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Administering a Ranked-Choice Voting Election: Lessons from London, Ontario

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Centre for Urban Policy and Local Governance
Research Report #3

Administering a Ranked-Choice Voting Election: Lessons from London, Ontario

October 2020

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SocialScience

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About the author

Charlotte Kurs is a graduate student in Department of Political Science at Western University and a graduate fellow of Western's Centre for Urban Policy and Local Governance.

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The views expressed in this publication do not necessarily reflect those of the City of London. The author is responsible for all other ideas and interpretations.

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Version 2 – 22 October 2020

Executive Summary

To elect its mayor and council in October of 2018, the City of London, Ontario used ranked-choice voting instead of the traditional first-past-the-post system; the first Canadian city in decades to use an alternative electoral system. London's experience as the first Ontario municipality to implement ranked-choice voting allows it to offer its experience as a lesson to other municipalities that may be considering making changes to their voting systems.

From the Ontario government's review of the Municipal Elections Act in 2016 through to the implementation of a ranked-ballot election in 2018, this report details the experience of City of London staff and consultants. Preparations for the election included procuring and testing equipment, hiring and training staff, and educating the public about the ranked-ballot system. A description of voting day procedures focuses on issues specific to ranked-choice voting at the polling stations and tabulation centre. The process of determining the election results is described, including the post-election audit of procedures, and the final costs of the election.

The report concludes with a discussion of lessons other municipalities can take from London's experience: first, that administering a ranked-choice election is more expensive than a first-past-the-post election, at least the first time. Second, that preparing for and running the election requires organizational changes and additional human resources. Third, that the procurement and testing of equipment and software is a significant endeavour, although a substantial proportion of these efforts stemmed from London being the first Ontario municipality to use ranked-choice voting, and without provincial support. Finally, an associated awareness-raising and outreach strategy is essential for informing voters and managing public expectations.

Foreword

The Centre for Urban Policy and Local Governance commissioned this report to contribute to active discussions about electoral system reform in other Ontario municipalities. As we were preparing to release it, however, the Government of Ontario announced that it would amend the Municipal Elections Act to eliminate the option to use ranked-choice voting in municipal elections. While at time of publication this change has not yet become law, it seems likely that the City of London's experience with administering a ranked-ballots election will be a one-off event. Other Ontario municipalities' interest in switching from first-past-the-post elections to ranked-choice voting in 2022 may be nipped in the bud.

While the report's original purpose may be soon be obsolete, we have decided that the information it contains would inform debates about the Ontario government's proposed change. We also believe it will be useful to local governments contemplating rank-choice voting in other jurisdictions.

Dr. Zack Taylor
Director, Centre for Urban Policy and Local Governance
Western University

October 22, 2020

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Introduction

On October 22, 2018, London, Ontario ventured into uncharted territory: it conducted its elections for mayor and council using ranked-choice voting instead of the traditional single-member plurality system (see **Box 1**). London was the first Canadian city in decades to use an alternative electoral system, and also the first Ontario municipality to do so since the Government of Ontario made enabling amendments to the *Municipal Elections Act* in 2016.¹ Scotland's local governments switched to a single-transferable vote system in 2007 (Clark 2020). Some American state and local jurisdictions, including Cambridge (Massachusetts), Maine, Minneapolis, Oakland, San Francisco, and St. Louis have adopted similar voting methods in recent years (Burnett and Kogan 2015; Fair-Vote n.d.; Santucci 2018). New York City will use the system in all primary and special elections starting in 2021. Other Ontario cities, including Burlington, Cambridge, Guelph, Kingston, and Toronto have expressed interest in following London's lead.

When it comes to electoral reform, most attention has been directed towards its potential to make representation more equitable and increase political participation, fairness, and the civility of campaign discourse (e.g., Bowler, Donovan, and Brockington 2003). Much less attention, however, has been paid to the administrative challenges of implementing electoral reform, including those associated with procuring and validating equipment, developing new processes, educating the public, conducting the election on voting day, and communicating the results. While others will no doubt study the electoral and democratic effects of the new electoral system in the City of London, this report documents and draws lessons from the city's administrative experience with ranked-choice voting, with the goal of informing electoral system change in other Ontario municipalities. The narrative draws primarily on decision documents and reports prepared by City of London staff, as well as on consultation with the City Clerk and the Manager of Licensing and Elections. For reference, the Appendix contains a timeline of events.

1. Some Western Canadian cities, including Calgary, Edmonton, Winnipeg, and Vancouver, used variations of proportional representation in the early 20th century. The City of Calgary holds the record for the longest-lasting proportional voting system at any level in North American history. Winnipeg used a single-transferable vote system as recently as 1971.

Box 1: How a Ranked-Choice Election Works

For decades, almost all Canadian jurisdictions—federal, provincial, and municipal—have employed a **first-past-the-post or single-member plurality** electoral system, whereby the candidate with the most votes wins. (At-large election of council and multi-member wards in some, mostly small, municipalities represent a partial exception. Even in these cases the mayor is still elected using first-past-the-post.) This winner-takes-all system is often criticized for “wasting” the votes of those who favour other candidates.

Ranked-choice voting, also known as **instant runoff voting**, **ranked ballots**, or the **single-winner single-transferable vote** method, allows voters to rank multiple candidates according to their preferences. Votes are counted in multiple rounds. In the first round, election officials count each first-choice selection, and declare a candidate to have been elected if they have received a majority of votes. If no candidate receives more than 50 per cent of ballots cast in round one, the election officials eliminate the candidate who received the fewest votes and transfer the votes of electors who chose that candidate as their first choice to their second-choice candidate. The election officials then count the votes again. If a candidate receives a majority, they are declared elected. If not, the process repeats until a candidate receives a majority of votes. If the next-ranked candidate on a ballot has already been eliminated, the ballot is considered “exhausted” and is removed from the next round of counting. If only two candidates remain, the candidate with the most votes is declared elected, even if they have not achieved a majority of the votes.

This report is divided into five sections. Section 1 describes the events leading up to London’s adoption of ranked-choice voting, including the provincial government’s review of the *Municipal Elections Act*, the debate that occurred in London about making the change, and council’s decision to move forward with a ranked-ballots election. Section 2 discusses the City of London’s preparations for the election. These included procuring and testing equipment, staffing changes, and public awareness and outreach efforts. Section 3 summarizes the events of voting day with a focus on procedures specific to ranked-choice voting at the polling stations and tabulation centre. Section 4 summarizes the election results, the post-election audit of procedures, and the final costs of the election. Finally, Section 5 concludes with a discussion of lessons other municipalities may learn from London’s experience with the implementation of ranked-choice voting.

1. Choosing Electoral Reform

London’s decision to adopt ranked-choice voting was enabled by changes to provincial legislation. London’s Council participated in provincial consultations and city staff moved quickly to study options after the law was amended. The City Clerk did not recommend switching to rank-choice voting. However, after considering the advice and input from the public, Council passed a bylaw on May 1, 2017 to proceed with ranked-choice voting for the 2018 Municipal Election.

The Provincial Review

In 2015, the Ontario Government initiated a review of municipal legislation, including the *Municipal Elections Act*, the *Municipal Conflict of Interest Act*, and the *Municipal Act, 2001* (Saunders, 2015a). With regard to elections, the Province sought input on matters of campaign finance, third-party advertising, accessibility, enforcement of rules, and ranked ballots (Saunders, 2015a). The Province's interest in investigating ranked ballots emerged from a 2013 request from the Toronto City Council to amend the legislation to permit ranked ballot and instant runoff voting at the municipal level (Saunders, 2015b). While Toronto did not ultimately pursue ranked-choice voting, the provincial government continued to investigate whether municipalities were interested in having the option to do so.

Reflecting the City of London's positive experience with ranked-choice voting for internal processes (see **Box 2**), Council responded to the provincial consultation with a resolution in favour of the Province enabling ranked-choice voting for the 2018 elections (Saunders, 2015a). In a report to Council, the Clerk's Office highlighted the ostensible benefits of ranked-choice voting, including its tendency to reduce strategic voting, negative campaigning, and vote splitting between similar candidates (Saunders, 2015b). However, the report also highlighted concerns about the timely acquisition and cost of the necessary equipment and software, the difficulty of ordering and testing ballots and equipment in the time between the closure of nominations and voting day, and negative perceptions of the potentially longer wait time for electoral results that would come with the multi-round counting process (Saunders, 2015a). Finally, the report commented on the need for provincial assistance, noting that it would be useful if the Ministry of Municipal Affairs and Housing would certify the voting equipment and software and produce educational materials.

The Province announced changes to the *Municipal Elections Act* on April 6, 2016 (Saunders, 2016). Bill 181, which implemented these changes, received Royal Assent on June 9, 2016—two and a quarter years before the next municipal elections (Saunders, 2016). The amendment enabled municipalities to introduce ranked-choice voting in the next round of local elections. The provincial legislation noted that municipal clerks would need adequate time to change the voting process, mitigate risk, acquire equipment and technology from a reliable vendor, and become administratively and financially prepared (Saunders, 2016).

The 2016 legislation introduced several requirements for municipalities, including that the municipality must pass a bylaw to conduct ranked-choice voting elections prior to May 1 in the year before the election. If municipalities chose to adopt ranked-choice voting, the legislation requires them to use the system for all offices of Council and for all by-elections during the Council term, as well as to specify the number of rankings which can be made (though this can differ for each office). School board elections must still be

conducted using the single-member plurality system, even though they are administered by the municipality and appear on the same ballot paper. Prior to passing the bylaw, the municipality must hold an open house to provide information to electors about how votes will be counted and an estimate of the cost of implementing ranked-choice voting, and also provide information about alternative voting methods and vote counting equipment and software. A public meeting, held at least 15 days after the open house, is also required to allow the public the opportunity to voice their opinions on the implementation of ranked-choice voting to Council.

Box 2: Prior Experience with Ranked-Choice Voting in London

The City of London had some internal experience with ranked-choice voting elections. The London Corporate Services Committee tested a ranked ballot system to fill Advisory Council vacancies in 2015. This was found to be effective for its purpose as well as for educating the public and municipal staff and councilmembers on ranked ballots (Saunders, 2015b). Council then used ranked-choice voting to appoint the Deputy Mayor and membership of standing committees, the Audit Committee, and other boards and commissions.

Due Diligence

In response to the legislative change, the City Clerk's Office, Information Technology Services, and the Purchasing Office of the City of London stated in July 2016 that the City would release a Request for Qualification (RFQ) for voting technology before September 2016 (Saunders, 2016). The RFQ process would investigate acquiring vote counting equipment, technology for the potential implementation of Internet voting, results display, election supplies, and touchscreen devices. The RFQ would also ask vendors whether they could provide equipment and technology for a ranked-choice voting election. A specific Request for Proposals for a ranked-choice voting election would not be possible until the municipality approved necessary regulations specifying the maximum number of rankings and the method of candidate elimination. Despite this, the procurement process needed to begin early to ensure that the municipality would be able to undertake public consultations and pass the enabling bylaw in time to meet provincial deadlines. The City Clerk's Office also asked that the Human Resources Division hire an intern and begin seeking a longer-term temporary employee to work on administrative duties related to the election.

In its 2016 report, the City Clerk's Office noted that the costs of implementing a ranked ballot electoral system were unknown but could require increases to the amounts budgeted for staffing, outreach, vendor services, consultancy, ballot costs, and poll workers. The report also noted several additional concerns, including the concern that more hand-counting of votes would be required, and that without provincial certification of election

technology, municipalities might face undesirable burdens and liability should election recounts or court challenges occur.

Recommendation to Council: Maintain the Status Quo

Responding to Council's continuing interest in adopting ranked-choice voting, the City Clerk's Office rendered a set of recommendations on January 24, 2017:

- London should maintain the first-past-the-post electoral system for the 2018 election, and
- the City Clerk would continue to observe other relevant municipalities and report back to Council after the 2018 election with information about whether the municipality should use the ranked ballot model in future elections (Saunders, 2017b).

The City Clerk's report concluded that London would require more time and information to make an informed decision and to prepare for an eventual ranked-choice voting election. The report also recommended that the adoption of ranked-choice voting in the subsequent election (2022) should not be put on the 2018 ballot for voter approval. The report outlined several reasons for these recommendations:

Technical challenges. The report emphasized the challenges associated with acquiring and testing election equipment and software in time. As no other municipality in Canada had implemented ranked-choice voting in modern times, no off-the-shelf software solution existed, and no election software had been tested and certified to comply with Ontario's regulations.

Voting day. With respect to voting day, the report noted that it would take voters longer to complete a paper ballot under the new system, which might require additional poll staff or the exclusive use of electronic voting, both of which might cost a lot more to implement.² As well, accessible audio ballots would take significantly longer to be read, and all ballots would need to be larger or voters would need to use both sides of a ballot or multiple ballots. Finally, the report noted that voter turnout had not increased in jurisdictions that have introduced the system and expressed concern that, without

2. Note that at that time, the City Clerk's Office was undertaking an RFP to enquire about the use of online voting as an alternative voting method during advance voting, as well as the possible exclusive use of accessible touchscreen devices at advance voting locations (i.e., no paper ballots). These initiatives might have mitigated the cost.

extensive education and outreach, lack of voter knowledge could be a barrier to participation and lead to increased spoiled ballots.

Reporting and certification of results. The report also recognized that reporting requirements would increase. Under the first-past-the-post model, the City Clerk reports only the elected candidates and the number of ballots cast, while, in the interest of transparency under a ranked ballot model, the clerk would also report the number of declined and rejected ballots, the threshold for attaining each office, and the number of votes received by each candidate in each round of vote counting. Due to the complexity of the election results under a ranked ballot system, it would likely take longer for the results to become publicly available. Under the first-past-the-post system, unofficial results are usually available at the end of voting day, and official results in two to three business days, while under a ranked ballot system, unofficial results might still be available at the end of voting day, but official results might take more than a week to produce. Additionally, the short timeline of 24 days between voting day and the beginning of the new term of Council was concerning to the City Clerk, as it might be difficult to accurately produce and certify results in this time while also transitioning between councils. Moreover, being the first municipality to introduce the new electoral system, the City of London could face additional risk and costs associated with a possible recount or legal challenge.

Higher costs. The report noted the potential for higher costs. The municipality would need to hold a provincially mandated public meeting and open house and undertake public education initiatives. The cost of the public meeting requirements was estimated at \$2,000, and communication materials at \$5,000. This would require approximately 180 hours of staff time, and additional hours for fact-gathering and phone surveys, if needed.

The municipality would also need to hire additional staff to work on research, planning, and implementation, as well as hire additional poll workers. The City Clerk's Office estimated the cost of additional internal staff to be \$70,000, and the cost of additional poll workers to be \$50,000. In addition to the potential difficulty of hiring qualified poll workers, they would also need extensive training to ensure that they understood the new electoral system. Furthermore, costs would likely increase as a result of changes to the physical size and number of paper ballots. The municipality would need more ballots to conduct adequate testing of election materials and replace spoiled ballots. The cost increase for ballot printing was estimated at \$42,500. Vendor costs would also increase by an estimated \$10,000 due to a greater need for support and testing. The cost for public education and voter outreach solely focused on the ranked ballot initiative was estimated to be \$150,000. Ultimately, the City Clerk's Office estimated the consultation, vendor services, and staffing costs of the 2018 election would total \$566,262, an increase of \$322,500 compared to the previous election.

After recommending against implementing a ranked ballot system, the report discussed the option of putting the adoption of ranked ballots to voters in a plebiscite at the time of the 2018 election. The City Clerk's Office noted that, in accordance with Section 8(2.1) of the *Municipal Elections Act*, a binding result would require at least 50% of eligible voters to vote on the question, and more than 50% of the votes to favour the implementation of a ranked ballot system. (The 2014 election turnout rate, which was the highest in recent years, was only 43%, so it appeared improbable that the necessary 50% of eligible voters would participate.) Should Council choose to put a question on the ballot, it would need to pass an authorizing bylaw before March 1, 2018 to meet legislated requirements, and hopefully earlier to allow for preparations by elections staff and the vendor.

In the conclusion of its January 2017 report, the City Clerk's Office noted that if Council wished to proceed with a ranked-choice voting election, a bylaw would need to be passed earlier than the provincially mandated deadline of May 1, 2017 to allow for sufficient preparation time (Saunders, 2017b).

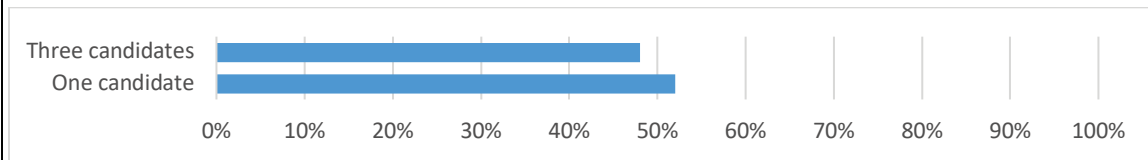
Public Consultations

Council did not reject ranked-choice voting at that time. Responding to Council's continued interest, municipal staff administered a web survey from April 10, 2017 until April 26, 2017 (Saunders, 2017a). The results were equivocal, with those in favour and those opposed evenly matched (see **Box 3**). The survey also allowed participants to leave a comment. Participants who were not in favour of the ranked ballot system primarily expressed that they did not feel anything was wrong with the first-past-the-post system and thus wanted to maintain it; that a ranked ballot system might be confusing for voters, especially those who are older; and that they would prefer a referendum or more time to prepare and learn from the experiences of other municipalities that had adopted the system. Some also expressed concern that a ranked ballot system might require them to select second and third choice candidates despite not wanting to. Participants who favoured the ranked ballot system were the minority of commenters, and primarily expressed that a ranked ballot system would be more fair or democratic.

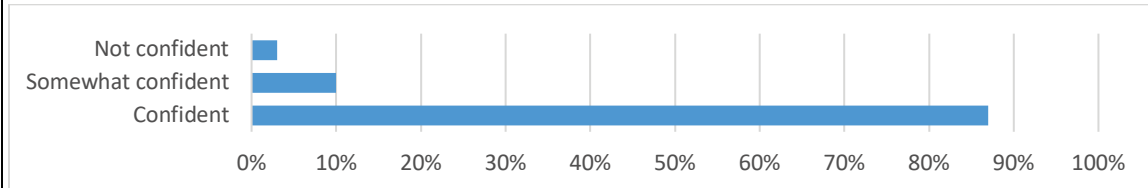
In addition to the survey, open houses were held on March 8 and 9, 2017, and a public meeting was held on April 22, 2017, in accordance with Sections 10 and 11 of Ontario Regulation 310/16 under the *Municipal Elections Act* (Saunders, 2017a).

Box 3: Survey Results, April 2017

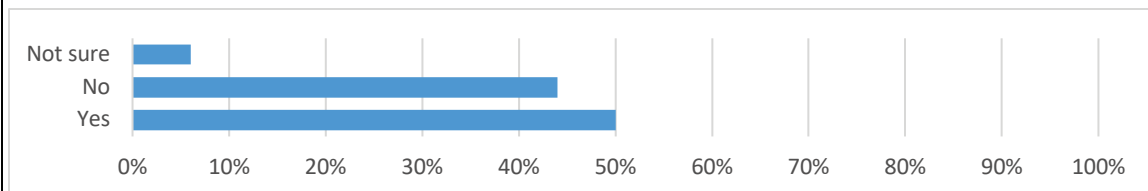
1. "Do you prefer choosing one candidate or being able to choose three?"



2. "How confident are you that you understand how a winner is determined?"



3. "Are you in favour of changing to a Ranked Choice Ballot for the 2018 Municipal Election?"



The web survey had 1,533 visitors, 1,987 sessions, and 815 completed surveys.

Council Votes for Change

Notwithstanding the City Clerk's recommendation against proceeding with ranked-choice voting and the divided community opinion revealed by the survey, public meetings, and open houses, Council chose to move ahead with the change. On May 1, 2017—the statutory deadline—Council passed the required bylaw authorizing the use of ranked ballots in the 2018 election (Saunders, 2017a). Nine councillors voted in favour of the bylaw and five against (Martin, 2018).

2. Preparing for a Ranked Ballot Election

After Council approved the change, city staff began extensive preparations to ready London for a ranked-choice voting election. This section discusses the procurement and testing of election equipment, changes in staffing, and the awareness-raising and outreach efforts undertaken by the municipality.

Procurement

Procuring voting machines and other necessary equipment and software proved to be a challenging process, as the City received no response to an initial Request for Qualifications. Canadian vendors were stretched as the BC provincial election was scheduled for October 20, 2018, only two days before Ontario's municipal voting day, and London was competing for vendor attention with other Ontario municipalities. Moreover, vendors may have been reticent to bid while the Province's ranked-choice voting regulations were being finalized (which did not happen until mid-September.) This led London to shift to an alternative strategy.

On July 4, 2017, the City Clerk's office released an open, public Request for Qualifications.³ The Request for Qualifications sought a vendor to provide a fully managed election management solution, including the election management software, touchscreen devices for advance vote days, and in-poll tabulation for voting day, as well as possible contract renewal for byelections and for the following two municipal elections. There were no interested vendors at the end of this process. Due to the tight timeline set out in provincial legislation, the City of London needed to secure a vendor quickly. After the closure of the unsuccessful Request for Qualifications, prior vendors were invited to demonstrate their hardware and software. Only Dominion Voting Systems responded.⁴ After some negotiation, the municipality granted Dominion Voting Systems a contract to provide election hardware and software for the municipal and school board election in 2018.⁵ The municipality received a discount of 20% as it included the provision of services for the 2022 election in the contract. The contract also included an option to extend the contract to post-2022 byelections and the 2026 general election.

Executed on December 15, 2017, the contract included 225 vote tabulators, 12 ballot marker devices for accessible voting during the advance vote, ballots, ballot boxes, secrecy folders, marking pens, security seals, election management software, a ranked ballot module license, a mobile printing module for advance vote, and professional services and support. These services had an estimated total cost of \$489,776, estimated as of February 2018.

3. Unless otherwise noted, all references in this section are from Saunders (2018).

4. While the City of London had used a different vendor for the 2014 general election, it had contracted with Dominion Voting Systems for the 2010 general election and for byelections during the 2014–18 term.

5. Awarding the sole-source contract was within the Clerk's statutory authority under the *Municipal Elections Act* and was supported by the City Manager.

Cost Estimates

In a report made to the Corporate Services Committee on February 20, 2018, the City Clerk's Office summarized the differences between the 2014 actual cost (\$243,762) and the 2018 cost estimate, noting that the vendors differed for these elections. The bulk of the increase was not associated with the adoption of ranked-choice voting, stemming in large part instead from the decision to increase the number of polling stations from 130 to 225. Of the estimated \$489,776 contract with Dominion Voting Systems, \$41,400 was directly related to the introduction of ranked balloting—less than 10% of the total contract related to voting technology and ballots.

Software. The tabulators would have to be programmed to perform operations specific to a ranked-choice election. The software license cost \$12,000. In previous elections, the vendor provided a graphic display of electoral results for the municipal website for \$250. This display was not available for the ranked-choice voting election through the vendor, so instead, municipal staff were required to create this display on their own—something which proved difficult on voting day.

Ballot printing. Municipal staff estimated in 2017 that ballot printing costs would increase by \$42,500, for a total cost of \$130,118, due to population growth and the adoption of ranked-choice voting. Upon entering the contract, this estimate for 425,000 single-sided, 8.5" by 14" ballots was revised down to \$111,250, including \$5,000 for an on-demand printing module for use during the advance vote. (The decision to include on-demand printing was unrelated to the introduction of ranked-choice voting.) The net cost increase was thus \$12,500. Due to the complexity of the information on the ballot, there was concern that more than one page would be required, potentially doubling the printing cost. Ultimately there was space for all candidates for all offices on the single-sided ballot sheet.

Additional tabulators. To accommodate the anticipated slower voting process on voting day and to provide redundant capacity, 13 tabulators were added at a cost of \$16,900.

Testing Equipment and Software

As the provincial government had declined to certify tabulators and software for use in municipal ranked-choice elections (as some U.S. states had done), the City of London tapped external expertise to mitigate the risk and ensure the integrity of the election.

On March 20, 2018, the City contracted with Freeman, Craft, McGregor Group (FCMG) to evaluate the election equipment, including the software, and to evaluate the City of London's procedures for using the system (Freeman, Craft, McGregor Group, 2018b). FCMG is a U.S.-based election administration consulting firm that had previously

advised the City of Minneapolis on its administration of ranked-choice voting. The contract entailed conducting a mock election, testing the voting system, observing tabulation on voting day, and preparing a post-election evaluation. The testing of equipment and software and evaluation of procedures by the external consultant took place in four phases:

- an initial evaluation of election equipment and software in March 2018;
- “acceptance testing” of vendor-provided tabulating machines and software that would be used in the election in August 2018;
- “logic and accuracy” testing of equipment in September 2018; and
- final examination of the equipment and evaluation of procedures immediately prior to the October 22, 2018 election.

Initial Evaluation

Between March 27 and 29, 2018, FCMG and the City conducted a mock election and testing. The goals were to provide City staff with the opportunity to operate the system, to verify that the equipment and software met all requirements, and to create benchmarks to validate that the software would remain consistent throughout future tests. The results of this testing are detailed in an April 12, 2018 report by the firm (Freeman, Craft, McGregor Group, 2018b).

On March 27, FCMG created a marking plan for use with a test deck of 61 ballots for the mock election. The next day, FCMG met with City of London staff and Dominion, the tabulator vendor, to discuss the equipment and software and conduct a mock election. They scanned the test deck after opening the polls on a tabulator and then closed the polls, uploaded the results to a computer running the election software, and verified them.

Next, FCMG processed a deck of test ballots with marginal marks, including checkmarks, lines through the oval, marks outside of the oval, and hesitation marks. The tabulator rejected some, displaying a descriptive error message. They also scanned a deck of marked ballots that included folded ballots (including those folded across or between timing marks), a previously scrunched ballot, ballots with tears, ballots with ink and mascara smudges, and ballots with a mark through some of the header marks.

FCMG noted that the first test deck used was dissimilar to an actual election due to the selection pattern and the unrealistic number of candidates with zero and tied votes in the first few rounds. They produced a second test deck of 60 ballots which was more similar to the results of an actual election, in which no candidates received zero votes after the first round. This deck was run on March 29, 2018.

FCMG found that the tabulator was largely effective at scanning the ballots. The tabulator could scan five ballots per minute, exceeding the City of London’s performance requirements. Status reports which included information about the poll, the tabulator serial number, and the number of ballots scanned were correctly produced. The tabulator was mostly effective in accepting and rejecting ballot types. It correctly rejected ballots that did

not include the initials of a poll worker, while mostly accepting folded ballots, and ballots that included stray marks and smudges (except for a ballot with a pen ink fingerprint at the bottom, which the tabulator rejected). The tabulator also accepted ballots that included too many selections, too few selections, and those that were left blank. Many voters do not follow instructions to fill in the selection oval, and instead make other marks such as checkmarks, and the tabulator rejected these ballots. FCMG advised the City of London to resolve this with Dominion, which stated that their default setting was the standard used for Ontario provincial elections. City staff amended the In-Poll Procedures manual to reflect the Ontario standard (City of London 2017, ss. 6.2.4, 6.3).

In a review of the City of London's procedures, FCMG recommended that the municipality verify the ranked choice vote profile and settings before votes were tabulated and again after reports were generated. They also recommended that the municipality request changes to the formatting of the reports and logs produced by the tabulation module. These reports and logs would be more useful if they were produced as a delimited text file so that the results could be more easily posted on the City of London's webpage.

Acceptance Testing

Between August 6 and 10, FCMG performed an acceptance test with the goal of ensuring that the equipment and software provided by Dominion Voting Services were functional, consistent with the vendor contract, and met all applicable regulations. This testing, and its results, are detailed in a September 30, 2018 report by Freeman, Craft, McGregor Group (2018a). FCMG assisted City staff in performing acceptance testing on 200 polling place tabulators, 13 advance vote tabulators, and 12 ballot marking devices on August 7 and 8, 2018. Acceptance testing for this equipment including verifying that it was undamaged and could use either batteries or AC power, confirming that the firmware was correct using hash values from each tabulator, confirming that ballots could be inserted in any orientation, and ensuring that the tabulators could accurately generate results.

FCMG made several recommendations based on the acceptance testing. Their primary concern was that on some tabulators, they could not open the USB port door due to a bent hasp. As well, some of the doors would not latch. They would need to open all doors during logic and accuracy testing to verify that no unauthorized USB devices were present in any tabulator. Dominion should also straighten the hasps to prevent breakage. At least two people would need to carry out or witness this process, and both should sign the Logic and Accuracy checklist.

They noted a few other concerns related to the tabulator hardware, including superficial damage to some tabulator cases, as well as the need for clock resetting and touch screen recalibration on some tabulators. There was also some concern that the "System Ready" text display on several tabulators would flicker. The vendor confirmed that the flickering was normal and it was not found to impact functionality. Ultimately, they did not reject any tabulators.

They also tested the audio ballot, finding it to be operational. The accessible machines accurately marked the ballot in accordance with the voter's selections.

They also performed acceptance and logic and accuracy testing on the election software on August 9 and 10, 2018 (Freeman, Craft, McGregor Group, 2018a). This involved confirming that the correct version of the software was installed and ensuring that it was capable of ranked ballot tabulation and producing the necessary reports and audit data.

Dominion provided new memory cards for the acceptance testing so that the testers could run the mock election test decks again. The tabulator results tape differed slightly in format and content from the mock election results tape, which was the result of differences in report formatting. When they reused the memory cards from the mock election, the tabulator results tape, and the results themselves, were identical to those produced during the initial mock election.

In accordance with provincial legislation, the software's settings were altered so that the municipality would be able to perform tie breaking manually instead of automatically. FCMG verified that the tabulated results remained identical to those of the mock election.

Freeman, Craft, McGregor Group also tested the result data and ballot image upload speeds. They found that they were able to upload 301 ballot images in 27 seconds, while it took them between 14 and 17 seconds to upload the data for the 301 ballots. Consequently, FCMG recommended that municipal staff upload only the ballot data on voting day.

The ability of the software to export records was also tested. Freeman, Craft, McGregor Group anticipated that they would have the capability to export the vote record data in a spreadsheet which would display the selections of a ballot on each row, however, they were only able to produce a file which displayed the data from the first round of selections, instead of all three. FCMG worked with City staff to develop Excel templates that processed the "raw" files exported from the election management system to produce a report that could be compared with the results tapes produced by individual tabulators (FCMG 2018b, 6).

Logic and Accuracy Testing

From September 10 to 14, City staff with Freeman, Craft, McGregor Group performed testing to ensure that all equipment would be operational in its assigned polling place. Additionally, City staff and FCMG needed to be able to confirm that the software could accurately process and tabulate all the data and produce correct results. The results of this testing were also detailed in FCMG's September 30, 2018 report.

Freeman, Craft, McGregor Group received the ballot proof file for the actual election ballots on August 10, 2018 and used this to develop a marking pattern file. (See **Box 4**.) The test decks created using this marking pattern would verify the system's capability to manage each marking position on every style of ballot, as well as undervotes

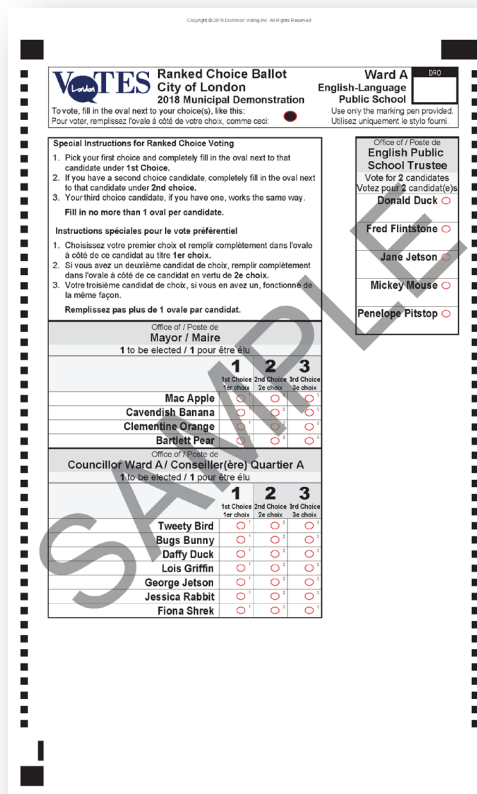
(where fewer than the allowed number of candidates are ranked) and overvotes (where multiple candidates are selected for a single rank). FCMG created a ballot marking pattern, a file of expected results, and a marked test deck for the tabulators which had been designated for the advance vote and voting day. They processed the test deck on each tabulator, verified the results, and cleared the data. Municipal staff sealed and securely stored the tabulators. The audio ballot was also tested. FCMG and municipal staff then worked together to create a template which would use export files from the software to create a report containing the audit data as well as the results tapes from each individual tabulator. This would allow for verification that the audit data and results tapes matched. Upon the completion of logic and accuracy testing, municipal staff had sole custody of all components of the election system and isolated it from the vendor to ensure security and integrity (Freeman, Craft, McGregor Group, 2018c).

Final Preparations

On October 20, 2018, Freeman, Craft, McGregor Group (2018c) assisted municipal staff with final preparations. They performed acceptance and logic and accuracy testing on six polling place tabulators that the municipality had used as accessible voting devices during the advance vote. They inspected these tabulators for damage, verified the firmware, installed memory cards to allow these tabulators to read ballots from any polling station, and used the test deck from a previous test for a logic and accuracy test. They verified the results of this test and printed reports to be uploaded to the software. Afterwards, they cleared the data and securely stored the tabulators. Six accessible voting devices were securely stored without memory cards and seals for use in the event

Box 4: The Ballot

The design of the ballot is prescribed by the *Municipal Elections Act*, leaving the municipality with little discretion regarding the organization of material on it. There was concern, therefore, that if there were a large number of candidates in any one ward, a multi-page ballot would be required. The ballot included clear separation of the ranked mayoral and councillor positions from the non-ranked school board trustee positions.



that other equipment experienced a mechanical failure and required replacement. FCMG also verified and securely stored the primary and backup laptops on October 21 and again on voting day. FCMG continued to provide services on the day of the election and the following days, including witnessing scanning, processing, and tabulation.

Staffing and Training

Previous elections had been administered by a team of four city staff. This complement was doubled to eight in 2018. An Election Team reporting to the City Clerk was formed; its sole focus being to prepare for, and manage the election (Cathy Saunders, personal communications, 15 January 2019; 21 March, 2019). The team comprised:

- the Manager of Licensing and Elections, whose focus had temporarily shifted entirely to the election. This resulted that an additional staff member with the same title be hired to complete the other duties associated with that position;
- a Communications Specialist seconded from the Office of the City Manager;
- four Municipal Elections Clerks primarily responsible for data entry, supply organization, outreach, and telephone communication with residents;
- Manager III of Network and Information Security primarily responsible for managing the corporate infrastructure, network security, communication technology, and the website; and
- two Special Projects Interns.

The City of London also needed a total of 1,906 workers to staff the polls throughout advance voting and on voting day (Saunders, 2019). There were five positions at each poll. These were the poll supervisor, deputy returning officer, poll clerk, tabulator operator, and greeter (Shannon, 2018). Some of the poll supervisors were City of London employees; others were citizens hired on a short-term basis. While the only staff who were required to staff the polls during the election were those in the City Clerk's Office, the municipality encouraged other staff to assist with the election.

The City of London accepted applications to fill the remainder of the poll staff positions in person, online, and at job fairs (Saunders, 2019). A total of 2,733 applications were received. Election staff conducted a total of 75 training sessions (totaling 150 hours) and 1,877 successful applicants attended. Election staff developed nine different training programs to ensure that training was specific to the position of the poll worker and the date on which they would work. Manuals were also produced for poll workers to reference while at the polls. Between May 1 and October 22, 2018, the municipality had to replace 501 poll workers because they were unable to work—a level consistent with past experience in London and other Ontario municipalities. This required some additional recruitment.

Awareness-Raising and Community Outreach

City of London's awareness-raising and outreach process began before Council's decision to adopt ranked-choice voting for the election.⁶ Provincial legislation mandated that the City conduct an open house for the purposes of educating the public on the use of a ranked-choice voting system and the implications of its adoption. After the Council passed a bylaw and determined that the municipality would use ranked-choice voting in the 2018 election, the City conducted several additional awareness-raising and outreach efforts. These efforts focused on educating candidates and the public about how a ranked-choice voting election works and emphasized to the public that election results would not be available as quickly as in past municipal election years (Cathy Saunders, personal communication, March 21, 2019).

The first of these efforts were candidate information sessions on February 10 and April 7, 2018 (Shannon, 2018). These sessions allowed City staff to educate potential candidates on ranked-choice voting. Staff created an example deck of ballots to demonstrate how voters would fill in their ballots, how tabulators would total the votes, and how ballots become exhausted when the voter has not selected a continuing candidate for the next round of vote counting (Shannon, 2018).

City staff conducted 160 voting demonstrations at which they educated residents as well as community leaders and groups on how the ranked balloting system works and gave them the opportunity to familiarize themselves with the system by completing their own mock ballot, which listed types of fruit in lieu of the real candidate names (Shannon, 2018). Election staff would count the mock ballots and declare a winner to demonstrate how candidates would be elected. Local organizations were able to request an election demonstration at one of their events, conducted by municipal staff. Demonstrations were also conducted at tents at local festivals and events.

The election team partnered with several internal and external organizations for education and outreach. They worked with organizations with an accessibility focus, using contacts provided to them by the municipal Accessible Advisory Committee. These organizations included CNIB and French first-language organizations. The election team was also able to collaborate with an existing partner organization, London Arts Council, including participating in the 2017 Culture City initiative. This involved teaching elementary school students how a ranked ballot system works by conducting a mock election, again by using names of fruit in lieu of candidate names. Finally, the election team attended staff meetings of other departments, such as the fire department, that were active in neighbourhoods and communities, to explain the ranked ballot system (Cathy Saunders, personal communication, March 21, 2019).

6. This section relies on Saunders (2016) and personal communications with Cathy Saunders, 15 January 2019 and 21 March 2019.

Box 5: Quick Reference Pamphlet

The way London Votes has changed

The City of London will be using Ranked Choice Voting for the 2018 Municipal Election.

NEW BALLOT

What's Changing?

- New ballot
- Instead of voting for only one candidate, you can choose and rank up to three candidates in order of preference for Mayor and City Councillor
- Winner needs 50% plus one vote (majority) to be elected

What's Not Changing?

- School Board Trustee is not a ranked choice
- You can cast your vote using the same options as in past elections

When do I vote?

Election Day: October 22, 2018
 Advanced Polls: October 6 to October 13, 2018
 Various Locations & Times: Available online or by calling.

london.ca/elections 519-661-4535

How Does Ranked Choice Voting Work?

Voters have the option to rank up to three candidates on the ballot in order of preference.

- 1st choice, 2nd choice, and 3rd choice for both Mayor and City Councillor.

How is a winner declared?
All of the first-choice votes are added up.

50% plus one vote

No winner declared

- The candidate with the fewest votes is eliminated.
- The ballots that ranked the eliminated candidate as the first choice are now redistributed to the remaining candidates but this time using the second candidate choice.
- This process is repeated until a winner can be declared.

Winner declared

- If a candidate receives 50% plus one vote (the majority) they are declared the winner.

london.ca/elections 519-661-4535 elections@london.ca

This information is available in other formats upon request.
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Municipal staff contacted Western University’s student council to assess whether a voting demonstration conducted for students on campus would be useful. The University Student Council at Western informed the municipal staff that, as Western already conducts its own student council elections using a ranked ballot, a demonstration would not be required. However, they did conduct a demonstration for King’s University College.

An additional outreach method used by City of London staff was to educate media outlets about the functioning of the ranked ballot systems, which enabled staff to increase the size of the audience they reached with their outreach efforts. They held meetings with all on-air personalities during April 2018, where they performed a demonstration of the system. They also assisted local media with holding radio contests to elect a “mayor” of the radio station using a ranked ballot format.

City staff also produced their own advertisements and mail-out pamphlets. The municipality distributed 4,600 pamphlets that explained the voting process (See **Box 5**). These were made available in English and in Braille for accessibility purposes (City of London, 2019). They also produced an additional mailing to 150,000 households outlining

key election information. Finally, they produced an explanatory video for the City of London webpage.⁷ This webpage received 6,102 views.

3. Voting Day

This section discusses the events of voting day, including the voting process and the tabulation and communication of results. As most procedures would apply in either a first-past-the-post or ranked-choice voting election, only those specific to ranked-choice voting—essentially, those associated with the tabulation of votes—are described here.⁸ As noted above, polling station staff received extensive training on the mechanics of the ranked-choice voting process so that they could clearly and efficiently explain it to voters.

Vote-by-mail ballots were sorted by the City Clerk's Office beginning at 2:00 PM on voting day. Election officials also set up the tabulators from advance polls, institutions, and long-term care facilities in the tabulation centre. These tabulators were powered up to verify that the public count on the tabulator matched the number of votes reported to be cast before printing the results. Staff processed the vote-by-mail ballots using a designated single tabulator. All results tapes and memory cards were placed in envelopes for later processing using the election software. On one of these tabulators, the seals showed evidence of tampering (Freeman, Craft, McGregor Group, 2018c). FCMG scrutinized the files on the memory card and discovered that the tabulator had been shut down and its flash cards transferred to a new tabulator during the advance vote. Later the same day, the original tabulator was repaired and replaced the new tabulator, but its seal had been retained and then reapplied. It was verified that this information matched the reports of involved municipal staff and that the total ballots tabulated matched the number of voters on record.

At the end of voting day, the tabulated vote counts from all tabulators were transported to the central tabulation centre at City Hall. While it was technically possible to electronically transmit the data, the City Clerk's Office chose the more cautious and cost-effective approach of physically transferring the tabulator memory cards and results tapes to the tabulation centre for processing. The polls closed at 8:00 PM, and poll workers returned all tabulators by 9:30 PM (Saunders, 2019).

The City Clerk received the votes for the non-ranked offices of school board trustees and the ranked offices of mayor and councillor on the same memory device. After election officials returned the memory devices, the vote totals were transferred one at a

7. See <http://www.london.ca/city-hall/elections/ranked-choice-voting/Pages/Counting-the-Votes.aspx>

8. For complete information regarding polling station procedures, see the *City of London In-Poll Tabulator Procedures Guide* (City of London, 2017).

time from the memory device to the primary laptop. As officials transferred the results, they confirmed that the number of ballots matched the number listed on the results report tape from the tabulator. The City Clerk established the first-round thresholds for each office, as well as the results of the first round of counting, soon after the close of voting. Candidates who met or exceeded the threshold were declared unofficially elected. This was the case for eight of the 15 offices. The City Clerk was also able to release the unofficial votes for the school board trustees.

Due to the nature of ranked ballot elections results cannot be released in a rolling poll by poll reporting sequence that is common in election reporting. In a ranked ballot election, the clerk must wait until all votes are collected in order to determine the threshold for candidates to advance to the next round in accordance with section 24 of Ontario Regulation 310/16.

The additional rounds of tabulation required for the remaining seven candidates began the next morning at 10:00 AM (Saunders, 2019). Municipal staff manually confirmed that the math performed by the tabulator was correct for each of the rounds (Freeman, Craft, McGregor Group, 2018c). Election officials eliminated the candidate with the fewest votes and transferred the votes for this candidate to the continuing candidate whom the voter had ranked highest. Election officials identified exhausted ballots. This process continued until a candidate met or exceeded the threshold for each office. In the event of a tie for fewest votes in the first round, election officials select one of the two candidates by lot to proceed to the next round. No ties occurred in the 2018 election.

In the event that a voter had indicated multiple rankings for one candidate, the highest ranking they have provided would be the only one considered. Election officials considered voters' ballots to be exhausted when their choice on the next round of vote tabulation was a vote for a candidate who had previously been eliminated. However, if, in this case, at least one vote for a continuing candidate remained, election officials tabulated that vote for the current round. If multiple candidates were selected in a single column, election officials did not tabulate any vote in that column, and if one candidate had been selected in more than one column, election officials tabulated only the highest selection.

Communicating the Results

As noted, the results data files produced by the election management software could not be communicated as-is; results were printed and manually keyed into tables on the City's election website. While media outlets had asked for digital transmission of unofficial results in real time, round by round, this was not possible given the features of the vendor's software. For future elections, London plans to ask the vendor for a turnkey solution for representing and communicating results.

Ultimately, eight councillors out of 14 received a majority of votes in the first round. The remaining six ward races required between three and nine rounds to produce a

winner. The mayoral election required 14 rounds. Unofficial results for the offices decided in the first round were posted on election night. The City Clerk declared unofficial results for all offices by 3:00 PM the day after the election. These were posted on the City's website.

On October 24, 2018, municipal staff uploaded ballot images to the election software. Freeman, Craft, McGregor Group also copied audit logs from tabulators that had absent or otherwise compromised seals, and tabulators that arrived at City Hall with ballots that had not yet been scanned. They backed up the system and copied the data to a separate laptop and a USB memory stick. Election officials then securely stored all elections equipment (Freeman, Craft, McGregor Group, 2018c).

Official results were posted on the City's website on October 29, 2018 (Saunders, 2019). All candidates who led in the first round ultimately won the election. Turnout had slightly decreased to 39% from 43% in 2014. Examining the mayoral election only, City staff found that 30% of voters ranked only one candidate, 22% ranked two candidates, and 47% ranked three (Saunders, 2019). Of the 97,947 ballots cast, 442 blank ballots were submitted. There were 859 overvotes (where multiple candidates were selected for a single rank) in rank one, 166 overvotes in rank two, and 42 overvotes in rank three. These statistics suggest that most voters understood the new system.

4. Post-Election Review

Post-Election Audit of Equipment and Procedures

Freeman, Craft, McGregor Group's post-election report notes that, according to their observations and review of audit data, municipal staff performed the tabulation and reporting accurately, and that the City of London had retained sufficient data and recorded information to defend against allegations of impropriety or inaccuracy. FCMG was concerned, however, that 31 tabulators arrived with missing or compromised seals (Freeman, Craft, McGregor Group, 2018c). On the first few tabulators that had this issue, the number of ballots was low, so election officials rescanned the ballots and confirmed that the number of ballots matched polling place records. However, as the number of tabulators with this issue rose, the City Clerk and Manager of Elections decided to note the affected tabulators and review the records before they certified results. FCMG verified that these tabulators had not been powered on between the final phase of testing and their use at the polling places and that ballots had only been cast during polling place operation. In its report, FCMG noted that the absent and compromised seals were likely a result of a lack of instructions to poll workers on the importance of the seals and how to respond to a broken seal, as well as the ease of removing the seals. Finally, FCMG noted that one of the tabulators had developed mechanical issues, was replaced with a secondary tabulator, but

was returned to the polling place upon being repaired and was then used instead of the secondary tabulator. FCMG recommended that, in future, broken seals on non-operational tabulators be documented and that a seal be applied to the replacement tabulator and documented. They also recommended that staff not use tabulators that have been replaced at a polling place again until they have undergone a new round of acceptance testing.

Final Cost

London's experience in 2018 suggests that a ranked-choice election costs more than a first-past-the-post election, but that a significant proportion of the costs associated with the change were one-time-only costs or were a result of this being the first time the system was used. The total cost of the 2018 election compared to the previous election, along with the proportion associated with the adoption of ranked-choice voting, is summarized in **Box 6**. The total cost of the election increased from \$1,321,056 in 2014 to \$1,779,149 in 2018, an increase of \$458,093 or 34.7%. However, only a portion of this increase was due to the adoption of ranked-choice voting. The remainder reflects rising supplier costs and policy decisions to increase the number of tabulators to better reach institutional populations, as well as the accommodation of population growth and a planned increase in temporary elections staff. While the adoption of the new electoral system generated \$515,446 in new costs, some were offset by cost savings in areas unaffected by the adoption of ranked-choice voting. In particular, election-related corporate expenses were significantly lower in 2018 compared with 2014 due to savings in postage and courier costs through the use of targeted enumeration, outsourcing the procurement of certain supplies to other vendors, and the reuse of materials purchased for the 2014 election.

The single largest category of expenditure attributed to the adoption of ranked-choice voting—39% of such costs—was for consultation and outreach. The costs were incurred in the initial consultation stage prior to council's adoption of the new electoral system, and also for public education programs and advertising before and during the campaign period. Now that the public has become more familiar with ranked-choice voting, these costs are expected to be lower in the future.

The second largest expenditure—28% of new costs attributable to adopting ranked-choice voting—was for external auditing services provided by Freeman, Craft, McGregor Group. Having learned a great deal from administering their first ranked-choice election, London's staff are confident that they will be able to do more in-house, and at a lower cost, in future elections. Other municipalities that choose to adopt ranked-choice voting may incur lower audit costs by virtue of learning from London's experience.

Box 6: Cost Comparison

Item	Actual costs			Incremental costs attributable to adopting ranked-choice voting	
	2014	2018	Difference	2017 (est.)	2018 (actual)
CONSULTATION AND OUTREACH					
Consultation	\$91,160	\$256,897	\$165,737	\$150,000	\$202,108
Mock election services	\$1,600	\$12,125	\$10,525	\$0	\$0
SUBTOTAL – CONSULTATION AND OUTREACH	\$92,760	\$269,022	\$176,262	\$150,000	\$202,108
HUMAN RESOURCES					
Administrative Staff Resources	\$233,628	\$347,949	\$114,321	\$70,000	\$82,686
Poll workers	\$236,696	\$364,906	\$128,210	\$50,000	\$41,500
Staff training	\$2,400	\$4,065	\$1,665	\$0	\$0
SUBTOTAL – HUMAN RESOURCES	\$472,724	\$716,920	\$244,196	\$120,000	\$124,186
VENDOR COSTS					
Vote Tabulators	\$110,200	\$292,500	\$182,300	\$0	\$16,900
Accessible voting machines (for advance polls)	\$6,100	\$15,620	\$9,520	\$0	\$0
Ballot printing	\$75,510	\$111,250	\$35,740	\$42,500	\$12,500
Election software - results tabulation	\$1,425	\$13,500	\$12,075	\$0	\$0
Election software - ranked ballot module	\$0	\$12,000	\$12,000	\$10,000	\$12,000
Election software - web display	\$250	\$0	-\$250	\$0	\$0
Election supplies (ballot boxes, secrecy folders, pens, security seals, etc.)	\$35,077	\$49,150	\$14,073	\$0	\$0
Vendor discount for multiple elections (-20%)		-\$122,444	-\$122,444	\$0	\$0
SUBTOTAL – VENDOR COSTS	\$228,562	\$371,576	\$143,014	\$52,500	\$41,400
External auditing services (FCMG)	\$11,200	\$102,010	\$90,810	\$0	\$147,752
Other corporate expenses	\$515,810	\$319,620	-\$196,190	\$0	\$0
TOTAL	\$1,321,056	\$1,779,149	\$458,093	\$322,500	\$515,446

Sources: 2014 and 2018 actual costs are from Saunders (2018) and Raycroft, personal communication (12 Aug. 2020). Incremental costs attributable to adopting ranked-choice voting are from Saunders (2019) and Raycroft, personal communication (12 Aug. 2020).

The remaining costs attributable to ranked-choice voting were associated with human resources and vendor services. The larger election team and higher number of poll workers was a significant cost driver in London's first ranked-choice voting election, however this cost is expected to be lower in future elections as the city draws lessons from its experience in 2018.

In short, running a ranked-ballots election for the first time is expensive. The public must be consulted and educated about the new system; equipment, software, and procedures must be tested and audited; and additional human resources must be mobilized before and on voting day. However, a significant proportion of these costs are associated with it being the first time a new system was used. These costs will likely decline in future elections. London also incurred higher expenditures due to its being a trail-blazer. As the

first municipality to conduct a ranked-ballots election in Ontario, it could not draw on the experience of other jurisdictions in the province.

5. Lessons and Conclusions

As the City of London was the first Ontario municipality to adopt ranked-choice voting, its administrators faced a steep learning curve. They had to devise new communication strategies and staffing models, and also embark, with the help of external consultants, on the complex task of testing equipment, software, and procedures to ensure the integrity of the election. In the end, London's election was a success: most voters appeared to understand the new system, no questions were raised regarding the integrity of the election, and results were communicated promptly. London's experience provides useful lessons for other Ontario municipalities that may consider adopting ranked-choice voting (see **Box 7**).

Administering a ranked-choice election is more expensive, at least the first time.

Municipalities should be aware of the costs associated with administering a ranked-choice voting election. In 2017, municipal staff at the City of London estimated the increase in election costs which would be attributable directly to the introduction of ranked balloting to be \$322,500 (Saunders, 2019). However, many costs were higher than anticipated, and the total increase was \$515,446. In particular, public awareness and outreach expenditure was higher than anticipated. As well, the expense of contracting the services of an auditor was a major contributor to the disparity between the initial estimate and the actual costs, as municipal staff had originally hoped that the provincial government would take responsibility for certifying the election technology.

Awareness-raising and outreach, procurement, and equipment and software testing were all significant expenses in London in 2018. The involvement of an external auditor familiar with ranked-choice voting was essential to ensuring the integrity of the election, while also providing a valuable learning process for City staff and the equipment and software vendor. The audit gave staff confidence in the electoral process. Equipment testing and the auditing of procedures is a normal part of any electoral process; often conducted by City staff or management consulting firms. London expects to contract for specialized external audit services again in 2022, but expects this to be less extensive than the audit in 2018.

In sum, a significant proportion of the higher costs incurred is associated with the City being the first and only municipality in Ontario to adopt the system. Costs are expected to be lower in future elections as City staff, vendors, and the public benefit from their experience with ranked-choice voting. Later adopters would also benefit from London's learning experience, in the process avoiding some first-time costs. Nevertheless,

some additional costs might be especially difficult for small municipalities to absorb, especially in the event that the Province does not assist with funding or certify equipment in future elections. As well, smaller municipalities may find awareness-raising and outreach more difficult if there are fewer community organizations to partner with and fewer local events and festivals to attend.

Preparing for and running the election required organizational changes and additional human resources. The City of London established a central team of municipal staff members—some seconded from other divisions—to focus on election preparation. Staffing for voting day itself was crucial. Poll workers required extensive training to ensure that they could explain the new electoral system to voters.

Procurement and testing of equipment and software were a significant burden. The process of testing equipment to ensure the integrity, accuracy, and smooth handling of the election was exhaustive. In the absence of provincial certification of equipment, the municipality assumed the risk associated with using new hardware, software, and procedures. London moved proactively to procure equipment early to allow for testing and problem-solving, and contracted with an independent consultant to conduct the tests and audit procedures. The City of London was able to lower procurement costs by negotiating a multi-election contract with the tabulator vendor, as well as outsourcing some of the basic election materials to other vendors (Saunders, 2018; Saunders, 2019). Any municipality that chooses to use ranked-choice voting for the first time should expect to invest in testing and auditing over and above what would be required for first-past-the-post elections.

An awareness-raising and outreach strategy was essential to inform voters and set public expectations. Public education programs were essential to explain how to vote and how to campaign in a ranked-choice election. The City of London partnered with community organizations and built links with community-oriented municipal departments, local broadcast and print media, and local events and festivals to give mock election demonstrations (Cathy Saunders, personal communication, March 21, 2019). Mock elections allowed the public to practice marking a mock ballot, and then witness results tabulation first-hand. Municipalities could also opt to partner with community organizations in other ways. For example, the City of London partnered with a local organization’s “Culture City” event to raise awareness about the ranked ballot initiative (Cathy Saunders, personal communication, January 15, 2019). The City of London also partnered with local accessibility-focused organizations to ensure that groups such as francophones and people who are visually impaired also benefited from outreach efforts (Cathy Saunders, personal communication, March 21, 2019). Mail-outs and pamphlets in

English and Braille were also useful methods of educating the public which other municipalities could emulate (City of London, 2019).

Municipalities that are considering adopting ranked-choice voting should be aware of common public misconceptions. For example, when London began public consultation on ranked-choice voting, some members of the public expressed concern that the new system would require them to select several candidates in each electoral contest (Saunders, 2017a). Successful outreach should emphasize that a voter can choose to select fewer than the maximum permitted (in London's case, three).

Additionally, in first-past-the-post elections, unofficial results are often available at the end of voting day. It is important to set expectations by informing the public and the media that, while the unofficial results of some competitions might be available on voting day, some unofficial results, as well as the official results, will take longer to be released (Cathy Saunders, personal communication, March 21, 2019).

Provincial support would reduce costs and administrative burdens. Finally, the City of London and other municipalities considering implementing ranked ballot voting would benefit from greater provincial government assistance. Specifically, it would be useful if the Province were to certify the equipment and software for use in ranked-choice voting elections and/or provide financial support for audit services. This would reduce municipal expenditure on external auditors and support electoral integrity (Saunders, 2015a). Even with provincially certified equipment and software, other components of implementing a ranked ballot electoral system such as awareness-raising and outreach still impose a significant cost on municipalities (Saunders, 2017b). The provincial government could reduce these costs by producing public education materials, as well as providing transition grants to municipalities that choose to implement ranked-choice voting elections. (While London had asked the provincial government for a grant to offset the audit expense, the request went unanswered in the context of the June 2018 provincial election.)

To conclude, municipal councils may choose to embark on electoral reform for any number of reasons, including making the membership of deliberative bodies more representative of the public, increasing and broadening electoral participation, and incentivizing civil discourse during the election campaign. Indeed, London's council adopted ranked-choice voting for all of these reasons. This report does not evaluate whether these expectations were borne out in the 2018 election, and indeed patterns would only emerge after more elections occur. Instead, this report sheds light on the complexity of administering, for the first time, a complex reform to the electoral system. We hope that, through this report, other local jurisdictions will gain a greater understanding of what this change entails as they evaluate ranked-choice voting.

Box 7: Leading Practices

- Establish a leadership team to plan for and administer the election that includes communications staff.
- Invest in sustained outreach to the community to educate them about the new system, including advertising, public demonstrations and mock elections, the distribution of leaflets to households, and local media engagement.
- Invest in extensive training for voting-day poll workers so that they can explain the new system while ensuring the efficient conduct of the election.
- Secure appropriate external expertise to assist with the testing of equipment and the auditing of procedures to ensure the integrity of the election.
- Work with vendors to ensure that election results can be quickly validated and communicated to the public.

References

- Bowler, Shawn, Todd Donovan, and David Brockington. 2003. *Electoral Reform and Minority Representation: Local Experiments with Alternative Elections*. Columbus, OH: Ohio State University Press.
- Burnett, Craig M., and Vladimir Kogan. 2015. "Ballot (and Voter) 'Exhaustion' under Instant Runoff Voting: An Examination of Four Ranked-Choice Elections." *Electoral Studies* 37:41-49.
- City of London. 2017. *In-Poll Tabulator Procedures: City of London 2018 Municipal Election*. London: City of London.
- City of London. 2019. *Accessible Election Report 2019: City of London 2018 Municipal Election*. London: City of London.
- Clark, Alister. 2020. "The effects of electoral reform on party campaigns, voters and party systems at the local level: from single member plurality to the single transferable vote in Scotland." *Local Government Studies*, early on-line.
- FairVote. n.d. Website. www.fairvote.org.
- Freeman, Craft, McGregor Group (FCMG). 2018a. *Acceptance Test and Logic and Accuracy Test for Dominion Voting Systems' Democracy Suite 5.4.7.2 Prior to its Use by the City of London, Ontario for the conduct of the October 22, 2018 Municipal Election*. Tallahassee: Freeman, Craft, McGregor Group.
- Freeman, Craft, McGregor Group (FCMG). 2018b. *Evaluation of Dominion Voting Systems Democracy Suite 5.4.7.2 and Procedures Proposed for Its Use by the City of London, Ontario for the conduct of the October 22, 2018 Municipal Election*. Tallahassee: Freeman, Craft, McGregor Group.
- Freeman, Craft, McGregor Group (FCMG). 2018c. *Tabulation Observation and Post-Election Evaluation Report For the City of London, Ontario*. Tallahassee: Freeman, Craft, McGregor Group.
- Martin, Chip. 2018. "By all measures, ranked ballots were a failure." *The London Free Press*. 5 Nov.
- Moore, Aaron A. 2017. "The Potential and Consequences of Municipal Election Reform." *IMFG Perspectives* 20. <http://hdl.handle.net/1807/78793>
- Santucci, Jack. 2018. "Maine Ranked-Choice Voting as a Case of Electoral-System Change." *Representation* 54 (3):297-311.
- Saunders, Cathy. 2015a. "Province of Ontario Consultation - Municipal Elections Act." London: Corporate Services Committee, City of London. 21 July. <https://pub-london.escribemeetings.com/filestream.ashx?DocumentId=19922>
- Saunders, Cathy. 2015b. "Ranked Balloting Process." London: Corporate Services Committee, City of London. 20 Oct. <https://pub-london.escribemeetings.com/filestream.ashx?DocumentId=20919>

- Saunders, Cathy. 2016. "Amendments to Municipal Elections Act." London: Corporate Cservices Committee, City of London. 19 July. <https://pub-london.escribemeetings.com/filestream.ashx?DocumentId=26017>
- Saunders, Cathy. 2017a. "Ranked Ballot Community Engagement Results Update." London: Council, City of London. 1 May. <https://pub-london.escribemeetings.com/filestream.ashx?DocumentId=31386>
- Saunders, Cathy. 2017b. "Ranked Ballot Election Model." London: Corporate Services Committee, City of London. 24 Jan. <https://pub-london.escribemeetings.com/filestream.ashx?DocumentId=29238>
- Saunders, Cathy. 2018. "2018 Municipal Election Update." London: Corporate Services Committee, City of London. 20 Feb. <https://pub-london.escribemeetings.com/filestream.ashx?DocumentId=39274>
- Saunders, Cathy. 2019. "2018 Municipal Election." London: Corporate Services Committee, City of London. 19 Mar. <https://www.london.ca/city-hall/elections/Documents/Staff%20Report-2018%20Municipal%20Election.pdf>
- Shannon, Megan. 2018. "Administering Electoral Reform: A Case Study of the City of London's 2018 Ranked Ballot Election." Major Research Paper, Master of Public Administration Program. London: Western University.

Appendix: Chronology of Events

2015

- May 28, 2015 Province launches Municipal Elections Act review.
- July 1, 2015 Provincial working group session with clerks at which London brings up equipment certification by the Province.
- Oct. 20, 2015 Report to council notes that the Corporate Services Committee has been using ranked ballots to fill vacancies on advisory committees.

2016

- April 4, 2016 First reading, Municipal Elections Modernization Act. (Bill 181).
- June 9, 2016 Royal Assent, Municipal Elections Modernization Act. (Bill 181).
- July 19, 2016 Staff report to Corporate Services Committee on the provincial legislative changes. Proposes proceeding with RFP in advance of the May 1, 2017 deadline.
- Sep. 16, 2016 Province adopts Reg. 310/16 Ranked Ballot Elections.

2017

- Jan. 24, 2017 Staff report. City Clerk recommends against ranked ballots. Presents schedule of timing of consultation that would have to occur to make the May 1 deadline.
- Jan. 31, 2017 City initiates public consultations.
- March 8–9, 2017 Open houses in accordance with Ontario Reg 310/16.
- April 10, 2017 Online survey begins (ends April 26) [May 1 staff report]. Result: 52% prefer to select one candidate but 50% favour ranked ballots.
- March 23, 2017 City staff present to Accessibility Advisory Committee.

May 1, 2017	Council adopts bylaw in special meeting, 9-5 vote. Provincial deadline to adopt.
July 4, 2017	RFQ open for hardware/software solution, with option to renew for 2022 and 2026.
Fall 2017	Culture City Youth mock election with elementary students; City outreach and education through participation in community organized event.
Dec. 15, 2017	City enters into contract with Dominion Voting Systems.
2018	
Feb. 10, 2018	Candidate information session #1.
Feb. 22, 2018	Ranked ballot demonstration organized by the Urban League of London.
Mar. 20, 2018	City enters into contract with Freeman Craft McGregor Group (FCMG).
Mar. 27-29, 2018	Mock election and functional test. Internal testing of software system and tabulators with staff, vendor and auditor present.
April 7, 2018	Candidate information session #2.
May 1, 2018	Nomination period begins.
June 14, 2018	Elections Office Jobs Fair, North London Optimist Community Centre.
July 19, 2018	Elections Office Jobs Fair, Sherwood Forest Library.
Aug. 6-10, 2018	Acceptance testing. With vendor and auditor.
Sep. 10-14, 2018	Logic and accuracy test. With auditor.
Sep./Oct, 2018	75 training sessions = 150 hours. 9 individual training programs given to people with different roles. Attended by 1,877.

Oct. 4, 2018 Advance poll – vote anywhere.

Oct. 6–13, 2018 Advance poll – 12 locations.

Oct. 22, 2018 Voting day. Winners in first round reported.

Oct. 23, 2018 Unofficial results posted on City of London website.

Oct. 29, 2018 Official results posted on City of London website.

2020

Mar. 20, 2020 Government of Ontario announces that it will remove municipalities' ability to use ranked-choice voting from the Municipal Elections Act.