

Appendix E

Summary Analysis of Voting Technology Marketplace**Research and analysis of voting technology**

This appendix addresses the Executive Committee's request for the City Clerk to report back with an analysis of the election technology marketplace.

Analysis by staff included the following research:

- Reviewing voting equipment currently in use in Canadian and U.S. jurisdictions
- Surveying voting technology and associated costs in different jurisdictions
- Hosting "vendor days" to view the election technologies currently available
- Attending the annual International Association of Clerks, Recorders, Election Officials and Treasurers (IACREOT) conference to discuss issues, trends, challenges and successes with other election professionals
- Observing a pilot of different voting technologies in eight different counties as part of the State of Colorado's RFP process
- Attending the City of Markham's 2016 "Election Fair"

Current election technology has not changed

While a number of cities have recently purchased new tabulators, many are extending the life of their existing tabulators to avoid large expenditures while they wait for advancements in voting technology.

In the past ten years, improvements and innovations in election specific technology have focused predominantly on election support systems than vote counting equipment. These improvements include:

- Election administration systems;
- Election monitoring and election reporting;
- Online services, including voter registration; and
- Electronic voters' lists

The development of voting technology and innovation is largely driven by market forces in the USA. In recent years however, development of new voting technology has stagnated due to:

- the end of federal grants under the 2002 Help America Vote Act (HAVA); and
- the failure of the U.S. Election Assistance Commission to update their certification criteria due to lack of quorum and meetings.

Certification of voting systems and technology are costly and time-consuming. As a result, vendors have been hesitant to modernize their products without knowing how regulations might change.

Some jurisdictions are developing their own systems to replace aging vote tabulators

Jurisdictions across North America are faced with replacing aging vote tabulators that were purchased in the early 2000s. Research shows that the cost of optical scan vote tabulators range from \$2500-5000 USD per unit, depending on make, features, quantity, software, maintenance, support, etc.

Some municipalities are modernizing their election infrastructure by finding ways of reducing the cost. Los Angeles County in California and Travis County in Texas determined that current voting technologies failed to meet their needs, and have begun to develop their own solutions.

Denver worked with their vendor to develop a new system that uses commercial scanners, printers and touch-screen tablets while Los Angeles and Travis County are designing new systems that could include interchangeable commercial parts and open source software that could be shared with other public agencies.

A number of emerging trends are shaping the development of future voting technology

We are seeing a trend where voting technology is moving away from proprietary, large hardware with expensive service contracts and custom built software to solutions that are portable and integrate inexpensive commercial off the shelf components with voting software applications. Many of the following trends are shaping the development of voting technology, including:

1. *Cost Effectiveness* – Technologies that are cost effective and easy to deploy. This is partially facilitated by the development of hardware-agnostic software.
2. *Vote Anywhere Capability* – Enables voters to cast a ballot at any voting location;
3. *Electronic Voters' Lists (ePoll Books)* – Technology used in voting places that allows for real-time voters' list strike-offs, which increases both accuracy and efficiency, streamlining the process for voters;
4. *Universal Accessibility* – Accessibility features that are built directly into voting systems to enable persons with disabilities to vote privately and independently, as well as technology that is universally accessible for all voters using the same platform;
5. *Voter Diversity* – Features and technology to meet the needs of diverse communities, including multi-language capabilities;
6. *Voter Convenience* – Voters prefer having multiple options for casting their ballot (in-person, advance voting, remote voting, home voting, etc.) and different options for interacting with election administrators in a way that is most convenient or best suits their needs, such as online voter registration;
7. *Hardware Agnostic Software* – Software that can be used with Commercial-Off-The-Shelf (COTS) hardware, rather than proprietary hardware;

8. *Auditable Systems* – In U.S. jurisdictions there is a shift from touch-screens to auditable paper systems that enable voters to confirm that their vote has been recorded correctly;
9. *Open Source Data* – Open-source election and voting systems that increase transparency, verification, security and provide the public with real-time access to election data;
10. *Flexible Integration* –Technologies that can be deployed in conjunction with a different vendors' technology, eliminating the need to purchase full voting systems from a single vendor; and
11. *System Agility* – Technologies that are agile and dynamic to enable election administrators to respond quickly to changing legislation and requirements, including ballot design, administration, monitoring and reporting, with less reliance on vendor support.

Costs to lease or purchase are difficult to determine

Estimating and determining the true cost of a voting system is extremely difficult, as pricing structures vary depending on the vendor, type and quantity of equipment and ancillary costs such as software/hardware costs, annual licence costs, training, project management costs, etc.

Staff contacted a number of Canadian jurisdictions to determine the costs associated with the purchase or lease of their voting equipment. Although jurisdictions provided information about overall contract costs, many were unwilling to provide specific details.

Vendors who presented at the Vendor Days hosted by the City Clerk confirmed that there are multiple options when considering voting equipment, including purchase, lease and lease-to-purchase.

Based on our research, other Canadian jurisdictions reported paying between \$750 and \$1,100 per unit to lease voting equipment per election event. However, this unit cost does not include ancillary costs such as vendor support, system integration and training, which increases the total cost.

As an example, in 2013, the City of Ottawa opted to lease 400 tabulators for two election cycles for \$1.3 million, with the opportunity to renew the contract for the 2022 Municipal Election for a total cost of \$1.9 million. The price quoted in the RFP to purchase the 400 tabulators was \$2 million – essentially the same price as leasing for three election cycles. Similar data has been found for other jurisdictions in Ontario and North America, regardless of vendor.

In 2009, the City of Winnipeg opted to purchase 220 vote tabulators for \$1,014,585. The Clerk determined that purchasing was more cost effective than leasing and it ensured that the equipment was readily available when needed (e.g. by-elections).

In 2014, the State of Colorado issued an RFP for a statewide uniform voting system. Vendor quotes for a "poll based" tabulator were between \$US 5,500 and \$US 6,100, not including software and other ancillary costs. Purchase costs in other US jurisdictions are similarly priced.