

Markham Votes 2014 - Internet Voting Program

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**Presentation to
Special General Committee Meeting
November 13, 2012**

Purpose

**To obtain Council support
to use Internet Voting
as part of the
2014 Municipal Election**

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Legislative Framework

Municipal Elections Act, 1996 principles:

- **Secrecy & confidentiality**
- **Fair, non-biased & accessible**
- **Protecting the integrity of the process**
- **Certainty of the results**
- **Fair & equal treatment of voters**

Legislative Framework (cont'd)

Municipal Elections Act, 1996 requires the Clerk to obtain Council approval to use alternative voting methods in an election

- Council is required to pass a by-law authorizing the use of Optical Scan Vote Tabulators & Internet Voting
- **Municipal Elections Act, 1996 requires Clerk to ensure election process is accessible to persons with disabilities**

Why Internet Voting

- **Markham introduced online voting in 2003 out of a desire to leverage technology to increase voter engagement**
- **Online voting offered flexibility & convenience for commuters, business travelers & snowbirds**
- **Online voting held promise in terms of engaging youth**
- **Online voting would allow persons with disabilities to vote independently**
- **Online voting is green voting**

Why Internet Voting? (Cont'd)

- Partnered with Election Systems & Software (ES & S) for provision of online voting & vote tabulators for inline voting (2003 & 2006)
- Partnered with ES&S & Intelivote Systems Inc. in 2010

Markham's 2010 Election Model

Rationale for the Model

- **Established model (used in 2003, 2006)**
- **Cost efficient**
- **Green Program – reducing the number of people driving to voting places**
- **Supports accessibility & diversity considerations**
- **Multi-channel model engages broad spectrum of voters**
- **Online voting platforms continue to improve in terms of security**

2010 Election Model (Cont'd)

Objectives

- Further expand municipal leadership in electronic service delivery
- Offer multiple voting channels
- Reflect changing demographics & lifestyles
- Economic changes-longer work hours/further distance to travel to work
- Embrace “new electorate”
- Convenience & sustainability
- Support accessibility for persons with disabilities

2010 Election Model (Cont'd)

Use of Voting Technology

- Online voting was offered during Early Voting Period only
- In-person voting was offered during Early Voting Period & on Voting Day
- Use of optical scan vote tabulators & complimentary (e.g., accessible) technology deployed for in-line voting
- No other voting modes were proposed (e.g., vote by mail, telephone voting)

2010 Election Model (Cont'd)

Election Model Supported By

- Literature review undertaken by Dr. Henry Kim, York University. Examined academic & professional literature's assessment of online voting relative to security & accessibility
- Dr. Kim previously undertook a Risk Assessment of various voting channels
- Independent security assessment of the chosen platform

2010 Election Model (Cont'd)

Risk Management

- **Important to emphasize that any election model has inherent risks**
- **The key for Staff was to identify, understand & manage all risks**
- **Greater public awareness of internet security & privacy requires more rigour around risk management**

2010 Election Model (Cont'd)

Risks of In-Person Voting

- Personation
- Quality of the Voters' List (multiple entries of same name, ineligible voters, etc.)
- Coercion (i.e. pressure to vote for a specific candidate at the voting place particularly where a translator is involved)
- Proxy voting
- Incorrect ballot issued by staff
- Forms not properly completed by staff

2010 Election Model (Cont'd)

Risks of Vote by Mail

- Mail-in ballot mailed at right time but arrives too late
- Notification card stolen
- No Voting Day voting place to serve as means of recovery
- Level of control assumed by Canada Post to deliver ballots on time

2010 Election Model (Cont'd)

- Total budget \$1.2 million

Category	Budget
Election Day Staffing	\$180,000
Internet & Lease of Vote Tabulators	\$213,300
Risk Analysis	\$3,555
Security Audit	\$18,000
Communications	\$216,600
Language Translations	\$45,485

- Cost per elector \$0.81 for internet, \$5.63 for in-person

2010 Outcomes Markham's Voter Turnout

Year	Online	Advanced (incl. Online)	Total
2003	4.5% (7,210)	6.5% (10,543)	28.0% (42,198)
2006	6.5% (10,639)	9.3% (15,152)	37.9% (61,948)
2010	5.7% (10,597)	8.9% (16,511)	35.5% (65,927)

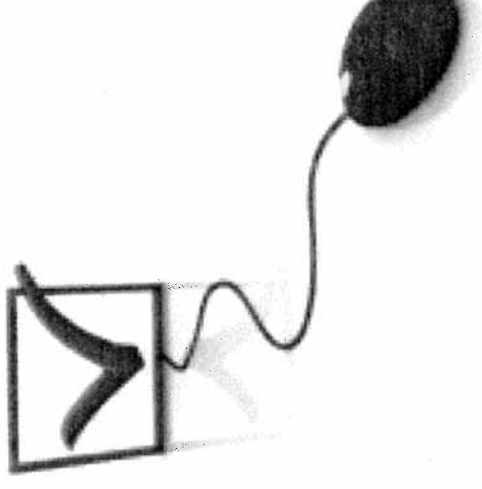
On-line Voting Statistics

Online Voting Registrants:

- 2003: 11,708 (7.5% of eligible voters)
- 2006: 16,251 (9.7% of eligible voters)
- 2010: 17,231 (9.3 % of eligible voters)

Online Voters:

- 2003: 7,210 (61.6% of registrants)
- 2006: 10,639 (65% of registrants)
- 2010: 10,597 (61.5% of registrants)



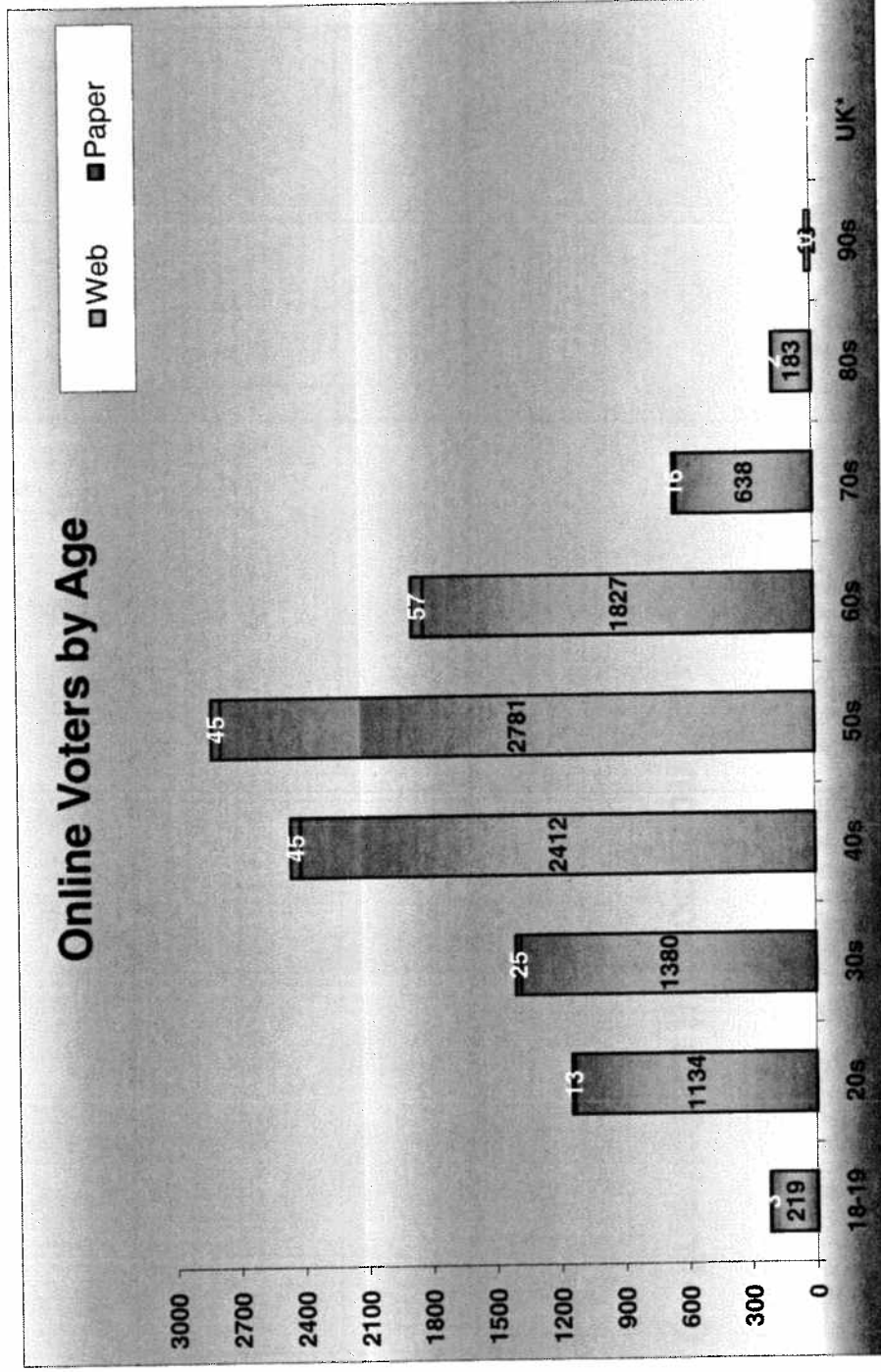
On-line Voting Statistics (Cont'd)

2010 Online Voters by Location

Location	Number
Number of voters that voted from another province	495
Number of voters that voted from the U.S.A.	233
Number of voters that voted from outside North America	84

On-line Voting Statistics (Cont'd)

2010 Online Voters by Age



On-line Voting Feedback (2006)

Delvinia User Experience Survey (2006)

- 78% “very satisfied” & 21% “satisfied” with online voting
- 80% would recommend online voting to others
- 90% very likely to vote online in provincial/federal elections if option provided
- 88% voted online due to convenience
- 86% voted from work & 10% voted from home

On-line Voting Feedback (2010)

Delvinia User Experience Survey (2010)

- 99% were “satisfied” with online voting
- 99% very likely to vote online in provincial/federal elections if option provided
- 91% voted from home
- 78% of candidates indicated the option of internet voting had a significant impact on the campaign
- 92% of candidates indicated they were in favour of Internet voting in the 2010 Markham Municipal Election

Online Voting Experience

- To vote online, voter must first register their intent to vote online
- Credentials required for both registration & participation
- Model has been used since 2003




Online Voting Experience (Cont'd)

Registration

- Persons on Voters' List were sent their Voter Information Package (VIP) by first class mail by which included instruction on how to register to vote online
- Registration was available from September 24, 2010 October 15, 2010 (midnight)
- Registration required voter to:
 - Provide full birth date (year, month, day).
 - Provide unique PIN from VIP
 - Create Personal Passcode

Online Voting Experience (Cont'd)

VIP



JUDAN GANPTE
41 WARDEN AVENUE
MARKHAM, ON
M3H 3A2

Ward: 6
Voting Subdivision: 001
School Support: EP

See full list of polling locations at www.markhamvotes.ca. If you plan to vote via the internet, please contact the voter helpline at 905-477-7000, ext. 8683 to have an address prior to registration.

REGISTER TO VOTE ONLINE
Register to vote online anytime from Friday, September 24, starting at 7:00pm until Friday, October 15, ending at midnight.

STEP 1: To register go to www.markhamvotes.ca

STEP 2: Enter your Date of Birth

STEP 3: Enter your Registration PIN

STEP 4: Create a personal numeric passcode

After registering you will receive further voting instructions in the mail which you will need to vote online from October 18 to October 21, internet voting available 24 hours per day.

VOTING DAY
Monday, October 25, 2010
10:00 am to 8:00 pm

You may vote in person at the following voting place:
Markham Civic Centre,
101 Town Centre Blvd.

Bring this notice and identification when attending your voting place. For a list of acceptable ID, please go to www.markhamvotes.ca.

WHO CAN VOTE

You are eligible to vote on Voting Day (October 25) if you:

- Are in Markham or are the owner or tenant of land in Markham or the spouse of such owner or tenant.
- Are a Canadian citizen.
- Are at least 18 years old and
- Are not prohibited from voting as outlined in the Electoral Act or any other legislation.

VOTING REGULATIONS
Whether you cast your ballot online or online, the integrity of the electoral process and the secrecy of your vote is imperative. The Municipal Elections Act states that no person shall:

- Vote without being qualified to do so;
- Vote more than once in Markham;
- Vote in a voting place in which he or she is not entitled to do so;
- Supply a ballot to anyone without authority from the Returning Officer;
- Interfere with an elector who is marking a ballot;
- Obtain or attempt to obtain information about how an elector has or will vote.

VOTER ASSISTANCE
If you require assistance, please go to www.markhamvotes.ca or call the Voter Helpline at 905-477-7000, ext. VOTE (8683) during regular business hours.

Voter Information is available in the following languages:

FRENCH
Pour obtenir d'autres renseignements sur les élections et les électeurs, veuillez consulter: www.markhamvotes.ca

CHINESE (SIMPLIFIED)
欲知有关投票的更多资讯，请浏览：www.markhamvotes.ca

CHINESE (TRADITIONAL)
欲知有關投票的更多资讯，請瀏覽：www.markhamvotes.ca

PUNJABI
For other election arrangements see the elections website: www.markhamvotes.ca

TAMIL
அரசியலமைப்பு குறிப்பு: www.markhamvotes.ca
கட்சி: www.markhamvotes.ca
கட்சி: www.markhamvotes.ca

URDU
www.markhamvotes.ca
کلیے براہ کرم ملاحظہ کریں www.markhamvotes.ca
رہے ہندو اور انتخاب سے متعلق مزید معلومات

Go to www.markhamvotes.ca or call 905-477-7000, Ext. VOTE (8683)

ACCESSIBILITY PROVISIONS

All designated voting places in Markham are physically accessible. On each of the Early Voting Days, various ballot marking devices will be available to enable voters with disabilities to mark their ballot independently.

For additional information on accessibility, please go to www.markhamvotes.ca. Please note all voting information is available in alternate formats.



Online Voting Experience (Cont'd)

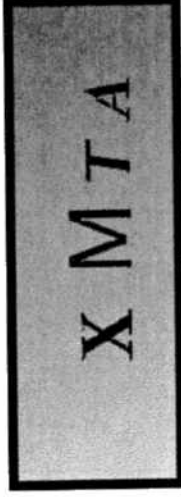
Registering to Vote On-Line

1. Enter capcha



MarkhamVotes
Voice your choice - online or in line


Town of Markham: Registration for Online Voting



Please type the characters appearing in the box

Online Voting Experience (Cont'd)

2. Enter birth date & Registration PIN



MarkhamVotes
Voice your choice - online or in line

Town of Markham: Registration for Online Voting

Please enter your voter credentials below.

Date of Birth

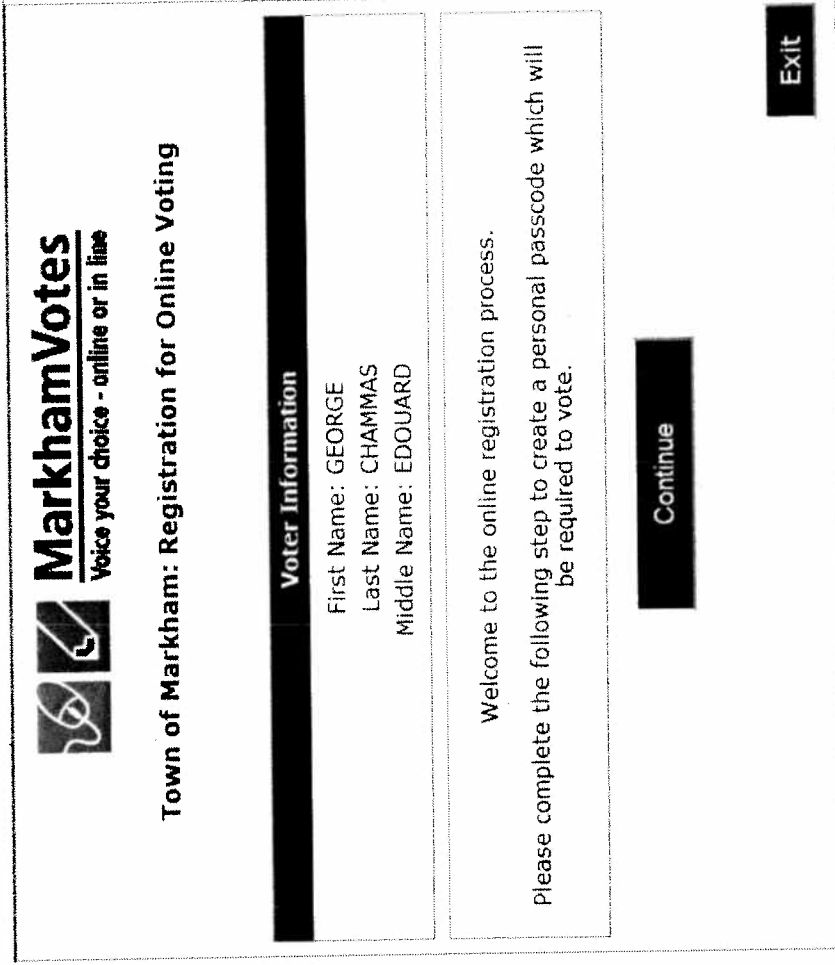
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
MM	DD	YYYY	

Enter your Registration PIN

Continue

Online Voting Experience (Cont'd)

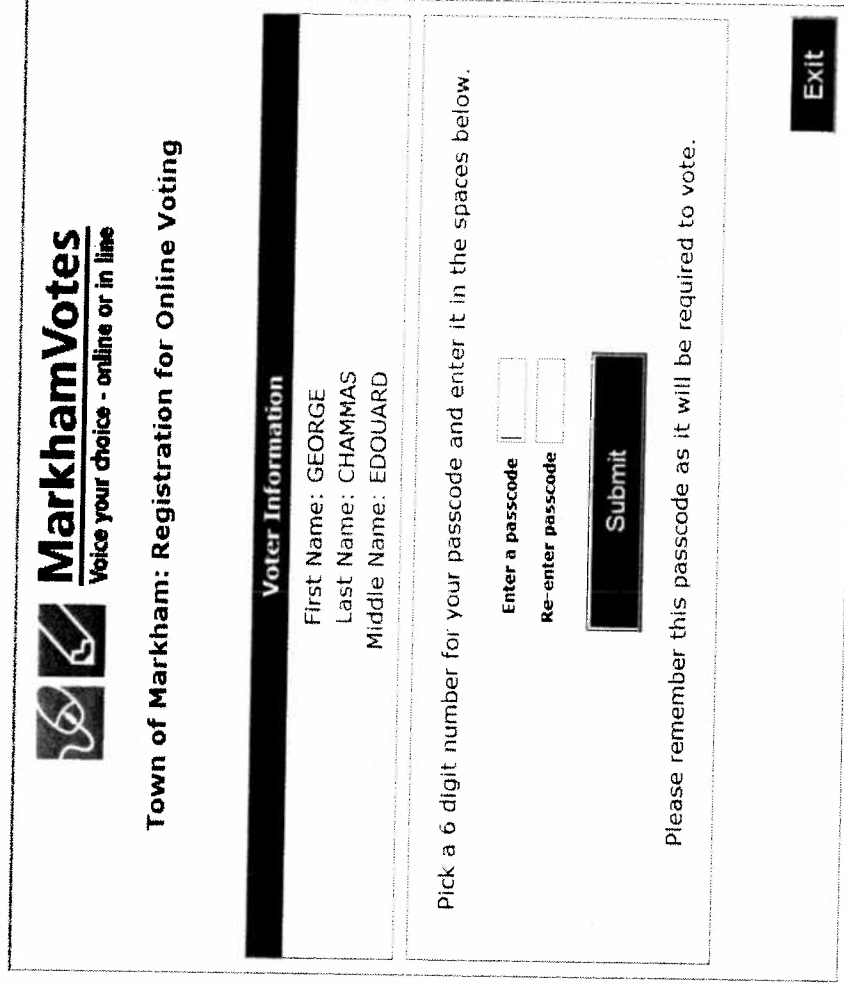
3. Voter information displayed



The screenshot displays the MarkhamVotes website interface. At the top left, there is a logo with a stylized 'M' and 'V' and the text 'MarkhamVotes' and 'Voice your choice - online or in line'. Below the logo, it says 'Town of Markham: Registration for Online Voting'. A black bar with the text 'Voter Information' is present. Below this bar, the following information is displayed: 'First Name: GEORGE', 'Last Name: CHAMMAS', and 'Middle Name: EDOUARD'. A message reads: 'Welcome to the online registration process. Please complete the following step to create a personal passcode which will be required to vote.' At the bottom of the form, there are two buttons: 'Continue' and 'Exit'.

Online Voting Experience (Cont'd)

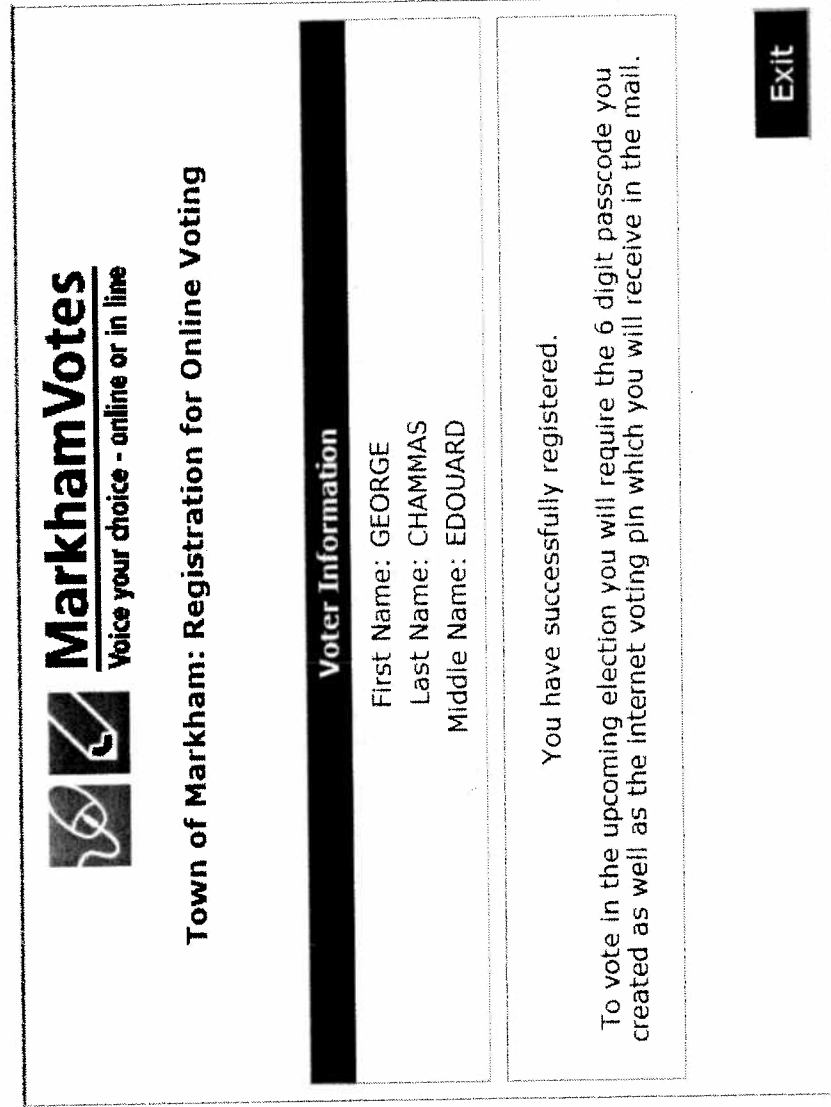
4. Enter 6 digit number to create Personal Passcode



The screenshot shows the 'MarkhamVotes' registration interface. At the top left, there are three icons: a stylized 'M', a ballot box, and a checkmark. The text 'MarkhamVotes' is prominently displayed, with the tagline 'Voice your choice - online or in line' underneath. Below this, it says 'Town of Markham: Registration for Online Voting'. A section titled 'Voter Information' contains the following details: First Name: GEORGE, Last Name: CHAMMAS, and Middle Name: EDOUARD. Below the name information, there is a prompt: 'Pick a 6 digit number for your passcode and enter it in the spaces below.' This is followed by two input fields: 'Enter a passcode' and 'Re-enter passcode'. A 'Submit' button is located below these fields. A note at the bottom of the form area states: 'Please remember this passcode as it will be required to vote.' An 'Exit' button is visible in the bottom right corner of the form area.

Online Voting Experience (Cont'd)

5. Registration success message



The screenshot shows a registration success message from MarkhamVotes. At the top left is the MarkhamVotes logo, which consists of a stylized 'M' and 'V' icon followed by the text 'MarkhamVotes' and the tagline 'Voice your choice - online or in line'. Below the logo is the text 'Town of Markham: Registration for Online Voting'. A black horizontal bar separates this header from the 'Voter Information' section. The voter information is listed as: First Name: GEORGE, Last Name: CHAMMAS, and Middle Name: EDOUARD. Below this is a confirmation message: 'You have successfully registered.' and a note: 'To vote in the upcoming election you will require the 6 digit passcode you created as well as the internet voting pin which you will receive in the mail.' At the bottom right of the message area is a black button labeled 'Exit'.

Online Voting Experience (Cont'd)

Online Voting Access

- Following registration, online voting letter was sent with URL & online voting PIN by first class mail
- URL not released prior to registration & not published online or elsewhere
- Online voting procedures posted June 1, 2010 & broadly communicated to voters & candidates
- Voting opened 10 a.m. October 16, 2010 & closed October 21, 2010 (8 PM) - 24 hour access during this period

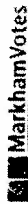
Online Voting Experience (Cont'd)

Voting Platform Procedures

- Does not allow over-votes (warning message appears)
- Allows under-votes (warning message appears)
- Allows blank ballots (warning message appears)
- Voter may re-examine their choice(s) prior to casting their ballot
- Selections made by clicking on box to right of candidate's name. "X" appears. Voters can de-select choice(s) by clicking on box again
- 'Vote Now' selection equivalent to dropping ballot in ballot box

Online Voting Experience (Cont'd)

Online Voting Letter



YOURVOTECOUNTS



180 SHELLE SULLIVAN
48 PORSSETTA BLVD
THORNHILL ON L3R 4T6

SEP 2014

Registration Period

Thank you for registering to vote online for the 2010 Markham Municipal Election.

Your new INTERNET VOTING PIN is included below. Printing voting will be available 24 hours per day beginning at 10:00 a.m. on Saturday, October 16, 2010 and ending at 8:00 p.m. on Thursday, October 21, 2010.

TO VOTE BY INTERNET SIMPLY:

1. Log on to www.markhamvotes.com
2. Read the mandatory DECLARATION
3. Click the "Vote" button to continue
4. Complete the HUMAN INTERFACE CHALLENGE
5. Enter your valid, digit PERSONAL PASSCODE
6. Enter the eight(8) digit INTERNET VOTING PIN number below

INTERNET VOTING PIN: 5702 5854

NOTE: The Internet Voting system will be available 24 hours per day beginning at 10:00 a.m. on Saturday, October 16, 2010 and ending at 8:00 p.m. on Thursday, October 21, 2010. Changes to ballot text will only be made to persons at an early voting or walk-in voting place and will be posted to your voter information package. For more information, call 905-477-7000, ext. 6000.

NOW YOU ARE READY TO VOTE:

1. Read the voting information on screen before proceeding
2. Click on "Continue"
3. You will be prompted to move from our voting screen to the next until all offices have been voted
4. You will not be able to over-vote any office that will be able to under-vote or submit a MARK ballot for a particular office by clicking submit without making a selection
5. Click on "Return to Ballot" to view the ballot any time before casting your ballot
6. Click on "Vote Now" to cast your ballot after each office

VOTING REGULATIONS

Whether you cast your ballot via the internet or at a voting place, the integrity of the electoral process and the secrecy of your vote is important. The Municipal Elections Act states that no person shall:

- Vote without being qualified to do so.
- Vote more than once in Markham.
- Vote in a voting place to which he or she is not entitled to do so.
- Supply a ballot to anyone without authority from the returning officer.
- Interfere with an elector who is marking a ballot.
- Obtain or attempt to obtain information about how an elector has or will vote.

INTERNET VOTER ASSISTANCE

If you require assistance, please contact the Voter Helpline at:

Phone: 905-477-7000 extension 4011 (toll-free)

Email: voterhelpline@markham.ca

Hours of operation: 8:30 a.m. to 8:00 p.m. from October 16 to 21, 2010

VOTER INFORMATION IS AVAILABLE IN THE FOLLOWING LANGUAGES:

FRENCH
Pour obtenir d'autres renseignements sur les élections et les électeurs, veuillez consulter www.markhamvotes.com

CHINESE (SIMI)
請向本局查詢有關選舉詳情，或向本局查詢有關選民資料，請向本局查詢。
www.markhamvotes.com

CHINESE (TRAD)
請向本局查詢有關選舉詳情，或向本局查詢有關選民資料，請向本局查詢。
www.markhamvotes.com

PUNJABI
ਪ੍ਰੋਗਰਾਮ ਵਿੱਚ ਹੋਰ ਜਾਣਕਾਰੀ ਲਈ www.markhamvotes.com 'ਤੇ ਜਾਓ

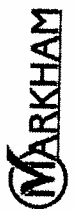
TAMIL
மேலும் தகவல்களைப் பெற, அல்லது தேர்தல் பற்றிய வினாக்களுக்கு பதிலளிப்பதற்கு, www.markhamvotes.com க்கு உடனடியாகச் செல்லுங்கள்.

URDU
www.markhamvotes.com

براہ کرم ملاحظہ کریں، انتخاب کے متعلق مزید معلومات کیلئے www.markhamvotes.com پر جائیں۔

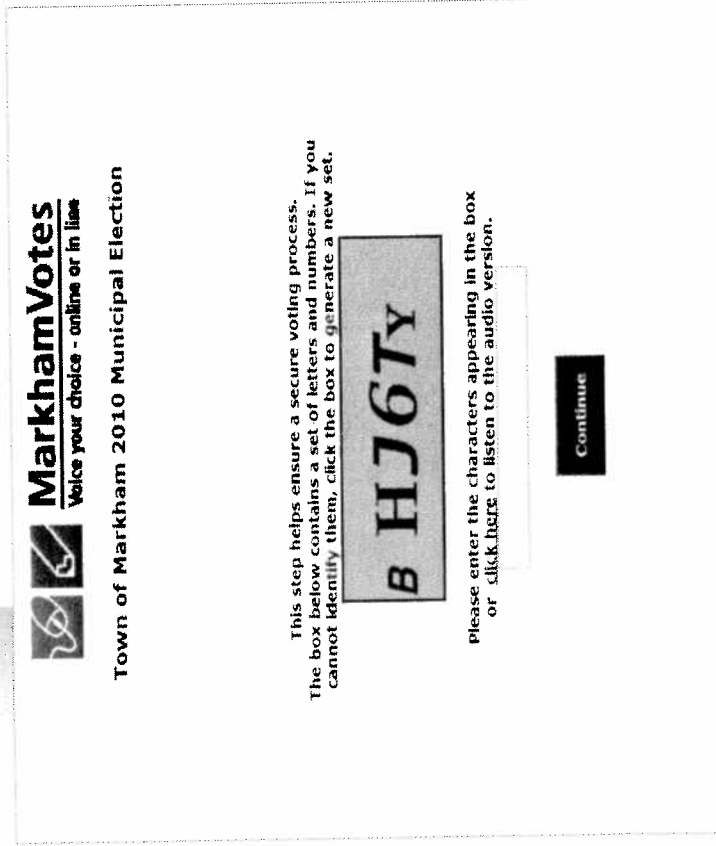
Go to www.markhamvotes.com or call 905-477-7000, Ext. VOTE (8463)


Kimberly Kittingham
Returning Officer



Online Voting Experience (Cont'd)

1. Enter captcha
2. Enter Personal Passcode & Internet Voting PIN



 **MarkhamVotes**
Voice your choice - online or in line

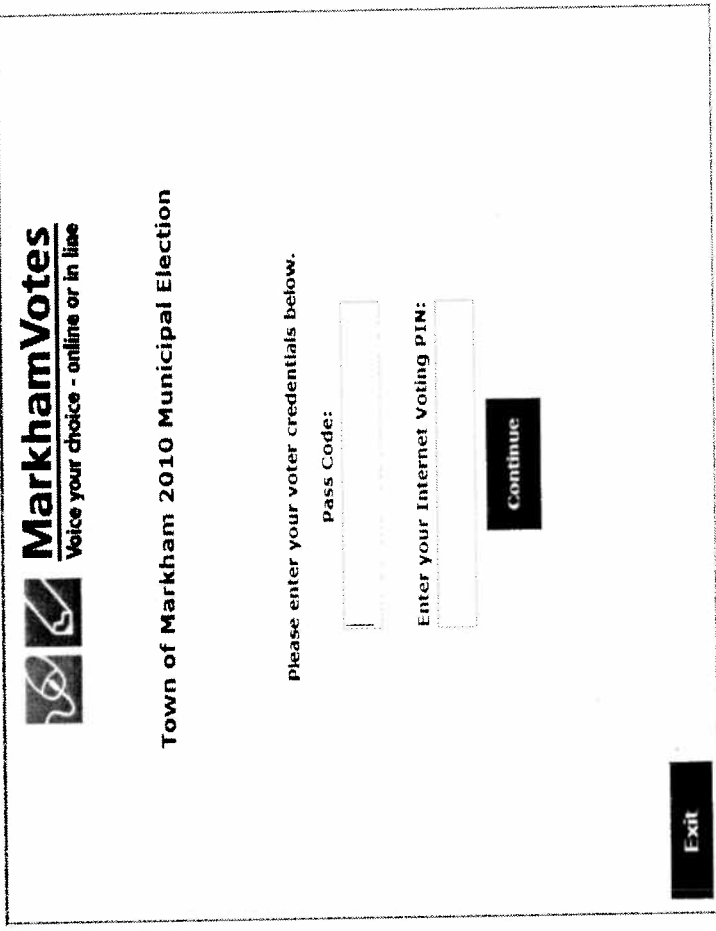
Town of Markham 2010 Municipal Election


This step helps ensure a secure voting process.
The box below contains a set of letters and numbers. If you cannot identify them, click the box to generate a new set.

B HJ6TY

Please enter the characters appearing in the box or click here to listen to the audio version.

[Continue](#)



 **MarkhamVotes**
Voice your choice - online or in line

Town of Markham 2010 Municipal Election

Please enter your voter credentials below.

Pass Code:

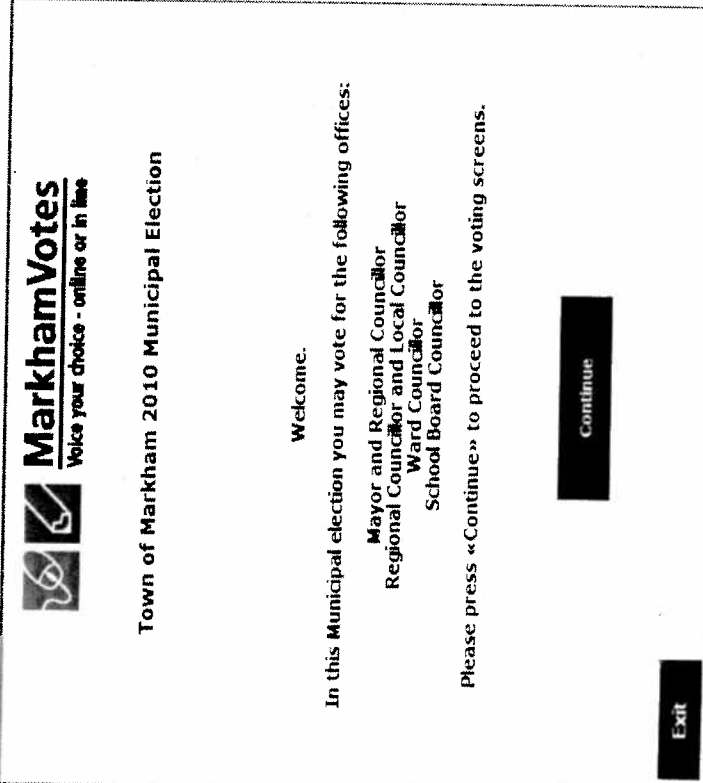
Enter your Internet Voting PIN:


[Continue](#)

[Exit](#)

Online Voting Experience (Cont'd)

3. Welcome page shows available races. Select 'Continue' to proceed to Mayoralty race.
4. Click on box beside candidate of one's choice, then 'Submit'



 **MarkhamVotes**
Voice your choice - online or in line

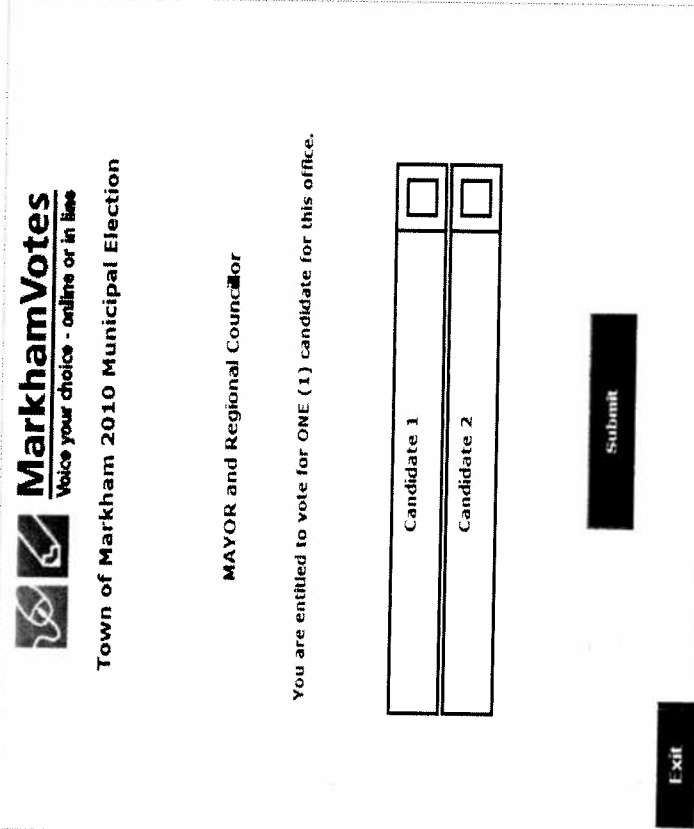
Town of Markham 2010 Municipal Election


Welcome.

In this Municipal election you may vote for the following offices:

- Mayor and Regional Councillor
- Regional Councillor and Local Councillor
- Ward Councillor
- School Board Councillor

Please press «Continue» to proceed to the voting screens.



 **MarkhamVotes**
Voice your choice - online or in line

Town of Markham 2010 Municipal Election

MAYOR and Regional Councillor

You are entitled to vote for ONE (1) candidate for this office.

Candidate 1	<input type="checkbox"/>
Candidate 2	<input type="checkbox"/>

Online Voting Experience (Cont'd)

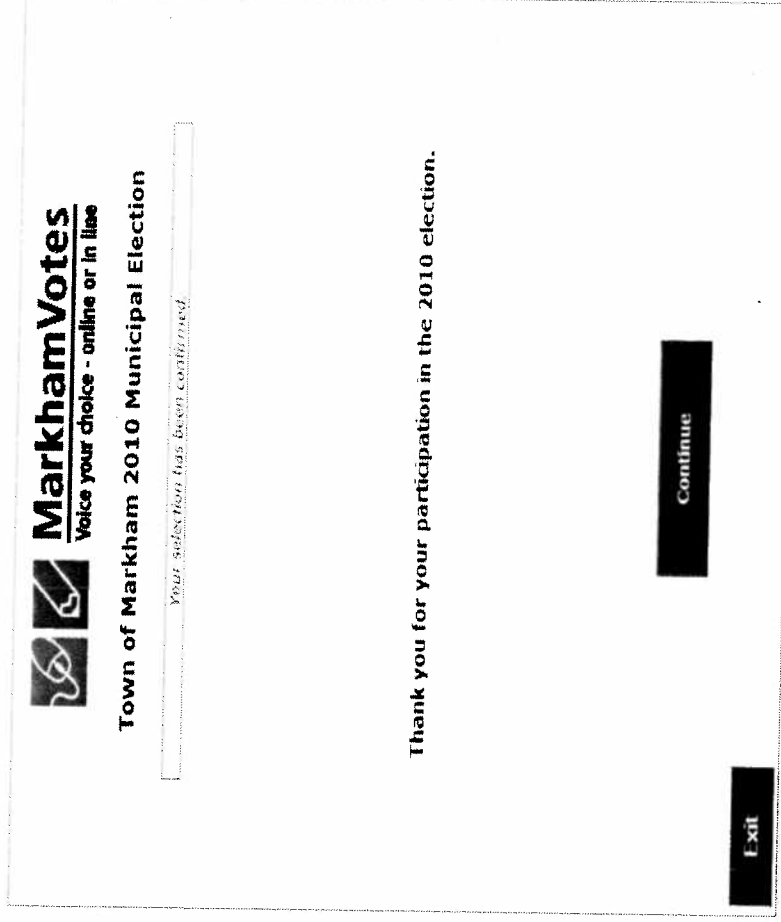
5. Select 'Vote Now' to cast ballot or 'Return to Ballot' to re-examine choice.
6. Status screen follows. Select 'Continue' to proceed to further races or questions

The screenshot shows the MarkhamVotes interface for the 2010 Municipal Election. At the top left is the MarkhamVotes logo with the tagline "Voice your choice - online or in line". Below this is the text "Town of Markham 2010 Municipal Election". The main heading is "MAYOR and Regional Councilor". Underneath, it says "You have chosen:" followed by a dropdown menu showing "Candidate 2" with a checkmark in a box to its right. Below the dropdown, there are two instructions: "To confirm your selection, choose Vote Now" and "To change your selection, choose Return to Ballot". At the bottom, there are two buttons: "Vote Now" and "Return to Ballot". An "Exit" button is located in the bottom right corner.

The screenshot shows the MarkhamVotes confirmation screen for the 2010 Municipal Election. At the top left is the MarkhamVotes logo with the tagline "Voice your choice - online or in line". Below this is the text "Town of Markham 2010 Municipal Election". A message states "Your selection has been confirmed". The main heading is "MAYOR and Regional Councilor". Below this, it says "Your selection has been recorded for:" followed by "Candidate 2". At the bottom, there are two buttons: "Continue" and "Exit".

Online Voting Experience (Cont'd)

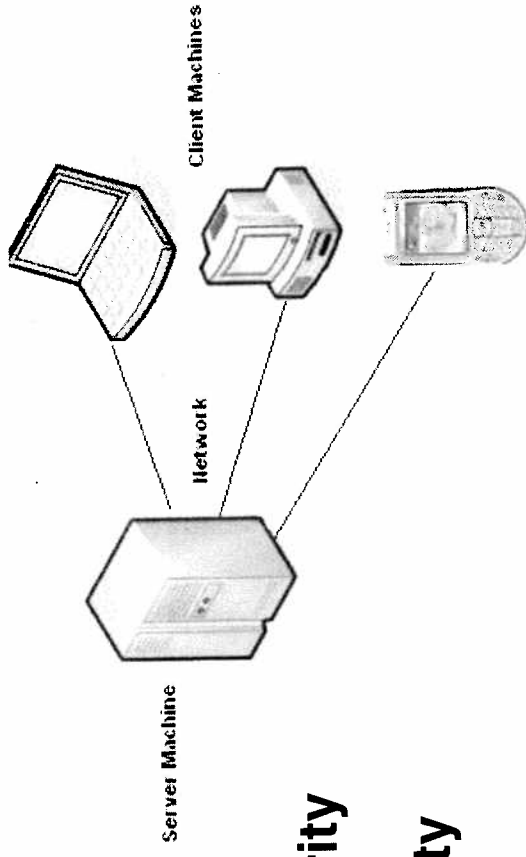
7. When all races or questions have been voted on, thank you screen follows. Click on 'Continue' which links to option of completing user survey



Security Considerations

Multiple Aspects of Security

- Server related security
- Client related security
- Connection related security
- Voting application security
- Voting process security



Security Considerations (Cont'd)

Server Related Security - Risk Mitigation Strategy

- **Unauthorized physical access**
 - Security personnel; monitoring; video surveillance; role based access cards; criminal background checks; sensitive operations should be tracked; no one single person should be able to perform significant operations
- **Environmental hazards**
 - Redundant power & cooling; smoke/fire detection & suppression; special building construction features
 - Datacenter designed & maintained to be a **Tier III** facility

Security Considerations (Cont'd)

Server Related Security – Risk Mitigation Strategy

- **Network infrastructure**
 - Manage network devices; perform monitoring
 - Update gateway servers, switches, and firewalls to their most recent patches
 - Implement all industry best and current practices for networks infrastructure, critical supporting services, including DNS
 - Perform penetration testing of the network infrastructure

Security Considerations (Cont'd)

Server Related Security – Risk Mitigation Strategy

- **Distributed Denial of Service Attacks (DDOS)**
 - Ensure plenty of bandwidth for Web servers
 - Use distributed load-sharing technology for web servers to provide failover server protection
 - Use Leading Edge Technologies

Security Considerations (Cont'd)

Client Related Security - Risk Mitigation Strategy

- Provide special electronic receipts or adding a human interpretation element
 - Use special end to end cryptographic protocols – provide an **electronic receipt** back to the voter that allows the voter to confirm that the vote was received as intended while preserving anonymity on server side
- Use **captcha** images to make selections during voting
- Instruct and/or provide end users with the option to update their **antivirus software** and have their systems scanned

Security Considerations (Cont'd)

Connection Related Security – Risk Mitigation Strategy

- Use HTTPS
- Use same mitigation approaches as for DDOS
- Educate voters about spoofing, phishing attacks

Security Considerations (Cont'd)

Web Application Security - Risk Mitigation Strategy

- Voting software and systems to be audited, tested and certified
- Perform penetration testing for voting application
- Perform web application security audit
- Perform voting testing during elections
- Use security related best practices in the development of voting applications

The City engaged a vendor to perform a web application security assessment of the online voting application

Security Considerations (Cont'd)

Web Application Security Assessment – Scope

- To perform a vulnerability assessment on the external IP address of the web server hosting the online voting application
- To perform a web application security audit of the electronic voting online application
- To perform a penetration testing to exploit select vulnerabilities discovered

Security Considerations (Cont'd)

Web Application Security Assessment – Deliverables

- Summary of identified vulnerabilities for the IP address examined during the scans
- Test plan with detailed test cases & execution results
- Methodology & tools used
- Recommendations regarding web application & system configuration changes necessary
- Other recommendations (e.g. process, technology improvements) which could provide benefits without compromising the current functionality and/or provide more secure & better user experience

Security Considerations (Cont'd)

Voting Process Security

- Must ensure that the votes casted could not be modified by a third party and that the election results are an accurate reflection of the votes that were casted by voters
- Must attest the correct assignment of the vote to the proper candidate
- Should ensure that the vote was counted
- Must attest that voter can vote only once
- Should ensure that the vote can not be tracked to the voter

Security Considerations (Cont'd)

Voting Process Security - Risk Mitigation Strategy

- Use 2-step voting process & 2-factor authentication
- How client, connection, server side and web application security risks are mitigated
- Ensure voting data is not stored on client/voting computer
- Provide vote audit trail

Platform Security Requirements

- Online voting system must ensure that votes are verifiable
- Online voting system must ensure that the vote was actually counted
- Online voting system must ensure that a voter can only vote once
- Online voting system must ensure that a vote is secure from tampering
- Online voting system must protect the privacy, anonymity, & integrity of each elector's ballot

Platform Security Requirements (Cont'd)

- Online voting system must include intrusion detection systems
- Online voting system must have passed all relevant penetration tests
- Online voting system must provide real time updates to Voters' List
- Online voting system must not allow for “modification” of the cast vote (after a voter has dispatched his/her vote)

Platform Security Requirements (Cont'd)

- Online voting system must ensure none of the actors involved in the voting process (organizers, election officials, trusted third parties, voters etc) are able to link a vote to an identifiable voter
- The actual content of the elector's votes on the client computer should be kept only in volatile memory
- The ballot, along with any other appropriate information, must be transmitted to the vote server in encrypted form to protect the privacy & integrity of the information

Platform Security Requirements (Cont'd)

- Must describe the authorization process to control access, detailing how role-based access control (RBAC) is utilized to ensure least privilege access to functions &/or data sets
- Online voting system must record the IP address of the workstation that was used to record the vote so that City of Markham can inspect patterns that could imply voting irregularities

Auditing & Vote Recounts

Auditing

- The voting session creates a record, that is the bases of an audit trail, that records: Identity of the voter; When they first accessed the system; What voting channel is used; Language preference for the session; The type of browser being used
- When a voter makes selections and hits the confirmation button, the system records the voter's participation in a contest.
- From an audit perspective, this part of the transaction identifies: The voter; The time the vote was cast; The channel used for voting

Auditing & Vote Recounts (cont'd)

Recounts

- **Recount to determine voter intention**
 - Cannot accidentally spoil an e-vote
- **Recount conducted in same manner as original count**
 - Run the same report & the system would function the same & the numbers would be the same
- **Timing of a recount**
 - The ballots & voting information are held securely in the system until their destruction is ordered by the Returning Officer

Auditing & Vote Recounts (cont'd)

Auditor Role

Markham implemented an Audit Role in 2010 Municipal Election to:

- Provide Chief Electoral Officer with an informed review of the processes followed in the election
- Express an informed opinion with regard to the accuracy & integrity of the online election results
- Monitor the online election at the ballot level through the use of “audit PINs”
- Print results of the online voting & insert them into a sealed envelope & deliver to Returning Officer

Markham's Security Strategy

Considering the benefits of online voting and the following security related aspects:

- The Hosting environment was designed & maintained to be a Tier III facility and successful SAS70 audit had been performed on the entire Managed Hosted Services area
- How the platform requirements were satisfied by the vendor
- The voting process security measures in place
- The results of the Web application security audit
- The results of our own extensive testing of the product

Markham's Security Strategy (cont'd)

- That we could test the application during election period using “audit pins” and thus ensuring that the application functions as expected
- Online voting offered during Advanced Voting Period only in parallel with In-person voting
- The geo-political context and the likelihood of a major security incident happening for a Markham election

We concluded that the security related risks were mitigated to our satisfaction

2014 Election Model

Key Dates

- **VOTING DAY** – Monday, October 27, 2014
- **ADVANCE VOTING DAYS** – *usually the week prior to voting day*
- **NOMINATION DAY** – Friday, September 12, 2014 (2pm)
- **NOMINATION PERIOD** - January 1, 2014 – September 12, 2014

2014 Election Model Preliminary Proposals

- **Staff are examining the feasibility of expanding online voting up to & including Voting Day**
- **Alternatively, staff are examining the feasibility of increasing the number of ‘on-line’ early voting days**
- **Staff are examining the possible addition of telephone voting to Markham’s in-line & on-line voting channels**

2014 Election Model Preliminary Proposals (Cont'd)

- **Staff want to expand third party independent assessment of any online voting platform, which will be a requirement in the RFP process**
- **Staff plan to deploy expanded “Audit” function for online voting, possibly by external party**

2014 Election Model

Next Steps

- Staff recommends that Council approve the use of internet voting & optical scan vote tabulators in the 2014 municipal election
- If approved, staff will:
 - *prepare a by-law to be placed on a Council Agenda for adoption*
 - *requirement gathering to release an RFP for internet voting and optical vote tabulators in Winter 2013*

Proposed Resolutions

1. That the presentation entitled “Markham Votes 2014 – Internet Voting Program” be received; and,
2. That Council authorizes the use of Internet Voting for the Early Voting Period for the 2014 Municipal Elections; and,
3. That Council authorizes the use of Optical Scan Vote Tabulators and Vote Recorders for the 2014 Municipal Elections; and
4. That staff be directed to place on a future Council Agenda, for approval, the necessary by-laws authorizing the use Internet Voting, Optical Scan Vote Tabulators, and Vote Recorders for the 2014 Municipal Election; and further,
5. That staff be authorized to do all things necessary to give effect to this resolution.