CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF APRIL 19, 2017

Item 3, Report No. 15, of the Committee of the Whole (Working Session), which was adopted without amendment by the Council of the City of Vaughan on April 19, 2017.

3 TECHNOLOGIES FOR THE 2018 AND 2022 MUNICIPAL ELECTIONS

The Committee of the Whole (Working Session) recommends approval of the recommendation contained in the following report of the City Clerk, dated April 10, 2017:

Recommendation

The City Clerk, in consultation with the Director of Procurement Services and the Director of Financial Planning and Development Finance & Deputy City Treasurer recommends:

1. That RFP17-041 for the Leasing of Optical Scan Vote Tabulators for the 2018 and 2022 municipal elections with an option for the 2026 municipal election be awarded to Dominion Voting Systems in the amount of $ 285,804 plus applicable taxes, to be funded from the election reserve;

2. That the internet voting option not be implemented for the 2018 municipal elections; and

3. That the City Clerk report back no later than 2020 on security and other implementation measures related to internet voting that may support consideration of this option for the 2022 municipal elections.

Contribution to Sustainability

The administration of fair elections in an impartial manner is a fundamental statutory responsibility of municipal clerks in Ontario. The highest priority for municipal clerks is to carry out their duties in accordance with the provisions of the *Municipal Elections Act, 1996* ("the Act") and an established set of election principles as described in this report. It is also the responsibility of election administrators to manage expenditures and other resources in a manner that contributes to the financial and operational sustainability of the municipality.

Economic Impact

The municipal elections are funded through annual contributions to an election reserve, where funds are set aside to fund the regular municipal elections and any by-elections which may occur in intervening years. The expected cost of administering the 2018 municipal elections using the recommended optical scan vote tabulator technology is approximately $1,500,000 which can be funded from the existing election reserve allocation.

The deployment of internet voting as an alternate voting method (in addition to optical scan vote tabulators) would increase the total cost of administering the election by an estimated $750,000. Additional research into the potential implementation of internet voting for 2022 may identify the need for an increase in the annual contribution to the election reserve.

Communications Plan

A copy of this report will be posted on the City's website. Beginning in 2018, election information will be widely communicated to voters and candidates on the vaughan.ca/elections website.

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Purpose

The purpose of this report is to report back on the competitive bid issued for vote counting and related technology for the 2018 and 2022 municipal elections, and to obtain Council approval to award RFP17-041 for the leasing of optical scan vote tabulators for the 2018 and 2022 municipal elections, with an option for the 2026 municipal election, to the successful proponent, Dominion Voting Systems.

Background - Analysis and Options

In May 2015, Council directed that staff issue a competitive bid for the lease of vote counting equipment and related technology for the 2018 and 2022 municipal elections, including the option of internet voting technology.

In a post-election report to Council following the 2014 municipal elections [Item 3, Report No. 22 of the Committee of the Whole (Working Session), dated May 12, 2015], the City Clerk identified the need to undertake a competitive bid process to procure vote counting equipment for the 2018 and 2022 municipal elections due to the expiration of the previous contract held for the lease of optical scan vote tabulators. This equipment was successfully used for both the 2010 and 2014 municipal elections. The City Clerk also indicated that staff would continue to monitor internet voting as an optional voting service for future elections.

Subsequently, at its meeting of May 19, 2015, Council adopted the following recommendation contained in Item 3, Report No. 22 of the Committee of the Whole (Working Session):

1. That a competitive bid for leasing of vote counting equipment and related technology for the 2018 election be issued with the following to be included as options:

    i. Pricing to include both the 2018 and 2022 elections; and

    ii. Internet voting technologies.

A by-law is already in place authorizing the use of optical scan vote tabulating equipment. In accordance with Subsections 42 (1) (a) and (b) of the *Municipal Elections Act, 1996* in order for internet voting to be implemented as an alternate voting technology, Council would be required to pass a by-law authorizing its use no later than May 1, 2017 for the 2018 municipal elections, and no later than May 1, 2021 for the 2022 municipal elections.

Request for Proposal 17-041

A Request for Proposal was released to seek proposals to provide election support services, leasing of election vote tabulators and optional internet voting services.

On February 2, 2017 RFP17-041 was issued for the provision of election support services, leasing of optical scan vote tabulators and optional internet voting services. The RFP requested the development, supply, implementation, training, support, and maintenance of vote tabulators and an optional Internet Voting Solution for the 2018 and 2022 municipal elections with an added option to include pricing for the 2026 elections.

Proponents were asked to provide lease/rental pricing for four options:

Option 1 – Optical Scan Ballot Tabulation Only (Advance Vote and Voting Day)

Option 2 – Optical Scan Ballot Tabulation (Advance Vote and Voting Day) and Internet Voting (Advance Vote Only)

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Option 3 - Optical Scan Ballot Tabulation (Advance Vote and Voting Day) and Internet Voting (Advance Vote and Voting Day)

Option 4 - Internet Voting Only (Advance Vote and Voting Day)

The City received one compliant proposal for election support services, leasing of election vote tabulators and optional internet voting services.

A total of three (3) RFP documents were downloaded. One addendum was issued on Tuesday, February 21, 2017 to answer questions from the proponents.

Only one proposal, from Dominion Voting Systems, was considered compliant and further evaluated by an evaluation committee comprised of staff from the Office of the City Clerk and the Office of Transformation and Strategy, facilitated by the Procurement Services Department. The submitted proposal was evaluated based on the following criteria:

Understanding of the RFP and Proposed Approach:	10 points
Corporate Experience and Qualifications:	10 points
Company Profile:	5 points
Functional Requirements:	40 points
Financial	35 points

In addition, a vendor presentation was made on March 23, 2017 during which staff had the opportunity to see a demonstration of the vendor's proposed services.

Based on the evaluation committee's review of the proposal, Dominion Voting Systems meets the requirements for the provision of the services outlined in RFP17-041.

Based on the evaluation committee's review of the proposal, Dominion Voting Systems successfully fulfilled all the City's technical requirements and qualifications related to the provision of the services requested. Accordingly, the evaluation committee is satisfied that Dominion Voting Systems has met all the required qualifications to successfully provide optical scan vote tabulators. The specific costs are set out below.

Notwithstanding that there was only one compliant proposal, staff are satisfied that the successful bidder is providing competitive pricing. Dominion Voting Systems supplied the optical scan vote tabulators used in the 2010 and 2014 elections and has provided a substantial "Preferred Customer Discount". The pricing is secured for two elections (2018 and 2022) and the pricing noted for 2018 and 2022 would also be available for the 2026 municipal election, subject to an adjustment based on the Consumer Price Index. There is also the possibility of obtaining further reduced pricing by "piggybacking" on a contract currently being finalized with Elections Ontario for the same vote tabulators.

Optical Scan Vote Tabulators

The cost to provide optical scan vote tabulators for the 2018 and 2022 municipal elections is $142,902 per election, for a total cost of $285,804 as summarized in Table 1 below:

Table 1: Lease Costs - Optical Scan Vote Tabulators (Per Election) (Applicable to Options 1, 2 and 3)	
	Total
RFP Bid Price (Exclusive of Taxes)	$ 142,902
Total Cost for 2018 and 2022 Municipal Elections	$ 285,804

Internet Voting Option

The total cost of offering internet voting as an option in addition to optical scan vote tabulators is estimated to be $750,000.

These costs are comprised of: (a) vendor costs for the licensing and hosting of the internet voting service, and (b) additional administrative costs associated with managing the internet component of the election.

(a) Vendor Costs

The total vendor cost of the optional internet voting services varies from $126,000 to $147,000 per election, depending on the option selected. The costs are summarized in Table 2 below:

Table 2: Internet Voting Option **Vendor Costs - Licensing and Hosting of Internet Voting Service** **(per Election)**			
	Option 2 During Advance Vote Only	**Option 3** During Advance Vote and Voting Day	**Option 4** Internet Only
RFP Bid Price (Exclusive of Taxes)	$126,000	$136,500	$147,000
Total Cost Per Election	$126,000	$136,500	$147,000

(b) Additional Administrative Costs of Internet Voting Option

Although the licensing and hosting of the internet voting service itself would form part of the contracted service with the vendor, additional staff resources, contracted services, communications, third party auditing, insurance and hardware will be required to support the implementation of internet voting and provide oversight needed to ensure the integrity of the system.

The estimated additional costs, based on research and information provided by municipalities already engaged in internet voting are $600,000, bringing the total cost of the internet voting option to an estimated $750,000. These additional costs are summarized in Attachment 'A'.

Assessment of Internet Voting

Internet voting has many benefits including convenience and accessibility, but to date, it has not been shown to have a significant impact on increasing voter turnout.

In August 2016, an Internet Voting Project Report authored by Nicole Goodman of the University of Toronto and Heather Pyman of Carleton University through the Centre for e-Democracy was

prepared to inform governments, and the public of the effects of internet voting on elections[1]. The report found that when municipal election administrators were asked to select the top reasons their municipality opted to offer internet voting the most common responses were accessibility (25%), improvements in voter turnout (22%) and convenience (17%).

In the report, the authors noted that, "despite comments about observed improvements in turnout, this study and other research, clearly indicates that internet voting is not the magic bullet solution to improve voter participation or to engage young people"[2]. As shown in Table 3, for example, the City of Markham, the first municipality in Ontario to use Internet (online) voting, has not seen a significant change in voter participation using internet voting.

Table 3: City of Markham Voter Turnout 2003-2014

Year	Internet (online) Voters	Overall Total
2003	4.5%	28%
2006	6.5%	37.9%
2010	5.7%	35.5%
2014	5.62%	37.1%

Internet voting is by its nature unsupervised and election administrators cannot ensure physical secrecy at the time a vote is registered.

Concern has been expressed that without the face-to-face interaction that takes place at a traditional voting location, some voters may be subject to pressures to vote a certain way. Jurisdictions that have used internet voting have educated voters on the criminal implications of coercion and intimidation and have incorporated multiple levels of verification, such as with a PIN number and "shared secret" (allowing the voter to make up the question they are required to answer). Nevertheless, security considerations of this type are not as effective as the secrecy afforded by a private ballot marking station overseen by election officials.

As is the case with all methods of election, it is critical that internet elections be conducted with the utmost integrity and in compliance with election principles.

The following are the principles under which municipal elections are conducted:

i. The secrecy and confidentiality of an individual's vote is paramount;
ii. The election is fair and non-biased;
iii. The election is accessible to the voters;
iv. The integrity of the process is maintained throughout the election;
v. There should be certainty that the results of the election reflect the votes cast;
vi. Voters and candidates are treated fairly and consistently; and
vii. A proper majority vote decides the election by ensuring, so far as reasonably possible, that valid votes be counted and invalid votes rejected.

1 Internet Voting Project Report – The Centre for e-Democracy, August 2016
http://www.centreforedemocracy.com/internet-voting-project-report/

2 Internet Voting Project Report – The Centre for e-Democracy, August 2016
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As noted above, in order to maintain public confidence, elections should be accessible, transparent, secret, accountable and secure from fraud. If internet voting does not adhere to some of those principles, it raises the question of whether or not it is important enough to dispense with one or more principles for the sake of convenience and other possible positive outcomes. It is important that decisions with respect to introducing internet voting take into consideration the need to balance these competing principles.

Since 2013, the adoption of internet voting has increased in the municipal sector, but there is still a lack of widespread acceptance of internet voting due to inherent security concerns.

Staff first reported on the use of internet voting as an alternative voting method in 2013, advising that while internet voting is a service that increases convenience for some voters, there are serious concerns regarding the security and integrity of these systems.

In 2013, Council received a comprehensive report from the City Clerk entitled 'Potential Programs and Technologies for the 2014 Municipal and School Board Elections' (A Review of Internet Voting, Vote Centres and Campaign Contribution Rebates), [Item 2, Report No. 8, of the Committee of the Whole (Working Session)].

In that report, the following points were highlighted:

- Although internet voting remains popular among municipalities that have implemented the technology, it is still regarded with skepticism by security experts;
- Many municipalities are reluctant to commit to internet voting and are waiting for more secure systems to enter the market;
- The cost of implementing internet voting is an issue, as in most instances, internet voting is being introduced not as a replacement for other voting methods, but as an additional option;
- There is a consensus that internet voting is an inevitable advancement that will take place when it becomes more mainstream and when its attendant potential risks to election integrity are adopted.
- Experience from other municipalities has shown that at least two years of dedicated planning are needed to develop, plan and test internet voting as an option.

According to a study prepared by the Centre for e-Democracy[3] , the number of municipalities that have adopted internet voting has increased with each election. In 2010 forty-four (44) municipalities used internet voting. In 2014, ninety-seven (97) Ontario municipalities adopted internet voting.

Notably, internet voting has not extended beyond the municipal sector. Internet voting has been investigated by Elections Canada, Elections Ontario and other provincial electoral agencies, and in each case internet voting was rejected due to concerns that no existing internet voting system can fully guarantee security, ballot secrecy and vote integrity.

Many of the security concerns related to internet voting outlined in the City Clerk's 2013 report entitled 'Potential Programs and Technologies for the 2014 Municipal and School Board Elections' are still cited by security experts today. These include:

- Denial-of-Service (DoS) attacks that flood servers, systems or networks with traffic in order to overwhelm the victim resources can make it difficult or impossible for legitimate users to use them. Denial-of-Service (DoS) can attack both the integrity of the system and the

3 Internet Voting Project Report – The Centre for e-Democracy, August 2016
http://www.centreforedemocracy.com/internet-voting-project-report/

integrity of the vote. For example, in the 2014 municipal election, the City of Stratford internet voting system was the target of a Denial-of-Service (DoS) attack and the City Clerk declared an emergency and extended the hours of voting by one hour.

- Malware, a direct attack on the computers of election officials or voters uploaded via a virus, could disable an individual's computer or make the voter think he or she has voted but the ballot never makes it to the tally.

- Phishing sites created to look identical to an election voting webpage may trick voters into providing credentials or thinking that they have voted.

There is a common misconception that with technology-enabled capabilities such as on-line banking, stock trading and retail purchasing, internet voting should not be a challenge to implement.

Commercial transactions must be traceable and parties must be authenticated so that neither party can falsely deny transactions, whereas voting is intended to be anonymous. Credit card companies and merchants have a financial interest in verifying the identifying of a shopper, and measures are in place to reimburse individuals who are the target of internet banking or credit card fraud. With internet voting, there are no comparable measures to trace a vote to a specific voter, or return the vote if it is the target of hacking or other security threats, without violating the secrecy of the vote.

Implementing internet voting as a second channel of voting can be costly. Significant costs savings are not realized until it replaces other voting methods.

If internet voting is implemented, a reduction in the costs of administering the election will only be realized when more traditional voting methods are significantly reduced or eliminated altogether. The costs of administering an internet election as a second channel of voting do not vary significantly with the scale of implementation (Advance Vote only versus throughout the election period). It is only when traditional polling stations, and the associated staffing and administrative costs, are significantly reduced or eliminated altogether that a significant reduction in election costs can be achieved.

Additional research and due diligence are required to determine whether internet voting can be implemented in a manner that addresses security concerns and ensures full compliance with election principles.

Staff will continue to monitor internet voting and will assign additional resources following the 2018 municipal elections to undertake a more rigorous review of the security and other implementation requirements for internet voting. If these requirements can be addressed, staff will report back with a detailed proposal in time for a decision to be made regarding the implementation of this option for the 2022 municipal election.

Staff is committed to modernizing and improving the election process. For the 2018 municipal election, staff will focus on introducing technology enhancements, process changes and performance measures designed to improve the overall voter experience.

The quality and currency of the Voters' List has been a concern in the administration of municipal elections and has a direct impact on the quality of the voting experience. A large number of revisions at the poll can lead to line-ups and delays in processing voters. One way to increase the accuracy of the voters' list is to encourage voters to review and update their voter information before Voting Day. For 2018, staff will be developing and promoting a more convenient on-line registration option for voters. As a result of recent amendments to the *Municipal Elections Act*, it

is now possible to accept voter revisions on-line during the voter revision period. This opportunity will be promoted along with the addition of a simple on-line tool so that persons completing a revision form can also search to find their voting location.

Expanding on the mobile elections app that was first introduced in the 2014 municipal elections, staff will be introducing enhancements for mobile devices, including the promotion of mobile access on the election website, voter notification cards and election advertising in general**.** Expanded on-line services will also include on-line training modules for election workers that will allow more convenient, self-paced learning and reinforcement of election principles and key job requirements.

In the 2014 municipal elections, the concept of Vote Centres was piloted on a limited basis with mixed results. A Vote Centre is different from a traditional polling location in that it is designed to accommodate many more voters at any given time and utilize a network of computers to access an Electronic Voters List. This pilot showed that the expectations and voting patterns of voters requires that Vote Centres be sized and staffed to handle large numbers of voters during peak voting periods. While some line ups are to be expected during these times, a more flexible staffing model is required to better handle the peaks and valleys during the day. Staff are investigating enhancements to the Vote Centre model, as well as other poll management options, to ease congestion and streamline the voting process.

Staff will continue to focus on promoting Advance Voting as a more convenient voting option with fewer line-ups. With the opening of the new Vaughan Metropolitan Centre (VMC) subway there may also be an opportunity to set up a new Advance Voting location where voters can “hop off the subway and vote”.

To support the initiatives aimed at improving the voter experience, staff will develop key performance indicators that can be used to measure progress in this area. This could include pre- and post-election surveys of voters to gauge expectations and how well those expectations were met.

Regional Implications

Although there are no significant regional implications associated with this report, it should be noted that with the proposed legislative change requiring direct election of the Regional Chair, local Municipal Clerks in York Region will be working closely with the Regional Clerk to ensure that the vote is compiled for the Regional Chair position.

Conclusion

The City Clerk is satisfied that Dominion Voting Systems has met all the required qualifications to successfully provide optical scan vote tabulators and recommends that RFP17-041 for the Leasing of Optical Scan Vote Tabulators for the 2018 and 2022 municipal elections in the amount of $285,804 plus applicable taxes be awarded to Dominion Voting Systems with an option for the 2026 municipal election.

The implementation of the internet voting option for the 2018 municipal election is not recommended as additional research and due diligence are required to determine whether internet voting can be implemented in a manner that addresses potential security concerns and ensures full compliance with election principles. Staff will report back no later than 2020 on security and other implementation measures related to internet voting that may support consideration of this option for the 2022 municipal election.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF APRIL 19, 2017

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Relationship to Term of Council Service Excellence Strategy Map (2014-2018)

This report aligns with the Term of Council Policy: Continue to advance a culture of excellence in governance, Effective Service Delivery – Review service delivery options and shared services to match resources to the desired level of service and Continuous Improvement - Implement continuous improvement initiatives to improve our service and business processes.

Attachments

Attachment 'A' - Internet Voting Option - Estimated Additional Administrative Costs

Report prepared by:

Donna Winborn, Election Coordinator x8241
Todd Coles, Deputy City Clerk x8628
Barbara A. McEwan, City Clerk x8281

(A copy of the attachments referred to in the foregoing have been forwarded to each Member of Council and a copy thereof is also on file in the office of the City Clerk.)

COMMITTEE OF THE WHOLE (WORKING SESSION) – APRIL 10, 2017

TECHNOLOGIES FOR THE 2018 AND 2022 MUNICIPAL ELECTIONS

Recommendation

The City Clerk, in consultation with the Director of Procurement Services and the Director of Financial Planning and Development Finance & Deputy City Treasurer recommends:

1. That RFP17-041 for the Leasing of Optical Scan Vote Tabulators for the 2018 and 2022 municipal elections with an option for the 2026 municipal election be awarded to Dominion Voting Systems in the amount of $ 285,804 plus applicable taxes, to be funded from the election reserve;

2. That the internet voting option not be implemented for the 2018 municipal elections; and

3. That the City Clerk report back no later than 2020 on security and other implementation measures related to internet voting that may support consideration of this option for the 2022 municipal elections.

Contribution to Sustainability

The administration of fair elections in an impartial manner is a fundamental statutory responsibility of municipal clerks in Ontario. The highest priority for municipal clerks is to carry out their duties in accordance with the provisions of the *Municipal Elections Act, 1996* ("the Act") and an established set of election principles as described in this report. It is also the responsibility of election administrators to manage expenditures and other resources in a manner that contributes to the financial and operational sustainability of the municipality.

Economic Impact

The municipal elections are funded through annual contributions to an election reserve, where funds are set aside to fund the regular municipal elections and any by-elections which may occur in intervening years. The expected cost of administering the 2018 municipal elections using the recommended optical scan vote tabulator technology is approximately $1,500,000 which can be funded from the existing election reserve allocation.

The deployment of internet voting as an alternate voting method (in addition to optical scan vote tabulators) would increase the total cost of administering the election by an estimated $750,000. Additional research into the potential implementation of internet voting for 2022 may identify the need for an increase in the annual contribution to the election reserve.

Communications Plan

A copy of this report will be posted on the City's website. Beginning in 2018, election information will be widely communicated to voters and candidates on the vaughan.ca/elections website.

Purpose

The purpose of this report is to report back on the competitive bid issued for vote counting and related technology for the 2018 and 2022 municipal elections, and to obtain Council approval to award RFP17-041 for the leasing of optical scan vote tabulators for the 2018 and 2022 municipal elections, with an option for the 2026 municipal election, to the successful proponent, Dominion Voting Systems.

Background - Analysis and Options

In May 2015, Council directed that staff issue a competitive bid for the lease of vote counting equipment and related technology for the 2018 and 2022 municipal elections, including the option of internet voting technology.

In a post-election report to Council following the 2014 municipal elections [Item 3, Report No. 22 of the Committee of the Whole (Working Session), dated May 12, 2015], the City Clerk identified the need to undertake a competitive bid process to procure vote counting equipment for the 2018 and 2022 municipal elections due to the expiration of the previous contract held for the lease of optical scan vote tabulators. This equipment was successfully used for both the 2010 and 2014 municipal elections. The City Clerk also indicated that staff would continue to monitor internet voting as an optional voting service for future elections.

Subsequently, at its meeting of May 19, 2015, Council adopted the following recommendation contained in Item 3, Report No. 22 of the Committee of the Whole (Working Session):

1. That a competitive bid for leasing of vote counting equipment and related technology for the 2018 election be issued with the following to be included as options:

    i. Pricing to include both the 2018 and 2022 elections; and

    ii. Internet voting technologies.

A by-law is already in place authorizing the use of optical scan vote tabulating equipment. In accordance with Subsections 42 (1) (a) and (b) of the *Municipal Elections Act, 1996* in order for internet voting to be implemented as an alternate voting technology, Council would be required to pass a by-law authorizing its use no later than May 1, 2017 for the 2018 municipal elections, and no later than May 1, 2021 for the 2022 municipal elections.

Request for Proposal 17-041

A Request for Proposal was released to seek proposals to provide election support services, leasing of election vote tabulators and optional internet voting services.

On February 2, 2017 RFP17-041 was issued for the provision of election support services, leasing of optical scan vote tabulators and optional internet voting services. The RFP requested the development, supply, implementation, training, support, and maintenance of vote tabulators and an optional Internet Voting Solution for the 2018 and 2022 municipal elections with an added option to include pricing for the 2026 elections.

Proponents were asked to provide lease/rental pricing for four options:

Option 1 – Optical Scan Ballot Tabulation Only (Advance Vote and Voting Day)

Option 2 – Optical Scan Ballot Tabulation (Advance Vote and Voting Day) and Internet Voting (Advance Vote Only)

Option 3 - Optical Scan Ballot Tabulation (Advance Vote and Voting Day) and Internet Voting (Advance Vote and Voting Day)

Option 4 - Internet Voting Only (Advance Vote and Voting Day)

The City received one compliant proposal for election support services, leasing of election vote tabulators and optional internet voting services.

A total of three (3) RFP documents were downloaded. One addendum was issued on Tuesday, February 21, 2017 to answer questions from the proponents.

Only one proposal, from Dominion Voting Systems, was considered compliant and further evaluated by an evaluation committee comprised of staff from the Office of the City Clerk and the Office of Transformation and Strategy, facilitated by the Procurement Services Department. The submitted proposal was evaluated based on the following criteria:

Understanding of the RFP and Proposed Approach:	10 points
Corporate Experience and Qualifications:	10 points
Company Profile:	5 points
Functional Requirements:	40 points
Financial	35 points

In addition, a vendor presentation was made on March 23, 2017 during which staff had the opportunity to see a demonstration of the vendor's proposed services.

Based on the evaluation committee's review of the proposal, Dominion Voting Systems meets the requirements for the provision of the services outlined in RFP17-041.

Based on the evaluation committee's review of the proposal, Dominion Voting Systems successfully fulfilled all the City's technical requirements and qualifications related to the provision of the services requested. Accordingly, the evaluation committee is satisfied that Dominion Voting Systems has met all the required qualifications to successfully provide optical scan vote tabulators. The specific costs are set out below.

Notwithstanding that there was only one compliant proposal, staff are satisfied that the successful bidder is providing competitive pricing. Dominion Voting Systems supplied the optical scan vote tabulators used in the 2010 and 2014 elections and has provided a substantial "Preferred Customer Discount". The pricing is secured for two elections (2018 and 2022) and the pricing noted for 2018 and 2022 would also be available for the 2026 municipal election, subject to an adjustment based on the Consumer Price Index. There is also the possibility of obtaining further reduced pricing by "piggybacking" on a contract currently being finalized with Elections Ontario for the same vote tabulators.

Optical Scan Vote Tabulators

The cost to provide optical scan vote tabulators for the 2018 and 2022 municipal elections is $142,902 per election, for a total cost of $285,804 as summarized in Table 1 below:

Table 1: Lease Costs - Optical Scan Vote Tabulators
(Per Election)
(Applicable to Options 1, 2 and 3)

	Total
RFP Bid Price (Exclusive of Taxes)	$ 142,902
Total Cost for 2018 and 2022 Municipal Elections	$ 285,804

Internet Voting Option

The total cost of offering internet voting as an option in addition to optical scan vote tabulators is estimated to be $750,000.

These costs are comprised of: (a) vendor costs for the licensing and hosting of the internet voting service, and (b) additional administrative costs associated with managing the internet component of the election.

(a) Vendor Costs

The total vendor cost of the optional internet voting services varies from $126,000 to $147,000 per election, depending on the option selected. The costs are summarized in Table 2 below:

Table 2: Internet Voting Option
Vendor Costs - Licensing and Hosting of Internet Voting Service
(per Election)

	Option 2 During Advance Vote Only	**Option 3** During Advance Vote and Voting Day	**Option 4** Internet Only
RFP Bid Price (Exclusive of Taxes)	$126,000	$136,500	$147,000
Total Cost Per Election	$126,000	$136,500	$147,000

(b) Additional Administrative Costs of Internet Voting Option

Although the licensing and hosting of the internet voting service itself would form part of the contracted service with the vendor, additional staff resources, contracted services, communications, third party auditing, insurance and hardware will be required to support the implementation of internet voting and provide oversight needed to ensure the integrity of the system.

The estimated additional costs, based on research and information provided by municipalities already engaged in internet voting are $600,000, bringing the total cost of the internet voting option to an estimated $750,000. These additional costs are summarized in Attachment 'A'.

Assessment of Internet Voting

Internet voting has many benefits including convenience and accessibility, but to date, it has not been shown to have a significant impact on increasing voter turnout.

In August 2016, an Internet Voting Project Report authored by Nicole Goodman of the University of Toronto and Heather Pyman of Carleton University through the Centre for e-Democracy was prepared to inform governments, and the public of the effects of internet voting on elections[1]. The report found that when municipal election administrators were asked to select the top reasons their municipality opted to offer internet voting the most common responses were accessibility (25%), improvements in voter turnout (22%) and convenience (17%).

In the report, the authors noted that, "despite comments about observed improvements in turnout, this study and other research, clearly indicates that internet voting is not the magic bullet solution to improve voter participation or to engage young people"[2]. As shown in Table 3, for example, the City of

[1] Internet Voting Project Report – The Centre for e-Democracy, August 2016
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[2] Internet Voting Project Report – The Centre for e-Democracy, August 2016
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Markham, the first municipality in Ontario to use Internet (online) voting, has not seen a significant change in voter participation using internet voting.

Table 3: City of Markham Voter Turnout 2003-2014

Year	Internet (online) Voters	Overall Total
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vii. A proper majority vote decides the election by ensuring, so far as reasonably possible, that valid votes be counted and invalid votes rejected.

As noted above, in order to maintain public confidence, elections should be accessible, transparent, secret, accountable and secure from fraud. If internet voting does not adhere to some of those principles, it raises the question of whether or not it is important enough to dispense with one or more principles for the sake of convenience and other possible positive outcomes. It is important that decisions with respect to introducing internet voting take into consideration the need to balance these competing principles.

Since 2013, the adoption of internet voting has increased in the municipal sector, but there is still a lack of widespread acceptance of internet voting due to inherent security concerns.

Staff first reported on the use of internet voting as an alternative voting method in 2013, advising that while internet voting is a service that increases convenience for some voters, there are serious concerns regarding the security and integrity of these systems.

In 2013, Council received a comprehensive report from the City Clerk entitled 'Potential Programs and Technologies for the 2014 Municipal and School Board Elections' (A Review of Internet Voting, Vote Centres and Campaign Contribution Rebates), [Item 2, Report No. 8, of the Committee of the Whole (Working Session)].

In that report, the following points were highlighted:

- Although internet voting remains popular among municipalities that have implemented the technology, it is still regarded with skepticism by security experts;
- Many municipalities are reluctant to commit to internet voting and are waiting for more secure systems to enter the market;
- The cost of implementing internet voting is an issue, as in most instances, internet voting is being introduced not as a replacement for other voting methods, but as an additional option;
- There is a consensus that internet voting is an inevitable advancement that will take place when it becomes more mainstream and when its attendant potential risks to election integrity are adopted.
- Experience from other municipalities has shown that at least two years of dedicated planning are needed to develop, plan and test internet voting as an option.

According to a study prepared by the Centre for e-Democracy[3] , the number of municipalities that have adopted internet voting has increased with each election. In 2010 forty-four (44) municipalities used internet voting. In 2014, ninety-seven (97) Ontario municipalities adopted internet voting.

Notably, internet voting has not extended beyond the municipal sector. Internet voting has been investigated by Elections Canada, Elections Ontario and other provincial electoral agencies, and in each case internet voting was rejected due to concerns that no existing internet voting system can fully guarantee security, ballot secrecy and vote integrity.

Many of the security concerns related to internet voting outlined in the City Clerk's 2013 report entitled 'Potential Programs and Technologies for the 2014 Municipal and School Board Elections' are still cited by security experts today. These include:

- Denial-of-Service (DoS) attacks that flood servers, systems or networks with traffic in order to overwhelm the victim resources can make it difficult or impossible for legitimate users to use them. Denial-of-Service (DoS) can attack both the integrity of the system and the integrity of the vote. For example, in the 2014 municipal election, the City of Stratford internet voting system was the target of a Denial-of-Service (DoS) attack and the City Clerk declared an emergency and extended the hours of voting by one hour.

- Malware, a direct attack on the computers of election officials or voters uploaded via a virus, could disable an individual's computer or make the voter think he or she has voted but the ballot never makes it to the tally.

- Phishing sites created to look identical to an election voting webpage may trick voters into providing credentials or thinking that they have voted.

There is a common misconception that with technology-enabled capabilities such as on-line banking, stock trading and retail purchasing, internet voting should not be a challenge to implement.

Commercial transactions must be traceable and parties must be authenticated so that neither party can falsely deny transactions, whereas voting is intended to be anonymous. Credit card companies and merchants have a financial interest in verifying the identifying of a shopper, and measures are in place to reimburse individuals who are the target of internet banking or credit card fraud. With internet

[3] Internet Voting Project Report – The Centre for e-Democracy, August 2016
http://www.centreforedemocracy.com/internet-voting-project-report/

voting, there are no comparable measures to trace a vote to a specific voter, or return the vote if it is the target of hacking or other security threats, without violating the secrecy of the vote.

Implementing internet voting as a second channel of voting can be costly. Significant costs savings are not realized until it replaces other voting methods.

If internet voting is implemented, a reduction in the costs of administering the election will only be realized when more traditional voting methods are significantly reduced or eliminated altogether. The costs of administering an internet election as a second channel of voting do not vary significantly with the scale of implementation (Advance Vote only versus throughout the election period). It is only when traditional polling stations, and the associated staffing and administrative costs, are significantly reduced or eliminated altogether that a significant reduction in election costs can be achieved.

Additional research and due diligence are required to determine whether internet voting can be implemented in a manner that addresses security concerns and ensures full compliance with election principles.

Staff will continue to monitor internet voting and will assign additional resources following the 2018 municipal elections to undertake a more rigorous review of the security and other implementation requirements for internet voting. If these requirements can be addressed, staff will report back with a detailed proposal in time for a decision to be made regarding the implementation of this option for the 2022 municipal election.

Staff is committed to modernizing and improving the election process. For the 2018 municipal election, staff will focus on introducing technology enhancements, process changes and performance measures designed to improve the overall voter experience.

The quality and currency of the Voters' List has been a concern in the administration of municipal elections and has a direct impact on the quality of the voting experience. A large number of revisions at the poll can lead to line-ups and delays in processing voters. One way to increase the accuracy of the voters' list is to encourage voters to review and update their voter information before Voting Day. For 2018, staff will be developing and promoting a more convenient on-line registration option for voters. As a result of recent amendments to the *Municipal Elections Act*, it is now possible to accept voter revisions on-line during the voter revision period. This opportunity will be promoted along with the addition of a simple on-line tool so that persons completing a revision form can also search to find their voting location.

Expanding on the mobile elections app that was first introduced in the 2014 municipal elections, staff will be introducing enhancements for mobile devices, including the promotion of mobile access on the election website, voter notification cards and election advertising in general**.** Expanded on-line services will also include on-line training modules for election workers that will allow more convenient, self-paced learning and reinforcement of election principles and key job requirements.

In the 2014 municipal elections, the concept of Vote Centres was piloted on a limited basis with mixed results. A Vote Centre is different from a traditional polling location in that it is designed to accommodate many more voters at any given time and utilize a network of computers to access an Electronic Voters List. This pilot showed that the expectations and voting patterns of voters requires that Vote Centres be sized and staffed to handle large numbers of voters during peak voting periods. While some line ups are to be expected during these times, a more flexible staffing model is required to better handle the peaks and valleys during the day. Staff are investigating enhancements to the Vote Centre model, as well as other poll management options, to ease congestion and streamline the voting process.

Staff will continue to focus on promoting Advance Voting as a more convenient voting option with fewer line-ups. With the opening of the new Vaughan Metropolitan Centre (VMC) subway there may also be an opportunity to set up a new Advance Voting location where voters can "hop off the subway

and vote".

To support the initiatives aimed at improving the voter experience, staff will develop key performance indicators that can be used to measure progress in this area. This could include pre- and post-election surveys of voters to gauge expectations and how well those expectations were met.

Regional Implications

Although there are no significant regional implications associated with this report, it should be noted that with the proposed legislative change requiring direct election of the Regional Chair, local Municipal Clerks in York Region will be working closely with the Regional Clerk to ensure that the vote is compiled for the Regional Chair position.

Conclusion

The City Clerk is satisfied that Dominion Voting Systems has met all the required qualifications to successfully provide optical scan vote tabulators and recommends that RFP17-041 for the Leasing of Optical Scan Vote Tabulators for the 2018 and 2022 municipal elections in the amount of $285,804 plus applicable taxes be awarded to Dominion Voting Systems with an option for the 2026 municipal election.

The implementation of the internet voting option for the 2018 municipal election is not recommended as additional research and due diligence are required to determine whether internet voting can be implemented in a manner that addresses potential security concerns and ensures full compliance with election principles. Staff will report back no later than 2020 on security and other implementation measures related to internet voting that may support consideration of this option for the 2022 municipal election.

Relationship to Term of Council Service Excellence Strategy Map (2014-2018)

This report aligns with the Term of Council Policy: Continue to advance a culture of excellence in governance, Effective Service Delivery – Review service delivery options and shared services to match resources to the desired level of service and Continuous Improvement - Implement continuous improvement initiatives to improve our service and business processes.

Attachments

Attachment 'A' - Internet Voting Option - Estimated Additional Administrative Costs

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Respectfully submitted,

Barbara A. McEwan
City Clerk

Attachment 'A'

INTERNET VOTING OPTION Estimated Additional Administrative Costs		
Item	Description	Estimated Cost
Project Management Resources	To manage internet voting as a separate project, as the combination of internet voting and tabulator voting would require independent administration with little opportunity for service overlap.	**$200,000**
Third Party Auditor	To monitor and test the system prior to, during and after the elections for auditing and transparency.	**$25,000**
Communications Campaign	To support the public in understanding the new method of voting, promote the election and provide additional educational materials to electors. This would be an enhancement to the existing election communications campaign.	**$225,000**
Additional Staffing and Training	To provide additional call centre resources to administer voter pins, registration for internet voting, and provide assistance to voters during the voting period. To support voters who are either not comfortable using the internet to vote or do not have access to the internet, through the establishment of internet voting stations at Advance Vote locations throughout the Advance Vote period.	**$50,000**
Enhancements to Voters' List Database	To provide an electronic voter database to ensure functionality of internet voting. The database is updated in real-time to allow for instantaneous revisions to the list, verification of elector eligibility and for marking off an elector as having voted. This electronic database replaces the paper voter list poll book.	**$50,000**
Threat Risk Assessment, Vulnerability Assessment, Privacy Impact Assessment, Penetration Testing, Code Review	To conduct a comprehensive assessment of a complex system that encrypts ballots in transit. To perform a vulnerability assessment on the external IP address of the web server hosting the online voting application, perform penetration testing to exploit select vulnerabilities if discovered.	**$25,000**
Cyber Insurance & Risk Management	To review Third Party Auditing program which would include monitoring protective elements of the program, such as preparation for business disruption caused by cyber-attacks, ability to detect external threats and internal vulnerabilities, assess and prioritize vulnerabilities. To pay for damages arising out of a cyber-attack of the internet voting system (does not eliminate risk).	**$ 25,000**
Estimated Total Cost		**$600,000**