the overall voter participation rate has declined for this election. The decline in voter participation has been seen across many jurisdictions, and is acute at the municipal level. Halifax Regional Municipality, as an organization, has been actively working to address this concern.

DISCUSSION

Since 2008, the citizens of HRM have had a choice in how they cast their ballots, either by way of telephone, internet, or in person. In that time, staff developed a rigorous election-ready program to ensure that all election technology is sound, tested, and accountable.

Sound: A cross-functional project team consisting of the Municipal Clerk's Office, Legal Services, Information Communication and Technology (ICT) and Procurement built a request for proposal (RFP) for integrated telephone and internet voting, conducted a thorough evaluation, and reference checks.

Tested: HRM employs third party technical security assessment services, that conducts a security assessment of the e-voting technology.

Accountable: HRM conducts a specified procedures audit with external help (Ernst and Young) to confirm that the voting processes are compliant with legislation, and meet the requirements as set forth by the Returning Officer. For transparency purposes, the specified procedures report is public and the Municipality posts it to the municipal election webpage.

Request for Proposal Process

In preparation of an election, a cross-functional team is assembled to build an RFP to procure an integrated telephone and internet voting system. The team ensures that it reflects overarching legislative requirements, as set out in the MEA, and By-law A-400, the Alternative Voting By-law. In addition, ICT provides guidance to ensure that the requirements reflect HRM's technological standards.

It is customary for the RFP creation phase to take approximately three to six months. It begins with a jurisdictional review of technologies and methods used in other election areas, to confirm the best approach. Staff work to build the RFP, and review the functional and non-functional requirements, which includes determining criteria and levels to which it is evaluated.

Respondents are required to complete criteria sheets, that outline technical requirements indicating compliance and providing comment, these sheets are compulsory components to a submission. Security and the protection of personal information are two themes that run throughout the RFP and the criteria sheets. To provide insight into the rigor of the E-vote RFP and evaluation process, the following are criteria sheet headings from the 2016 E-vote RFP. The themes (noted above) can be further subdivided through the following headings:

Authentication Processes: The system must have the architecture to ensure that information provided is gathered, verified and retained in a way that is secure and that maintains secrecy of the vote.

- A secure identification and authentication of the information transmitted on the system.
- A secure mechanism for ensuring that all ballots cast are for the correct voting subsidiaries and that no external, unauthorized or "rogue" ballot or votes are cast.
- Ensure none of the participants involved in the voting process (organizers, election officials, trusted third parties, electors, etc.) can link a vote to an identifiable elector.

Prevent Interference of the Vote Process: The product must have the capability to ensure that the vote processes are not interrupted, compromised, or unduly influenced and that it have protections to safeguard against common electronic threats.

- Able to handle system interruptions (Distributed Denial of Service (DDOS), hardware, software, power failure, network outage, etc.) during the voting process and have reliable alternate arrangements in place.
- In the event there is a system interruption during the voting process, the product must provide the mechanism to extend voting for a period as designated by the Returning Officer.
- Suppress all screen or phone electioneering (marketing by way of pop-ups or audio clips which may influence the elector).
- Protect against abuse, including tampering, fraudulent use, and illegal manipulation by electors, election officials, or any other individual or group.
- Processes in place to detect and/or prevent and resolve the common threats to the product such as:
 - Hacking
 - Insider Tampering
 - Viruses or Malware
 - DDoS attacks
 - Phishing
 - Undue Influence such as coercion, family voting or vote selling

Protecting Personal Information, Secure Data: The product's ability to protect personal information must be demonstrated. In addition, the product must contain audit logs for changes to information, and have an audit trail process.

- The product must not store any information on the elector's device.
- Vendor access to HRM data must be limited and only accessed as required and approved by the Municipality.
- The data must be encrypted in the database.
- The product must have the ability to limit security rights to system administration users based on duties and tasks.
- If in a multi-tenancy environment, administration access must be limited to a single tenant.
- All changes must be logged in an audit table which cannot be deleted.
- Describe the vote audit trail and how it protects the privacy of the elector and ensure a trail that will be verified in an election recount or appeal.

Once the contracts are complete, the vendor works with the Municipality throughout the election period, on reviewing and providing comment on vote procedures, configuration of the system, the voter letter, assisting candidates with the voter portal, and providing technical assistance. During the voting period, the vendor works closely with the Municipality on monitoring vote activity. In addition, they cooperate with the Municipality in preparing materials, timing and access for the third-party assessment and the Systems Election Officer (Auditor), described later in this report.

During the 2016 election, part of the vendor's due diligence included recorded access into the system by voters once they reached the login screen, where the PIN, and the secondary credentials are entered. In addition, processes are in place that monitor high activity that come from an IP address or a phone number.

In addition, the vendor customarily can generate several types of reports for the Returning Officer or the Systems Election Officer (Ernst and Young), such as accesses, and failed attempts.

Procedures are in place to monitor the number of failed attempts, and there is the capability to run reports that would show number of accesses by an individual IP address or a phone number. In the past, the vendor, has investigated anything suspicious, usually determining that the traffic was coming from an office building, or a learning institution etc. Reports are received for login attempts that total more than 10, and when requested by the Municipality the vendor has investigated situations, and have reported back to election officials. In general, the usual login attempt misfire occurs when the secondary credential (birth date) doesn't match what has been recorded in the Elector's List and the elector will call the election office to clarify.

To help safeguard against hackers, who may use programs to randomize IP addresses, the Municipality has included additional security checkpoints, such as human challenge interfaces, randomized PIN generation, and the use of secondary credentials. Staff have considered the use of a double authentication function, with an email verification portion. However, a voting process with a mandatory internet component such as email could present a barrier to some electors to participate. Although the use of telephone voting has decreased from 5850 votes cast in 2012 to 4822 in 2016, it still represents roughly 5% of total votes cast, and may represent a subsection of voters who may not have any other means, access or options.

At the close of polls, the vendor works with the Systems Elections Officer (auditor) and the Returning Officer to ensure that the vote system has been shut down properly. In addition, they work together to ensure the appropriate documentation is filed with both Officers, in accordance with the Alternative Vote By-law, procedures, and the MEA.

Third Party Technical Security Assessment

The Municipal Clerk's Office works with ICT, the E-Voting vendor, and a third party technical security firm, to run an assessment on the system to ensure that vulnerabilities are identified and that the necessary mitigation occurs. This engagement also provides the Election Team with an understanding of some of the nuance involved in security and privacy exposures regarding access to and/or processing of confidential information. The assessment occurs in advance of launching the vote system, and involves the following tests upon the system. The tests employ a combination of commercial and non-commercial tools, as well as human analytics to gather data on the system's vulnerabilities and performance. During the assessment applications are typically reviewed under the following criteria:

- Information Gathering - Fingerprinting server details
- Configuration and Deployment Management Testing - Test for weak configurations and misconfigurations
- Identity Management - Account enumeration, test user registration process, test role definitions;
- Authentication Testing - Attempt authentication bypass
- Authorization Testing - Attempt escalation of privilege, information disclosure based on roles
- Session Management Testing - Analyze how application handles sessions
- Input Validation Testing - Test for user input sanitation
- Cryptography - Analyze encryption used in application
- Business Logic Testing - Analyze and match business process with functionality of application
- Social Engineering– Analyze possible scenarios for social engineering

After the results are provided, the third party technical security firm works with the vendor and the Municipality to help mitigate risks identified in their report. When their suggested mitigation, or solutions have been put in effect, a test on those aspects are completed to evaluate and a supplementary report is filed with the Municipality. An assessment is made by municipal staff, (Municipal Clerk's Office and ICT) and, if satisfactory, the system is approved to be launched.

Specified Procedures Audit

In accordance with the Alternative Vote By-law A-400 and Section 146A of the *Municipal Elections Act*, the Municipality selects an auditor, to serve as a Systems Election Officer (SEO) for E-Voting (through an RFP process). In accordance with the By-law, a Systems Election Officer is defined as a person who maintains, monitors or audits the system, and who has access to the system beyond the access necessary to vote by alternative voting. The Systems Election Officer, is customarily employed by the accounting firm Ernst and Young, and works with the Municipality and the E-Voting vendor to ensure that the system conforms to a system audit. The SEO is granted special audit identification numbers (audit pins), to access the voting system, and is tasked with performing various checks at various stages of the election.

The specified procedures process occurs at various times during the election period. The Systems Election Officer accesses the system using audit credentials and provides checks on the system to ensure transparency. The initial review occurs before the system is launched to the public. The SEO verifies that the Voter's List of the Returning Officer, matches that of the E-voting vendor, determines whether there are duplicate pins, and verifies a listing of those who have access to the E-voting system. Using their audit PINS, the SEO validates that the system is set up properly, both via internet and telephone (audio with correct pronunciation), and that a vote can be cast for every candidate in both methods. In addition, the SEO will attempt to login to vote before voting is opened with a PIN that has been "disabled" by the elections team. In addition to the disabled PIN test, several other types of tests or scenarios regarding voting are performed before and during the vote to ensure that the e-vote system is working in accordance with the Procedures and Forms document, a public document, posted to the election webpage.

At the close of the E-vote period, the SEO is present and works with the vendor and the Returning Officer to ensure that the E-vote portal closed properly. Part of their function is to attempt to access the system after the poll is closed using both methods and records the instances and what messaging is received. The SEO also serves as a custodian of a back-up paper file and electronic results.

At the close of Election Day polling the SEO is present at the Elections Office, and supports the E-vote upload. They assist in verifying that what was produced from the E-vote upload, and what was recorded at the close of E-vote period. Should there be a recount the SEO can appear as a witness, to testify that they can verify what is presented was provided from the system at the close of the E-vote period. Post-Election, the firm produces a specified procedures report, which relays the system tests that were completed, the report is posted publicly on the HRM website, to forward transparency in the process.

Increasing Voter Participation

Internet and Telephone voting offers electors more choices and convenience in the ability to cast their ballot, by allowing an elector to cast a ballot anywhere at any time, during the advance vote period. In addition, accessibility communities have lauded the technology, as it allows for persons with disabilities to cast their vote independently. Although E-voting allows for more opportunities to cast a ballot, it does not increase voter turn-out. Voter participation in HRM Municipal Elections have seen a decline through the 2016 Municipal Election.

The voter turn-out has ranged at various stages over the past five elections, however, 2016 was low with 31%. In addition, compared to voter participation rates with other levels of government, the municipal level, is generally associated with the lowest turnout rates. Upon review, the 2004 election featured a controversial plebiscite regarding Sunday Shopping, and therefore the spike in turn-out could be considered an anomaly.

Voter Participation Rate:

2000 - 36%

2004 - 48%

2008 - 36%
2012 - 36%
2016 - 31%

The decline in voter participation has been a concern of the Municipality. Throughout 2016, efforts were made to improve election services, communication, and to increase education and engagement. To demonstrate the Municipality's commitment to increasing voter engagement, this report provides an overview of the 2015 Your Ideas, Your Vote campaign, the communications and engagement efforts made during the 2016 Election, and a look towards current endeavors to create, foster and enhance connections to HRM's communities.

Your Ideas Your Vote Campaign (2014-2015)

In preparation for the 2016 election, an extensive voter engagement campaign, titled Your Ideas, Your Vote was conducted by the Municipality. Initially the outreach was to gain more insight into electors and using e-voting technologies to cast a vote; however, based on input at Regional Council, the outreach evolved to have a focus on increasing voter engagement in municipal elections. To prepare, the Municipality worked with the Dalhousie School of Public Administration to assist in structuring an engagement process. It resulted in a multi-step process, with each stage building upon the last, and culminating in a one-day interactive session bringing subject matter experts and interested electors to have a conversation.

Throughout the Fall and Winter of 2014 -2015, the Municipality conducted two polls, one being a short street team survey, the second, building off the street team survey, into a public opinion survey. In addition, working with Dalhousie University, Dr. Jeffrey Roy from the School of Public Administration, who produced a discussion paper titled "Voter Engagement in Halifax, starting the Discussion", with an annotated bibliography, to serve as a backgrounder throughout the public consultation. The paper was posted for public consumption, and was used to help frame some of the overarching issues. The paper drew upon research and experiences from comparable municipalities, it also provided an analysis of voter participation in Halifax from 2000 - 2012.

On April 11, 2015, the municipality hosted a one-day symposium focused on Voter Engagement. In planning for the event, the municipality worked with a third-party engagement team, and the day was structured on the emerging data and themes from survey responses. The session was held at Central Library, and was webcasted to afford for broader participation. The event was divided into three sections, youth and new voters, accessibility and voting methods, and how can voters engage in an election. The event brought together panel experts and voters to have discussion in both a structured facilitated portion, and smaller breakout sessions.

All feedback from the surveys, and the engagement session were taken and assessed. The information was then themed into three areas to improve upon election services, and communicated to Regional Council through an Audit and Finance Standing Committee Report, in November 2015. The feedback informed and shaped the planning for the 2016 Municipal Election. The Election team allocated more resources for communication and outreach, to increase staffing levels, and made substantive strides to adopting an elector focused approach towards election services to ensure that voters had a positive experience.

Reach People Where They Are:

- Stronger communication with residents using traditional and non-traditional avenues.
- More voting options during Advance Voting.
- Placement of Polling stations in high traffic areas.
- Continue to offer e-voting.
- Offer Vote Anywhere for in-person voting.

More Informal Conversations with Voters, Potential Candidates & Other Interested Parties:

- Increase Activity on Social Media.
- Attend community meetings to listen and respond to questions.
- Provide the public with more channels to ask questions and find information on the election.

Engage People in Tangible Ways Whether or Not They Can Vote:

- Hiring Election Staff:
 - Require 1500 staffers at the polls does not have to be the voting age, persons aged 16 years and older can be employed.
 - Does not require Canadian Citizenship to be employed at a polling location.

2016 Communication and Engagement Efforts

In reviewing the feedback provided by the Your Ideas, Your Vote engagement, the Election Team made communications and engagement a priority in the overall election program. The Election Team allocated 25% more budget compared to 2012, towards communications and engagement, and hired a dedicated resource. The team also worked with Corporate Communications on developing a multi-phased communications plan, and worked with public facing departments to identify and develop outreach and engagement opportunities.

A comprehensive communications plan was developed, and with the goal of informing, and engaging residents in HRM about the opportunities to participate throughout the election period. It was subdivided into smaller campaigns, and focused around a theme or legislative deadline, each had a distinct focus, anticipated outcomes and depending on the desired outcome employed different tactics. The various phases of the communications plan were as follows:

- Candidate Information Sessions
- Recruitment of Election Workers (approximately 1500 staff recruited)
- Voter's List Revisions
- Nomination Period
- Voter Information Letters, Voting Locations
- Unofficial/ Official Results Reporting

Within the communications plan, an emphasis was placed on increasing the reach to residents through diversifying advertisements. Traditional methods such as newspaper, television and radio were used, but staff also worked to ensure that ads were also placed on buses, billboards, and social media/online.

Take it to the Street

The Elections team worked on having an outward facing presence. The Team worked to build a presence in community events, while providing information related to the current phase of the election. Elections Team had a presence at all Halifax Food Truck Parties (five in total), municipal events such as Canada Day, and Summer parades such as Halifax Pride. The involvement in these events was to reach people where they were, and at times street teams were employed and instructed to interact with the public, by distributing election branded promotional materials and providing information on election related services.

In addition to the presence at local events, in the month of September the Election Office had a Pop-Up location at 11 libraries across HRM, Alderney Gate Farmer's Market and at Scotia Square. These Pop-Up locations featured staff to provide information to residents on voting options, and provided an in-person opportunity to be added to the Voters' List.

Targeted Engagement Efforts

Throughout the year leading up to the Election, the Election team worked on direct engagement with the community. However more effort must be made leading up to the 2020 election to ensure that more diverse communities are reached and in a timely manner.

Federation of Canadian Municipalities, Women in Politics: Representative from the Election team attended an event in November 2015, provided information on becoming a candidate and legislative election deadlines.

African Nova Scotian Communities: The Elections Office partnered with the African Nova Scotian Affairs Integration Office (ANSAIO)/the Office of Diversity and Inclusion to offer three Community Circles to engage residents across African Nova Scotian Communities on municipal election process which included all inputs and outputs in the Municipal Clerk's Office, ranging from running for office, submitting a petition to serving on a board/committee. Many of the African Nova Scotian candidates during the 2016 election participated in some of these circles.

Halifax Francophone Population: A representative from the Election team attended the Halifax Acadian French Partnership to discuss with its members the opportunities to more broadly engage with local francophone communities. Most of the feedback received from this consultation was implemented during the 2016 Municipal Election. After the election the Election team sent a representative to discuss the 2016 election with the Partnership and received positive feedback on its efforts to engage community. In addition, work was completed with Diversity and Inclusion working to better understand where local Francophone populations were in HRM.

Persons with Disability: In Spring 2016 the Elections Team presented a draft document entitled Improving Accessibility for Voters to the HRM Accessibility Advisory Committee, and received feedback on the document and election services. The feedback was incorporated into the Election practices. In 2017 the Elections Team returned to the Committee to gain feedback on the execution of accessible services and received feedback from the Committee. For the 2020 Election the Improving Accessibility for Voters document will be updated and include more consultation with the Accessibility Advisory Committee.

LGBTQ2S+: The Election Office recognizes that the amount of interaction with the LGBTQ2S+ communities was limited. Due to scheduling constraints, the bulk of the ANS community circles occurred during the same time during Pride Week. Some election advertising was secured in the Halifax Pride booklet and promotional materials were provided to other HRM staff attending Pride festivities to distribute. The Election Office will work with local organizations to provide for engagement opportunities within the LGBTQ2S+ community in advance of the 2020 municipal Election.

2016 Election Feedback – Shape your City Survey

In Summer 2017, while conducting the outreach for the Election Campaign Finance Accountability by-law, the Election team took the opportunity to also gather feedback on the 2016 Election. The survey was available through the HRM Shape Your City website from June 1, through to July 5, 2017. A 2016 election feedback component was also included in the three public engagement sessions held over the month of June at the following locations:

- Wednesday June 7th - Dartmouth, Harbour East Community Council Room, Alderney Landing
- Wednesday June 14th – Halifax, Halifax Hall in City Hall
- Thursday June 22nd - Bedford –Sackville, Bedford-Hammonds Plains Community Centre

The voter experience engagement session ran as part of the Campaign Finance Accountability engagement. There were breakout stations at all three engagements to capture the public's feedback on

election experience. The Shape Your City online survey received approximately 349 submissions providing feedback on the 2016 Municipal Election experience.

The online survey centered around the following focus areas:

- Access to Information - Including: was election information presented appropriately? Were enquiries responded to in a reasonable manner and timeframe?
- Effective Communication - Including: determine how the various methods used to communicate election details were received and any public suggestions on alternatives.
- Customer Service (Pre/Post Election)
- Voting Experience (Remote/In Person)

The purpose of the engagement was to collect feedback to help improve the delivery of municipal election services. Most comments during this engagement supported electronic voting. Participants commented that they found it easy, accessible and convenient. However, there are still concerns from the public about the vulnerability of an electronic voting system. There was also a strong response to the idea of communicating earlier and clarity on the different cut-off dates for advance polling and electronic voting.

In addition, participants shared ideas to make polling stations and advanced polling stations more accessible. This included allocating more parking, better signage and establishing voter location within walking distance of voter homes. Participants commented that there should be a centralized place to find information on all candidates with links to their websites and social media. In review of the data, it was apparent that some of the comments were about the voter experience during the recent provincial election. All comments will be reviewed and, where applicable, will be incorporated into planning for the 2020 Municipal Election.

Open Government Initiative

In recognition that public participation at the municipal level does not stop at the ballot box, the Municipal Clerk's office began to review opening up its services to be resident focused, and initiated an Open Government plan in Fall 2016. The plan sought to enhance accountability, transparency, and increase participation within the Municipality's governance. The concept of Open Government, stems from the freedom of information movement in the 1990s, which resulted in the establishment of legislation, the process for the public to access information, and a commitment to safeguard against the improper collection and use of private information. Another driver of Open Government is technology advances and how it has changed the way that it helps residents interact with their government today, websites, email, social media.

The Municipal Clerk's Office has been focused on smaller projects to remove barriers to participation, and to provide better information to residents. Some of its notable projects are new materials created for public appointments, focusing on a networked approach to promoting opportunities, changes in the way it presents HRM agendas and minutes, building in public engagement components into its projects. To help guide the Municipal Clerk's Office, the following Open Government pillars have been created and these lenses have been applied to most projects in the unit:

- Increasing Opportunities for Participation/ Participatory Democracy
- Strengthening Partnerships/ Collaboration and Information Sharing
- Improving Access to Information
- Building a Policy and Procedure Framework
- Outreach through Education/Youth Programing

Incrementally, the Municipal Clerk's Office has been working to shift the way that residents view the Municipality, and the unit is working towards building relationships with community and community groups throughout the Municipality. Working on forwarding Open Government initiatives and strategies is a way to

build trust, and the profile of the Municipality within the community, which may lead to more participation on multiple levels for future elections.

Conclusion

Throughout the years the E-vote program has grown and developed to meet the needs of community and increased demands upon technology. For 2020 the Municipality will be conducting another Request for Proposal process which will reflect updated technology requirements and field notes from the 2016 Municipal Election. In working with community, the Municipal Clerk's Office is aiming to reduce or eliminate barriers that are barring individuals from participating in the election. In 2019 work will be done to engage with diverse communities in tandem with election planning to ensure that their key considerations are heard in advance of concrete election planning decisions.

FINANCIAL IMPLICATIONS

This report has no direct financial implications.

COMMUNITY ENGAGEMENT

The Election Team has recently undertaken a citizen engagement survey on the election, a discussion of the survey and the results are included in this report.

ATTACHMENTS

None

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

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