TOWN OF NEWMARKET
395 Mulock Drive          www.newmarket.ca
P.O. Box 328              Info@newmarket.ca
Newmarket, ON   L3Y 4X7   905.895.5193

Newmarket

November 29, 2013

## CORPORATE SERVICES – JOINT LEGISLATIVE SERVICES & INFORMATION TECHNOLOGY SERVICES – 2013-43

TO:        Committee of the Whole

SUBJECT:   Voting Method Options, 2014 Municipal Election

ORIGIN:    Director, Legislative Services/Town Clerk & Director, Information Technology

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## RECOMMENDATIONS

THAT Corporate Services – Joint Legislative Services & Information Technology Services Report 2013-43 dated November 29, 2013 regarding "Voting Method Options, 2014 Municipal Election" be received and the following recommendations be considered at the January 13, 2014 Committee of the Whole meeting:

1. THAT Council endorse Option 2, "Use of Internet Voting" as outlined in this report for use in the 2014 municipal election;

2. AND THAT a by-law be brought forward for consideration by Council to authorize the use of alternative voting equipment and an alternative voting method in the 2014 municipal election accordance with Section 42 1 (a) and (b) of the *Municipal Elections Act, 1996;*

3. AND THAT the public be invited to comment on Joint Legislative Services & Information Technology Services Report 2013-43 in advance of the January 13, 2014 Committee of the Whole meeting and subsequent Council meeting where the report and authorizing by-law is considered.
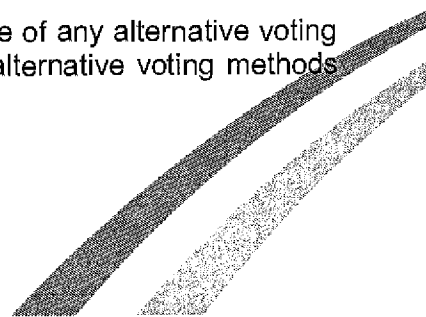
## COMMENTS

Purpose

The report recommends a voting method to be used in the October 27, 2014 municipal election to be considered at the January 13, 2014 Committee of the Whole meeting to allow Members of Council and the public the opportunity to consider the recommendations in the report, and forward any questions or concerns to staff in advance of discussion by Council.

Background

The *Municipal Elections Act, 2006* (the Act) requires Council to authorize the use of any alternative voting equipment (such as optical scan vote tabulators, touch screen tabulators) and alternative voting methods (such as vote by mail, telephone voting or internet voting).

The Act specifically requires Council approval of any alternative voting equipment, alternative voting method, special and advance voting opportunities. Council must pass a by-law authorizing any alternative voting equipment and/or valternative voting method by June 1, 2014.

The Clerk is charged with administering the election process and for providing for any procedure which in his or her opinion is necessary or desirable for conducting the election and where the Act does not already provide for a procedure. These procedures include any requirements related to identification, authentication, security, integrity and validation of results. June 1, 2014 is also the date by which the Clerk is required to establish written procedures regarding any alternative voting equipment or method.

Voting Method Options

It is recommended that Council make a determination as soon as possible to ensure adequate time for staff to prepare procedures and process requirements and to educate voters and candidates about the voting process.

The report outlines two voting method options, either of which may be implemented in the October 27, 2014 municipal election within the current election budget of $300,000 and other applicable budgets. The following criteria were established in determining the selection of voting method options.

- Voting method complies with the requirements of the Act, related legislation such as the *Accessibility for Ontarians with Disabilities Act* and case law;
- Voting method demonstrates the court's principles often referred to when evaluating matters relative to the Act:
    o Secrecy/confidentiality of votes cast;
    o Fairness, non-bias;
    o Accessibility;
    o Integrity;
    o Certainty of the vote result;
    o Voters and candidates treated fairly and consistently; and,
    o Majority vote governs, valid votes counted and invalid votes rejected where reasonably possible;
- Voting method can be implemented within available budget, staff and other resources;
- Voting method has been successfully deployed in binding Ontario municipal elections;
- Voting method can be readily understood and adopted by voters following a period of public education; and,
- Voting method continues to rely on the Act's principles of voter and candidate trust, responsibilities of voters and candidates and corresponding penalties and enforcement tools for offences.

Independent of staff's review and recommendations, at their September 30, 2013 meeting, Council specifically requested that internet voting be assessed for implementation in the 2014 municipal election and that the Accessibility Advisory Committee be consulted with respect to internet voting. At their October 15, 2013 meeting, the Accessibility Advisory Committee passed a motion with regard to internet voting (attached as Appendix C).

To assist Council with its decision, Appendix A outlines considerations for each voting option.

Other voting method options (e.g., vote by telephone, vote by mail, combination of voting methods such as internet and optical scan vote tabulators or internet and telephone voting) were not the focus of this report nor recommended at this time as an option for consideration. A subsequent report will be brought forward to Council regarding advanced and special voting (i.e., reduced hour voting for senior's residences, long term care facilities and voters in hospitals) based on Council's voting method direction. The report will also

request Council's authorization of a by-law to provide election information in languages other than English and French if required, as passed in previous elections.

<u>Option 1 – Use of Optical Scan Vote Tabulators</u>

Where tested and programmed correctly, optical scan vote tabulators are able to accurately and efficiently read, interpret and count properly marked paper ballots. Optical scan vote tabulators are typically programmed to accept, read and tabulate marked ballots according to the procedures established by the Clerk.

Vote tabulators are often used in voting places or at a central location where marked ballots are transported to for tabulation. Tabulators have been used by many jurisdictions for a number of years, including Newmarket.

A survey of 415 of 444 municipalities in Ontario was conducted by the Association of Municipal Managers, Clerks and Treasurers of Ontario (AMCTO) following the 2010 municipal election. Of the 180 municipalities that responded, 46 deploy an optical scan vote tabulator in voting places and 9 in a central location where all marked ballots are tabulated.

Should Council select Option 1, a similar arrangement of voting places be established on voting day in line with what was arranged for in the 2010 municipal election (with the potential requirement for 2-3 additional voting places to account for growth, subject to the availability of accessible voting places). Each voting place will use at least one optical scan vote tabulator and be staffed with up to approximately 15 temporary election officials with various responsibilities. Advanced and special voting opportunities will be identified and recommended in a separate report to Council.

Leading up to the election, a program of public education will be implemented to advise voters and candidates about key dates, voter qualifications and identification requirements, where and how to vote, opportunities for advance, proxy and special voting, where accessible voting options are located and the like. The program will take advantage of existing and new media and find creative opportunities to inform and engage voters and candidates.

Opportunities for process improvements and service enhancements will be explored, including an easy to navigate voter information application for smart phones, use of an electronic voters list to allow for more efficient voter processing and improvements to accessibility in consultation with the Accessibility Advisory Committee.

After the close of voting on voting day, unofficial voting results will be telephoned or otherwise transmitted to the municipal office (and confirmed later through the upload of data from the optical scan vote tabulators). Unofficial election results will be streamed live through the Town's website as results are made available from each voting place and from advance and special voting. Once the Clerk has reviewed results relative to the requirements of the Act, official election results will be announced and the necessary steps will be taken to transition to the new Council.

Section 60 of the Act requires that a re-count be conducted in the same manner in which the election was held, and recent case law has upheld this provision. In the event of a recount in Option 1, the Clerk would provide for a procedure to re-tabulate marked ballots.

<u>Option 2 – Use of Internet Voting</u>

According to research undertaken as part of the Shared Digital Infrastructure initiative, 100% of households in the Town of Newmarket have access to the internet and in a 2011 survey undertaken by the Town, 89%

of respondents indicated that they have access to the internet. Background information on internet voting is attached as Appendix B.

In staff's view, internet voting proposed in Option 2 (set out below) supports the following:
- The principles and requirements of the *Municipal Elections Act, 1996*;
- Enhanced convenience to voters by providing another voting method option;
- Changing demographics and lifestyles;
- Accessibility and independence for persons with disabilities;
- A new, virtually-engaged electorate; and,
- The Town's leadership in electronic service delivery.

Option 2 proposes that internet voting be made available as soon as possible after the Clerk's certification of nomination (e.g., Wednesday, September 17) through to voting day, October 27, 2014. This allows for 41 days of continuous voting.

Option 2 also proposes that a number of in-person voting opportunities be established during the advance voting period, for special voting purposes (such as seniors residences, long term care facilities and the hospital) and on voting day in each Ward (at least one in each Ward). The in-person voting option would involve the use of the same internet voting platform and voting choices would be made on a touch screen tablet or laptop. Establishing in-person voting provides choice and in-person assistance, and supports voters who do not have regular access to or comfort with using the internet at home or work.

Persons in special voting places will also use touch screen tablet devices to indicate their choices. Research has shown that touch choice devices are a more accessible tool than using a pen or pencil, particularly for persons who experience difficulty with motor skill and arm/hand coordination.

While possible to offer another voting method for in-person (such as the use of paper ballots and vote tabulators), managing parallel voting methods is not the preference of staff, from both a coordination and budget perspective.

To allow for concurrent remote and in-person voting, a web-based electronic voters list allowing for live strike-off would be required in voting places to ensure that the voter's list is automatically updated. The application supporting a web-based electronic voters list is already in use by the Town and accommodated within the election budget. Laptop and/or tablet devices required form a part of the Town's existing asset replacement strategy and present no additional costs to election budget. A preliminary technical assessment of voting places used in the 2010 municipal election demonstrates dependable internet service. In addition to assessing technical capacity in each voting place, accessibility, parking, room layout and convenience will also be assessed.

There will be an estimated 60,000 eligible voters in the 2014 municipal election. Using an estimated turnout of 40% (or 24,000 voters) for planning purposes, staff have made a conservative assumption of 30% remote voters (or 7,200) and 70% (or 16,800) in-person voters. Staff anticipate that following a period of public education, more than 30% of participating voters will vote remotely. To ensure the voting process is smooth and voters can be efficiently processed, staff feel that a conservative assumption of participation by remote voters for planning purposes is preferred.

Like Option 1, leading up to the election, a program of public education will be implemented to advise voters and candidates about key dates, voter qualifications and identification requirements, where and how to vote, opportunities for advance and special voting, accessible voting options and the like. The program will take advantage of existing and new media and find creative opportunities to inform and engage voters and candidates.

Like the provisions outlined in Option 1, opportunities for process improvements and service enhancements will be explored, including an easy to navigate voter information application for smart phones, use of an electronic voters list to allow for more efficient voter processing and improvements to accessibility in consultation with the Accessibility Advisory Committee.

After the close of voting on voting day, unofficial results will be downloaded from the secure results server through an established authorization protocol, including results from advance and special voting opportunities. The unofficial election results will be made available live through the Town's website. Once the Clerk has reviewed results relative to the requirements of the Act, official election results will be announced.

Section 60 of the Act requires that a re-count be conducted in the same manner in which the election was held, and recent case law has upheld this provision. In the event of a recount in Option 2, the Clerk would provide for a procedure to re-generate internet votes. A government election recount of ballots cast by internet voting has not occurred in Canada to staff's knowledge. Staff are aware of a recount of 127,000 of the 240,000 ballots cast by internet voting in the election of the Assembly of French Citizens Abroad (Assemblée des Français de l'Etranger), a French government institution representing French citizens abroad on the French Senate. The recount procedure resulted in identical results without mismatches.

Next Steps

The recommendations in this report will be formally considered at the January 13, 2014 Committee of the Whole meeting. The public will be invited to provide their comments on the recommendations in advance of the January 13, 2014 Committee of the Whole meeting where the recommendations and authorizing by-law are considered.

Following direction from Council on the preferred Option in the form of an authorizing by-law, staff will review and determine purchasing options. The City of Markham has released a Request for Proposals (RFP) for internet, telephone and optical scan vote tabulator solutions for the 2014 municipal election. The RFP includes a "piggy back" clause whereby the Town can consider and (if deemed appropriate) award a contract to same firm(s) awarded by the City of Markham. Town staff have reviewed and agree to the RFP's general, functional, security, auditing, privacy, client support and other requirements with regard to internet voting. Alternatively, staff could issue its own RFP for an internet voting solution or vote tabulators. Staff will also consider any other arrangement provided for in the Town's purchasing protocols, including sole source award to a previously contracted service provider. In 2010, the Town awarded a contract for tabulator equipment to Dominion Voting. Dominion Voting has agreed to honour its 2010 pricing in 2014.

Staff would then initiate the necessary steps to develop and deliver a program of public education and engagement.

As noted, the Clerk would then develop election method procedures by June 1, 2014.

## BUSINESS PLAN AND STRATEGIC PLAN LINKAGES

A review of vote method options supports the Town's strategic directions of a well-equipped, managed and respected municipality by ensuring service excellence and promoting engagement in civic affairs.

## CONSULTATION

Municipal clerks in the GTA and Dr. Nicole Goodman, Assistant Professor McMaster University were consulted in the preparation of this report. The Accessibility Advisory Committee was consulted with

respect to their input on internet voting. Internally, the Communications and Purchasing departments were consulted.

## HUMAN RESOURCE CONSIDERATIONS

There are no human resource considerations associated with this report.

## BUDGET IMPACT

The total election budget for 2014 is $300,000; the same amount approved for the 2010 election. In the 2010 election, approximately $278,000 was spent. A draft budget for 2014 for Option 1 and 2 is outlined as follows:

| Option 1 | | Comments | Option 2 | | Comments |
|---|---|---|---|---|---|
| Tabulator equipment | $64,000 | Based on 2010 arrangements & market survey, subject to confirmation | Internet voting platform | $150,000 | (~$2.50/elector), based on market survey, subject to confirmation |
| Ballots | $32,000 | Opportunity for cooperative purchasing allowing for cost savings | Security audit | $12,000 | Opportunity for cooperative purchasing allowing for cost savings |
| Communications | $15,000 | | Communications | $20,000 | Accounts for additional communications required in transitioning to internet voting |
| Voter notification & postage | $40,000 | Opportunity for cooperative purchasing for the voter notification allowing for costs savings | Voter notification & postage | $40,000 | Opportunity for cooperative purchasing for voter notification allowing for cost savings |
| Staff support | $85,000 | Assumes:<br>- 7 days of advance voting<br>- 17 voting places on voting day:<br>- 2 voting places in Wards 2, 3, 4 & 5, 3 voting places in Wards 1, 6 & 7<br>- Location of voting places TBC | Staff support | $55,000 | Assumes:<br>- 41 days continuous remote internet voting<br>- Number of advance voting days TBC<br>- Number of voting places on voting day TBC<br>- Location of voting places TBC<br>- Possible to reduce staff costs given staff will be assigned to support voting places |
| Stationery, supplies & miscellaneous | $50,000 | | Stationery, supplies & miscellaneous | $10,000 | Includes stationery, supplies & miscellaneous |
| Approximate Total | **$290,000** | | Approximate Total | **$290,000** | |

Computer hardware (laptops, tablets and related equipment) will be required to facilitate an electronic voter's list (Option 1 advance voting and Option 2 advance voting and voting day) and in-person online voting (Option 2 voting day). Any new computer hardware purchased for the election will be funded from

the 2014 IT Capital Budget and is part of the Town's annual equipment replacement program. Following the election, computer hardware will be redeployed elsewhere in the Town. Therefore, any new computer hardware purchases will not have an impact on the election budget.
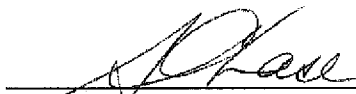
Should the RFP for the internet voting platform result in costs which cannot be accommodated within the draft budget, staff will report back.
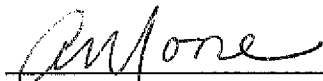
**CONTACT**
For more information on this report, contact Andrew Brouwer, Director of Legislative Services/Town Clerk at abrouwer@newmarket.ca or 905-477-7000, ext. 2211.


Andrew Brouwer, Director of Legislative Services/Town Clerk


Susan Chase, Director, Information Technology


Anita Moore, Commissioner of Corporate Services

| Consideration | Option 1 | Option 2 |
|---|---|---|
| Security of voting method | **Pros** <br> - Established model <br> - Perception among some that a "supervised" voting environment offers fewer risks than internet voting <br> - Relatively few occurrences of issues or concerns with process in Newmarket <br><br> **Cons** <br> - Although infrequent, unintended human errors can occur resulting in errors (e.g., incorrectly programmed tabulators, incorrectly processed electors, unreported errors, etc.) <br> - Procedures must be put in place to ensure the proper management and secure transfer of ballots, voters' lists, forms and tabulators from the voting place to the municipal office to ensure there is not tampering, theft or loss <br> - Despite testing, technical or other performance issues with tabulation equipment can occur. Newmarket has had good experiences with mitigating technical issues associated with tabulation equipment | **Pros** <br> - Security of system (hosted environment, web application, voting process and device) carefully planned and risks/threats identified and mitigated to the greatest extent possible (see Appendix B) <br> - Voter must register to vote online first, prior to voting which provides for security and integrity of the vote <br> - Two-factor (minimum), two step process reduces opportunity for impersonation of remote internet voter <br> - Third party firm hired to review security and integrity of internet voting platform <br> - Reduces human error issues, potential for tampering, loss or stealing secure information <br> - Option for in-person voting in a "supervised" environment <br><br> **Cons** <br> - "Unsupervised" voting has been perceived by some as being more risky than a "supervised" voting environment <br> - Refer to Appendix B for detailed account of typical additional security and integrity considerations <br> - Process to vote remotely may be perceived as cumbersome, given that |

| Consideration | Option 1 | Option 2 |
|---|---|---|
|  |  | - the voter must register to vote online first, prior to voting<br>- Additional efforts in communicating will be required to ensure voters understand security of internet voting process and to ensure their voting device is protected<br>- Unplanned online threats are a reality with any website<br>- Requires new procedures to be developed |
| **Authentication of voter** | <u>Pros</u><br>- Established model, voters generally accustomed to presenting acceptable identification to election officials to receive a ballot<br><br><u>Cons</u><br>- Authentication of voter occurs in a public setting between a voter and an election official who has been hired on a temporary basis with basic training. Despite training and oversight, errors in understanding and communicating authentication requirements do occur | <u>Pros</u><br>- Authentication process convenient for voter (i.e., may be done remotely)<br>- Voters have control over their own credentials<br>- Town staff involved in authenticating voters are more responsible and experienced than election officials hired on a temporary basis with basic training<br>- Voters who feel more comfortable exchanging credentials and authenticating themselves in person have that option<br><br><u>Cons</u><br>- Process to vote remotely may be perceived as cumbersome, given that the voter must register to vote online first, prior to voting<br>- Additional efforts in communicating will be required to ensure voters |

| Consideration | Option 1 | Option 2 |
|---|---|---|
| **Voters' list management** | <u>Pros</u><br>- Established model, voters, election officials and candidates generally familiar with list management procedure<br><br><u>Cons</u><br>- Reduced span of control of voters' lists by Clerk on voting day<br>- Election officials use paper voters' lists on voting day which may be more easily misplaced, stolen or copied. Election official training emphasizes importance of voters' list management<br>- Candidates and scrutineers can occasionally view the voters' lists to determine who has voted, but this cannot interrupt the voting process. Despite communication on this rule, interruptions continue to occur<br>- Human errors in managing the voters' lists can occur despite training, resulting in inaccurate voting records | - understand authentication process<br>- Requires new procedures addressing protocols for issuance of misplaced PINs, forgotten passwords and responses to unique questions; deceased or persons who have moved; and management of undeliverable mail and email<br><br><u>Pros</u><br>- Option 2 uses a secure, web-based electronic voters' list which provides live updates as each voter votes, whether remotely or in person, enhancing the span of control and security of the voters' lists by the Clerk<br>- Bar code scanners can be used in combination with electronic voters' list to quickly locate and process voters<br>- An electronic voters' list is able to quickly generate a report of persons (by Ward, poll, etc.) having voted for candidates and their scrutineers in Excel format (as often as Clerk determines; on voting day, this is typically every 3 hours). This generally reduces requirement for candidates to appoint scrutineers, provides a more practical tool for candidates and reduces interruption of voting process by candidates or their scrutineers<br>- Although human error still possible, |

| Consideration | Option 1 | Option 2 |
|---|---|---|
| **Tabulation & reporting of results** | <u>Pros</u><br>- Established model, procedures and process understood by staff, candidates and public<br>- Relatively few occurrences of issues or concerns with tabulator equipment have occurred in Newmarket<br>- Given relatively few voting places and tabulators, unofficial results have been available by 8:45-9 p.m.<br>- Effective system to stream unofficial results Town's website and at the municipal office<br><br><u>Cons</u><br>- Although not the experience in Newmarket, discrepancies can occur in the unofficial transmission of results, particularly if telephoned from voting place | use of electronic voters' lists supports more accurate and complete voting records<br><br><u>Cons</u><br>- Requires additional planning and testing to ensure internet and power connections can support use of electronic voters' list<br>- Requires installation of various hardware and cabling, including laptops and tablets<br>- Requires new training and procedures for election officials and candidates<br><br><u>Pros</u><br>- Total results should be available shortly after 8 p.m.<br>- Closed nature of system, minimal human involvement greatly reduces opportunity for errors in tabulation and reporting<br>- Not dependent on return of memory drives from voting places to verify unofficial results, allows for more efficient unofficial results reporting<br>- Similar unofficial results streaming system available<br>- Coordination of equipment, forms and supplies reduced with fewer voting places |

| Consideration | Option 1 | Option 2 |
|---|---|---|
| | | Cons |
| | - Human errors may occur in the completion of ballot account and results forms | - New process for staff, voters, candidates |
| | - Errors may also occur as a result of a tabulator programming error. Careful attention to testing and verifying tabulators is required in advance of use | - New procedures for tabulation and reporting will need to be developed |
| | | - Any error in tabulating or reporting results would likely be a result of the voting platform performance itself. Careful attention to testing and verifying system performance is required in advance of use. Third party internet security firm will assist to ensure that the system's source code and infrastructure are robust and perform according to design |
| | - Coordination of tabulators/tabulator memory drives, sealed ballots, forms and supplies are delivered to the election office which can be time consuming. A procedure must be put in place for the secure transfer of materials. To date, Newmarket has effectively managed such coordination | |
| | - Power failures may occur (in the tabulator or in the voting place itself), intermittently or over a longer period of time (during advance voting period and/or on voting day). If widespread, alternative voting arrangements may need to be established (for example, re-directing voters to another voting place on voting day or extending the opportunity to vote beyond voting day). Arrangements would be made to advise voters of alternative voting opportunities | - Power and internet connection failures may occur (during the advance voting period and/or on voting day). If widespread, alternative voting arrangements may need to be established (for example, extending the opportunity to vote beyond voting day). Arrangements would be made to advise voters of alternative voting opportunities |
| | | - Redundancies for loss of internet connection planned for in in-person voting places |

| Consideration | Option 1 | Option 2 |
|---|---|---|
| **Accessibility for persons with disabilities** | **Pros** <br> - Established model, voters familiar with process <br> - In-person support available from election officials who have been provided basic training in customer service support for persons with disabilities <br> - Supportive voting equipment available in limited number of voting places, typically only during advance voting period <br> - Special voting options available for seniors, long term care residents, hospital patients <br><br> **Cons** <br> - Process does not provide for a completely private, independent means of voting, particularly on voting day <br> - Supportive voting equipment may be helpful, but may not accommodate unique needs of individual voter's disability <br> - Tools to cast ballot (paper, pen) can be challenging for persons with a motor skill coordination disability | **Pros** <br> - Web sites built on WC3 Standard and Web 2.0 as required by the *Accessibility for Ontarians with Disabilities Act* making the voting experience more accessible, especially for persons with disabilities <br> - Web sites may be read using an individual's preferred software at their work or home environment, enhancing potential for privacy and independence <br> - Remote internet voting does not rely on coordinating transportation <br> - Option for support at voting places available from election officials who have been provided basic training in customer service support for persons with disabilities <br> - Tablets used to cast ballot improve voting experience for persons with a motor skills coordination disability <br> - Special voting options available for seniors, long term care residents, hospital patients <br><br> **Cons** <br> - No system can completely address the unique needs of individual voter's disability |

| Consideration | Option 1 | Option 2 |
|---|---|---|
| **Candidate considerations** | **Pros** <br> - Established model, familiar to candidates and their scrutineers <br> - Candidates invited to attend testing of tabulators and procedures are shared with candidates to understand process <br><br> **Cons** <br> - Candidates may find it challenging to coordinate appointment of scrutineers in voting places (particularly Mayoral or Regional Councillor candidates) | **Pros** <br> - Candidates invited to attend testing of internet voting platform and procedures are shared with candidates to understand process <br> - Third party review of security of voting platform shared with candidates and public for transparency <br> - A convenient option may be well received by voters as candidates campaign <br> - Effectively eliminates need to coordinate proxy votes <br> - Fewer scrutineers required by candidate, particularly Mayoral or Regional Councillor candidates <br> - Candidates will receive list of persons having voted in a regular and convenient format, assisting with campaign coordination <br><br> **Cons** <br> - Change in nature of candidate and scrutineer involvement may be perceived negatively <br> - Communication and education of candidates required to understand how system performs |
| **Communication & public education** | **Pros** <br> - Established model, ease/familiarity with communications deliverables <br> - Can repurpose some existing communications depending on | **Pros** <br> - New mode of voting generates public interest <br> - Will generate more public interest/awareness because it is an |

| Consideration | Option 1 | Option 2 |
|---|---|---|
| | - content (banners, graphics, templates, Town Page ads) which will keep costs down/require fewer resources | - interesting and new model for voting – could get more "pick-up" from regional media before, during and after the election |
| | - Less information overall to communicate to public – more straightforward messaging | - Good messaging around promoting innovation; good messaging around Newmarket as a digital leader in innovation; good messaging around it being a "greener" alternative |
| | - Direct and easy to understand key messages – less confusion among residents | - Convenience option appealing to people who don't typically have the time or resources to physically go somewhere and vote (including those with longer commute times, parents requiring child care, elderly, persons working or living abroad temporarily, persons with disabilities) |
| | - Opportunity to explore new communications and public education tactics, including mobile application to guide voters when, where and how to vote | - Potential to generate more interest in municipal elections |
| | **Cons** | - Opportunity to create fresh communications materials and messaging, generating interest |
| | - Established process does not necessarily generate renewed interest or attention to key dates and activities | - Opportunity to explore new communications and public education tactics, including mobile application to guide voters when, where and how to vote |
| | - Won't generate as much media interest or buzz or interest from a variety of different demographics/residents | **Cons** |
| | - More difficult to reach those who don't work traditional 9 to 5 jobs – restricted options = limited messaging | - Perception about risks must be managed through a robust communications and public education plan. Need to address real and unfounded issues in an open manner |
| | - Existing materials could be dated or irrelevant – would need to revise regardless | |

| Consideration | Option 1 | Option 2 |
|---|---|---|
| | | **Pros** <br> - Additional communication and public education efforts required to ensure voters and candidates understand when, where are how to vote online, frequently asked questions, demographic-based tactics <br> - There will be the need to produce new communications materials <br> - More technical training needed for election staff and volunteers – public education needed for them as well <br> - Public education component will be more detailed and complex to roll out <br> - Potential for negative feedback as a result of a change in process in the media and on social media before, during and after the election |
| **Corrupt practices (e.g., coercion, impersonation, stealing or tampering with voter information letters, ballots, voters' lists and voting equipment, vote buying)** | <u>Pros</u> <br> - Communications and public education efforts will include information about corrupt practices <br> - Some perceive that a supervised voting environment reduces coercion <br><br> <u>Cons</u> <br> - Despite training and oversight, ballots, voters' lists and voting equipment may be tampered with, stolen or misplaced. To staff's knowledge, there have been no occurrences of such corrupt practices <br> - Coercion may still be present in a "supervised" voting environment | <u>Pros</u> <br> - Communications and public education efforts will include information about corrupt practices <br> - Centrally controlled, secure-access based system involves fewer human errors and opportunities to compromise the security of election records (e.g., voters' list, vote records) <br> - Voting website can include a requirement to acknowledge a declaration of acknowledgement of corrupt practices <br> - No evidence of voter information letters having been stolen in other municipalities having offered internet |

Appendix A – Considerations – Option 1 & 2

| Consideration | Option 1 | Option 2 |
|---|---|---|
| | - Corrupt practices possible with any voting method. Any claims will be reported to the Police for an investigation | voting. However, envelope can include a statement advising of criminal offence associated with stealing or tampering with mail<br><br>- In-person voting option available for persons who feel more comfortable doing so in a supervised environment<br><br>Cons<br>- Perception that "unsupervised" (remote internet) voting may facilitate coercion<br><br>- Corrupt practices possible with any voting method. Any claims will be reported to the Police for an investigation |

Purpose

Appendix B is intended to summarize available background research and the experience of municipalities having successfully deployed internet voting, in particular with regard to commonly identified themes.  Reports and studies referenced in Appendix B are available through the Clerk.

Introduction

Internet voting is gaining popularity for use by many electoral jurisdictions in Canada and around the world.  Internet voting may be used as the sole means to vote throughout an election, or together with other methods of voting, such as in-person voting at a voting place using the internet voting platform on a laptop, desktop or touch screen computer or paper ballots using an optical scan vote tabulator.  Some municipalities use internet voting during the advance voting period only, and deploy another voting method on voting day.  Others deploy internet voting and telephone voting, which are typically based on the same back end tabulation platform.

A number of private information technology firms offer an internet voting platform solution to various government jurisdictions, member and shareholder based organizations such as political parties, unions, non-profit organizations and publicly traded firms.  Given the infrequent nature of elections, very few government jurisdictions have invested in resources to develop their own internet voting platform, although both Elections Ontario and Elections Canada have taken an interest in identifying firms for this purpose.  The government of Estonia is one exception, which has created and deployed an integrated platform for the secure online transaction of a variety of government services, including voting.

According to research prepared by McMaster University Assistant Professor Nicole Goodman, internationally, jurisdictions have chosen to deploy internet voting to support the objectives of: increasing voter turnout; creating or expanding upon a leadership role in e-government; and enhancing accessibility and convenience. To a lesser extent, the same research shows internet voting has been deployed to support the objectives of enhancing citizen-centred service, increasing youth voter turnout and providing for an accurate and efficient vote counting system.

In Ontario, statistics indicate that the use of internet voting by municipalities has grown from 12 in 2003 (representing 255,837 eligible voters), to 20 municipalities in 2006 (representing 397,537 eligible voters) and 44 in 2010 (representing 783,887 eligible voters).  Larger Canadian municipalities having used internet voting include the cities of Burlington (2010), Halifax (2008, 2012), and Markham (2003, 2006, 2010). Municipalities of a similar or larger size to the Town of Newmarket having approved internet voting for use in the 2014 municipal election include the Town of Ajax and the cities of Cambridge, Guelph, and Sudbury.

## Commonly identified advantages

- Provides a convenient channel to vote remotely from home, work or elsewhere;
- Provides voting options for persons who may find it difficult to attend a voting place, including students, vacationers and business travellers;
- Supports an independent and private option to vote by persons with disabilities;
- Supports a "green" option where less paper and fuel emissions are generated;
- Advances goals related to e-government leadership and community technology advancement;
- Supports the potential for increased voter turnout or voter engagement among a broader spectrum of voters; and,
- Provides for an accurate and fast system of vote tabulation.

## Commonly identified disadvantages

- Perception of security and process concerns;
- Change in traditional nature of electoral participation by voter and candidate;
- Accommodation for persons with limited or no internet access or who have challenges using technology;
- Additional efforts required to inform and educate public about transition to internet voting; and,
- Costs, particularly when internet voting is offered with another election method.

## Participation

Canadian research on the demographics of those participating in internet voting for municipal elections is limited, but available research demonstrates internet voting users to be of the same or similar age demographic as previous elections using other voting methods (generally, persons in their 40s, 50s and 60s). To some extent, the research appears to mitigate concerns that middle age or older persons are less tech savvy and more likely to experience difficulty using internet voting.
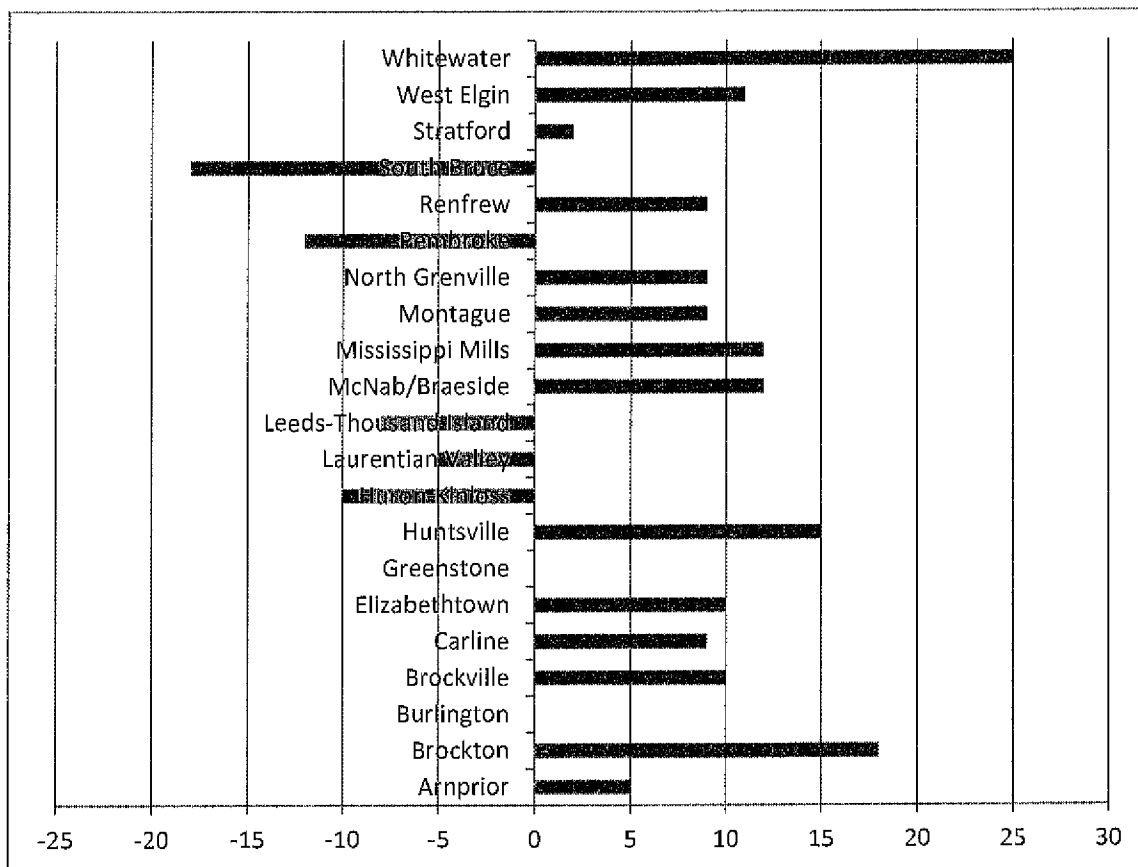
Staff understand that historically, participation among youth in municipal elections is low, often attributed to the perception by youth that municipal government is less relevant or impactful to their life than other orders of government accountable for social welfare, education and human rights. At the same time, a 2011 survey by Elections Canada demonstrated that 57% of non-voters would have voted had it been possible to do so over the internet, a statistic that increased to 67% for non-voters between the ages of 18 to 24. More jurisdictions would be required to offer internet voting in order to validate actual voter behavior.

Professor Goodman is leading an internet voting research initiative involving 14 Ontario municipalities (at the time of publishing this report) which includes an optional survey to be completed by internet voting participants. This research will assist in better understanding participation in internet voting among Ontario municipalities.

## Voter turnout

Professor Goodman's research includes the following % change in voter turnout between 2006 and 2010 among Ontario municipalities having deployed internet voting for the first time in 2010:



The City of Markham has a longer history with regard to the deployment of internet voting in Canada. When the City first introduced internet voting in 2003, there was a 300% increase in voter turnout; a 43% increase in 2006 and no change in turnout in 2010 (noting that internet voting in the City of Markham has been made available during advance voting only). Although there appears to be positive voter turnout trend among municipalities having deployed internet voting for the first time, staff understand that voter turnout is difficult to predict and may be more likely to be linked to factors such as current issues and the nature of the races than a particular voting method.

## Security & integrity

Concerns have been expressed about various fraudulent activities that may attempt to compromise the security or integrity of internet voting platform such as Distributed Denial of Service attacks (DDoS), Trojan horses, viruses and website spoofing. While legitimate to raise such concerns, best practices have emerged among municipalities

and other jurisdictions to protect the internet voting platform from attempts to compromise its security and integrity.

A plan to address or mitigate concerns on a technical or process level should be established from multiple security perspectives, including (in summary):

- Security of the hosting environment:
  - o Standards of security are established to ensure controlled access to the hosting environment, including security personnel, controlled and role-based access and criminal background checks.

  - o Network infrastructure is protected through managed and monitored firewalls.

  - o Environmental hazards are addressed, including redundant power and cooling; smoke/fire detection and suppression as well as special building construction features.

  - o A "Tier III" or "Tier IV" data facility has been identified as a best practice among municipalities.

- Security of the web application:
  - o An arms-length web application security consultant is engaged to:

    - Perform a vulnerability assessment on the external IP address of the web server hosting the internet voting application;
    - Perform a web application security audit of the online voting application; and,
    - Perform penetration testing to exploit select vulnerabilities discovered.

- Voting process security:
  - o Establish an acceptable means of identifying and authenticating voters in an "unsupervised" remote internet based election. In Canada, a "two-step" and at least two-factor authentication process is common, particularly among larger municipalities. Variations on the process and credentials required can vary, depending on the nature of a particular vendor's system and the requirements of the municipality.

  - o In a one-step process, typically, a secure voting URL is shared with the voter through the voter notification letter and after providing the required credentials (including a unique PIN provided to the voter and personal identifier credential such as a birthdate) the voter accesses their internet ballot.

- In a two-step process, typically, the voter registers their intent to vote online before being providing with a secure voting URL. Through the voter notification letter, the voter is provided with a unique PIN which is used together with a person identifier credential (such as a birthdate) and/or an uploaded piece of acceptable identification to register. The voter may also be required to create their own password or response to a unique question when registering. If registration is successful, the voter is mailed or sent an encrypted email with a second PIN which is used together with the password or response to a unique question created in the registration step to access their internet ballot through a secure voting URL.

- Where the online voting platform is used in a "supervised" context such as at a voting place, generally fewer credentials are required to verify and provide access to the voter.

- Procedures are established by the Clerk with regard to the issuance of misplaced PINs, forgotten passwords and responses to unique questions; deceased or persons who have moved; and management of undeliverable mail and email. Municipalities having undertaken internet voting have developed best practice procedures which support the principles of the *Municipal Elections Act, 1996.*

- It is the responsibility of the Clerk to assess and establish voting process security procedures, including identifying and authenticating voters.

- An internet voting platform is required to accommodate the ability to perform and verify the following:
  - Attest the correct assignment of the vote to the proper candidate;
  - Attest the fact that the vote was counted;
  - Attest the fact that the voter can only vote once;
  - Ensure the vote cannot be tracked to the voter;
  - Ensure the secure transfer of data;
  - Ensure data is not stored on a client computer; and
  - Provide a process based audit trail.

- Voting device security:
  - Any device accessing the internet may be susceptible to online threats (e.g., viruses, Trojan horses, spyware, phishing attempts and other attacks) where steps are not taken to protect the device through anti-virus software.

  - Like other secure online transactions, an internet voting platform must be able to demonstrate cryptography and identify verification.

o It is recognized that there is greater control of online threats with devices deployed by the municipality (i.e., online voting using municipal tablets or laptops in a supervised environment).

o In an internet election, the voter is accountable for ensuring the device they use to cast their ballot has incorporated current anti-virus software. Through a program of public education prior to registration, the public is informed about how to access such software and take reasonable steps to mitigate online threats.

The Request for Proposals (RFP) document should identify a detailed set of general, functional, security, auditing, privacy, client support and other standards and requirements. An inter-disciplinary/inter-departmental team is typically assigned to evaluate and select an appropriate vendor. Proper testing and auditing throughout the various implementation phases also serves to protect the internet voting platform from external threats.

Although there have been documented cases of malicious attempts designed to compromise an internet voting platform, there have been no incidents of a controverted election. Internet voting results from all Canadian electoral jurisdictions have been final and binding. There are three commonly referred to incidents where the robustness of internet voting has been called into question:

- *2010 Washington, DC Election.* Prior to the 2010 Washington, DC elections the public was invited to test the rigor of the internet voting platform. Through weaknesses in the internet voting platform's source code, a professor and graduate students from the University of Michigan were successful in penetrating and compromising the election servers, resulting in cancellation of the internet voting option for the 2010 Washington, D.C. Election. Since this occurrence, private firms have created more robust source code and platform security frameworks and jurisdictions have also adopted a best practice of employing third party security audit firms to provide an independent analysis of the internet voting platform including its source code to ensure current threats are protected.

- *2010 Township of Arnprior, ON Municipal Election.* Here, the internet voting platform froze for 57 minutes near the end of voting day. The glitch was attributed to a system add-on that allowed candidates to monitor their progress in real time, creating a system capacity issue. The occurrence was not a breach of security and voting was extended for another hour the following day to compensate for the lost time (similar response to a power failure or emergency in a voting place). System capacity should have been identified earlier in the planning process for the election, which could have avoided the circumstance.

- *2012 NDP Leadership Election.* A distributed denial of service attack occurred on the voting website for the 2012 NDP Leadership Election, slowing down the ability to cast a ballot online, but not compromising the security of the internet

voting platform itself. An audit performed by Price Waterhouse Cooper indicated that no ballots had been altered, subtracted or added. Such a malicious attack has been attributed to the attention garnered to this particular election. A November, 2012 internet voting issues guide commissioned by the City of Edmonton, Centre for Public Involvement and University of Alberta indicated that *"every jurisdiction is unique and must individually assess its own contextual factors and whether the necessary conditions are present to ensure the successful deployment of an internet voting system".*

Dr. Henry Kim, Associate Professor of Information Systems and Management Science at York University prepared a comprehensive risk assessment of various voting methods for the City of Markham prior to the 2006 municipal election and literature review on evolving security threats to internet voting prior to the 2010 election. The risk assessment identified that a traditional "supervised" voting method in a voting place presented fewer risks than remote internet voting; however, not considerably higher and considerably less risky than vote by mail. The literature review revealed that there were no unaccounted security threats to internet voting prior to the 2010 municipal election.

Concerns have been raised that internet voting presents the potential for impersonation, coercion, vote buying and other corrupt practices associated with an "unsupervised" voting. Some have also suggested that internet voting does not fully support the principles of the *Municipal Elections Act, 1996* (the Act) in a circumstance where voters are not fully supervised.

Section 89 of the *Municipal Elections Act, 1996* clearly identifies the responsibilities of the individual voter, such as ensuring that one is entitled to vote prior to doing so, as well as ensuring that one does not vote more times than allowable. Some have expressed concern that an unsupervised form of voting like internet voting facilitates the potentiality of those offences, but others have stated that unsupervised voting emphasizes the accountability of individual voters inherent in the Act. Moreover, the Act is based on the democratic principles of voter and candidate trust. Trust in voters is evident in the very few instances of voter impersonation, coercion, vote buying and other corrupt practices in Canadian elections. The majority of municipal election law offences have involved municipal election candidates.

Where there is evidence of impersonation, coercion, vote buying or other corrupt practices, as in any other method of voting, the Clerk will contact the Police and take other such actions necessary in accordance with the law.

Municipalities having implemented internet voting adopt a community education plan where voters become aware of their duties, options to participate and channels to identify questions and concerns including those related to impersonation, coercion, vote buying or other corrupt practices, as well as steps required to protect their own devices from online threats.

The balance of risk and access/convenience afforded by internet voting is evident in a quote in a report entitled "Comparative Assessment of Electronic Voting" written for Elections Canada by the Strategic Knowledge Cluster Canada-Europe Transatlantic Dialogue:

*"Careful examination of the literature on internet voting as well as the pilot experiences of many jurisdictions suggests that both the extremely optimistic and pessimistic position about the effect of internet voting are overstated. Internet voting will not act as a panacea for the social causes responsible for electoral disengagement, nor will it remedy negative attitudes toward political entities. It will, however, increase voting opportunities for electors and make casting a vote more accessible. On the other side internet voting will not erode democracy or result in vote buying and election fraud any more than does the existing system".*

The November, 2012 internet voting issues guide commissioned by the City of Edmonton, Centre for Public Involvement and University of Alberta reflected on risks related to internet voting:

*"Of all the types of internet voting, remote internet voting offers the least amount of control for election officials. Generally less control implies greater security risks, but it does not have to denote an unacceptable increase in these risks. The testing of electronic voting worldwide and its use in binding elections has shown that the greatest technical difficulties have been with voting machines in voting stations or kiosks, and not all of these used the internet".* The voting machines referred to in this quote speak to issues related to vote tabulators.

## Satisfaction with internet voting

The Association of Municipal Managers, Clerks and Treasurers of Ontario undertook a comprehensive survey on municipal election practices and experiences following the 2010 municipal election. Of the 30 municipalities having used internet voting, 70% noted they were extremely satisfied; 26% noted they were very satisfied; and 4% noted they were satisfied. No municipalities responded with negative experiences.

## Community adaptation

Like any service with wide impact on the public, it is important for a municipality to develop a community adaptation plan, which includes communication tactics, procedures and support to transition the community to internet voting.

Municipalities having implemented internet voting have included such measures as:
- Communications tactics including web and mobile web content; ongoing notices in local newspapers and publications; an instructional video; public service announcements around key dates, requirements and activities; and theme based collateral such as pens and magnets.

- Outreach and education for key stakeholders, including candidates and their scrutineers, seniors, Accessibility Advisory Committee and support organizations for persons with disabilities.

- Online, telephone and in-person voter support, provided through the Customer Service Centre, including weekend and evening hours leading up to and including election period.

## ACCESSIBILITY ADVISORY COMMITTEE MINUTES – OCTOBER 15, 2013 – ITEM 5
## INTERNET VOTING

The Deputy Clerk provided a verbal update regarding the planning for the 2014 Municipal Election and the option of using internet voting. The Committee indicated that while this would increase accessibility to those who aren't able to attend voting locations it should not preclude offering paper ballots at voting locations. There was discussion around the accessibility of the voting locations and large print ballots during the last election.

**Moved by Councillor Twinney**
**Seconded by Diane Bladek-Willet**

**The Newmarket Accessibility Advisory Committee recommends to Council:**

**THAT the Newmarket Accessibility Advisory Committee supports the addition of internet voting to the current model.**

**CARRIED**