

Committee of the Whole (2) Report

DATE: Tuesday, May 14, 2024

WARD(S): ALL

TITLE: UPDATE ON INTERNET VOTING VERIFICATION

FROM:

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ACTION: FOR INFORMATION

Purpose

To report on options for elector verification associated with internet voting in advance of the 2026 Municipal Election.

Report Highlights

- Elections Vaughan issued two Requests for Information (RFIs) to assess the current options available for voter verification in connection to internet voting.
- Some options identified include requiring electors to submit a request to vote by internet that is reviewed and screened by staff, and tools and mechanisms that provide confirmation to electors after their ballot has been cast.
- Elections Vaughan will incorporate additional verification mechanisms into the implementation of internet voting for the 2026 Municipal Election.

Recommendations

1. That this report be received for information.

Background

At the Council meeting of [November 29, 2023, Item 3](#), of the Committee of the Whole (Working Session), was adopted without amendment. Council directed staff to provide a future report, detailing the existing options for improving voter verification in internet voting in advance of the 2026 Municipal Election.

To assist Elections Vaughan in assessing the current voter verification options in online voting, the City issued two separate Request for Information (RFI) in February 2024. For online voting, the City procures two (2) solutions: an electoral management solution and an internet voting solution (IV). Each of the RFIs centered on one of these areas.

Both RFIs relied on voluntary disclosure of information and knowledge sharing from vendors and industry experts. Respondents were not obligated to answer all questions posed. The responses obtained from both RFIs were reviewed and aggregated for this report.

Previous Reports/Authority

[ELECTIONS VAUGHAN ROADMAP 2030](#)

Analysis and Options

Elections Vaughan staff have reviewed the responses received through the RFIs and analyzed the information and best practices as implemented by comparator municipalities. When reviewing the presented information, it is essential to note the following:

- The information provided in this report gives a view of the current features available, based on vendor responses to this RFI only. It is important to acknowledge that not all features or options discussed may be available from all vendors or for the City.
- The actual features and options available for implementation by the City may vary at the time of procurement based on vendor responses.
- Presently, there are no industry standards or established minimum requirements in Canada concerning Internet voting.

This report is divided into two sections according to system type: electoral management and internet voting. Electoral management covers features found in electoral management solutions and administrative procedures to validate identity. The subsequent section explores features and options in internet voting solutions for further validating identity and verifying votes.

Electoral Management

I) Voter Registration

The most fundamental form of voter registration refers to the process by which eligible individuals request the addition of their names to the Voters' List. Once their names are added to the Voters' List, individuals are automatically included in the distribution of voter information letters by mail. All individuals receive letters containing the same information (when, where and how to vote). No strike-offs or annotations are made to the Voters' List during this process.

Voter registration can also denote the process through which eligible voters indicate their intention to vote by enrolling their names on a registration list. Within this process, voters may register for an alternative voting method if one is provided. Once approved, the voter may avail themselves of alternative voting options in addition to the paper-ballot option. This form of voter registration is utilized in elections employing alternative voting methods, including mail-in voting and internet voting. For the purposes of this report, this definition of voter registration will be used.

How Voter Registration Works

The RFI process revealed a variety of voter registration workflows enabled by elector management systems. These workflows vary in their degrees of automation, the tools utilized for identity validation and verification, and the breadth of supported voting methods. Respondents emphasized that this service is not available as a standalone product; rather, it must be obtained as part of their comprehensive elector management solution.

The typical voter registration process is as follows:

1. Voters are required to submit a valid ID or a combination of IDs through an online portal hosted by the elector management vendor.
2. Voters must request the option to participate using an alternative voting method.
3. IDs are verified, and based on this verification, the request may be either approved or rejected.
4. Upon approval, the voter's name is added to the Voters' List.
5. A voting package, such as online voting credentials and/or a mail-in ballot kit, is generated and sent by mail (in the case of internet voting, an annotation would be noted on the Voters' List identifying that individual has registered for the alternative voting method)

Validation and Verification of IDs

For solutions relying on a manual process, election administrators are responsible for manually reviewing each submission to validate the identity before approving the request. This process depends on the integrity of voters to submit genuine and valid identification. Administrators often do not have access to databases for verifying the authenticity of the IDs provided. Manual processes support most types of voting methods.

Where internet voting is the sole voting method provided at an election, some solutions offer an automated process which typically have their solution complete the ID validation process on behalf of administrators. These solutions often utilize open-source authentication protocols or identity management solutions to authenticate the voter's identity. The adoption of open-source technology is increasingly gaining traction and reliance across various industries, including banking and the federal government.

Authentication Protocols

Authentication protocols are standardized sets of rules and procedures employed to verify the identity of users within a network or system. They function by exchanging a set of personal attributes with other identity providers and the applications that utilize them. Users must consent to (or deny) the sharing of this information. Several protocols mentioned in the RFI responses include password-based authentication, token-based authentication, biometric authentication, Open Authorization, and OpenID.

Examples of Voter Registration

Markham: Online voting has been an option in the City of Markham since 2003. Until 2018, Markham allowed voter registration for online voting. To obtain an online voting kit, voters needed to register with the municipality prior to the voting period. Only those who registered were provided with credentials for online voting; others were expected to vote in person and did not receive online voting credentials. Markham discontinued this requirement in the 2018 municipal election, citing voter registration as a hindrance to participation. Presently, online voting credentials are mailed to all voters registered in the Voters' List.

London: Mail-in voting has been an option in the City of London since 2018. Although online voting isn't available, London's voter registration system for alternative voting methods is very good. Eligible voters must apply for a Mail Ballot through a registration process. Once the request is approved, the Voters' List is updated to show the voter's Mail Ballot registration, and a kit is sent to their registered address. The voter's name is struck-off the Voters' List. Registered voters are not permitted to vote in person or by any other method.

Internet Voting

I) Multi-Factor Authentication (MFA)

Multi-factor authentication (MFA) is a security measure that requires users to provide two or more forms of verification before gaining access to a system or application. These factors can fall into one of these categories:

1. Knowledge. Something the user knows, such as a password, PIN, or security question.
2. Possession. something the user has, such as a smartphone, security token, or smart card.
3. Inherence. Something the user is, typically biometric data such as fingerprints, facial recognition, or voice recognition.
4. Behaviour. Something unique in the movement of the user, such as person's typing pattern/speed, finger pressure or swiping characteristics.
5. Location. Something that identifies the user's geographical location such as GPS coordinates or IP address.

2022 Municipal Election

During the 2022 Municipal Election, voters participating in online voting were required to undergo MFA. Users were prompted to enter a unique set of credentials mailed to their registered address, along with their date of birth as a secondary authentication measure. It is important to note that in 2022, all municipalities employing online voting with MFA utilized date of birth as the secondary authentication factor. This decision stemmed primarily from the limited availability of alternative authentication options for election administrators to consider.

Current MFA Options

MFA is a feature available in most online voting systems. Most respondents indicated that knowledge-based factors were the primary authentication category utilized by their solutions.

It was emphasized that solutions have the capability to accommodate the use of customized fields in MFA. This allows clients the flexibility to go beyond relying solely on the date of birth as a secondary authentication factor. However, clients must gather and maintain any additional information fields (e.g., phone number, email, creation of a unique question or answer) they wish to utilize. Any customized fields must be communicated to the vendor and flagged for data transmission.

There are solutions that can support four (4) authentication categories: knowledge, possession, inherence, and location. The successful implementation of these categories depends on voters' willingness to provide extra information, such as a phone number, email, or access to their camera.

II) Verifying the Voting Process

Respondents were asked to provide details concerning the verifiability of their IV solution. Verifiability asserts that their system guarantees transparency and integrity throughout the entire voting process, spanning from the casting of ballots to the conclusive tallying of results.

Individual Verifiability

Some vendors indicated that their solutions have the ability to generate a confirmation after a ballot is submitted. These confirmations vary, ranging from a physical print-out of the ballot to a QR code, email, or SMS message. Depending on the solution, the verification may either confirm the successful submission of the ballot or offer the option to review the selections made on the ballot. This feature can provide voters with additional confidence that their ballot has been successfully cast-as-intended.

Universal Verifiability

Universal variability refers to the ability for any interested party (voters, administrators, candidates, independent observers, etc.) to verify that an election

outcome is accurate and legitimate. It involves the use of cryptography to allow anyone to independently verify that:

1. Each vote is accurately cast-as-intended.
2. Each vote is recorded-as-cast.

It was identified that some solutions offers end-to-end or universal verifiability.

Financial Impact

All costs associated with conducting a municipal election are funded by the Election Reserve.

Operational Impact

There are no operational impacts to other departments associated with this report.

Broader Regional Impacts/Considerations

There are no regional impacts or considerations associated with this report.

Conclusion

Elections Vaughan have identified multiple options available on the market that would allow for additional voter verification measures to be adopted as part of the implementation of internet voting for the 2026 Municipal Election and subsequent elections. Through the information received through the release of two RFIs on elector management and internet voting, Elections Vaughan has also identified options for providing confirmation to voters that the ballots they have marked and cast online have in fact been cast as intended.

Consultation with other municipalities has validated these options and provided insight for implementation in Vaughan. An elector registration and opt-in process will be implemented for internet voting moving forward and options for internet vote verification for electors will be incorporated into the procurement process for internet voting solutions in advance of the 2026 Municipal Election.

For more information, please contact: Evan Read, Manager, Elections and Special Projects, ext.8241

Attachments

N/A

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