



Form 40 (Version 6)

UCPR 35.1

Principal Registrar &
Chief Executive Officer

AFFIDAVIT OF SIMON KWOK

10 JANUARY 2022

COURT DETAILS

Court	Supreme Court of New South Wales
Division	Common Law
List	Administrative Law
Registry	Sydney
Case number	2022/00008416

TITLE OF PROCEEDINGS

Plaintiff	Electoral Commissioner for New South Wales
First defendant	Kempsey Shire Council
Number of defendants	22

FILING DETAILS

Filed for	Electoral Commissioner for New South Wales, plaintiff
Filed in relation to	The plaintiff's claim
Legal Representative	Karen Smith, Crown Solicitor for NSW
Legal Representative Reference	PCN: 24565 202104026 T01
Contact name and telephone	Christopher Frommer (02) 9474-9088
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Frequent User ID	CSONSWEC

AFFIDAVIT

Name	Simon Kwok
Address	231 Elizabeth St, Sydney NSW 2000
Occupation	Executive Director, Elections
Date	10 January 2022

I affirm:

1. I am employed under s. 15 of the *Electoral Act 2017* as a member of staff of the NSW Electoral Commission (“the Electoral Commission”). I hold the role of Executive Director, Elections. I have held that role since January 2017.
2. In my capacity as Executive Director, Elections, I lead the Elections Division, which is one of four Divisions within the Electoral Commission. With the support of specialist business units in other divisions, the Elections Division is responsible for delivering election management services, where the Electoral Commissioner for New South Wales (“the Electoral Commissioner”) has a statutory duty to conduct elections in NSW or has otherwise agreed to do so.
3. There are four business units within the Elections Division, being Election Operations, Election Support, Customer Service and Relationship Management, and Election Innovation.
4. The Election Operations unit is responsible for planning and managing the delivery of all electoral processes consistent with legislative requirements. This includes processes for: the nomination of candidates; the registration of electoral material; voting by all channels (including “iVote”, which I discuss further below); counting ballot papers; and the determination of election results.
5. The Election Innovation unit is responsible for the technical delivery of the Electoral Commission’s iVote system, which is the system used for “technology assisted voting”. In particular, during my time as Executive Director, Elections, the Election Innovation unit has been responsible for:
 - a. procuring system software from specialist external service providers to enable the operation of the iVote system;
 - b. collaborating with external service providers to design online voting processes that are secure and compliant with NSW electoral legislation;
 - c. collaborating with the specialist business units in the Information Services Division and the Election Operations business unit to configure and test the iVote and supporting software prior to its deployment;

- d. engaging independent technical experts from a specialist external service provider to conduct a review of the source code of the iVote voting software;
- e. collaborating with the Election Operations business unit ensuring iVote procedures approved by the Electoral Commissioner are reflected in the processes for voting online; and
- f. engaging a specialist external service provider as an independent auditor of the iVote system in accordance with NSW electoral legislation.

2021 local government elections

6. Section 296AA(1) of the *Local Government Act 1993* requires that, before each ordinary election of councillors for a council, the council must resolve either to enter into an arrangement with the Electoral Commissioner, for the Electoral Commissioner to administer elections of the council, or that the elections of the council are to be administered by a different electoral services provider engaged by the council.
7. Prior to the NSW local government ordinary elections that were originally due to be held in September 2020, the Electoral Commissioner was engaged to manage these elections by all but two of the NSW councils that were due to hold them.
8. The councils that did not engage the Electoral Commissioner to manage their ordinary elections were Penrith City Council and Fairfield City Council. Central Coast Council and Wingecarribee Shire Council engaged the Electoral Commissioner but administrators were subsequently appointed by the Minister for Local Government and those councils' ordinary elections may now be held later in 2022. Two other councils, being Balranald and Central Darling, are also under administration and I am not aware when it is intended elections be held in those local government areas.
9. Election day for the ordinary elections for those NSW councils not under administration was postponed to 4 September 2021 then 4 December 2021, due to the COVID-19 pandemic, by orders made by the Minister for Local Government, under ss. 318B and 318C of the *Local Government Act 1993*, on 12 June 2020, 26 June 2020 and 24 July 2021. Copies of those orders are **annexed** and marked "A".
10. The ordinary elections for the 122 councils (including Kempsey Shire Council, City of Shellharbour Council and Singleton Council) that were managed by the Electoral Commissioner involved voting in 259 separate contests for the office of councillor (for a ward only or for an undivided area), Mayor or Lord Mayor. In addition, the Electoral Commissioner managed 8 constitutional referenda, 1 poll and 23 uncontested elections for councillors and mayor.

11. Between 21 and 23 December, inclusive, the Electoral Commissioner approved the declaration by the returning officers of the elections for which he was election manager, pursuant to s. 356(1) of the *Local Government (General) Regulation 2021*. The declarations of the elections occurred in the returning office appointed for each local government area and the names of the candidates declared elected by each returning officer were published progressively by the Electoral Commission on its website at <https://vtr.elections.nsw.gov.au/LG2101/index>.
12. Copies of the candidate results for the councillor elections for City of Shellharbour Council Ward A, Singleton Council and Kempsey Shire Council, which I have obtained from that website, are **annexed** and marked "B".

Introduction of technology assisted voting in NSW elections

13. With declining postal services and growing mobility of electors, technology assisted voting was introduced to provide a more reliable means for electors outside NSW (particularly overseas) or in remote areas to participate in NSW elections. It was also introduced to provide a voting channel that better protected the "secret ballot" for electors with a disability (particularly a vision impairment or blindness) and who would otherwise be unable to vote without assistance.
14. The Electoral Commissioner was first authorised to provide technology assisted voting in the 2011 State general election, pursuant to Pt 5, Div. 12A of the *Parliamentary Electorates and Elections Act 1912* (now repealed). Equivalent provisions may now be found in Pt 7, Div. 11 of the *Electoral Act 2017*.
15. The Electoral Commissioner was authorised to provide technology assisted voting in local government elections by the *Local Government (General) Amendment Regulation 2021*, which amended the *Local Government (General) Regulation 2005* (now repealed) to insert provisions analogous to those which appear in Pt 7, Div. 11 of the *Electoral Act 2017*.
16. The 4 December 2021 ordinary elections were the first occasion on which the Electoral Commissioner utilised technology assisted voting in local government elections. At that time, the use of technology assisted voting was authorised by Pt 11, Div. 7A of the *Local Government (General) Regulation 2021*. Division 7A provided that:
 - a. an elector may apply to vote at an election by means of technology assisted voting (s. 333D);
 - b. if the Electoral Commissioner was satisfied that an applicant is an eligible elector (as defined in s. 333C), the applicant must be permitted to vote at the election by means of technology assisted voting in accordance with Div. 7A (s. 333E); and

- c. the Electoral Commissioner could approve procedures to facilitate voting by eligible electors at an election by means of technology assisted voting (s. 333F).
17. Procedures were approved by the Electoral Commissioner under s. 333F on 2 November 2021 and were published on the Electoral Commission's website at [https://www.elections.nsw.gov.au/NSWEC/media/NSWEC/Policies/TAV-Approved-procedures-for-NSW-state-and-local-government-elections-redacted-\(003\).pdf](https://www.elections.nsw.gov.au/NSWEC/media/NSWEC/Policies/TAV-Approved-procedures-for-NSW-state-and-local-government-elections-redacted-(003).pdf). A copy of the procedures document, which I have obtained from the Electoral Commission's website, is **annexed** and marked "**C**".
18. The approved procedures require the use of the iVote system. iVote is an online system accessible through an internet browser, either by the elector directly or with the assistance of telephone operators engaged for this purpose by the Electoral Commissioner. Electors who have applied to use technology assisted voting and have been approved under s. 333E of the *Local Government (General) Regulation 2021* are provided with an iVote number, which is the security credential that allows them to cast their vote using the iVote system. Without an iVote number, electors are unable to access the iVote system to vote by means of technology assisted voting.

Difficulty with use of iVote system

19. On 4 December 2021, the Electoral Commissioner issued a media release stating that he was aware that some iVote users were unable to gain access to the iVote system to vote before close of voting (at 6 pm) in the local government elections held on that day. The media release stated that this was due to an increased volume of people using the iVote system. A copy of the media release of 4 December 2021 (with an addendum inserted on 10 December 2021) is **annexed** and marked "**D**".
20. Following election day, I examined the Electoral Commission's iVote records, which showed that the percentage of electors who were approved to vote using technology assisting voting but were not provided with an iVote number permitting them to do so was between 0.11% to 1.69% of the total number of electors who cast a vote in each contest.
21. I was directed by the Electoral Commissioner to cause an analysis to be undertaken about the impact of the iVote problem, including the likelihood any election outcome could have been different had every eligible elector who was not provided with an iVote number before the close of voting at 6 pm on election day been able to cast a vote. A report on the methodology and results of that analysis is **annexed** and marked "**E**".
22. As Executive Director of the Elections Division, I gave instructions for, and supervised on behalf of the Electoral Commissioner, staff of the Elections Division and contractors retained by the Electoral

Commission conducting the analysis described in the assessment methodology and results report, including:

- a. the impact assessment approach described in the document;
 - b. preparing and testing a program to conduct the Monte-Carlo Simulation Analysis described on page 10 in relation to the recorded ballots in the elections being assessed;
 - c. conducting the two sensitivity analyses described in Appendix A; and
 - d. production, from that process, of the results described in Appendix B.
23. As part of the process described above, preliminary results were obtained on the basis that the potential additional iVote ballot papers included all the electors in each election who registered to use iVote but did not receive an iVote number in time. The results of this preliminary Monte-Carlo Simulation Analysis disclosed seven contests in which there was at least one simulation out of 1,000 with an alternative outcome. In relation to these seven contests, voting records of ballots received through other methods were reviewed to identify how many electors, having failed to receive the necessary security credentials, are recorded as having voted by alternative means (such as attending in person at a polling place). On average, around 54% of these electors are recorded as having voted by an alternative means (ranging in particular contests from 14% in the Hay councillor election to 61% in the Shellharbour Ward A councillor election). This is the process described on page 16 of the document as “cross-checking electors against attendance voting records”.
24. In relation to the seven contests in respect of which the preliminary results indicated one or more alternative outcomes out of 1,000, the Monte-Carlo Simulation Analysis was conducted again, on the basis that the potential additional iVote ballot papers included only the electors who (a) registered to use iVote but did not receive the necessary security credentials, and (b) are not recorded as having voted by alternative means. The results in Appendix B on pages 17-30 of the assessment methodology document, and the results of the sensitivity analyses described in Appendix A on page 16, are based on the data used to undertake this second simulation analysis.
25. The results in Appendix B on pages 17-30 of the assessment methodology document show that there was a chance that, had all the approved electors been able to use iVote, there may have been some impact on six contests. Three of those contests were assessed as being subject to a lower than 1% chance of any impact. The other three contests were assessed as subject to a potential impact between 7% and 61%, being the councillor elections for Shellharbour Ward A, Singleton Council and Kempsey Council.

26. Additional information describing the outcomes of the sensitivity analyses referred to in Appendix A of the methodology and results report is **annexed** and marked “F”, “G” and “H” respectively. The information at “F” contains a summary table listing all contests for which a “non-zero” result was returned using (i) iVote-only preference data for each contest, as set out in full in Appendix B to the methodology and results report, and (ii) the full preference data for each contest, which was conducted as a sensitivity analysis. The information at “G” is a table setting out the full results for the sensitivity analysis that was conducted using the full preference data for each contest. The information at “H” contains graphs illustrating the outcome of a further sensitivity analysis, which tested the impact when the number of potential additional iVotes for each of the six contests for which there had been a non-zero outcome using iVote preference data only was changed.
27. On 23 December 2021, the Electoral Commissioner issued a public statement on the Electoral Commission’s website stating that an analysis of the potential impact of the iVote issue on the outcome of all the elections had been completed. The public statement provided a link to the document at Annexure E. The public statement is **annexed** and marked “I”.
28. Also on 23 December 2021, the Electoral Commission issued Political Participants Bulletin No. 19, which was published to the Electoral Commission’s website and emailed to those candidates who had provided an email address to the Electoral Commission. It was also emailed to all registered NSW political parties and to representatives of all councils that engaged the Electoral Commissioner to manage their elections. The content of this document was relevantly identical to that of the Electoral Commissioner’s public statement of 23 December 2021. A copy of Political Participants Bulletin No. 19 is **annexed** and marked “J”.
29. The public statement of 23 December 2021 and the Political Participants Bulletin No. 19 stated that the Electoral Commissioner was satisfied, based on the analysis which had been conducted, that the iVote issue had no material impact on the 4 December 2021 local government elections, with the exception of the councillor elections in Kempsey Shire Council, City of Shellharbour Council Ward A, and Singleton Council. The documents stated that, in respect of those three elections, the Electoral Commissioner had formed the view that there was a possibility that, if all individuals who registered to use iVote on election day had been able to vote using the iVote system, a different outcome might have occurred.
30. If fresh elections are required to be held as a result of these Court proceedings, the earliest that they could be held is 19 March 2022. The date is suggested in light of the statutory timeframes that apply to holding local government elections (particularly the requirement that the electoral rolls close 40 days prior to election day), the operational impact on the Electoral Commission and

relevant councils involved from the preparation of rolls, the procuring of suitable venues, the recruiting of temporary election workers (particularly in light of the current COVID-19 pandemic), and the need for communications about the elections (including compulsory voting) to electors and political participants. A date of 19 March also considered the earliest possible date due to other elections being conducted by the Electoral Commission during February. The Speaker of the NSW Legislative Assembly announced on 31 December 2021 that four State byelections will be most likely held on 12 February 2022, with the earliest possible date for the declaration of results for those elections being 28 February 2022. Five byelections under the *Local Government Act 1993* are also being held on 26 February, with the closing date for those elections being 17 January 2022. The earliest date for the results for those elections to be declared is 14 March 2022.

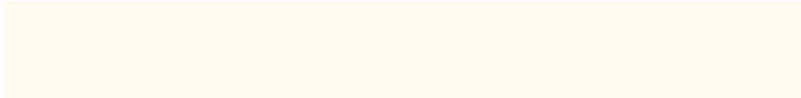
31. The date of any fresh elections that may need to be held following an order of this Court would also need to take into account the constraints arising from the federal election that must be held by May 2022. It is not practicable for local government elections to be held on the same date as the federal election for a number of reasons, including because the Australian Electoral Commission's ("AEC") venues for voting at federal elections are generally the same as those that must be used by the Electoral Commission for local government elections. Any AEC bookings (such as for schools and local halls) for a federal general election would take priority over local government elections. Co-location is also not feasible due to the significant differences between local and federal electoral boundaries, election administration, regulation and voting processes, which would create major logistical hurdles and cause voter confusion. These include significant differences around the regulation of electoral materials and the management of COVID-19 safety measures. There is also a risk of ballot papers being placed in the wrong ballot box. It is also noted that s. 394 of the *Commonwealth Electoral Act 1918* provides that the approval of the Governor-

General is required before a vote of the electors of part of a State may be held on the same day as a federal election.

AFFIRMED at	SYDNEY on 10 JANUARY 2022
Signature of deponent	
Name of witness	Rachel McCallum
Address of witness	NSW Electoral Commission, 231 Elizabeth Street, Sydney NSW 2000
Capacity of witness	Solicitor

And as a witness, I certify the following matters concerning the person who made this affidavit (the **deponent**):

1. *I saw the face of the deponent.¹
2. *I have known the person for at least 12 months.

Signature of witness 

Note: The deponent and witness must sign each page of the affidavit. See UCPR 35.7B.

¹ The only "special justification" for not removing a face covering is a legitimate medical reason (at April 2012).

"A"

This and the following ..5... pages is the annexure
marked "...A..." in the affidavit of Simon Kwok.....
.....sworn/affirmed at
Sydney..... this *10th* day
of *January* 20 *22* Before me:

Justice of the Peace/Solicitor



Government Gazette

of the State of
New South Wales

Number 122
Friday, 12 June 2020

The New South Wales Government Gazette is the permanent public record of official NSW Government notices. It also contains local council, non-government and other notices.

Each notice in the Government Gazette has a unique reference number that appears in parentheses at the end of the notice and can be used as a reference for that notice (for example, (n2019-14)).

The Gazette is compiled by the Parliamentary Counsel's Office and published on the NSW legislation website (www.legislation.nsw.gov.au) under the authority of the NSW Government. The website contains a permanent archive of past Gazettes.

To submit a notice for gazettal, see Gazette Information.

GOVERNMENT NOTICES

Other Government Notices

LOCAL GOVERNMENT ACT 1993

Order under section 438I

Suspension of Armidale Regional Council

I, the Honourable Shelley Hancock MP, Minister for Local Government, do, by this order pursuant to section 438I of the *Local Government Act 1993* (the Act) suspend Armidale Regional Council for a period of three months from the commencement of this order.

Further, pursuant to section 438M of the Act, I hereby appoint Mr VHR (Viv) May PSM as interim administrator of the Council for the period during which the Council is suspended by this order.

This order takes effect upon publication in the New South Wales Government Gazette.

Signed this 11th day of June 2020.

The Hon. Shelley Hancock, MP
Minister for Local Government

Reference number: (n2020-1772)

LOCAL GOVERNMENT ACT 1993

Order under section 318B

I, the Hon. Shelley Hancock MP, Minister for Local Government, in pursuance of section 318B(1)(a1) of the *Local Government Act 1993* (Act), do hereby order that the election requirements of the Act in relation to the ordinary election due to be held on 12 September 2020 for all councils in New South Wales be postponed from the date of this order until twelve months after this order is made by reason that I believe, having regard to the COVID-19 pandemic, it is reasonable in the circumstances to order the postponement.

Dated this 11th day of June 2020.

SHELLEY HANCOCK MP
Minister for Local Government

[Note: It is anticipated that a further order will be made at a later date appointing a date in September 2021 following advice from the NSW Electoral Commissioner]

Reference number: (n2020-1773)



Government Gazette

of the State of

New South Wales

Number 136

Monday, 29 June 2020

The New South Wales Government Gazette is the permanent public record of official NSW Government notices. It also contains local council, non-government and other notices.

Each notice in the Government Gazette has a unique reference number that appears in parentheses at the end of the notice and can be used as a reference for that notice (for example, (n2019-14)).

The Gazette is compiled by the Parliamentary Counsel's Office and published on the NSW legislation website (www.legislation.nsw.gov.au) under the authority of the NSW Government. The website contains a permanent archive of past Gazettes.

To submit a notice for gazettal, see Gazette Information.

LOCAL GOVERNMENT ACT 1993

Order under section 318B

I, the Hon. Shelley Hancock MP, Minister for Local Government, in pursuance of sections 318B(1)(a1) and 318(2)(b) of the *Local Government Act 1993* (Act), do hereby further order that the election requirements of the Act in relation to the ordinary election that was due to be held on 12 September 2020 for all councils in New South Wales and which, by order made under section 318B(1)(a1) of the Act on 12 June 2020 was postponed for twelve months after that order was published, be further postponed to 4 September 2021.

This further order is made by reason of my belief, having regard to the continuance of the COVID-19 pandemic, that it is reasonable in the circumstances to order the extending of the postponement.

For the avoidance of doubt, the postponement of the ordinary election extends to and suspends an election requirement for a by-election referred to in section 292 of the Act arising between the date of this Order and the date of the ordinary election to be held on 4 September 2021.

Dated this 26th day of June 2020.

SHELLEY HANCOCK MP
Minister for Local Government

Reference number:(n2020-2086)



Government Gazette

of the State of

New South Wales

Number 347—Local Government

Saturday, 24 July 2021

The New South Wales Government Gazette is the permanent public record of official NSW Government notices. It also contains local council, non-government and other notices.

Each notice in the Government Gazette has a unique reference number that appears in parentheses at the end of the notice and can be used as a reference for that notice (for example, (n2019-14)).

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To submit a notice for gazettal, see the Gazette page.

LOCAL GOVERNMENT ACT 1993

Order under section 318C

I, the Hon. Shelley Hancock MP, Minister for Local Government, in pursuance of section 318C of the *Local Government Act 1993* ("the Act"), do hereby revoke the Order made on 26 June 2020 which postponed the election requirements of the Act for all councils in New South Wales to 4 September 2021.

I hereby appoint 4 December 2021 as the day on which the ordinary elections for all councils in New South Wales are to be held.

I also hereby appoint 4 December 2021 as the day on which any by-elections for any council in New South Wales, which are required to be held to fill any casual vacancy in the office of a councillor or a mayor arising between the date of this Order and 4 December 2021, are to be held. For the avoidance of doubt, the effect of this order is that the casual vacancy would be filled by the ordinary election for that council to be held on 4 December 2021.

This Order does not apply in relation to elections for the Central Coast Council. I made a further order on 8 June 2021, pursuant to section 318B of the Act, further postponing the election requirements for that council for 12 months after the date of the making of that order. That order remains in force.

Dated this 24th day of July 2021.



SHELLEY HANCOCK MP

Minister for Local Government

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[Results by Local
Government Area](#)
[Kempsey](#)[Mayoral](#)[Councillor](#)
[Status of Results by
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[Contest Counting
Schedule](#)

Kempsey Councillor Election

Kempsey - Candidates in Sequence of Election

Last Updated On: 22/12/2021 12:30**Candidates to be Elected:** 8**Counts Required:** 19**Quota:** 1,801

Candidate Name	Group	Group Name	Count Elected (#)
FERGUSSON Simon	A		1
CAMPBELL Liz			1
CRAIGIE V	B		7
BAIN Arthur			13
WYATT Alexandra			16
FREEMAN Joshua *	A		19
RIDDINGTON Kerri *			19
PATTERSON Anthony *			19

Candidate(s) marked with an asterisk were elected without reaching quota.

Candidates elected at the same count are displayed in the order they appear on the ballot paper.

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[Results by Local
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[City of Shellharbour](#)
[Mayoral](#)
[Ward A](#)
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[Status of Results by
Contest Type](#)
[Contest Counting
Schedule](#)

City of Shellharbour Councillor Election

City of Shellharbour Ward A - Candidates in Sequence of Election

Last Updated On: 22/12/2021 10:46

Candidates to be Elected: 2

Counts Required: 3

Quota: 4,380

Candidate Name	Group	Group Name	Count Elected At
MARSH Kellie	A		1
EDWARDS Maree *	B	LABOR	3

Candidate(s) marked with an asterisk were elected without reaching quota.

Candidates elected at the same count are displayed in the order they appear on the ballot paper.

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[Results by Local
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[Councillor](#)
[Status of Results by
Contest Type](#)
[Contest Counting
Schedule](#)

Singleton Councillor Election

Singleton - Candidates in Sequence of Election

Last Updated On: 22/12/2021 11:32

Candidates to be Elected: 9

Counts Required: 11

Quota: 1,275

Candidate Name	Group	Group Name	Count Elected At
ADAMTHWAITE Godfrey			1
THOMPSON Danny			1
MCLACHLAN Malinda (Mel)			1
JARRETT Tony			1
CHARLTON Belinda			7
JENKINS Hoffee			10
GEORGE Sue *			11
McNAMARA Tony *			11
SCOTT Val *			11

Candidate(s) marked with an asterisk were elected without reaching quota.

Candidates elected at the same count are displayed in the order they appear on the ballot paper.

Technology Assisted Voting

Approved procedures for NSW state and local government elections

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Definitions and abbreviations

Term	Definition
Approved procedures	The procedures approved by the Electoral Commissioner under section 155 of the Electoral Act and section 333F of the Local Government Regulations.
Area	A local government area, including reference to a ward in that area as applicable.
District	A district for the election of a member to serve in the Legislative Assembly. For the purpose of a local government election, a reference to a district in the approved procedures includes reference to an area.
Election Manager	A person appointed by the Electoral Commissioner under the Electoral Act for an election in a district. For the purpose of a local government election, a reference to an election manager in the approved procedures includes reference to a returning officer.
Electoral Act	<i>Electoral Act 2017 (NSW).</i>
Electoral Regulations	<i>Electoral Regulation 2018 (NSW)</i>
Electoral Board	The body appointed by the Electoral Commissioner to control the iVote system encryption/decryption process.
Electoral Commissioner	The Electoral Commissioner for NSW appointed under the Electoral Act.
Eligible elector	An elector who meets any of the eligibility requirements for technology assisted voting by way of the iVote system under section 152 of the Electoral Act for a state election or section 333C of the Local Government Regulations for a local government election.
iVote Number	A unique eight-digit number for each elector who applied to use the iVote system.
iVote system	The voting system that enables technology assisted voting.
Local government election	An election or by-election as defined by the <i>Local Government Act 1993 (NSW)</i> that is administered by the Electoral Commissioner, other than a countback election.
Local Government Regulations	<i>Local Government (General) Regulation 2021 (NSW).</i>
NSW Electoral Commission	The NSW Electoral Commission Staff Agency established under the <i>Government Sector Employment Act 2013.</i>

Term	Definition
Password	A password of at least 10 characters, as chosen by an eligible elector when applying to use iVote.
PIN	A 10-digit Personal Identification Number, as chosen by an eligible elector when applying to use iVote.
Polling place	Premises appointed for the purpose of taking the poll at a local government election.
Returning Officer	A person appointed by the Electoral Commissioner under the <i>Local Government Act 1993</i> (NSW) for an election in an area.
State election	An election or by-election as defined by the Electoral Act.
Verification Service	A service that allows a voter to confirm that their vote is recorded in the iVote system as they cast it.
Voting centre	Premises appointed for the purpose of taking the poll at a state election. For the purpose of a local government election, a reference to a voting centre in the approved procedures includes reference to a polling place.

Introduction

The Electoral Act and the Local Government Regulations provide for voting by eligible electors at state and local government elections by means of technology assisted voting.

The Electoral Commissioner has procured and developed a system for technology assisted voting known as the iVote^{®1} system.

To facilitate use of the iVote system, the Electoral Commissioner may approve procedures in relation to technology assisted voting.² The approved procedures must be consistent with a number of specified characteristics, which are:

- they must provide for elector registration
- they must provide for a record of electors who have voted using the system
- they must provide for authentication of votes
- they must provide for the secrecy of votes
- they must provide for secure transmission and storage of votes
- they must provide for the creation of an image file of a ballot paper for each vote cast if required for the purposes of the scrutiny
- for local government elections, they must provide for the way information about the votes is communicated to the Election Manager.

This document contains the procedures approved by the Electoral Commissioner for the use of the iVote system at any election until new procedures are approved.

These procedures must be published on the NSW Electoral Commission's website.

The iVote system is available to electors who:

1. meet the eligibility requirements;³
2. appear on the authorised roll of electors prepared in relation to the election; and
3. apply to use the iVote system.

Other documents relevant to iVote procedures

Additional eligibility requirements

The Electoral Commissioner is authorised to impose additional eligibility requirements for technology assisted voting by way of order published on the NSW legislation website.⁴ This includes during an election period.

At the time of publication of these procedures, there were no such orders in force.

Limitations on eligibility

For state elections, the Electoral Regulations may limit the classes of electors who may be eligible for technology assisted voting.⁵

At the time of publication of these procedures, there were no such regulations in force.

¹ Registered trademark of the State of NSW (New South Wales Electoral Commission).

² Electoral Act, s 155; Local Government Regulations, s 333F.

³ Electoral Act, s 152; Local Government Regulations, s 333C.

⁴ Electoral Act, s 152(2); Local Government Regulations, s 333C(2).

⁵ Electoral Act, s 152(3).

Other procedures for technology assisted voting

For state elections, the Electoral Regulations may also make provision for or with respect to:

- a. the technology assisted voting method that may be authorised under the approved procedures;
- b. the period during which voting by eligible electors using technology assisted voting is permitted (including a period before polling day);
- c. the appointment by the Electoral Commissioner of officers to facilitate voting by means of technology assisted voting;
- d. the independent auditing of the secrecy and authenticity of voting by means of technology assisted voting at any election;⁶
- e. the provision of registered how-to-vote cards⁷ in an electronic form to eligible electors voting at an election by means of technology assisted voting; and
- f. provide that technology assisted voting is not to be used at a specified election.⁸

At the time of publication of these procedures, there were no such regulations in force.

Determination not to use technology assisted voting at an election

The Electoral Commissioner is authorised to determine that technology assisted voting is not to be used at a specified election.⁹

At the time of publication of these procedures, there were no such determinations in force.

Publication of related documents

In the event any regulations, orders or determinations are made that impact upon these procedures after they are published, a link to those documents will be made available on the NSW Electoral Commission's website together with these procedures.

Approved procedures

1. Electoral Board for Technology Assisted Voting

For each election, the Electoral Commissioner is to:

- a. determine the number of members and the quorum of the Electoral Board,
- b. appoint the Electoral Board from senior officers of the NSW Electoral Commission to control the iVote encryption/decryption process,
- c. ensure each member of the Electoral Board holds a share of the cryptographic key to open the iVote ballot box and that a quorum of the Board will always hold sufficient shares to open it,
- d. be a member of the Electoral Board.

2. Applying to use Technology Assisted Voting

1. The application period for iVote at an election will be published on the NSW Electoral Commission's website,
2. A person must apply to use the iVote system by either:

⁶ Electoral Act, s 161.

⁷ Being how-to-vote cards that are registered as electoral material under Subdivision 6 of Division 14 of the Electoral Act.

⁸ Electoral Act, s 161(3).

⁹ Electoral Act, s 162, Local Government Regulations, s 333L.

- a. using a web based application service on the NSW Electoral Commission website; or
 - b. telephoning the NSW Electoral Commission Call Centre.
3. At the time of applying the applicant must provide:
- a. details that identify them as being enrolled for the district, i.e., their name, date of birth and address;
 - b. the iVote system channel they wish to use, i.e. iVote by Web or iVote by Phone (refer to Section 6 Voting method); and
 - c. a Password if they intend to vote using the iVote by Web or a PIN if they intend to vote using the iVote by Phone channel.
- Note:** Either iVote system channel may not be available at an election.
- Note:** A silent elector can only apply by telephoning the NSW Electoral Commission Call Centre and will identify themselves on the roll of electors by providing their enrolment details to a Call Centre operator with special access rights.
4. The applicant will be advised if the details they have provided can be matched with an elector on the roll of electors for the relevant election. The applicant must then make a declaration that they are that elector and are eligible to use iVote by affirming the contents of a declaration displayed on the screen, or by listening to a declaration that is read to the applicant by the Call Centre operator and affirming the declaration verbally. For online applications, the declaration must be in the following form:
- I declare I am the person identified above.*
5. For call centre assisted applications, an applicant must answer "Yes" to the following question that is put to them by the Operator:
- Do you declare that you are the person identified?*
6. After enrolment has been confirmed, an applicant must specify the ground on which they are making the application. An applicant will only be able to nominate one of the following grounds to demonstrate their eligibility to use iVote:
- a. I am blind or have low vision
 - b. I have a disability which would make it difficult to vote at a voting centre
 - c. I have literacy needs
 - d. I live more than 20 kilometres from a voting centre
 - e. I am a silent elector
 - f. For a state election, I will be interstate throughout the hours of voting on election day
 - g. For a state election, I will be overseas throughout the hours of voting on election day
 - h. For a state by-election, I will not throughout the hours of voting on election day be within the electoral district concerned
 - i. For a local government election, I will be outside of my council area during election day
 - j. I am a registered early voter (technology assisted voting)
 - k. For a local government election, I have applied for a postal vote but have not received my postal ballot papers.
- Note:** Ground 'k' is only available to select from 5pm on the 8th day before election day.

7. At the time of approval of these procedures, there are no registered early voters (technology assisted voting).
8. Persons who apply for iVote under paragraph 6 d. above can only apply online if they are enrolled in a district which the Electoral Commissioner has determined to be of a geographical size where it is possible that an elector's residence is not within 20 kilometres, by the nearest practicable route, of a voting centre.
9. The districts determined by the Electoral Commissioner under paragraph 8 above are at **Appendix 1** and will be published on the NSW Electoral Commission website for each election.
10. Persons who apply under paragraph 6 d. above, but are not enrolled in a district as determined by the Electoral Commissioner under paragraph 8, may contact the NSW Electoral Commission Call Centre to determine their eligibility and apply by phone.
11. During the application process, secondary confirmation of identity will be invited from the applicant, e.g., an Australian Driver Licence number, Australian Passport number or Medicare number. This secondary identity information will be used by the NSW Electoral Commission to confirm the applicant is the elector.
12. Electors who forget their Password or PIN can reset it online via the iVote Reset Portal or by telephoning the NSW Electoral Commission Call Centre before the close of voting for the relevant election.

3. Acknowledgement of application

1. If the secondary identity information described above is not provided, the application will still be processed but the elector will be sent a letter by the NSW Electoral Commission acknowledging receipt of the iVote application. If the applicant successfully provides the secondary identity information, the NSW Electoral Commission will not send an acknowledgement letter to the elector's enrolled address. An acknowledgement letter is also sent when an elector resets their Password or PIN.

4. Cancellation and blocking of applications

1. Electors may cancel their application via the NSW Electoral Commission Call Centre.
2. An elector seeking cancellation of their application will receive a letter confirming the cancellation, which will be sent to the elector's enrolled address.
3. Cancelling an application does not prevent the elector from subsequently re-applying.
4. An elector will be blocked from applying online where the elector fails to correctly provide their enrolled address (postcode, suburb/locality and street) during the application process.
5. Blocking an elector prevents the elector from applying via the Internet; however, the elector can still apply via the NSW Electoral Commission Call Centre.

5. Registration of eligible electors and distribution of the iVote Number

1. Eligible electors whose applications are successful will be registered by the NSW Electoral Commission to vote using iVote.
2. These registered electors will receive an iVote Number either by SMS or email.
3. Electors who have lost their iVote Number can have it re-sent online via the iVote Reset Portal or by telephoning the NSW Electoral Commission Call Centre.

6. Voting method

1. A registered elector may only access the iVote system by entering the Password or PIN they provided at the time of application with the iVote Number provided by the NSW Electoral Commission.

2. The iVote system may be accessed for voting by two channels:
 - a. iVote by Web, which offers two options:
 - i. using a computer, tablet or smartphone to cast the vote, where the elector logs in using their iVote number and Password, selects their preferences and then submits the vote; or
 - ii. by calling the NSW Electoral Commission Voting Call Centre, where an election official (other than the NSW Electoral Commission Call Centre operator who took the application call) will answer the call and enter the voter's iVote number and Password and ballot preferences into the iVote system on the elector's behalf. All actions will be recorded and verified by another election official.
 - b. iVote by Phone, using an automated touch-tone telephone IVR (Interactive Voice Response) system to cast the vote, where the user is guided through the voting process through voice prompts and interacts with the system via the keypad of the telephone.

Note: The iVote by Phone IVR service is not currently available for local government elections.
3. The elector can confirm their preferences prior to the vote being committed to the iVote system.
4. If there is any doubt as to the authenticity of a vote cast, or if the system indicates that it is a duplicate vote, the **Electoral Commissioner or the Commissioner's delegate** may reject the vote by removing it from the iVote system. This process will occur prior to the decryption of votes.
5. The rejection of any votes in the iVote system will be open to observation by appointed scrutineers and the independent auditor. A record of all rejected votes will be retained, together with the evidence on which the rejection was based. All votes that were rejected will not be decrypted and will not be admitted to the count.
6. The iVote system will limit the elector to voting in the following ways:
 - a. Preferences may only be recorded as numeric values in a sequential order starting from the number 1, or for a referendum ballot for a state election or a constitutional referendum or council poll ballot for a local government election the elector may only select 'Yes' or 'No'.
 - b. Ballots with group voting squares may only have preferences recorded for one or more above the line groups, or for one or more below the line candidates, but preferences cannot be recorded for both.
 - c. The iVote System will not permit the casting of an informal vote other than if no preferences are recorded on the ballot.
 - d. The elector will receive an explicit warning when any of their ballot papers have been completed and they have recorded fewer than the minimum number of preferences required. The warning will advise them that:
 - a) their vote is not complete and the relevant ballot will be treated as blank if submitted;
 - b) they have an opportunity to return to complete the ballot before submitting;
 - c) if they proceed to submit the incomplete ballot, it will be treated as blank and regarded as an informal ballot.

7. Voting instructions

iVote by Web

1. The voting instructions for the iVote by Web service are at **Appendix 2**.
2. The instructions when accessing iVote by Web may also be available in selected languages to assist electors who do not use English as their first language.

iVote by Web – call centre assisted

3. The voting instructions for the iVote by Web – call centre assist service are at **Appendix 3**.

iVote by Phone

4. The voting instructions for the iVote by Phone IVR service are at **Appendix 4**.

Note: The iVote by Phone IVR service is not currently available for local government elections.

8. Spoken candidate and party names

1. The NSW Electoral Commission will record the names of candidates and any affiliations as they appear on the ballot paper in the order first name, last name. All names will be spoken by the same professional voice actor in an even tone without emphasis.
2. All recorded candidate names will be made available on the NSW Electoral Commission website. They will be made available as nominations are published. Where practicable, all recordings will be completed and available by 6.00 pm on the Friday after the close of nominations.
3. Candidates will be referred to the NSW Electoral Commission website to check their details and listen to the recording of their name to ensure correct pronunciation.
4. If a name is incorrectly pronounced and the candidate contacts the NSW Electoral Commission to advise the correct pronunciation, that name will be re-recorded and replaced in the iVote system. The deadline for NSW Electoral Commission to receive advice correcting pronunciation will be 6.00 pm on the Saturday prior to the start of voting using iVote or as otherwise advised to the candidates by NSW Electoral Commission.
5. There can be no subsequent changes made to the recorded name.

Note: The NSW Electoral Commission cannot guarantee correct pronunciation of any candidate name and can only provide the best pronunciation within the limits of the selected voice actor.

9. Voting period

1. The voting period for eligible electors will be publicised on the NSW Electoral Commission website.
2. Voting using the iVote system closes at 6.00 pm election day.
3. Any elector connected to the iVote system during the voting period may remain connected up to 30 minutes after the close of the voting period at 6.00 pm on Election Day to complete their vote.

10. Recording, transmission and storage of the vote

1. The iVote system will make a record of each elector who has voted in the following manner:
 - a. At the time of application the elector provides either a Password or a PIN. The Password\PIN is immediately cryptographically hashed and then encrypted within the web browser and sent to the Registration System component of the iVote System.
 - b. A unique credential is generated including the elector's iVote Number and the cryptographically hashed Password\PIN. The district for which the elector is enrolled is attached to this credential.
 - c. When an elector accesses the iVote system to cast their vote, they are prompted to enter their iVote number and either their Password or PIN, which are validated to the stored credential. The elector receives one of more ballots corresponding to their district. For example, for a state election an elector receives a Legislative Assembly ballot, a Legislative Council ballot if it is a general election, and a referendum ballot if applicable at the election.

- d. The iVote system stores a list of the credentials used to cast ballots. The separate Credential Management component is able to connect each credential with an individual elector. This enables NSW Electoral Commission to prevent multiple voting.
2. Technology assisted votes will be securely transmitted in the following manner:
- a. iVote by Web uses HyperText Transfer Protocol Secure (HTTPS) and HTTP Strict Transport Security for connection to the iVote system. This ensures that all information is encrypted between the elector and the iVote system.

Additionally, within the secure connection, the actual vote preferences are also encrypted within the voter's web browser before transmission to the server.
 - b. iVote by Phone (IVR) uses the public telephone network to connect calls via a carrier that provides a secure data connection from their facility to the iVote system.

11. Authentication of votes

- 1. The iVote system will ensure that votes cast can be authenticated in the manner set out in this section.
- 2. The iVote system shall provide an elector with a receipt at the conclusion of their voting session.
 - a. The receipt is stored within the iVote System as part of the encrypted vote.
 - b. No identifying information about the elector or the vote preferences can be extracted from the receipt.
 - c. Electors can check that their vote is held in the iVote system by accessing the iVote receipt checking website and searching for their receipt. This service is available during voting and for a period after the election.
- 3. The iVote system shall provide electors with the option of verifying their vote has been correctly stored as they cast it. Electors have one hour to verify upon submitting their vote.
 - a. Electors casting their vote using iVote by Web are shown a QR code (matrix barcode) on their web browser on submission of their vote.
 - i. Electors can scan the QR code with a second device using the iVote Verification Application made available by NSW Electoral Commission for both iOS and Android devices.
 - ii. Electors will then have to enter their iVote Number and Password.
 - iii. **The iVote Verification Application will display the elector's preferences.**
 - iv. Electors can use the iVote Verification Application to indicate if their vote is not as they cast it.
 - v. The elector can contact the NSW Electoral Commission Call Centre to re-apply to vote again if their vote is not as they cast it; their incorrect vote will be set aside and excluded from the count.
 - b. Electors casting their vote using iVote by Phone (IVR) can call the iVote telephone verification service.
 - i. Electors calling the iVote telephone verification service will have to enter their iVote Number and PIN.
 - ii. The iVote telephone verification service will repeat back their vote preferences.
 - iii. Electors can indicate if their vote is not as they cast it.
 - iv. The elector can be transferred to the NSW Electoral Commission Call Centre to re-apply to vote again if their vote is not as they cast it; their previous vote will be set aside and excluded from the count.

4. At the conclusion of the election the fully encrypted ballots, which include receipts, are exported from the iVote system for decryption. The receipts from decrypted votes will be compared against the receipts held separately for checking by voters, as part of the audit process.

12. Secrecy of vote

1. In conjunction with the secure transmission and storage of the vote, the following also applies to maintain the secrecy of technology assisted votes:
 - a. On completion of a vote the ballots are encrypted and stored with all other ballots. The unique credential is linked to each encrypted vote which allows it to be linked to the elector, but only through separated components of the iVote system;
 - b. encrypted ballots can only be decrypted and viewed in the presence of the Electoral Board;
 - c. before decryption, all ballots are separated from the unique credential so they cannot be linked to the elector;
 - d. the data in the separate Credential Management component that links the unique credential to the elector is destroyed; and
 - e. as part of the decryption process, the ballots are randomised so that the order of the votes cannot be used to link them to electors.

13. Including the votes in the NSW Electoral Commission count systems

1. The votes shall be decrypted and transmitted into the NSW Electoral Commission count systems in the following manner:
 - a. Following the close of voting on Election Day, the Electoral Board will assemble to allow the iVote system to decrypt the stored votes.
 - b. The decryption process allows for the randomisation of the votes prior to decryption, in a way that is mathematically verifiable.
 - c. All ballots when decrypted, are saved in a format that is capable of being viewed or printed if required for the purposes of the scrutiny.
 - d. All ballots are transmitted electronically to the NSW Electoral Commission computer count system. The Election Manager obtains the information about the votes recorded on the ballots from the computer count system to ascertain the result of the count.
2. The number of valid votes transmitted into the NSW Electoral Commission count system/s shall be verified by the NSW Electoral Commission in the following manner:
 - a. Once decrypted at the close of the election, ballots cast via the iVote system are counted by the NSW Electoral Commission.
 - b. The following procedure of comparing the receipts of all ballots cast via the iVote Voting System with the receipts stored by the iVote Assurance System will occur within 48 hours of the decryption:
 - i. the receipts from the Assurance System will be downloaded;
 - ii. the receipts that accompany each encrypted vote from the iVote Voting System and, in addition, any receipts that belong to any cast but rejected vote in the iVote Voting system will be downloaded (note that rejected votes will not be decrypted); and
 - iii. the two sets of receipts sorted and matched, to confirm both sets contain the same receipts.
3. The Electoral Commissioner may also appoint suitably qualified individuals to perform this comparison independently of that performed by the NSW Electoral Commission. Such individuals may also be asked to independently verify the NSW Electoral Commission's count of ballots cast via the iVote system.

14. Scrutineers

1. The Electoral Commissioner will provide to candidates and Registered Political Parties a written timetable of the events that scrutineers can attend.
 - a. Prior to the start of voting, scrutineers will be able to observe the process of securing the iVote system, the casting of test votes, verification of those test votes, the decryption of the test votes and the confirmation that the test votes entered into iVote match those output.
 - b. After the close of voting scrutineers will be able to observe the process of decrypting the votes in iVote and submitting them to the count.
2. Scrutineers must be appointed by a candidate or a Registered Political Party as provided for by the Electoral Act or the Local Government Regulations.

15. Independent auditing

1. The Electoral Commissioner must appoint an independent auditor to conduct audits of the information technology used under the approved procedures.¹⁰
2. The independent auditor will determine whether test votes cast in accordance with the approved procedures are accurately reflected in the corresponding test ballot papers.
3. The NSW Electoral Commission will provide access to all procedures and requests by the independent auditor.
4. The Electoral Commissioner will publish the acceptance of the report on the NSW Electoral Commission website.
5. The audit plan and the controls to be tested will be published on the NSW Electoral Commission website prior to the initial audit report.
6. For state elections, the independent auditor is to report to the Electoral Commissioner at least seven days before voting commences and again within 60 days of the return of the writs.
7. For ordinary local government elections, the independent auditor is to report to the Electoral Commissioner at least seven days before voting commences and again within 60 days after the last declaration of a result. For a local government by election, the independent auditor is to report within 60 days after the declaration of the result.

16. Independent monitoring

1. The Electoral Commissioner may appoint one or more independent persons to monitor and observe the technology assisted voting process at an election, including the counting of votes cast by means of technology assisted voting and the general operation of the technology assisted voting process.

17. Additional integrity measures required for individuals involved with iVote

1. Any person handling iVote ballots (whether printed, encrypted, decrypted or plain-text) is to be appointed as an election official under the Electoral Act or the Local Government Regulations.
2. Any NSW Electoral Commission staff or election officials with access to the iVote source code or other security aspects of the computer infrastructure and sub-systems must also sign an acknowledgement of their obligations as to secrecy related to technology assisted voting and protection of computer hardware and software.

¹⁰ Electoral Act, s 156; Local Government Regulations, s 333G.

Appendix 1. Districts where possible eligible elector not within 20 kilometres of a voting centre

1. The following districts are of a geographical size where it is possible that the residence of an elector enrolled within that district is not within 20 kilometres, by the nearest practicable route, of a voting centre.
2. An elector enrolled in those districts who claims eligibility for technology assisted voting on the ground that the elector's residence is not within 20 kilometres, by the nearest practicable route, of a voting centre, is permitted to apply online by using the web-based application service available on the NSW Electoral Commission website.

State elections

ALBURY	DUBBO	NORTHERN TABLELANDS
BARWON	GOULBURN	ORANGE
BATHURST	HAWKESBURY	OXLEY
BEGA	KIAMA	SOUTH COAST
BLUE MOUNTAINS	LISMORE	TAMWORTH
CESSNOCK	MONARO	UPPER HUNTER
CLARENCE	MURRAY	WAGGA WAGGA
COOTAMUNDRA	MYALL LAKES	WOLLONDILLY

Local government elections

ARMIDALE REGIONAL	BATHURST REGIONAL	BEGA VALLEY
BELLINGEN	BERRIGAN	BLAND
BLAYNEY	CITY OF BLUE MOUNTAINS	BOGAN
BOURKE	BREWARRINA	BYRON
CARRATHOOL	CITY OF CESSNOCK	CLARENCE VALLEY
COBAR	CITY OF COFFS HARBOUR	COOLAMON
COONAMBLE	COOTAMUNDRA-GUNDAGAI REGIONAL	COWRA
DUBBO REGIONAL	DUNGOG	EDWARD RIVER
EUROBODALLA	FEDERATION	FORBES
GILGANDRA	GLEN INNES SEVERN SHIRE	GOULBURN MULWAREE
GREATER HUME SHIRE	CITY OF GRIFFITH	GUNNEDAH
GWYDIR	CITY OF HAWKESBURY	HAY
HILLTOPS	INVERELL	JUNEE
KEMPSEY	KIAMA	KYOGLÉ
LACHLAN	LEETON	CITY OF LISMORE
CITY OF LITHGOW	LIVERPOOL PLAINS	LOCKHART
MID-COAST	MID-WESTERN REGIONAL	MOREE PLAINS
MURRAY RIVER	MURRUMBIDGEE	MUSWELLBROOK
NAMBUCCA VALLEY	NARRABRI	NARRANDERA
NARROMINE	OBERON	PARKES
PORT MACQUARIE-HASTINGS	QUEANBEYAN-PALERANG REGIONAL	RICHMOND VALLEY
CITY OF SHOALHAVEN	SINGLETON	SNOWY MONARO REGIONAL
SNOWY VALLEYS	TAMWORTH REGIONAL	TEMORA
TENTERFIELD	TWEED	UPPER HUNTER SHIRE
UPPER LACHLAN SHIRE	URALLA	CITY OF WAGGA WAGGA
WALCHA	WALGETT	WARREN
WARRUMBUNGLE SHIRE	WEDDIN	WENTWORTH
WINGECARRIBEE	WOLLONDILLY	YASS VALLEY

Appendix 2. iVote by Web voting instructions

Legislative Assembly

1. The following words will replace the ballot paper instructions for the Legislative Assembly for the iVote by Web service:

Directions for Voting

Click on the square next to 1 candidate of your choice.

If you wish to vote for more candidates, click on the squares of the candidates in order of your preferences for them.

The first candidate's square you click will be number 1, the second square you click will be number 2, and so on.

You can also press the tab key to move between squares and then press the space bar to select your choice(s).

More Actions available below the ballot paper on this page are:

- *Undo last choice - removes your most recent choice*
- *Clear all choices - clears all choices from this ballot paper*
- *My choices - displays choices selected*
- *Previous page - returns to the previous page*
- *Continue - saves choices and goes to next page*

2. There will be a special version of instructions when accessing iVote by Web using a mobile device due to the smaller screen sizes, as follows:

Directions for Voting

Tap on the square next to 1 candidate of your choice.

If you wish to vote for more candidates, tap on the squares of the candidates in order of your preferences for them.

The first candidate's square you tap will be number 1, the second square you tap will be number 2, and so on.

More Actions available below the ballot paper are:

- *Undo last choice - removes your most recent choice*
- *Clear all choices - clears all choices from this ballot paper*
- *My choices - displays choices selected*
- *Previous page - returns to the previous page*
- *Continue - saves choices and goes to next page*

Legislative Council

- The following words will appear on the ballot paper instructions for the Legislative Council for the iVote by Web service:

Directions for Voting

You may vote in one of two ways: either Above the Line for a group of candidates, or Below the Line for individual candidates.

Above the Line

Click on the square next to 1 Group of your choice.

If you wish to vote for more groups, click on the squares of the groups in order of your preferences for them.

The first group's square you click will be number 1, the second square you click will be number 2, and so on.

You can also press the tab key to move between squares and then press the space bar to select your choices.

There are [number of groups] Groups Above the Line.

Below the Line

Click on the square(s) next to 15 candidate(s) of your choice.

If you wish to vote for more candidates, click on the squares of the candidates in order of your preferences for them.

The first candidate's square you click will be number 1, the second square you click will be number 2, and so on.

You can also press the tab key to move between squares and then press the space bar to select your choices.

There are [number of groups] groups Below the Line and a column of ungrouped candidates at the far right of the ballot paper

- There will be a special version when accessing iVote by Web using a mobile device due to the smaller screen sizes. The instructions for this will be:

Directions for Voting

You may vote in one of two ways: either Above the Line for a group of candidates, or Below the Line for individual candidates.

Above the Line

Tap on the square next to 1 Group of your choice.

If you wish to vote for more groups, tap on the squares of the groups in order of your preferences for them.

The first group's square you tap will be number 1, the second square you tap will be number 2, and so on.

There are [number of groups] Groups Above the Line.

Below the Line

Tap on the square(s) next to 15 candidate(s) of your choice.

If you wish to vote for more candidates, tap on the squares of the candidates in order of your preferences for them.

The first candidate's square you tap will be number 1, the second square you tap will be number 2, and so on.

There are [number of groups] groups Below the Line and a column of ungrouped candidates at the far right of the ballot paper

Referendum (state elections)

5. The following words will appear on the ballot paper instructions for the Referendum paper for the iVote by Web service:

The question(s) below requires a "Yes" or "No" answer.

Click the button next to your answer. To remove your selection, click the button again.

6. There will be a special version when accessing iVote by Web using a mobile device due to the smaller screen sizes. The instructions for this will be:

The question(s) below require(s) a "Yes" or "No" answer.

Tap the button next to your answer. To remove your selection, tap the button again.

Mayor (2 candidates only)

7. The following words will appear on the ballot paper instructions for a Mayoral ballot paper (with 2 candidates only) for the iVote by Web service:

Directions for Voting

Click on the square next to 1 candidate of your choice.

You can also press the tab key to move between squares and then press the space bar to select your choice(s).

More Actions available below the ballot paper on this page are:

- *Undo last choice - removes your most recent choice*
- *Clear all choices - clears all choices from this ballot paper*
- *My choices - displays choices selected*
- *Previous page - returns to the previous page*
- *Continue - saves choices and goes to next page*

There are 2 candidates on this ballot paper.

8. There will be a special version of instructions when accessing iVote by Web using a mobile device due to the smaller screen sizes, as follows:

Directions for Voting

Tap on the square next to 1 candidate of your choice.

More Actions available below the ballot paper are:

- *Undo last choice - removes your most recent choice*
- *Clear all choices - clears all choices from this ballot paper*
- *My choices - displays choices selected*
- *Previous page - returns to the previous page*
- *Continue - saves choices and goes to next page*

There are 2 candidates on this ballot paper.

Mayor (more than 2 candidates)

9. The following words will appear on the ballot paper instructions for a Mayoral ballot paper (with more than 2 candidates) for the iVote by Web service:

Directions for Voting

Click on the square next to 1 candidate of your choice.

If you wish to vote for more candidates, click on the squares of the candidates in order of your preferences for them.

The first candidate's square you click will be number 1, the second square you click will be number 2, and so on.

You can also press the tab key to move between squares and then press the space bar to select your choice(s).

More Actions available below the ballot paper on this page are:

- *Undo last choice - removes your most recent choice*
- *Clear all choices - clears all choices from this ballot paper*
- *My choices - displays choices selected*
- *Previous page - returns to the previous page*
- *Continue - saves choices and goes to next page*

There are [number of candidates] candidates on this ballot paper.

10. There will be a special version of instructions when accessing iVote by Web using a mobile device due to the smaller screen sizes, as follows:

Directions for Voting

Tap on the square next to 1 candidate of your choice.

If you wish to vote for more candidates, tap on the squares of the candidates in order of your preferences for them.

The first candidate's square you tap will be number 1, the second square you tap will be number 2, and so on.

More Actions available below the ballot paper are:

- *Undo last choice - removes your most recent choice*
- *Clear all choices - clears all choices from this ballot paper*
- *My choices - displays choices selected*
- *Previous page - returns to the previous page*
- *Continue - saves choices and goes to next page*

There are [number of candidates] candidates on this ballot paper.

Councillor (no group voting squares)

11. The following words will appear on the ballot paper instructions for the Councillor ballot paper (with no group voting squares) for the iVote by Web service:

Directions for Voting

Click on the square(s) next to [minimum number of preferences to cast a formal vote] candidate(s) of your choice.

If you wish to vote for more candidates, click on the squares of the candidates in order of your preferences for them.

The first candidate's square you click will be number 1, the second square you click will be number 2, and so on.

You can also press the tab key to move between squares and then press the space bar to select your choices.

More Actions available below the ballot paper are:

- *Undo last choice - removes your most recent choice*
- *Clear all choices - clears all choices from this ballot paper*
- *My choices - displays choices selected*
- *Previous page - returns to the previous page*
- *Continue - saves choices and goes to next page*

There are [number of candidates] candidates on this ballot paper.

12. There will be a special version when accessing iVote by Web using a mobile device due to the smaller screen sizes. The instructions for this will be:

Directions for Voting

Tap on the square(s) next to [minimum number of preferences to cast a formal vote] candidate(s) of your choice.

If you wish to vote for more candidates, tap on the squares of the candidates in order of your preferences for them.

The first candidate's square you tap will be number 1, the second square you tap will be number 2, and so on.

More Actions available below the ballot paper are:

- *Undo last choice - removes your most recent choice*
- *Clear all choices - clears all choices from this ballot paper*
- *My choices - displays choices selected*
- *Previous page - returns to the previous page*
- *Continue - saves choices and goes to next page*

There are [number of candidates] candidates on this ballot paper.

Councillor (with group voting squares)

13. The following words will appear on the ballot paper instructions for the Councillor ballot paper (with group voting squares) for the iVote by Web service:

Directions for Voting

You may vote in one of two ways: either Above the Line for a group of candidates, or Below the Line for individual candidates.

Above the Line

Click on the square next to 1 Group of your choice.

If you wish to vote for more groups, click on the squares of the groups in order of your preferences for them.

The first group's square you click will be number 1, the second square you click will be number 2, and so on.

You can also press the tab key to move between squares and then press the space bar to select your choices.

There are [number of groups] Groups Above the Line.

Below the Line

Click on the square(s) next to [minimum number of preferences to cast a formal vote] candidate(s) of your choice.

If you wish to vote for more candidates, click on the squares of the candidates in order of your preferences for them.

The first candidate's square you click will be number 1, the second square you click will be number 2, and so on.

You can also press the tab key to move between squares and then press the space bar to select your choices.

There are [number of groups] groups Below the Line and a column of ungrouped candidates at the far right of the ballot paper

14. There will be a special version when accessing iVote by Web using a mobile device due to the smaller screen sizes. The instructions for this will be:

Directions for Voting

You may vote in one of two ways: either Above the Line for a group of candidates, or Below the Line for individual candidates.

Above the Line

Tap on the square next to 1 Group of your choice.

If you wish to vote for more groups, tap on the squares of the groups in order of your preferences for them.

The first group's square you tap will be number 1, the second square you tap will be number 2, and so on.

There are [number of groups] Groups Above the Line.

Below the Line

Tap on the square(s) next to [minimum number of preferences to cast a formal vote] candidate(s) of your choice.

If you wish to vote for more candidates, tap on the squares of the candidates in order of your preferences for them.

The first candidate's square you tap will be number 1, the second square you tap will be number 2, and so on.

There are [number of groups] groups Below the Line and a column of ungrouped candidates at the far right of the ballot paper

Constitutional referendum and council poll (local government elections)

15. The following words will appear on the ballot paper instructions for the Constitutional Referendum or Council Poll paper for the iVote by Web service:

The question(s) below requires a "Yes" or "No" answer.

Click the button next to your answer. To remove your selection, click the button again.

16. There will be a special version when accessing iVote by Web using a mobile device due to the smaller screen sizes. The instructions for this will be:

The question(s) below requires a "Yes" or "No" answer.

Tap the button next to your answer. To remove your selection, tap the button again.

17. The above instructions when accessing iVote by Web may also be available in selected languages to assist electors who do not use English as their first language.

Appendix 3. iVote by Web – call centre assist

Note: The iVote by Web – call centre assist procedures will be updated before the next state election.

1. The following words will be spoken for the ballot paper instructions for a Mayoral ballot paper during the iVote by Web – call centre assist service.

Mayor

- I now have the Mayor ballot paper on the screen.
 - Unless you know who you wish to vote for, I will read out the Mayor candidates and their affiliation from top to bottom. Then, I will record your preferences.
 - You must indicate 1 preference to cast a formal vote and you may enter as many preferences as there are candidates.
 - **The candidates are...**
 - What is your first preference?
 - Would you like to record another preference?
 - Would you like to record any more preferences?
 - Are you ready to proceed to the next ballot paper?
2. The following words will be spoken for the ballot paper instructions for a Councillor ballot paper during the iVote by Web – call centre assist service.

Councillor (with no group voting squares)

- I now have the <Name of council> Election of N councillors' ballot on the screen.
- Unless you know who you wish to vote for, I will read the Councillor candidates and their affiliation from top to bottom as they appear on the ballot paper. Then, I will record your preferences.
- You must choose at least M candidates to cast a formal vote. You may enter as many preferences as you wish.
- **The candidates are...**
- What is your first preference?
- What is your next preference?

Note: N equals the number of candidates to be elected for this contest.

Note: M equals the number of minimal preferences required to cast a formal vote.

Councillor (with group voting squares)

- For this Councillor ballot paper, you may vote in one of two ways: either Above the Line for a group of candidates or Below the Line for individual candidates.
- Would you like to vote above or below the line?

Voting Above the Line

- Unless you know who you wish to vote for, I will read out the groups, left to right. Then, I will record your preferences.
- You must choose one group to cast a formal vote, then you may vote for more groups if you wish.

- I now have the <Name of council> Election of N councillors' ballot on the screen.
- The groups are...
- What is your first preference?
- Would you like to record another preference?

Voting Below the Line

- Unless you know who you wish to vote for, I will read out the group and their respective candidates as they appear on the ballot paper.
- You must choose M preferences to cast a formal vote, then you may vote for more candidates if you wish.
- I now have the <Name of council> Election of N councillors' ballot on the screen.
- The candidates are...
- Who is your first preference?
- Would you like to record another preference?
- You have selected enough preferences to cast a formal vote. You may continue to vote for further candidates.
- Would you like to record any more preferences?
- What is your next preference?

Note: N equals the number of candidates to be elected for this contest.

Note: M equals the number of minimal preferences required to cast a formal vote.

3. The following words will be spoken for the ballot paper instructions for a Constitutional Referendum or Council Poll paper during the iVote by Web – call centre assist service.

Constitutional referendum and council poll

- I now have the <Name of council> <Referendum of Poll> on the screen.
- This ballot paper requires a yes or no answer.
- I will read the question to you...
- Which option would you like to choose – yes or no?
- Confirming I have recorded your response as...

Appendix 4. iVote by Phone voting instructions

4. The following words will be heard for the Legislative Assembly ballot paper instructions by way of the iVote by Phone IVR service.

Legislative Assembly

- You are now allocating your preferences for the Legislative Assembly ballot. This ballot is for the District of [district name] and contains [N] candidates, which are listed vertically.
- To move down the list of candidates press 8, or to move up the list press 2.
- When you hear the candidate's name of your choice, press 5 to allocate them a preference.
- You must allocate at least one preference in this ballot for your vote to count.
- To repeat these instructions, press star 1.
- To hear the first candidate, press 8.

Note: N equals the number of candidates on the Legislative Assembly ballot paper.

5. The following words will be heard for the Legislative Council ballot paper instructions by way of the iVote by Phone IVR service:

Legislative Council

- You are now at the Legislative Council ballot.
- You can select to vote either "above the line" by group, or "below the line" by candidate.
- To vote above-the-line for one or more groups, please press 1;
To vote below-the-line for at least 15 of the [N] candidates, please press 2.
- To repeat these instructions, please press star 1.

Note: N equals the number of candidates below the line on the ballot for the Legislative Council.

Voting Above the Line

- Above the Line:
- You have opted to vote Above the Line for the Legislative Council.
- Groups in this ballot are arranged horizontally.
- Please note that some groups only have a group letter as their name.
- There are [N] groups arranged across this ballot.
- To move right, press 6. To move left, press 4.
- To assign a group with a preference, press 5.
- You must allocate at least one preference in this ballot for your vote to count.
- When you have completed allocating your preferences, press the hash key and you will be prompted to review your vote.
- If instead you want to vote for candidates below the line, press star 7.
- To repeat these instructions, press star 1, or to hear the first group press 6.

Note: N equals the number of Group Voting Squares above the line on the Legislative Council ballot paper.

Voting Below the Line

- Below the Line:
- You have opted to vote below the line for the Legislative Council ballot.
- Please note: some groups only have a group letter as their name.
- To complete this ballot, you must assign preferences to at least 15 of the [N] candidates.
- If instead you want to vote for one or more groups above the line, press star 7 or to continue to vote below the line, press 1.
- Moving between groups: To move right, press 6. To move left, press 4.
- Moving between candidates within a group:
- To move down, press 8. To move up, press 2.
- Allocating a preference to a candidate: when you hear the candidate's name of your choice, press 5 to allocate them your next preference.
- To repeat these instructions, press star 1.
- To commence below the line voting, press 1.

Note: N equals the number of candidates below the line on the Legislative Council ballot paper.

Document control

Document management

Approved by: John Schmidt Electoral Commissioner for NSW	Signature:	Date approved: 2/11/21
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Revision record

Date	Version	Revision description
12.02.2015	1.0	Updated for 2015 State election
17.10.2016	2.0	Updated for November 2016 State by-elections
17.03.2017	2.1	Minor update for April 2017 State by-elections
05.02.2019	3.0	Updated for 2019 State election
07.02.2019	3.1	Minor changes showing the required corrections on pages 8 and 9
10.05.2021	3.2	Minor update for May 2021 State by-election
02.11.2021	4.0	Updated to include local government elections

"D"

This and the following pages is the annexure
marked "..... D." in the affidavit of Simon Kwok
..... affirmed at
Sydney this 10th day
of November 20 22 Before me:



(<https://www.elections.nsw.gov.au/>)

Justice of the Peace/Solicitor

iVote and 2021 NSW Local Government elections

The NSW Electoral Commission is aware that some iVote users were unable to gain access to the system to vote today.

This was due to the increased volume of people using the iVote system.

Almost triple the number of voters have used iVote at these elections than any previous election.

The Local Government Act was amended earlier this year to allow iVote for the first time at council elections, in response to the challenges of COVID-19.

At the 2019 NSW State elections 234,401 votes were cast using iVote. At close of applications at 1pm today 652,983 votes had been cast using the system since it opened on 22 November.

Any eligible elector who applied to use iVote today but missed out on voting will be excused from paying any penalty. The Electoral Commissioner may also determine, after the elections have finished, that other categories of electors should be excused for having a sufficient reason.

We apologise to any voters unable to gain access to the system due to these issues. A full report on the conduct of the election is required by legislation to be released on our website by May 2022.

Addendum

The full Local council election report will be published by June 2022.

"E"



This and the following ...29... pages is the annexure marked "E..." in the affidavit of Simon Kwok...
...this... day
of ... 2021



iVote system performance issue

Assessment of potential impacts to the 2021 local government elections

23 December 2021



Executive Summary

2

Objective of assessment

- A number of electors' online applications to vote by technology assisted voting (iVote) at the 2021 local government elections (LGE) were approved but they were unable to access the voting component of the iVote system on election day 4 December 2021 to cast their votes. This was because these electors were not issued with the necessary security credential before the close of voting on election day, which is a prerequisite to accessing the voting component of the system.
- Prior to his approval of the declaration of the result of a specific mayor or councillor election (contest) in accordance with the *Local Government Act 1993*, the Electoral Commissioner has considered whether the iVote system performance issue could have had a material impact on the result of each contest. One of the inputs into that consideration was an assessment of the extent to which the results could have been different if every elector who did not receive their credentials in time cast a formal vote.
- The methodology used in this statistical assessment has been to:
 - a. Identify contests where it was *not possible* for a result to change – because there were too few electors unable to use the iVote issue to make any difference
 - b. Identify contests where it was *possible* for a result to change, given the difference in votes at key points in the count and the potential number of additional ballot papers of the electors unable to use iVote (**additional iVote ballot papers**).
 - c. Estimate the *likelihood* of the result to change by running simulations of counts in which additional random samples of ballots are included to simulate the additional iVote ballot papers.

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Overview of counting system in NSW

4

It is important to note that during a councillor election count, ballot papers (in paper or electronic form) take on a different (lesser) value as the count progresses and candidates are progressively elected or excluded. This is why it is necessary for any analysis of the likelihood of change from additional ballot papers being included in a count to simulate that count process, and not compare only the number of additional ballots with the smallest difference in votes that was observed in the official count.

Optional Preferential system – mayoral elections

The optional preferential system is described in Schedule 4 of the Local Government (General) Regulation 2021. This sets out the method of vote counting for elections where one candidate is to be elected, including the election of a mayor.

The optional preferential voting system requires a candidate to receive more than 50 per cent of the non-informal, non-exhausted ballot papers. This is called the absolute majority of votes.

If a candidate is not elected after the count of first preferences, the candidate with the lowest number of votes is excluded - each ballot paper is distributed to the candidates remaining in the count according to the next highest preference. If there is none, the ballot paper is set aside as exhausted.

After the distribution of ballot papers, if a candidate has an absolute majority, that candidate is declared elected. If there is still no candidate with an absolute majority, the next continuing candidate with the lowest number of ballot papers has their unexhausted ballot papers distributed as before. This process repeats until a candidate is elected with an absolute majority.

Proportional representation system – councillor elections

The proportional representation system is described in Schedule 5 of the Local Government (General) Regulation 2021. This sets out the Weighted Inclusive Gregory Method (WIGM) of vote counting for councillor elections in NSW.

In a proportional voting system, a candidate is elected if they receive votes equal to or exceeding the quota. The quota is determined by first dividing the aggregate number of first preferences by one more than the number of candidates to be elected. The quotient (disregarding the fraction) is increased by 1 to give the quota. After the count of first preferences is complete, each candidate who has reached quota is elected.

Where an elected candidate has a surplus of ballot papers over the quota, this surplus is transferred to the continuing candidates (i.e. those not yet elected or excluded). If multiple candidates are elected, each candidate's surplus is transferred (one at a time) to the continuing candidates, from the highest surplus to the lowest.

To transfer a surplus, all the ballot papers received by the elected candidate are sorted to their next preferred continuing candidate. Each ballot paper is then worth a portion of that surplus. This portion is called the transfer value. Example: if an elected candidate had 100 ballot papers and their surplus was 10 votes, then each ballot paper would be worth 0.1 of a vote. A continuing candidate receiving 20 of these ballot papers would therefore receive 2 of the 10 surplus votes. After each transfer of ballot papers (and their associated votes), if any more candidates have reached quota, they are elected and added to the queue of surpluses to be transferred. This transfer of surpluses continues (one at a time) until all have been transferred. Then, if vacancies remain, the candidate with the lowest number of votes is excluded. All the ballot papers received by this candidate, including those received from surplus transfers, are sorted to the continuing candidates according to their next available preference. This process continues with candidates being

- o elected when their votes equal or exceed quota, with their surplus distributed as above or
- o excluded, with their ballot papers distributed as above until either:
- o no vacancies remain to be filled or
- o the number of remaining candidates equals the number of remaining vacancies or
- o all remaining vacancies can be filled by candidates whose total votes cannot be overtaken by the remaining candidates in the count.

In these circumstances, the elected candidates are elected despite not reaching the quota.

Impact Assessment Approach Overview

5

The impact of the potential additional iVote ballot papers was assessed in two ways: (1) identify contests for which there was no possibility of a different result and (2) calculate the likelihood of a different result for all contests using a simulated count.

Stage 1: Identification of contests: no possibility of different result

The first stage of analysis assessed whether or not there are indicators that the potential additional iVote ballot papers may be able to change each mayoral and councillor contest. For a given contest, the methodology was as follows:

1. Perform the count of ballot papers for the mayor (if applicable) and each councillor contest. This was conducted by the official NSWEC count system using the applicable preferences rules.
2. Identify the decision points for each contest, including:
 - o Election of candidate(s)
 - o Exclusion of candidates
 - o Surplus transfers
 - o Measurement against absolute majority/quota
3. Examine the closest difference of votes involved in each decision point (e.g. difference between lowest two candidates in an exclusion, or the additional votes required to lift the absolute majority/quota above a candidate's vote total).
4. If the number of potential additional iVote ballot papers exceeds the decision point difference at any point in the count, then the contest is identified for further (if it is a mayoral contest, any councillor contests in which a relevant mayoral candidate is standing is also analysed further).
 - o effects of changes in the transfer value of votes arising from changes in the quota are not being tested at this stage but may affect the overall outcome.

Outputs:

- A list of all mayor and councillor contests requiring further analysis.
- The difference in votes for each decision point in each contest, alongside the number of potential additional iVotes for that contest.

Stage 2: Calculation of impact likelihood for all context using simulated counts

The second stage of analysis estimated the likelihood of a change in the result for each mayoral and councillor contest. For a given area ward, the methodology was as follows:

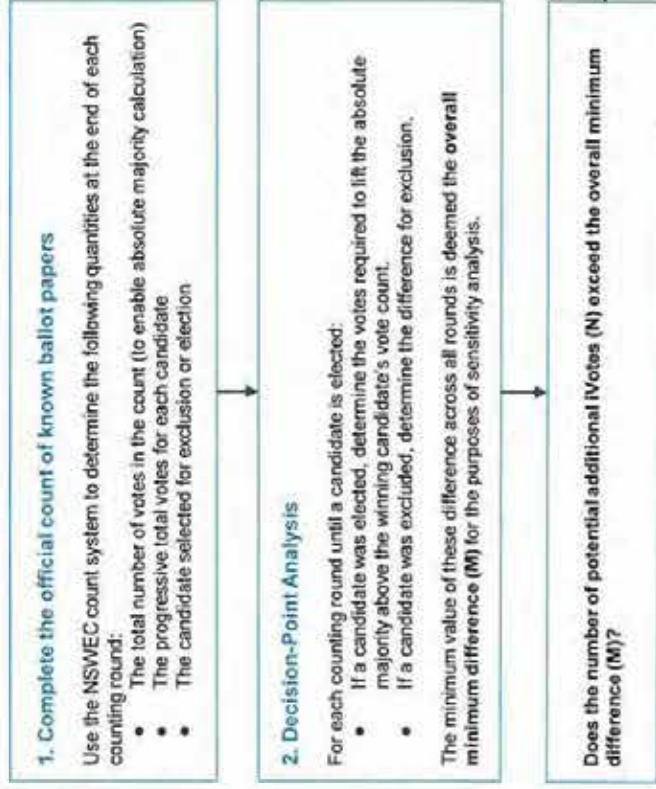
1. Perform the count of ballot papers for the mayor (if applicable) and each councillor contest. This was conducted by a count simulation engine which applies the same preference rules as the official count system.
2. Identify the 'provisionally-elected' mayor and councillors for each contest.
3. Produce two random samples of ballot papers representing the potential additional iVote ballot papers for each contest. The random samples were sampled from (1) the voting patterns present in the known iVote ballot papers for the contest and (2) all of the ballot papers for the contest.
4. Simulate the election counts to observe the outcome with randomly sampled additional ballot papers added to the actual ballot papers. (Note an elected mayor cannot be elected to a councillor position, and in simulations where the mayor result changes this will impact on the councillor contest in which they were standing. I.e. the elected mayor is deemed ineligible in the simulation of the count for the relevant councillor contest.)
5. Repeat Steps 3 and 4 a large number of times to obtain a statistically significant set of results.
6. Determine the frequencies for (1) each distinct result for each contest and (2) each candidate being elected (including the provisionally-elected candidates)
7. Estimate the likelihood of impact for each contest as the sum of frequencies for any result other than the provisional result. Calculate confidence intervals for each of these likelihoods.

Outputs:

- Provisionally-elected mayors and councillors for each contest
- An estimate of the likelihood of a change in result for each contest
- A confidence interval on the likelihood of a change to the result of each contest

Identification of mayoral contests requiring further analysis

The Stage 1 assessment process identified mayoral contests where the number of electors who did not receive their credentials was greater than the minimum difference of votes at various decision points during the count






Identification of mayoral contests requiring further analysis

The following example shows how a mayoral contest result is assessed at Stage 1. In this illustration, the result could have been changed by a single additional vote in the first round. Note that in this example all of the ballot papers for the excluded candidates E and D were not exhausted and candidate A was next in the order of the voter's preferences on each of those ballot papers.

Illustrative Example

Total votes	53
Absolute Majority	27

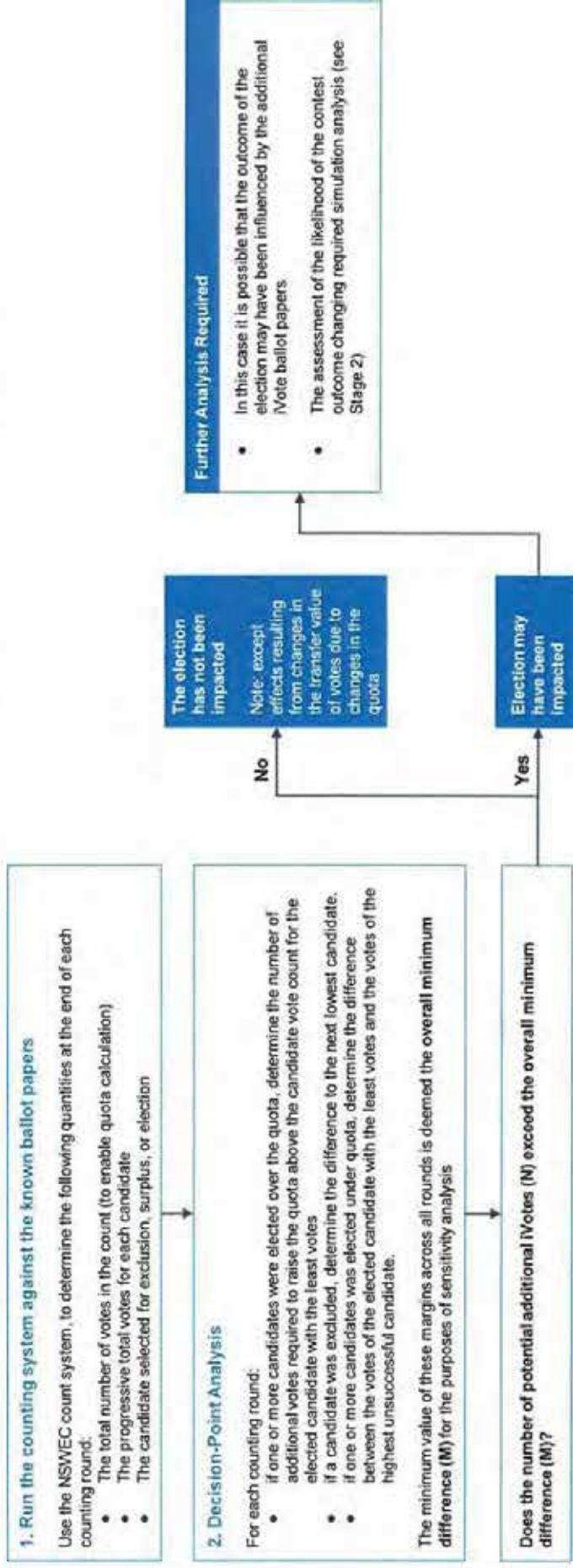
Elected this round	
Excluded this round	
Smallest margin	

Round	Candidate					Margin for exclusion	New votes required to raise absolute majority above winner total	Preference Distribution
	A	B	C	D	E			
1	10	12	12	10	9	10 - 9 = 1	29 * 2 - 53 = 5	E is excluded. All of E's secondary preferences flow to A. D is excluded. All of D's secondary preferences flow to A.
2	19	12	12	10		12 - 10 = 2		
3	29	12	12					

- The lowest number of votes that might potentially change the result is one vote, the margin by which candidate E was excluded at the first round of counting.
- If candidate E had one additional vote, they would have tied with candidates A and D at the first round of counting and potentially not have been excluded. A method of random selection to determine the excluded candidate would have been used, i.e. a 'tiebreaker' used where two or more candidates have the fewest number of votes and one has to be excluded. Candidate A may have been excluded by that process and could not have won the election.
- If the potential number of iVote ballot papers was equal to or greater than one, the impact of the issue on the election result would require further assessment.

Identification of councillor contests requiring further analysis

The Stage 1 assessment process identified councillor contests that could possibly have had a different result had all users applying to use iVote been able to cast a vote.



Identification of councillor contests requiring further analysis

The following example shows how a councillor contest result is assessed at Stage 1. In this illustration, the result could have changed with six additional votes at the ninth round of counting.
Illustrative Example

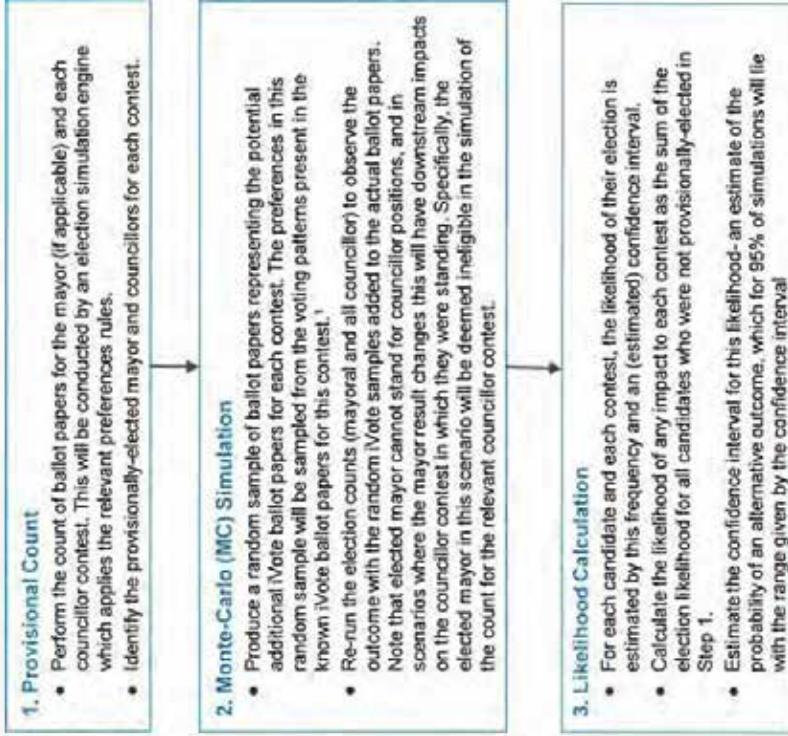
Formal BPs	1,546
Vacancies	9
Quota	155

Count	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Elected this count		Difference for exclusion
															For candidate elected over quota with least margin:	New votes required to raise the quota above winner total	
1	60	352	87	66	25	213	79	100	86	133	61	68	154	62	584		
2	72		121	77	31		94	117	90	150	84	76	177	72	54		
3	74		127	82	32		104	121	97		91	79		80			
4	74		129	83	32		106	122	99		93	80		84			
5	74		129	83	32		106	122	99		93	80		84			42
6	76		134	89			107	126	103		98	82		85			7
7			150	95			119	139	108		101	85		96			10
8			169	105			132	153	116		108			101			144
9				107			133	154	116		108			108			184
10				119			158	173	123		125			101			34
11				122			159		126		130						8

- The lowest number of votes that might potentially change the result is six votes, the margin by which candidate N was excluded at the ninth round of counting. If candidate N received six additional votes, they would have tied with candidate D and may not have been excluded at this stage.
- If the potential number of iVote ballot papers was equal to or greater than six, the impact of the issue on the election result would require further assessment

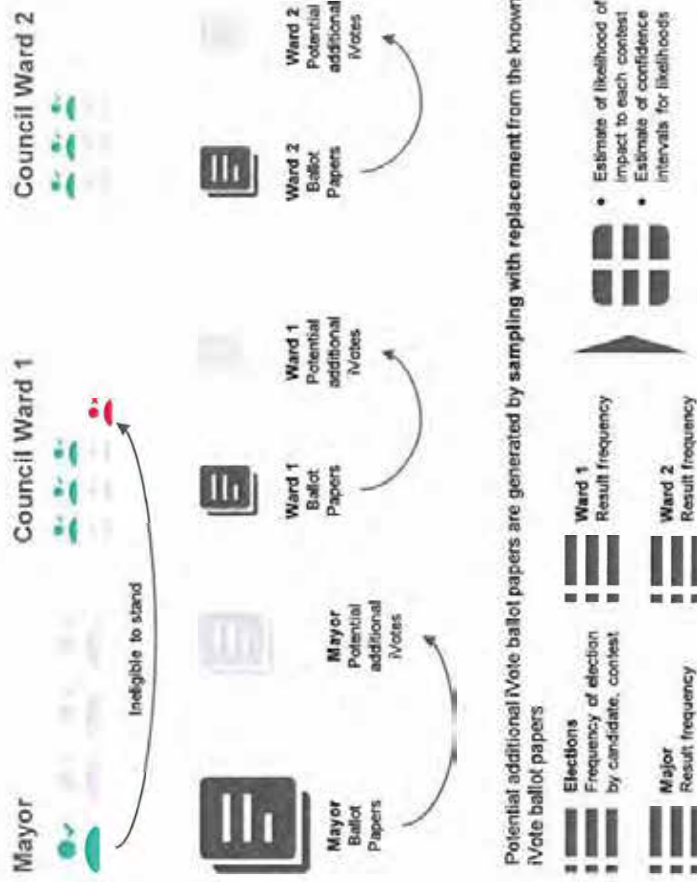
Monte-Carlo Simulation Analysis

A simulation of the election counting process will be used to conduct a Monte Carlo (MC) analysis and estimate the likelihood and confidence interval of changes to the contest results



Repeat the MC step a large number of times

Illustrative Example



Assessment of potential impacts to the 2021 local government elections – 23 December 2021
¹ For the purposes of sensitivity analysis, a scenario was also run where the additional ballots were sampled from the overall set of ballot papers for each contest

Calculation of Impact Likelihood

The *Monte Carlo* (MC) simulation analysis enables the estimation of the probability of alternative outcomes, as well as a confidence interval of the probability of alternative outcomes

Probability of alternative outcome

In a contest where the number of potential additional votes is n and the number of iterations simulated is N .

- In each iteration of the simulation, a set of n preference patterns are generated to represent the potential additional votes.
- These are randomly sampled (with replacement) from the set of n Vote preference patterns from the same contest.
- Each iteration has the same probability, $P(S)$, of generating a particular set of preferences, S .
- The set of preference patterns generated for each iteration is independent from all other iterations, and each set of preference patterns will lead to either the baseline or an alternative outcome.
- In each iteration, the probability p of reaching an alternative outcome is the probability of generating any set of preferences which leads to an alternative outcome:

$$p = \text{Sum of } P(S) \text{ for all } S \text{ leading to an alternative outcome}$$

Under these circumstances, the probability of an alternative outcome in each iteration is a **binary (yes/no) random variable**, and the collection of iterations are **identically and independently distributed (iid)**. The number of iterations in which an alternative outcome occurs, X , is a random variable following the **binomial distribution**:¹

$$P(X) = B(N, p)$$

¹See https://en.wikipedia.org/wiki/Binomial_distribution for further details

Estimating the probability of an alternative outcome

Suppose that N iterations of a contest are run and x of these lead to an alternative outcome. Then the *maximum likelihood estimator (MLE)* for p is the observed frequency of an alternative outcome:

$$p = x/N$$

A *confidence interval* at a *confidence level* of $(1-\alpha)$ (e.g. 95%) can be constructed using the *Copper-Pearson* approach from the equation:

$$\beta(\alpha/2; x, N - x + 1) < p < \beta(1 - \alpha/2; x + 1, n - x)$$

In the above, $\beta(\alpha; v, w)$ is the α^{th} quantile from a beta distribution with shape parameters v and w .²



What does the MLE and the confidence interval tell us?

- The MLE value is the best possible estimate of the (unknown) probability of an alternative result, given the sample of N iterations.
- The confidence interval provides a measure of how precise this estimate is, by providing an upper and lower limit on the estimate. The size of the range reflects the fact that the estimate is based on a finite sample of N iterations.
- A confidence interval is set at a *confidence level*, commonly chosen as 95%. This means that, if the run of 1000 iterations were itself repeated a large number of times, the confidence interval would ‘cover’ the true value of p 95% of the time.

²See https://en.wikipedia.org/wiki/Beta_distribution#confidence_interval for further details

Assumptions

Analysis Stage	Assumption
General	<p>The test environment contains the same ballot papers as used in the final count.</p> <p>The test environment PRC engine produces the same outputs at the main election environment.</p> <p>The number of additional iVotes is equal to the number of iVote applications with no iVote number allocated</p> <p>All additional iVotes are formal votes</p> <p>Candidate names in individual contests are unique.</p> <p>Results per output files are a true reflection of the results of what the actual election count would be on the same input voting data.</p>
Identification of contests requiring further analysis	<p>Minimum number of potential additional votes required to allow possibility of result change are overall minimum difference or one vote, whichever is greater, where overall minimum margin is calculated as described in the methodology slides.</p> <p>Councillor elections effects resulting from changes in the transfer value of votes due to changes in the quota are not considered in this analysis.</p> <p>The preference patterns of the additional iVote ballots are distributed as per the preference patterns in the received iVote ballots for each contest. I.e. the preferences for the additional iVote ballots can be sampled from the known iVote ballots for statistical purposes.²</p> <p>The number of simulations run for each contest is limited to 1000. This was chosen as a balance between the desire to achieve as precise a result as possible (i.e. minimising the confidence interval) and practical considerations on the computational power and time taken to complete the analysis.</p> <p>The inherent level of precision of the maximum likelihood estimate of the probability of an outcome change is represented by the confidence interval estimate. This interval is constructed assuming that the probability of a change in result to the contest is independent and identically distributed (iid).</p>
Calculation of impact likelihood	<p>Where a random draw occurs in the count, a random number generator is used with a fixed seed.</p> <p>The confidence interval is estimated using the Clopper-Pearson method¹.</p>

¹ See https://en.wikipedia.org/wiki/Binomial_confidence_interval#Clopper-Pearson for further details.

² When sampling from all ballots, the same assumption is applied as per the preference patterns of all ballots.

Validation

Tests and peer reviews were conducted on both the high-level and the simulation engine to validate the results against each other and the official PRCC counting engine.

Analysis Element	Validation Tests	Outcome
High-level analysis workflows	<p>Parallel analysis of the intermediate outputs of the workflows to recalculate the margins and ensure these match the final result</p> <p>Comparison of intermediate outputs, detailing the status at the end of each counting round, are identical to the results generated by the simulation engines</p> <p>Peer review of entire codebase to identify inconsistencies, inefficiencies, and logical errors</p>	<p>Exact match</p> <p>Exact match</p> <p>No issues encountered</p>
Optional Preferential System (OPS) simulation engine	<p>Compare the outputs from the official PRCC engine for all contests to confirm the outcomes, number of counting rounds, decisions on elections and exclusions, and the progressive total candidate and exhausted votes are identical</p> <p>Compare the outputs against the Bogan 2016 test scenario to confirm the algorithm follows identical steps and logic to the official PRCC engine, including:</p> <ul style="list-style-type: none"> Contest outcome, number of rounds, and all decisions on elections, surplus distribution, and exclusion of candidates Individual round and progressive totals for candidate ballot papers and votes, exhausted ballot papers and votes, votes lost by fraction, and votes set aside All disregarded fractions, transfer values, continued transfer values Metrics for every ballot paper parcel transfer 	<p>Exact match</p> <p>Exact match (to within floating point precision)</p>
Proportional Representation System (PRS) simulation engine	<p>Comparison to the outputs from the official PRCC engine for all contests, including the contest outcome and the progressive total votes as at the end of every counting round</p> <p>Automated validation checks to ensure that all ballot papers and votes are accounted for whenever:</p> <ul style="list-style-type: none"> A parcel of ballot papers is transferred in a surplus or exclusion distribution At the end of each counting round/ <p>Peer review of entire codebase to identify inconsistencies, inefficiencies, and logical errors</p>	<p>Exact match, except in cases where a random draw event occurred and the two counting systems drew different random outcomes</p> <p>No validation issues were encountered</p> <p>No issues encountered</p>

Results

Detailed results for contests where the simulation results using iVote preference data indicated a non-zero observed frequency of an alternate outcome are shown in the table below. See Appendix B: Detailed Results for the results for all contests.

Contest Summary										High Level Analysis Results				Simulation Results			
Contest name	Contest type	No. of electors	No. of formal ballot papers	No. of iVote ballot papers	Potential additional iVote ballot papers	Contest requires further analysis	Mayoral contest requires further analysis	Count requires further analysis	Min. vote difference during count	No. of simulations where the outcome was different to the baseline outcome	No. of simulations with an alternative outcome	No. of distinct election outcomes	No. of simulation outcomes	Observed frequency of alternative outcome	Estimated alternative frequency lower limit	Estimated alternative frequency upper limit	
Kempsey Councillor	CO	22,812	15,204	1,790	34	Yes	No	Yes	1	1,000	2	610	61.0%	57.9%	64.0%		
Singleton Councillor	CO	17,137	12,745	2,467	55	Yes	No	Yes	3	1,000	2	432	43.2%	40.1%	46.3%		
Shellharbour A Councillor	CO	15,740	13,138	2,772	54	Yes	No	Yes	4	1,000	2	70	7.0%	5.5%	8.8%		
Hay Councillor	CO	2,158	1,747	180	6	Yes	Yes	Yes	4	1,000	2	7	0.7%	0.3%	1.4%		
Kiama Councillor	CO	18,083	15,016	2,006	57	Yes	Yes	Yes	1	1,000	2	3	0.3%	0.1%	0.9%		
Parramatta Rosehill Councillor	CO	29,921	22,283	5,648	119	Yes	Yes	Yes	5	1,000	2	1	0.1%	0.0%	0.6%		

The number of simulations where the outcome was different to the baseline outcome

The observed frequency (as a percentage) of alternative outcomes

The 5% lower and upper limits on frequency of alternative results

The minimum difference in the count at points of exclusion as determined by the analysis – note that “vote” used here does not mean a ballot paper.

If the high-level analysis revealed an exclusion point difference less than or equal to the number of potential additional iVote ballot papers, this column is flagged as “Yes”

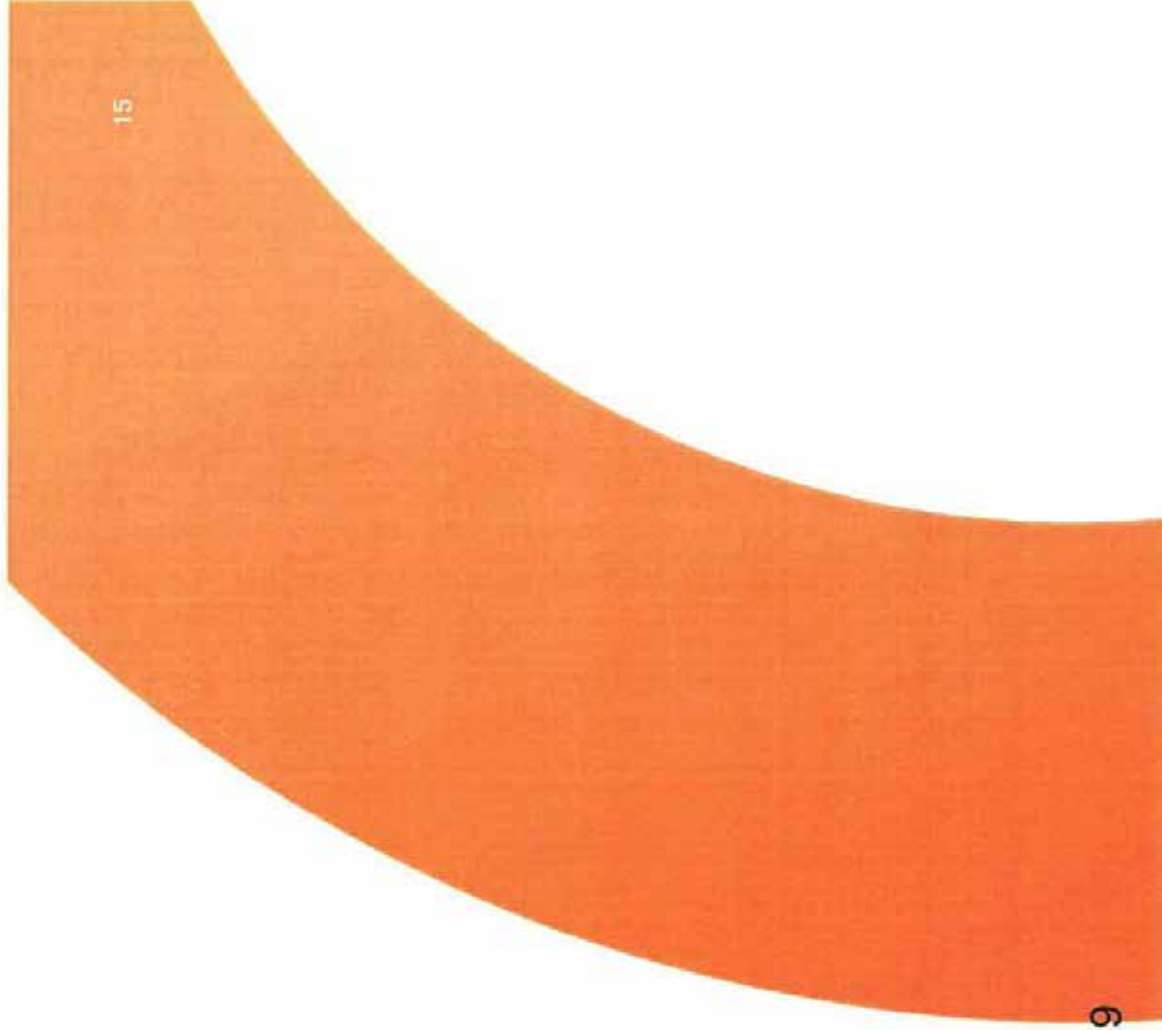
If this is a councillor contest with a linked mayoral contest, any change to the mayoral contest may impact its outcome. This column indicates the high-level analysis outcome for the linked mayoral contest, if one exists.

The overall status of the high-level analysis for each contest is flagged as “yes” in this column if either its own count or the linked mayoral count require further analysis.

The number of simulations run for this contest

The number of distinct contest outcomes, including the baseline result

Appendix A: Sensitivity Analysis



Sensitivity Analysis

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In addition to the core stages of the approach, the following two analyses were conducted to inform the sensitivity of the results to the assumptions:

1 Varying the number of additional votes

Objective

Determine the relationship the number of additional iVotes and the frequency of alternative outcomes, including the threshold point at which the frequency drops to zero (if this occurs)

Approach

For each of the 7 contests that were originally identified with instances of alternative outcomes (before cross-checking electors against attendance voting records):

- Repeat the analysis under 5 different scenarios for the number of additional iVotes
- Recalculate the frequency of alternative outcomes
- Recalculate the confidence intervals
- Plot the results on a line graph

2 Sampling vote preferences from all ballots

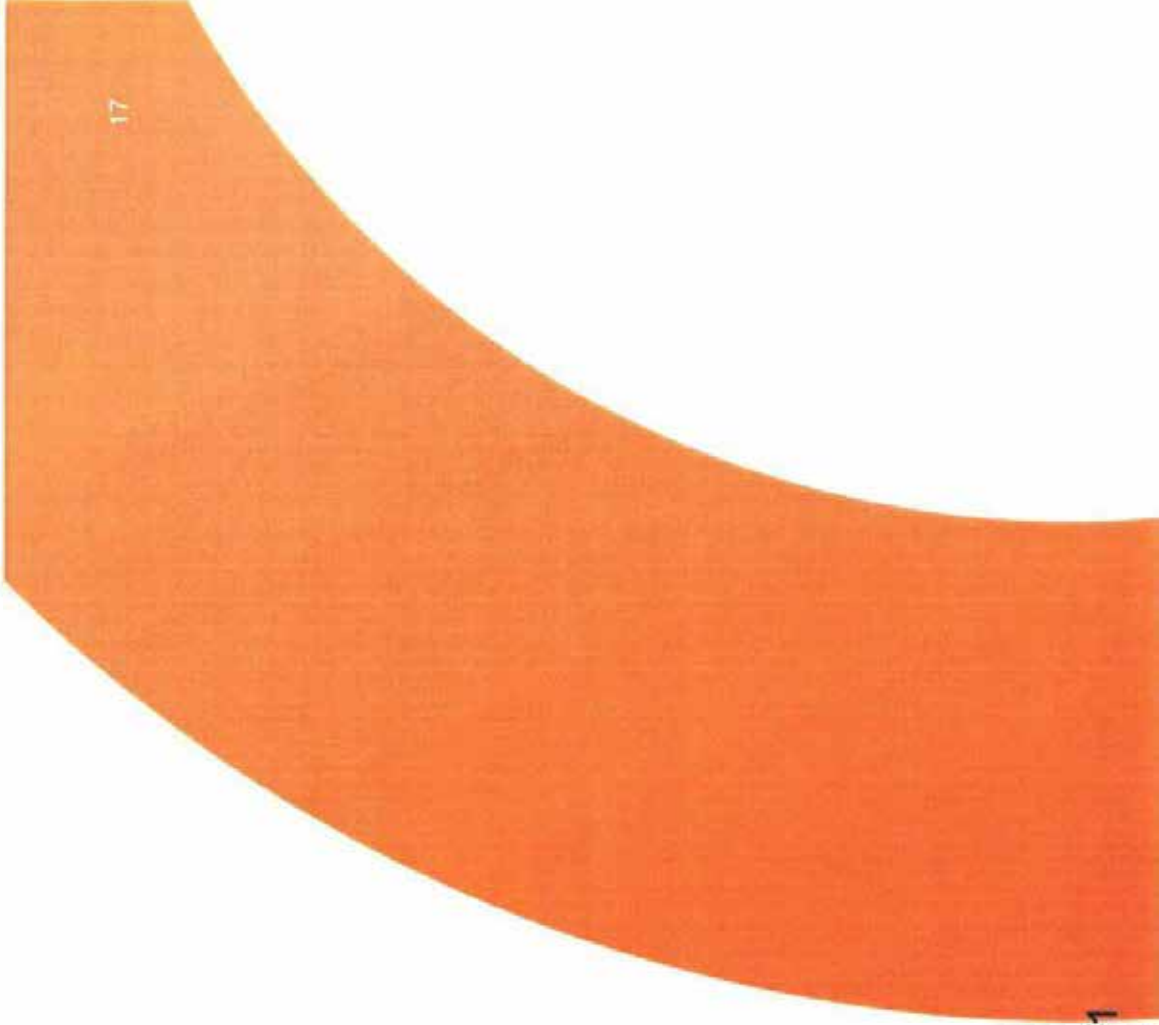
Objective

Determine the sensitivity of the results to the underlying set of ballot papers used to generate the preference patterns for the additional iVotes

Approach

1. Repeat the simulation analysis, but rather than sample the preference patterns from the iVote ballots from that contest, sample the preference patterns for the entire set of ballots for that contest (including the iVote portion).
2. Recalculate the frequency of alternative outcomes
3. Recalculate the confidence intervals
4. Compare the results to the core set of analysis results to identify:
 - o Cases where the observed frequency significantly decreases
 - o Cases where the observed frequency significantly increases (including contests which showed no alternative outcomes in the core analysis)

Appendix B: Detailed Results



Detailed Results (1 of 13)

Contest Summary										High Level Analysis Results										Simulation Results									
Contest name	Contest type	No. of electors	No. of formal ballot papers	No. of I/Vote ballot papers	Potential additional I/Vote ballot papers	Contest requires further analysis	Contest requires further analysis	Mayoral contest requires further analysis	Count requires further analysis	Min. vote difference during count	No. of simulations	No. of distinct election outcomes	No. of simulations with an alternative outcome	Observed frequency of alternative outcome	Estimated alternative frequency lower limit	Estimated alternative frequency upper limit													
Kempsey Councillor	CO	22,812	16,204	1,750	34	Yes	Yes	No	Yes	1	1,000	2	510	61.0%	57.9%	64.0%													
Singleton Councillor	CO	17,137	12,745	2,467	55	Yes	Yes	No	Yes	3	1,000	2	432	43.2%	40.1%	46.3%													
Shelthorpe A Councillor	CO	15,740	13,138	2,772	54	Yes	Yes	No	Yes	4	1,000	2	70	7.0%	5.5%	8.8%													
Hay Councillor	CO	2,158	1,747	180	6	Yes	Yes	Yes	Yes	4	1,000	2	7	0.7%	0.3%	1.4%													
Kiama Councillor	CO	18,093	15,016	2,006	57	Yes	Yes	Yes	Yes	1	1,000	2	3	0.3%	0.1%	0.9%													
Parramatta Rosehill Councillor	CO	29,921	22,283	5,648	119	Yes	Yes	Yes	Yes	5	1,000	2	1	0.1%	0.0%	0.6%													
Albury Councillor	CO	37,968	28,378	2,866	142	Yes	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%													
Armidale Councillor	CO	19,358	15,223	1,569	71	Yes	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%													
Ballina A Councillor	CO	10,843	7,947	789	35	Yes	Yes	No	Yes	2	1,000	1	-	0.0%	0.0%	0.4%													
Bathurst Councillor	CO	31,017	24,704	2,943	137	Yes	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%													
Bayside 1 Councillor	CO	22,431	17,379	3,046	170	Yes	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%													
Bayside 2 Councillor	CO	22,840	17,168	3,907	245	Yes	Yes	Yes	Yes	5	1,000	1	-	0.0%	0.0%	0.4%													
Bayside 3 Councillor	CO	19,837	15,212	2,887	145	Yes	Yes	Yes	Yes	2	1,000	1	-	0.0%	0.0%	0.4%													
Bayside 4 Councillor	CO	20,809	16,519	2,999	167	Yes	Yes	Yes	Yes	15	1,000	1	-	0.0%	0.0%	0.4%													
Bayside 5 Councillor	CO	19,481	14,990	2,578	130	Yes	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%													
Bega Valley Councillor	CO	26,877	21,435	1,435	49	Yes	Yes	Yes	Yes	13	1,000	1	-	0.0%	0.0%	0.4%													
Bellingen Councillor	CO	10,346	8,270	730	29	Yes	Yes	No	Yes	1	1,000	1	-	0.0%	0.0%	0.4%													
Berrigan Councillor	CO	6,217	4,720	306	20	Yes	Yes	Yes	Yes	9	1,000	1	-	0.0%	0.0%	0.4%													
Blacktown 1 Councillor	CO	54,553	44,012	11,752	611	Yes	Yes	Yes	Yes	4	1,000	1	-	0.0%	0.0%	0.4%													
Blacktown 2 Councillor	CO	43,758	34,854	7,595	356	Yes	Yes	Yes	Yes	3	1,000	1	-	0.0%	0.0%	0.4%													

Detailed Results (2 of 13)

High Level Analysis Results													Simulation Results					
Contest Summary													Simulation Results					
Contest name	Contest type	No. of electors	No. of formal ballot papers	No. of additional IVote ballot papers	Potential			Mayoral			Count requires further analysis	Min. vote during count	No. of simulations	No. of distinct election outcomes	No. of simulations with an alternative outcome	Observed frequency of alternative outcome	Estimated alternative frequency lower limit	Estimated alternative frequency upper limit
					Contest requires further analysis	Contest requires further analysis	Contest requires further analysis	Count requires further analysis	No. of simulations	No. of distinct election outcomes								
Blackdown 4 Councillor	CO	44,925	35,351	7,645	343	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%			
Blackdown 5 Councillor	CO	50,215	36,254	8,141	619	Yes	Yes	Yes	5	1,000	1	-	0.0%	0.0%	0.4%			
Blue Mountains 1 Councillor	CO	14,515	11,435	1,271	65	Yes	Yes	Yes	8	1,000	1	-	0.0%	0.0%	0.4%			
Blue Mountains 2 Councillor	CO	14,749	12,493	1,513	73	Yes	Yes	Yes	4	1,000	1	-	0.0%	0.0%	0.4%			
Blue Mountains 3 Councillor	CO	14,763	12,567	1,639	84	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%			
Blue Mountains 4 Councillor	CO	14,344	12,338	1,540	79	Yes	Yes	Yes	21	1,000	1	-	0.0%	0.0%	0.4%			
Bogan Councillor	CO	1,829	1,467	187	13	Yes	Yes	Yes	3	1,000	1	-	0.0%	0.0%	0.4%			
Broken Hill Councillor	CO	13,412	10,395	978	38	Yes	No	No	1	1,000	1	-	0.0%	0.0%	0.4%			
Bunwood Councillor	CO	21,155	17,250	3,285	149	Yes	No	No	1	1,000	1	-	0.0%	0.0%	0.4%			
Byron Councillor	CO	25,610	17,735	1,921	127	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%			
Byron Mayor	MA	25,610	18,165	1,921	127	Yes	Yes	Yes	65	1,000	1	-	0.0%	0.0%	0.4%			
Cabonne Councillor	CO	10,113	7,836	1,598	57	Yes	Yes	Yes	13	1,000	1	-	0.0%	0.0%	0.4%			
Camden Central Councillor	CO	25,419	20,755	4,732	269	Yes	Yes	Yes	30	1,000	1	-	0.0%	0.0%	0.4%			
Camden North Councillor	CO	28,541	22,975	5,898	362	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%			
Camden South Councillor	CO	22,419	18,016	3,743	201	Yes	Yes	Yes	88	1,000	1	-	0.0%	0.0%	0.4%			
Campbelltown Councillor	CO	113,732	89,337	14,776	764	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%			
Canada Bay Councillor	CO	58,599	47,472	9,851	491	Yes	No	No	1	1,000	1	-	0.0%	0.0%	0.4%			
Canterbury-Bankstown Bass Hill Councillor	CO	44,589	33,153	7,087	363	Yes	Yes	Yes	227	1,000	1	-	0.0%	0.0%	0.4%			
Canterbury-Bankstown Canterbury Councillor	CO	46,726	37,276	8,041	369	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%			
Canterbury-Bankstown Revesby Councillor	CO	47,204	38,446	7,034	391	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%			

Detailed Results (3 of 13)

Contest Summary										High Level Analysis Results					Simulation Results				
Contest name	Contest type	No. of electors	No. of formal ballot papers	No. of I/Vote ballot papers	Potential additional I/Vote ballot papers	Contest requires further analysis		Mayoral contest requires further analysis		Count requires further analysis	Min. vote difference during count	No. of simulations	No. of distinct election outcomes	No. of simulations with an alternative outcome	Observed frequency of alternative outcome	Estimated alternative frequency lower limit	Estimated alternative frequency upper limit		
						Yes	No	Yes	No										
Carrahooh A Councillor	CO	909	694	74	4	Yes	Yes	Yes	Yes	2	1,000	1	-	0.0%	0.0%	0.4%			
Cessnock A Councillor	CO	11,873	9,176	1,668	73	Yes	No	Yes	Yes	4	1,000	1	-	0.0%	0.0%	0.4%			
Cessnock B Councillor	CO	10,214	7,893	1,345	69	Yes	No	Yes	Yes	6	1,000	1	-	0.0%	0.0%	0.4%			
Cessnock C Councillor	CO	12,169	8,552	1,800	86	Yes	No	Yes	Yes	3	1,000	1	-	0.0%	0.0%	0.4%			
Cessnock D Councillor	CO	11,304	8,997	1,829	89	Yes	No	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%			
Clarence Valley Councillor	CO	38,778	30,661	3,883	143	Yes	Yes	Yes	Yes	15	1,000	1	-	0.0%	0.0%	0.4%			
Coffs Harbour Councillor	CO	56,943	43,587	5,249	251	Yes	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%			
Coffs Harbour Mayor	MA	56,943	45,155	5,249	251	Yes	Yes	Yes	Yes	35	1,000	1	-	0.0%	0.0%	0.4%			
Coolamon Councillor	CO	3,247	2,576	261	19	Yes	Yes	Yes	Yes	9	1,000	1	-	0.0%	0.0%	0.4%			
Coonamble Councillor	CO	2,741	2,096	374	10	Yes	Yes	Yes	Yes	2	1,000	1	-	0.0%	0.0%	0.4%			
Cowra Councillor	CO	9,732	7,784	588	32	Yes	Yes	Yes	Yes	13	1,000	1	-	0.0%	0.0%	0.4%			
Cumberland Granville Councillor	CO	26,128	19,325	4,001	215	Yes	Yes	Yes	Yes	7	1,000	1	-	0.0%	0.0%	0.4%			
Cumberland Regents Park Councillor	CO	24,851	19,749	4,460	184	Yes	Yes	Yes	Yes	27	1,000	1	-	0.0%	0.0%	0.4%			
Cumberland Wentworthville Councillor	CO	25,762	20,211	4,656	221	Yes	Yes	Yes	Yes	6	1,000	1	-	0.0%	0.0%	0.4%			
Dubbo Dubbo North Councillor	CO	8,252	6,291	1,022	45	Yes	Yes	Yes	Yes	18	1,000	1	-	0.0%	0.0%	0.4%			
Dubbo Dubbo South Councillor	CO	8,457	6,876	1,181	47	Yes	Yes	Yes	Yes	29	1,000	1	-	0.0%	0.0%	0.4%			
Eurobodalla Councillor	CO	32,183	24,875	2,886	114	Yes	No	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%			
Federation Councillor	CO	9,951	7,402	594	22	Yes	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%			
Forbes Councillor	CO	6,997	5,628	737	37	Yes	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%			
Georges River Blakehurst Councillor	CO	19,390	16,142	3,122	122	Yes	Yes	Yes	Yes	2	1,000	1	-	0.0%	0.0%	0.4%			

Detailed Results (5 of 13)

Contest Summary		High Level Analysis Results										Simulation Results					
Contest name	Contest type	Potential				Mayoral				Count requires further analysis	Min. vote difference during count	No. of simulations	No. of distinct election outcomes	No. of simulations with an alternative outcome	Observed frequency of alternative outcome	Estimated alternative frequency lower limit	Estimated alternative frequency upper limit
		No. of formal ballot papers	No. of electors	No. of ballot papers	No. of vote ballot papers	Contest requires further analysis	Contest requires further analysis	Contest requires further analysis	Contest requires further analysis								
Junees Councillor	CO	4,012	3,262	405	13	Yes	Yes	4	Yes	1,000	1	-	0.0%	0.0%	0.4%		
Ku-ring-gai Comenarra Councillor	CO	16,746	13,804	2,379	120	Yes	Yes	8	Yes	1,000	1	-	0.0%	0.0%	0.4%		
Ku-ring-gai Gordon Councillor	CO	17,062	13,720	2,731	117	Yes	Yes	62	Yes	1,000	1	-	0.0%	0.0%	0.4%		
Ku-ring-gai Roseville Councillor	CO	16,592	13,785	2,630	128	Yes	Yes	8	Yes	1,000	1	-	0.0%	0.0%	0.4%		
Ku-ring-gai St Ives Councillor	CO	16,630	13,940	2,436	83	Yes	Yes	6	Yes	1,000	1	-	0.0%	0.0%	0.4%		
Ku-ring-gai Wahroonga Councillor	CO	16,352	13,513	2,047	125	Yes	Yes	2	Yes	1,000	1	-	0.0%	0.0%	0.4%		
Lake Macquarie East Councillor	CO	51,679	41,593	6,148	336	Yes	Yes	2	No	1,000	1	-	0.0%	0.0%	0.4%		
Lake Macquarie North Councillor	CO	52,187	42,316	7,887	429	Yes	Yes	3	No	1,000	1	-	0.0%	0.0%	0.4%		
Lake Macquarie West Councillor	CO	57,812	44,643	6,514	364	Yes	Yes	1	No	1,000	1	-	0.0%	0.0%	0.4%		
Lane Cove Central Councillor	CO	8,541	7,259	1,069	58	Yes	Yes	2	Yes	1,000	1	-	0.0%	0.0%	0.4%		
Lane Cove East Councillor	CO	8,608	6,974	1,325	81	Yes	Yes	1	Yes	1,000	1	-	0.0%	0.0%	0.4%		
Lane Cove West Councillor	CO	9,028	7,362	1,384	61	Yes	Yes	1	Yes	1,000	1	-	0.0%	0.0%	0.4%		
Leeton Councillor	CO	7,795	8,105	602	32	Yes	Yes	5	Yes	1,000	1	-	0.0%	0.0%	0.4%		
Litmore Councillor	CO	31,825	25,948	3,756	123	Yes	Yes	1	No	1,000	1	-	0.0%	0.0%	0.4%		
Lithgow Councillor	CO	15,903	13,061	1,396	70	Yes	Yes	1	Yes	1,000	1	-	0.0%	0.0%	0.4%		
Liverpool North Councillor	CO	69,702	51,345	10,948	516	Yes	Yes	1	No	1,000	1	-	0.0%	0.0%	0.4%		
Liverpool South Councillor	CO	75,782	58,279	13,336	661	Yes	Yes	1	No	1,000	1	-	0.0%	0.0%	0.4%		
Maitland Mayor	MA	64,895	54,181	9,591	451	Yes	Yes	241	Yes	1,000	1	-	0.0%	0.0%	0.4%		
Maitland Central Councillor	CO	16,130	13,083	2,119	110	Yes	Yes	1	Yes	1,000	1	-	0.0%	0.0%	0.4%		
Maitland East Councillor	CO	15,253	12,397	2,289	95	Yes	Yes	3	Yes	1,000	1	-	0.0%	0.0%	0.4%		

Detailed Results (6 of 13)

Contest Summary		High Level Analysis Results										Simulation Results			
Contest name	Contest type	No. of electors	No. of formal ballot papers	No. of additional Vote ballot papers	Contest requires further analysis	Mayoral contest requires further analysis	Count requires further analysis	Min. vote difference during count	No. of simulations	No. of distinct election outcomes	No. of simulations with an alternative outcome	Observed frequency of alternative outcome	Estimated alternative frequency lower limit	Estimated alternative frequency upper limit	
															No. of formal ballot papers
Maitland North Councillor	CO	17,702	14,761	3,081	122	Yes	Yes	Yes	2	1,000	1	0.0%	0.0%	0.4%	
Maitland West Councillor	CO	15,810	12,720	2,092	123	Yes	Yes	Yes	17	1,000	1	0.0%	0.0%	0.4%	
Mid-Coast Councillor	CO	76,413	61,696	6,429	259	Yes	Yes	Yes	1	1,000	1	0.0%	0.0%	0.4%	
Mid-Western Councillor	CO	18,699	15,023	1,560	74	Yes	Yes	Yes	1	1,000	1	0.0%	0.0%	0.4%	
Moree Plains Councillor	CO	8,298	5,789	1,121	41	Yes	No	Yes	1	1,000	1	0.0%	0.0%	0.4%	
Mosman Councillor	CO	20,731	16,197	2,470	131	Yes	No	Yes	1	1,000	1	0.0%	0.0%	0.4%	
Muswellbrook Councillor	CO	11,684	8,756	1,686	69	Yes	Yes	Yes	17	1,000	1	0.0%	0.0%	0.4%	
Nambucca Valley Councillor	CO	16,029	12,043	1,215	35	Yes	No	Yes	11	1,000	1	0.0%	0.0%	0.4%	
Narrabri Councillor	CO	9,294	7,042	1,013	53	Yes	Yes	Yes	4	1,000	1	0.0%	0.0%	0.4%	
Narrandera Councillor	CO	4,313	3,398	354	22	Yes	Yes	Yes	1	1,000	1	0.0%	0.0%	0.4%	
Newcastle 1 Councillor	CO	30,881	23,428	3,738	249	Yes	Yes	Yes	2	1,000	1	0.0%	0.0%	0.4%	
Newcastle 2 Councillor	CO	32,368	26,089	4,087	287	Yes	No	Yes	1	1,000	1	0.0%	0.0%	0.4%	
Newcastle 3 Councillor	CO	30,945	24,468	3,904	256	Yes	No	Yes	1	1,000	1	0.0%	0.0%	0.4%	
Newcastle 4 Councillor	CO	30,461	24,317	4,149	220	Yes	No	Yes	1	1,000	1	0.0%	0.0%	0.4%	
North Sydney Cammeraygal Councillor	CO	25,092	19,088	3,794	251	Yes	Yes	Yes	1	1,000	1	0.0%	0.0%	0.4%	
North Sydney St Leonards Councillor	CO	23,757	18,541	3,903	257	Yes	Yes	Yes	1	1,000	1	0.0%	0.0%	0.4%	
Northern Beaches Curl Curl Councillor	CO	38,054	29,742	5,335	305	Yes	Yes	Yes	4	1,000	1	0.0%	0.0%	0.4%	
Northern Beaches Frenchs Forest Councillor	CO	36,350	30,625	5,317	258	Yes	Yes	Yes	3	1,000	1	0.0%	0.0%	0.4%	
Northern Beaches Manly Councillor	CO	36,626	28,981	4,542	270	Yes	Yes	Yes	1	1,000	1	0.0%	0.0%	0.4%	
Northern Beaches Narrabeen Councillor	CO	36,947	30,124	4,945	256	Yes	Yes	Yes	1	1,000	1	0.0%	0.0%	0.4%	

Detailed Results (7 of 13)

Contest Summary		High Level Analysis Results										Simulation Results				
Contest name	Contest type	No. of electors	Potential			Mayoral			Count requires further analysis	Min. vote difference during count	No. of simulations	No. of distinct election outcomes	No. of simulations with an alternative outcome	Observed frequency of alternative outcome	Estimated alternative frequency lower limit	Estimated alternative frequency upper limit
			No. of formal ballot papers	No. of ballot papers	additional I/Vote ballot papers	Contest requires further analysis	Contest requires further analysis									
Northern Beaches Pritweller Councillor	CO	35,852	29,642	4,032	204	Yes	Yes	13	1,000	-	1	-	0.0%	0.0%	0.4%	
Oberon Councillor	CO	4,001	3,215	293	13	Yes	Yes	2	1,000	-	1	-	0.0%	0.0%	0.4%	
Orange Councillor	CO	30,258	23,740	4,084	172	Yes	Yes	1	1,000	-	1	-	0.0%	0.0%	0.4%	
Orange Mayor	MA	30,258	24,355	4,084	172	Yes	Yes	146	1,000	-	1	-	0.0%	0.0%	0.4%	
Parkes Councillor	CO	10,551	8,027	945	41	Yes	Yes	11	1,000	-	1	-	0.0%	0.0%	0.4%	
Parramatta Dundas Councillor	CO	28,207	22,076	5,663	259	Yes	Yes	1	1,000	-	1	-	0.0%	0.0%	0.4%	
Parramatta North Rocks Councillor	CO	26,954	22,525	5,121	213	Yes	Yes	5	1,000	-	1	-	0.0%	0.0%	0.4%	
Parramatta Parramatta Councillor	CO	26,815	20,440	4,495	227	Yes	Yes	28	1,000	-	1	-	0.0%	0.0%	0.4%	
Port Macquarie-Hastings Councillor	CO	66,617	52,517	6,314	266	Yes	No	1	1,000	-	1	-	0.0%	0.0%	0.4%	
Port Stephens Central Councillor	CO	20,311	16,289	3,147	118	Yes	No	11	1,000	-	1	-	0.0%	0.0%	0.4%	
Port Stephens West Councillor	CO	19,268	15,425	2,705	105	Yes	No	18	1,000	-	1	-	0.0%	0.0%	0.4%	
Queanbeyan-Palerang Councillor	CO	43,799	33,813	3,521	143	Yes	Yes	1	1,000	-	1	-	0.0%	0.0%	0.4%	
Randwick Central Councillor	CO	18,079	13,840	2,496	135	Yes	Yes	2	1,000	-	1	-	0.0%	0.0%	0.4%	
Randwick South Councillor	CO	18,430	14,468	2,031	134	Yes	Yes	1	1,000	-	1	-	0.0%	0.0%	0.4%	
Randwick West Councillor	CO	17,811	13,609	2,384	140	Yes	Yes	5	1,000	-	1	-	0.0%	0.0%	0.4%	
Richmond Valley Councillor	CO	16,590	13,229	1,362	52	Yes	No	1	1,000	-	1	-	0.0%	0.0%	0.4%	
Ryde Central Councillor	CO	26,869	21,826	4,737	211	Yes	Yes	3	1,000	-	1	-	0.0%	0.0%	0.4%	
Ryde East Councillor	CO	26,703	22,323	4,510	220	Yes	Yes	1	1,000	-	1	-	0.0%	0.0%	0.4%	
Ryde West Councillor	CO	24,586	20,370	3,938	145	Yes	Yes	1	1,000	-	1	-	0.0%	0.0%	0.4%	
Shellharbour B Councillor	CO	13,481	10,527	1,938	86	Yes	No	22	1,000	-	1	-	0.0%	0.0%	0.4%	

Detailed Results (8 of 13)

Contest Summary		High Level Analysis Results										Simulation Results			
Contest name	Contest type	No. of electors	No. of formal ballot papers	No. of additional I/Vote ballot papers	Contest requires further analysis	Mayoral contest requires further analysis	Count requires further analysis	Min. vote difference during count	No. of simulations	No. of distinct election outcomes	No. of simulations with an alternative outcome	Observed frequency of alternative outcome	Estimated alternative frequency lower limit	Estimated alternative frequency upper limit	
															No. of formal ballot papers
Shoalhaven Mayor	MA	84,563	67,030	7,772	403	Yes	Yes	Yes	158	1,000	1	0.0%	0.0%	0.4%	
Shoalhaven 1 Councillor	CO	28,338	21,724	2,627	145	Yes	Yes	Yes	2	1,000	1	0.0%	0.0%	0.4%	
Shoalhaven 2 Councillor	CO	28,448	21,863	2,771	131	Yes	Yes	Yes	1	1,000	1	0.0%	0.0%	0.4%	
Snowy Monaro Councillor	CO	14,630	11,746	798	45	Yes	Yes	Yes	2	1,000	1	0.0%	0.0%	0.4%	
Snowy Valleys Councillor	CO	10,121	8,310	816	13	Yes	Yes	Yes	2	1,000	1	0.0%	0.0%	0.4%	
Strathfield Councillor	CO	24,428	19,500	4,374	197	Yes	Yes	Yes	1	1,000	1	0.0%	0.0%	0.4%	
Sutherland A Councillor	CO	34,272	28,011	4,452	311	Yes	Yes	Yes	1	1,000	1	0.0%	0.0%	0.4%	
Sutherland B Councillor	CO	34,189	28,595	4,993	280	Yes	Yes	Yes	61	1,000	1	0.0%	0.0%	0.4%	
Sutherland C Councillor	CO	34,069	27,880	4,940	283	Yes	Yes	Yes	42	1,000	1	0.0%	0.0%	0.4%	
Sutherland D Councillor	CO	33,289	28,543	4,656	201	Yes	Yes	Yes	4	1,000	1	0.0%	0.0%	0.4%	
Sutherland E Councillor	CO	32,653	28,313	4,375	235	Yes	Yes	Yes	203	1,000	1	0.0%	0.0%	0.4%	
Sydney Councillor	CO	176,088	117,362	39,528	2,003	Yes	Yes	Yes	1	1,000	1	0.0%	0.0%	0.4%	
Sydney Lord Mayor	MA	176,088	118,511	39,528	2,003	Yes	Yes	Yes	1,635	1,000	1	0.0%	0.0%	0.4%	
Temworth Councillor	CO	44,740	35,318	4,183	194	Yes	Yes	Yes	20	1,000	1	0.0%	0.0%	0.4%	
Temora Councillor	CO	4,624	4,046	355	13	Yes	Yes	Yes	2	1,000	1	0.0%	0.0%	0.4%	
The Hills Central Councillor	CO	31,148	26,375	6,847	312	Yes	No	Yes	17	1,000	1	0.0%	0.0%	0.4%	
The Hills North Councillor	CO	32,697	27,025	7,041	360	Yes	No	Yes	103	1,000	1	0.0%	0.0%	0.4%	
Tweed Councillor	CO	66,934	50,020	3,984	166	Yes	Yes	Yes	1	1,000	1	0.0%	0.0%	0.4%	
Upper Hunter Councillor	CO	10,312	8,300	1,214	47	Yes	Yes	Yes	20	1,000	1	0.0%	0.0%	0.4%	
Wagga Wagga Councillor	CO	46,543	35,885	3,975	229	Yes	Yes	Yes	1	1,000	1	0.0%	0.0%	0.4%	

Detailed Results (9 of 13)

Contest Summary										High Level Analysis Results				Simulation Results			
Contest name	Contest type	No. of electors	No. of formal ballot papers	No. of additional ballot papers	Potential		Mayoral		Count requires further analysis	Min. vote difference during count	No. of simulations	No. of distinct election outcomes	No. of simulations with an alternative outcome	Observed frequency of alternative outcome	Estimated alternative frequency lower limit	Estimated alternative frequency upper limit	
					Contest requires further analysis	Contest requires further analysis	Count requires further analysis	No. of simulations									
Walgett Councillor	CO	3,958	2,507	421	23	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%		
Warrumbungle Councillor	CO	6,917	5,530	1,125	30	Yes	Yes	Yes	3	1,000	1	-	0.0%	0.0%	0.4%		
Waverley Bondi Councillor	CO	11,627	7,152	1,266	117	Yes	Yes	Yes	64	1,000	1	-	0.0%	0.0%	0.4%		
Waverley Waverley Councillor	CO	11,292	8,052	1,213	74	Yes	Yes	Yes	20	1,000	1	-	0.0%	0.0%	0.4%		
Weddin Councillor	CO	2,817	2,380	328	23	Yes	Yes	Yes	10	1,000	1	-	0.0%	0.0%	0.4%		
Wentworth Councillor	CO	4,365	3,318	327	12	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%		
Willoughby Middle Harbour Councillor	CO	11,702	9,385	1,654	81	Yes	No	Yes	1	1,000	1	-	0.0%	0.0%	0.4%		
Willoughby Naremburn Councillor	CO	11,108	8,633	1,739	43	Yes	No	Yes	1	1,000	1	-	0.0%	0.0%	0.4%		
Willoughby Sailors Bay Councillor	CO	11,843	9,502	1,569	86	Yes	No	Yes	2	1,000	1	-	0.0%	0.0%	0.4%		
Willoughby West Councillor	CO	12,076	9,425	1,979	88	Yes	No	Yes	12	1,000	1	-	0.0%	0.0%	0.4%		
Wollandilly Mayor	MA	37,015	31,355	5,060	211	Yes	Yes	Yes	18	1,000	1	-	0.0%	0.0%	0.4%		
Wollandilly East Councillor	CO	18,618	15,133	2,361	95	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%		
Wollandilly North Councillor	CO	18,397	14,655	2,679	116	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%		
Wollangong 1 Councillor	CO	52,849	42,750	6,389	345	Yes	No	Yes	3	1,000	1	-	0.0%	0.0%	0.4%		
Wollangong 2 Councillor	CO	51,853	41,073	7,743	436	Yes	No	Yes	1	1,000	1	-	0.0%	0.0%	0.4%		
Wollangong 3 Councillor	CO	50,820	40,706	6,501	304	Yes	No	Yes	1	1,000	1	-	0.0%	0.0%	0.4%		
Woodlairs Cooper Councillor	CO	7,027	5,892	1,047	69	Yes	Yes	Yes	1	1,000	1	-	0.0%	0.0%	0.4%		
Yass Valley Councillor	CO	12,588	9,452	1,762	70	Yes	Yes	Yes	2	1,000	1	-	0.0%	0.0%	0.4%		
Shoalhaven 3 Councillor	CO	27,777	22,029	2,374	127	Yes	Yes	No	861	1,000	1	-	0.0%	0.0%	0.4%		
Ballina Mayor	MA	33,097	26,913	3,166	140	No	No	No	618	1,000	1	-	0.0%	0.0%	0.4%		

Detailed Results (10 of 13)

Contest Summary													High Level Analysis Results				Simulation Results			
Contest name	Contest type	No. of electors	No. of formal ballot papers	No. of (Vote) ballot papers	Potential additional (Vote) ballot papers	Mayoral			Count requires further analysis	Min. vote difference during count	No. of simulations	No. of distinct election outcomes	No. of simulations with an alternative outcome	Observed frequency of alternative outcome	Estimated alternative frequency lower limit	Estimated alternative frequency upper limit				
						Contest requires further analysis	Contest requires further analysis	Contest requires further analysis												
Balina B Councillor	CO	11,639	9,087	1,244	53	No	No	No	No	175	1,000	1	-	0.0%	0.0%	0.4%				
Balina C Councillor	CO	10,615	8,237	1,133	52	No	No	No	No	354	1,000	1	-	0.0%	0.0%	0.4%				
Bellingen Mayor	MA	10,346	8,374	730	29	No	No	No	No	1,534	1,000	1	-	0.0%	0.0%	0.4%				
Blacktown 3 Councillor	CO	43,388	33,681	5,737	304	No	No	No	No	775	1,000	1	-	0.0%	0.0%	0.4%				
Bland Councillor	CO	4,154	3,211	499	25	No	No	No	No	109	1,000	1	-	0.0%	0.0%	0.4%				
Blayney Councillor	CO	5,471	4,560	393	23	No	No	No	No	120	1,000	1	-	0.0%	0.0%	0.4%				
Brewarrina Councillor	CO	893	550	55	-	No	No	No	No	19	1,000	1	-	0.0%	0.0%	0.4%				
Broken Hill Mayor	MA	13,412	10,812	978	38	No	No	No	No	924	1,000	1	-	0.0%	0.0%	0.4%				
Burwood Mayor	MA	21,155	17,797	3,285	149	No	No	No	No	3,119	1,000	1	-	0.0%	0.0%	0.4%				
Canada Bay Mayor	MA	58,599	48,542	9,851	491	No	No	No	No	1,500	1,000	1	-	0.0%	0.0%	0.4%				
Canterbury-Bankstown Bankstown Councillor	CO	45,230	34,062	7,416	337	No	No	No	No	4,434	1,000	1	-	0.0%	0.0%	0.4%				
Canterbury-Bankstown Roselands Councillor	CO	45,144	33,553	6,907	360	No	No	No	No	1,583	1,000	1	-	0.0%	0.0%	0.4%				
Casnock Mayor	MA	45,560	36,497	6,642	317	No	No	No	No	2,910	1,000	1	-	0.0%	0.0%	0.4%				
Coolamundra-Gundagai Councillor	CO	8,629	6,922	666	19	No	No	No	No	98	1,000	1	-	0.0%	0.0%	0.4%				
Cumberland Greystanes Councillor	CO	26,009	20,779	3,935	208	No	No	No	No	3,393	1,000	1	-	0.0%	0.0%	0.4%				
Cumberland South Granville Councillor	CO	24,889	17,397	3,328	196	No	No	No	No	5,815	1,000	1	-	0.0%	0.0%	0.4%				
Dubbo Dubbo Central Councillor	CO	6,908	5,320	717	36	No	No	No	No	1,316	1,000	1	-	0.0%	0.0%	0.4%				
Dubbo Dubbo East Councillor	CO	6,858	5,231	789	28	No	No	No	No	30	1,000	1	-	0.0%	0.0%	0.4%				
Dubbo Wellington Councillor	CO	6,885	5,524	600	24	No	No	No	No	26	1,000	1	-	0.0%	0.0%	0.4%				
Dungog A Councillor	CO	2,386	1,987	228	9	No	No	No	No	78	1,000	1	-	0.0%	0.0%	0.4%				

Detailed Results (11 of 13)

Contest Summary										High Level Analysis Results				Simulation Results			
Contest name	Contest type	No. of electors	No. of formal ballot papers	No. of additional I/Vote ballot papers	Potential		Mayoral		Min. vote difference during count	No. of simulations	No. of district election outcomes	No. of simulations with an alternative outcome	Observed frequency of alternative outcome	Estimated alternative frequency lower limit	Estimated alternative frequency upper limit		
					Contest requires further analysis	Contest requires further analysis	Count requires further analysis	No. of simulations									
Dungog B Councillor	CO	2,547	2,107	419	16	No	No	No	155	1,000	1	-	0.0%	0.0%	0.4%		
Dungog C Councillor	CO	2,518	2,041	345	8	No	No	No	161	1,000	1	-	0.0%	0.0%	0.4%		
Edward River Councillor	CO	5,354	4,558	273	9	No	No	No	71	1,000	1	-	0.0%	0.0%	0.4%		
Eurobodalla Mayor	MA	32,183	25,526	2,686	114	No	No	No	158	1,000	1	-	0.0%	0.0%	0.4%		
Gilgandra Councillor	CO	3,174	2,492	270	11	No	No	No	20	1,000	1	-	0.0%	0.0%	0.4%		
Greater Hume North Councillor	CO	2,733	2,048	149	8	No	No	No	108	1,000	1	-	0.0%	0.0%	0.4%		
Greater Hume West Councillor	CO	2,494	1,989	181	5	No	No	No	55	1,000	1	-	0.0%	0.0%	0.4%		
Gwydir Councillor	CO	3,788	2,940	461	17	No	No	No	100	1,000	1	-	0.0%	0.0%	0.4%		
Hornsby Mayor	MA	100,291	85,656	15,810	653	No	No	No	12,474	1,000	1	-	0.0%	0.0%	0.4%		
Hornsby C Councillor	CO	32,446	28,064	5,367	212	No	No	No	312	1,000	1	-	0.0%	0.0%	0.4%		
Hunters Hill Mayor	MA	9,881	8,356	1,363	71	No	No	No	218	1,000	1	-	0.0%	0.0%	0.4%		
Inverell Councillor	CO	12,942	9,887	1,128	26	No	No	No	103	1,000	1	-	0.0%	0.0%	0.4%		
Kempsey Mayor	MA	22,812	17,585	1,790	66	No	No	No	118	1,000	1	-	0.0%	0.0%	0.4%		
Kyogle B Councillor	CO	2,211	1,753	138	6	No	No	No	41	1,000	1	-	0.0%	0.0%	0.4%		
Kyogle C Councillor	CO	2,250	1,666	228	2	No	No	No	118	1,000	1	-	0.0%	0.0%	0.4%		
Lachlan E Councillor	CO	916	649	50	1	No	No	No	68	1,000	1	-	0.0%	0.0%	0.4%		
Lake Macquarie Mayor	MA	161,678	130,336	20,549	1,129	No	No	No	7,874	1,000	1	-	0.0%	0.0%	0.4%		
Liamors Mayor	MA	31,825	26,474	3,756	123	No	No	No	2,390	1,000	1	-	0.0%	0.0%	0.4%		
Liverpool Mayor	MA	145,484	115,177	24,286	1,179	No	No	No	1,584	1,000	1	-	0.0%	0.0%	0.4%		
Liverpool Plains Councillor	CO	5,717	4,480	592	27	No	No	No	33	1,000	1	-	0.0%	0.0%	0.4%		

Detailed Results (12 of 13)

Contest Summary										High Level Analysis Results										Simulation Results									
Contest name	Contest type	No. of electors	No. of formal ballot papers	No. of additional I/Vote ballot papers	Potential		Mayoral		Min. vote difference during counting	No. of simulations	No. of distinct election outcomes	No. of simulations with an alternative outcome	Observed frequency of alternative outcomes	Estimated alternative frequency lower limit	Estimated alternative frequency upper limit														
					Contest requires further analysis	Contest requires further analysis	Count requires further analysis	No. of simulations																					
Lockhart A. Councillor	CO	759	599	54	2	No	No	25	1,000	1	-	0.0%	0.0%	0.4%															
Lockhart B. Councillor	CO	777	615	75	3	No	No	29	1,000	1	-	0.0%	0.0%	0.4%															
Mosman Mayor	MA	20,731	16,425	2,470	131	No	No	444	1,000	1	-	0.0%	0.0%	0.4%															
Murrumbidgee Jerilderie Councillor	CO	898	686	96	3	No	No	6	1,000	1	-	0.0%	0.0%	0.4%															
Murrumbidgee Murrumbidgee Councillor	CO	871	648	80	1	No	No	15	1,000	1	-	0.0%	0.0%	0.4%															
Murrumbidgee Murrumbidgee East Councillor	CO	903	698	152	12	No	No	122	1,000	1	-	0.0%	0.0%	0.4%															
Nambucca Valley Mayor	MA	16,020	12,482	1,215	35	No	No	4,562	1,000	1	-	0.0%	0.0%	0.4%															
Newcastle Lord Mayor	MA	124,655	100,275	15,878	1,011	No	No	1,075	1,000	1	-	0.0%	0.0%	0.4%															
Parramatta Epping Councillor	CO	28,169	23,461	4,882	226	No	No	252	1,000	1	-	0.0%	0.0%	0.4%															
Port Macquarie-Hastings Mayor	MA	66,817	54,489	6,314	266	No	No	5,357	1,000	1	-	0.0%	0.0%	0.4%															
Port Stephens Mayor	MA	57,880	47,807	7,663	306	No	No	567	1,000	1	-	0.0%	0.0%	0.4%															
Port Stephens East Councillor	CO	18,301	14,813	1,811	83	No	No	1,659	1,000	1	-	0.0%	0.0%	0.4%															
Randwick East Councillor	CO	17,147	12,801	2,372	146	No	No	783	1,000	1	-	0.0%	0.0%	0.4%															
Randwick North Councillor	CO	17,382	13,121	2,242	147	No	No	1,799	1,000	1	-	0.0%	0.0%	0.4%															
Richmond Valley Mayor	MA	16,590	13,405	1,362	52	No	No	5,821	1,000	1	-	0.0%	0.0%	0.4%															
Shellharbour Mayor	MA	56,056	46,273	8,512	399	No	No	2,595	1,000	1	-	0.0%	0.0%	0.4%															
Shellharbour C. Councillor	CO	13,336	10,617	1,661	69	No	No	1,233	1,000	1	-	0.0%	0.0%	0.4%															
Singleton Mayor	MA	17,137	13,755	2,467	104	No	No	869	1,000	1	-	0.0%	0.0%	0.4%															
Tenterfield D Councillor	CO	979	747	27	-	No	No	16	1,000	1	-	0.0%	0.0%	0.4%															
The Hills Mayor	MA	123,651	105,384	25,519	1,227	No	No	7,148	1,000	1	-	0.0%	0.0%	0.4%															

Detailed Results (13 of 13)

High Level Analysis Results													Simulation Results				
Contest name	Contest type	No. of electors	No. of formal ballot papers	No. of additional (Vote ballot papers	Potential			Mayoral			No. of simulations with an alternative outcome	Observed frequency of alternative outcome	Estimated alternative frequency lower limit	Estimated alternative frequency upper limit			
					Contest requires further analysis	Contest requires further analysis	Contest requires further analysis	Count requires further analysis	Min. vote difference during count	No. of simulations					No. of distinct election outcomes		
The Hills East Councillor	CO	29,615	24,594	5,618	250	No	No	No	No	No	2,490	1,000	1	-	0.0%	0.0%	0.4%
The Hills West Councillor	CO	30,191	25,507	6,313	305	No	No	No	No	No	3,773	1,000	1	-	0.0%	0.0%	0.4%
Upper Lachlan Councillor	CO	6,435	5,219	660	19	No	No	No	No	No	49	1,000	1	-	0.0%	0.0%	0.4%
Uralla Mayor	MA	4,551	3,781	403	18	No	No	No	No	No	1,865	1,000	1	-	0.0%	0.0%	0.4%
Uralla A Councillor	CO	2,217	1,837	195	8	No	No	No	No	No	18	1,000	1	-	0.0%	0.0%	0.4%
Uralla B Councillor	CO	2,334	1,818	208	10	No	No	No	No	No	19	1,000	1	-	0.0%	0.0%	0.4%
Walcha B Councillor	CO	588	488	120	4	No	No	No	No	No	55	1,000	1	-	0.0%	0.0%	0.4%
Walcha D Councillor	CO	602	467	47	2	No	No	No	No	No	55	1,000	1	-	0.0%	0.0%	0.4%
Warren A Councillor	CO	492	332	83	5	No	No	No	No	No	8	1,000	1	-	0.0%	0.0%	0.4%
Warren B Councillor	CO	499	347	75	1	No	No	No	No	No	5	1,000	1	-	0.0%	0.0%	0.4%
Warren D Councillor	CO	492	335	25	-	No	No	No	No	No	1	1,000	1	-	0.0%	0.0%	0.4%
Wavelley Hunter Councillor	CO	10,787	8,114	1,601	91	No	No	No	No	No	985	1,000	1	-	0.0%	0.0%	0.4%
Wavelley Lawson Councillor	CO	11,839	8,770	1,366	58	No	No	No	No	No	550	1,000	1	-	0.0%	0.0%	0.4%
Willoughby Mayor	MA	46,729	37,942	6,921	333	No	No	No	No	No	2,531	1,000	1	-	0.0%	0.0%	0.4%
Wollongong Lord Mayor	MA	155,522	127,240	20,733	1,087	No	No	No	No	No	1,812	1,000	1	-	0.0%	0.0%	0.4%
Woolahra Bellevue Hill Councillor	CO	7,755	5,519	1,095	89	No	No	No	No	No	1,161	1,000	1	-	0.0%	0.0%	0.4%
Woolahra Double Bay Councillor	CO	6,051	5,716	1,127	67	No	No	No	No	No	860	1,000	1	-	0.0%	0.0%	0.4%
Woolahra Paddington Councillor	CO	8,291	5,834	1,165	87	No	No	No	No	No	1,298	1,000	1	-	0.0%	0.0%	0.4%
Woolahra Vaucluse Councillor	CO	8,045	5,997	1,177	57	No	No	No	No	No	2,371	1,000	1	-	0.0%	0.0%	0.4%

"F"

Sampling vote preferences from all ballots

The Shellharbour A and Kiama Councilor contests see an increase in the frequency of alternative outcomes when sampling from overall preference patterns and Willoughby Naremburn Councilor contests have new occurrences of alternative outcomes (at a low frequency rate) when sampling preferences from a

Contests with alternative outcomes

The following contests have alternative outcomes either when sampling from iVote preference patterns or when sampling from overall preference patterns:

Contest ID	Contest Name	Sampling from iVote preference patterns		Sampling from overall preference patterns		Frequency change
		Number of alternative outcomes	Frequency of alternative outcomes	Number of alternative outcomes	Frequency of alternative outcomes	
LG2101-091-01-05	Parramatta Rosehill Councilor	1	0.1%	0	0.0%	- 0.1%
LG2101-099-02-01	Shellharbour A Councilor	1	7.0%	1	30.1%	+ 23.1%
LG2101-123-02-02	Willoughby Naremburn Councilor	0	0.0%	1	0.1%	+ 0.1%
LG2101-053-01-00	Hay Councilor	1	0.7%	1	0.2%	- 0.5%
LG2101-060-01-00	Kempsey Councilor	1	61.0%	1	53.9%	- 7.1%
LG2101-061-01-00	Kiama Councilor	1	0.3%	1	2.6%	+ 2.3%
LG2101-101-01-00	Singleton Councilor	1	43.2%	1	42.9%	- 0.3%
LG2101-013-01-03	Blue Mountains 3 Councilor	0	0.0%	1	0.1%	+ 0.1%
LG2101-117-01-00	Walgett Councilor	0	0.0%	1	0.7%	+ 0.7%

Contests with zero frequency in the scenario where sampling occurs from iVote preference patterns, but there is a non-zero frequency when sampling from all ballot preferences

Observations

- Aside from these 9, all 250 other contests see no change from the baseline election result when adding additional iVotes through either sampling method.
- Shellharbour A Councilor sees a 23.1% increase in occurrences of alternative outcomes when sampling from overall preferences rather than iVote preferences.
- Kiama Councilor sees a 2.3% increase in occurrence of alternative outcomes when sampling from overall preferences rather than iVote preferences.
- Blue Mountains 3, Walgett and Willoughby Naremburn Councilor contests have new occurrences of alternative outcomes when sampling from overall preferences, albeit at a low frequency.

This ~~document~~ ~~is~~ the annexure marked "F" in the affidavit of Simon Kwok of ~~Shelley~~ ~~Shelley~~ this ~~10th~~ ~~10th~~ day of ~~January~~ ~~January~~ 20~~22~~ ~~22~~. Before me:

[Signature]
Justice of the Peace/Solicitor

This and the following 1 page is the measure
 marked "G" in the attached

Simon Knox
 dated 10/23/22
 before me

"G"

County Summary

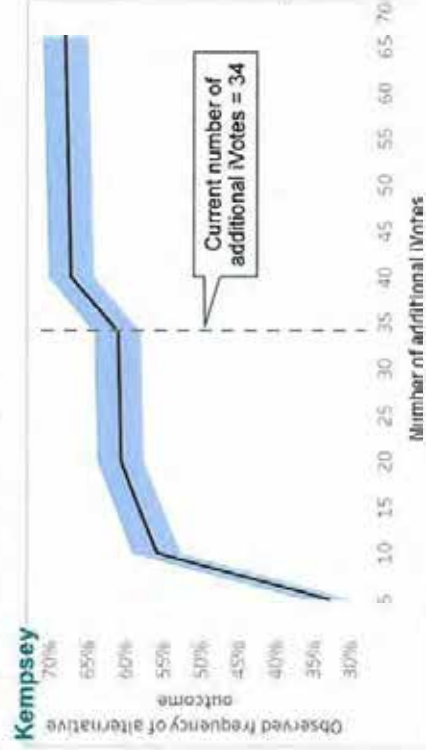
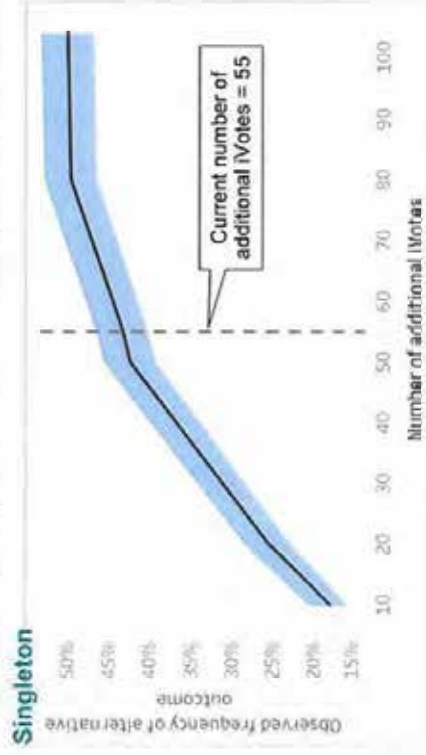
Justice of the Peace/Solicitor

County Name	Simulated type	No. of addresses	No. of houses	No. of votes	Potential additional vote based on paper	Current results	Current results analysis	Current results analysis	Current results analysis	No. of votes during count	Simulation Results		No. of simulations with an alternative outcome	Observed frequency of alternative outcomes	Estimated alternative frequency (upper limit)	Estimated alternative frequency (lower limit)
											No. of simulations	No. of observed outcomes				
Adair County	CO	2541	1004	1780	34	Yes	Yes	Yes	Yes	1000	2	2	0.002%	0.002%	0.002%	0.002%
Alameda County	CO	17137	12145	2487	55	Yes	No	Yes	Yes	1000	3	437	43.70%	46.1%	41.3%	48.3%
Alameda County	CO	15140	11122	2772	54	Yes	Yes	Yes	Yes	1000	2	70	7.00%	7.00%	7.00%	7.00%
Alameda County	CO	21106	15127	3122	8	Yes	Yes	Yes	Yes	1000	2	7	0.70%	0.70%	0.70%	0.70%
Alameda County	CO	10081	10018	3005	87	Yes	Yes	Yes	Yes	1000	2	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	20021	22243	5004	118	Yes	Yes	Yes	Yes	1000	2	1	0.10%	0.00%	0.00%	0.00%
Alameda County	CO	21046	19279	3004	142	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	12056	15223	1508	71	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	15043	15017	700	30	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	20017	20014	3003	127	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	22431	17278	3046	170	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10046	10186	3007	145	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	18032	18112	3007	343	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	20028	18333	2005	107	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	18401	14860	3078	130	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	25077	21155	1420	48	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	15048	15237	757	23	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10117	10225	300	20	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	34023	44912	11710	613	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10158	10424	1500	236	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	14025	14025	7000	343	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10015	10015	5007	415	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	14019	14030	1371	65	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	14140	14140	7070	13	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	14163	10567	1609	84	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10044	12376	1610	79	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	14028	14028	7014	13	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	15412	10099	3074	28	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	21105	17250	3080	149	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	22019	17230	1571	127	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	20016	18188	1621	107	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10113	10113	5056	30	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	25019	20235	4732	389	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	20047	20047	10023	242	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10113	10113	5056	201	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	11332	10532	1478	784	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10038	10038	5019	481	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	14026	14026	7013	142	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10128	10128	5064	368	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10124	10124	5062	391	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10014	10014	5007	4	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10013	10013	5006	73	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10014	10014	5007	68	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10015	10015	5007	146	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	11004	10014	1000	80	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10018	10018	5009	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10019	10019	5009	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10020	10020	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10021	10021	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10022	10022	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10023	10023	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10024	10024	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10025	10025	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10026	10026	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10027	10027	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10028	10028	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10029	10029	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10030	10030	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10031	10031	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10032	10032	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10033	10033	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10034	10034	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10035	10035	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10036	10036	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10037	10037	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10038	10038	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10039	10039	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10040	10040	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10041	10041	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10042	10042	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10043	10043	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10044	10044	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10045	10045	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10046	10046	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10047	10047	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10048	10048	5010	143	Yes	Yes	Yes	Yes	1000	1	0	0.00%	0.00%	0.00%	0.00%
Alameda County	CO	10														

Sutherland D Co/CO	33289	28543	4656	201	Yes	Yes	4	1000	1	0	0.00%	0.0%	0.4%
Sutherland E Co/CO	32653	28313	4370	235	Yes	Yes	233	1000	1	0	0.00%	0.0%	0.4%
Sydney Council/CO	176938	117382	38528	2003	Yes	Yes	1	1000	1	0	0.00%	0.0%	0.4%
Sydney East May/MA	176938	118511	39526	205	Yes	Yes	1635	1000	1	0	0.00%	0.0%	0.4%
Tarnworth Council/CO	44740	35318	4163	104	Yes	Yes	20	1000	1	0	0.00%	0.0%	0.4%
Temora Council/CO	4824	4846	395	13	Yes	Yes	2	1000	1	0	0.00%	0.0%	0.4%
The Hills Central CO	21148	26375	6847	212	No	No	17	1000	1	0	0.00%	0.0%	0.4%
The Hills North CO	32897	27025	7041	360	Yes	No	103	1000	1	0	0.00%	0.0%	0.4%
Tweed Council/CO	68834	50020	3984	166	Yes	Yes	1	1000	1	0	0.00%	0.0%	0.4%
Upper Hunter De CO	10312	8300	1218	47	Yes	Yes	20	1000	1	0	0.00%	0.0%	0.4%
Wagga Wagga CO	48542	35863	3076	229	Yes	Yes	1	1000	1	0	0.00%	0.0%	0.4%
Walgett Council/CO	3658	2507	421	23	Yes	Yes	1	1000	1	0	0.00%	0.0%	0.4%
Warumbungle CO	6817	5530	1125	30	Yes	Yes	3	1000	1	0	0.00%	0.0%	0.4%
Waverley Bond CO	11257	1132	1260	117	No	Yes	84	1000	1	0	0.00%	0.0%	0.4%
Waverley Waver/CO	11252	6052	1213	74	Yes	Yes	20	1000	1	0	0.00%	0.0%	0.4%
Wedin Council/CO	2617	2380	326	23	Yes	Yes	10	1000	1	0	0.00%	0.0%	0.4%
Winthorpe Dean CO	4365	3318	327	12	Yes	Yes	1	1000	1	0	0.00%	0.0%	0.4%
Wilooughby Midd CO	11700	9395	1634	81	No	No	3	1000	1	0	0.00%	0.0%	0.4%
Wilooughby Nares CO	11106	8623	1735	43	Yes	No	1	1000	1	0	0.00%	0.0%	0.4%
Wilooughby Sels/CO	11643	9502	1508	80	Yes	Yes	2	1000	1	0	0.00%	0.0%	0.4%
Wilooughby West CO	12076	9425	1876	98	Yes	Yes	1	1000	1	0	0.00%	0.0%	0.4%
Woolandilly East CO	18818	15153	2381	26	Yes	Yes	1	1000	1	0	0.00%	0.0%	0.4%
Woolandilly Mayo/MA	37015	31255	5080	211	Yes	Yes	14	1000	1	0	0.00%	0.0%	0.4%
Woolandilly North CO	18327	14925	2878	116	Yes	Yes	1	1000	1	0	0.00%	0.0%	0.4%
Woolandilly 1 CO/CO	52648	12790	6388	345	Yes	Yes	3	1000	1	0	0.00%	0.0%	0.4%
Woolandilly 2 CO/CO	51853	41073	7743	438	Yes	No	1	1000	1	0	0.00%	0.0%	0.4%
Woolandilly 3 CO/CO	50520	40705	9601	304	Yes	No	1	1000	1	0	0.00%	0.0%	0.4%
Woolahra Council/CO	7817	5902	1047	69	Yes	Yes	2	1000	1	0	0.00%	0.0%	0.4%
Yass Valley Coun/CO	12586	9452	1782	70	Yes	Yes	1	1000	1	0	0.00%	0.0%	0.4%
Balinala B Council/CO	11629	9087	1244	53	No	No	175	1000	1	0	0.00%	0.0%	0.4%
Balinala C Council/CO	201918	118	118	614	No	No	1	1000	1	0	0.00%	0.0%	0.4%
Balinala Mayor MA	33097	26913	3168	140	No	No	618	1000	1	0	0.00%	0.0%	0.4%
Ballingall Mayor MA	10346	8374	730	28	No	No	1534	1000	1	0	0.00%	0.0%	0.4%
Blackdown 3 Cou/CO	43385	33581	6737	364	No	No	1000	1000	1	0	0.00%	0.0%	0.4%
Blair Council/CO	4154	3211	489	25	No	No	108	1000	1	0	0.00%	0.0%	0.4%
Blayney Council/CO	5471	4580	393	23	No	No	120	1000	1	0	0.00%	0.0%	0.4%
Brewarrina Coun/CO	883	550	88	0	No	No	19	1000	1	0	0.00%	0.0%	0.4%
Broken Hill Mayor MA	10312	878	878	38	No	No	824	1000	1	0	0.00%	0.0%	0.4%
Burwood Mayor MA	21155	17797	3285	149	No	No	3118	1000	1	0	0.00%	0.0%	0.4%
Cananda Bay Mayor MA	50566	46542	9851	491	No	No	1500	1000	1	0	0.00%	0.0%	0.4%
Canterbury-Bank CO	42320	34982	7418	337	No	No	4434	1000	1	0	0.00%	0.0%	0.4%
Canterbury-Bank CO	45144	33553	6807	360	No	No	1583	1000	1	0	0.00%	0.0%	0.4%
Cessnock Mayor MA	45560	36497	6842	317	No	No	2910	1000	1	0	0.00%	0.0%	0.4%
Coalmondra-G/CO	8629	6922	866	19	No	No	88	1000	1	0	0.00%	0.0%	0.4%
Cumberland Cou/CO	24868	20759	3836	289	No	No	3383	1000	1	0	0.00%	0.0%	0.4%
Cumberland Sou/CO	24868	17397	3328	196	No	No	5515	1000	1	0	0.00%	0.0%	0.4%
Dubbo Dubbo Co/CO	8908	5320	717	38	No	No	1316	1000	1	0	0.00%	0.0%	0.4%
Dubbo Dubbo Ea CO	6856	5231	789	28	No	No	33	1000	1	0	0.00%	0.0%	0.4%
Dubbo Wallingat/CO	6865	5524	600	24	No	No	28	1000	1	0	0.00%	0.0%	0.4%
Dungog A Cou/CO	2396	1987	228	9	No	No	78	1000	1	0	0.00%	0.0%	0.4%
Dungog B Cou/CO	2547	2107	419	16	No	No	155	1000	1	0	0.00%	0.0%	0.4%
Dungog C Cou/CO	2519	2041	489	16	No	No	161	1000	1	0	0.00%	0.0%	0.4%
Edward River Co CO	6354	4559	273	9	No	No	171	1000	1	0	0.00%	0.0%	0.4%
Eurobodine Mayor MA	32183	25526	2888	114	No	No	158	1000	1	0	0.00%	0.0%	0.4%
Gilgandra Cou/CO	3174	2492	770	11	No	No	11	1000	1	0	0.00%	0.0%	0.4%
Greater Hume N/CO	2733	2048	148	8	No	No	108	1000	1	0	0.00%	0.0%	0.4%
Greater Hume W/CO	2484	1988	181	5	No	No	55	1000	1	0	0.00%	0.0%	0.4%
Gwydd Council/CO	3786	2940	117	8	No	No	100	1000	1	0	0.00%	0.0%	0.4%
Hornsby C Cou/CO	32446	26054	5367	212	No	No	312	1000	1	0	0.00%	0.0%	0.4%
Hornsby Mayor MA	100291	85656	15810	853	No	No	12474	1000	1	0	0.00%	0.0%	0.4%
Hunter Hill Mayor MA	9861	8359	1303	71	No	No	218	1000	1	0	0.00%	0.0%	0.4%
Inverell Council/CO	8607	6942	1128	28	No	No	103	1000	1	0	0.00%	0.0%	0.4%
Kempsey Mayor MA	22812	17585	1790	88	No	No	118	1000	1	0	0.00%	0.0%	0.4%
Kyogle B Council/CO	2211	1753	138	6	No	No	41	1000	1	0	0.00%	0.0%	0.4%
Kyogle C Council/CO	2250	1658	228	11	No	No	118	1000	1	0	0.00%	0.0%	0.4%
Lachlan E Cou/CO	916	649	80	1	No	No	80	1000	1	0	0.00%	0.0%	0.4%
Lake Macquarie IMA	161678	130335	20548	1128	No	No	7874	1000	1	0	0.00%	0.0%	0.4%
Lismore Mayor MA	31825	26474	3758	123	No	No	2380	1000	1	0	0.00%	0.0%	0.4%
Liverpool Mayor MA	145484	115177	24786	1175	No	No	1564	1000	1	0	0.00%	0.0%	0.4%
Liverpool Plains CO	5717	4460	582	27	No	No	33	1000	1	0	0.00%	0.0%	0.4%
Lockhart A Cou/CO	729	369	54	2	No	No	25	1000	1	0	0.00%	0.0%	0.4%
Lockhart B Cou/CO	777	615	76	0	No	No	29	1000	1	0	0.00%	0.0%	0.4%
Mosman Mayor MA	20731	16425	2470	131	No	No	444	1000	1	0	0.00%	0.0%	0.4%
Murrumbidgee Jr CO	888	886	98	3	No	No	8	1000	1	0	0.00%	0.0%	0.4%
Murrumbidgee M CO	871	849	80	3	No	No	15	1000	1	0	0.00%	0.0%	0.4%
Murrumbidgee M CO	803	693	152	12	No	No	122	1000	1	0	0.00%	0.0%	0.4%
Nambucca Valley MA	16028	12482	1215	35	No	No	4562	1000	1	0	0.00%	0.0%	0.4%
Newcastle Lord IMA	124922	104276	15618	1011	No	No	10175	1000	1	0	0.00%	0.0%	0.4%
Parrematta Epp/CO	29188	23461	4882	228	No	No	292	1000	1	0	0.00%	0.0%	0.4%
Port Macquarie-I MA	68817	54499	8514	286	No	No	5357	1000	1	0	0.00%	0.0%	0.4%
Port Stephens E/CO	18301	14813	1811	83	No	No	1659	1000	1	0	0.00%	0.0%	0.4%
Port Stephens M MA	57880	47607	7693	308	No	No	567	1000	1	0	0.00%	0.0%	0.4%
Randwick East CO	17147	12801	2372	148	No	No	783	1000	1	0	0.00%	0.0%	0.4%
Randwick North CO	17382	13121	2242	147	No	No	1799	1000	1	0	0.00%	0.0%	0.4%
Richmond Valley MA	10590	13405	1342	52	No	No	5611	1000	1	0	0.00%	0.0%	0.4%
Shellharbour C CO	13338	10617	1681	69	No	No	1233	1000	1	0	0.00%	0.0%	0.4%
Shellharbour May/MA	36056	48273	6512	399	No	No	2595	1000	1	0	0.00%	0.0%	0.4%
Singlinton Mayor MA	17137	13756	2467	104	No	No	869	1000	1	0	0.00%	0.0%	0.4%
Tamworth D Co/CO	478	747	27	0	No	No	18	1000	1	0	0.00%	0.0%	0.4%
The Hills East Co/CO	29615	24584	5618	250	No	No	2490	1000	1	0	0.00%	0.0%	0.4%
The Hills Mayor MA	123651	100384	25819	1227	No	No	7148	1000	1	0	0.00%	0.0%	0.4%
The Hills West CO	32181	23607	6313	305	No	No	3713	1000	1	0	0.00%	0.0%	0.4%
Upper Lachlan CO	6435	5219	690	19	No	No	48	1000	1	0	0.00%	0.0%	0.4%
Uralla A Council/CO	2217	1837	195	8	No	No	18	1000	1	0	0.00%	0.0%	0.4%
Uralla B Council/CO	2334	1818	298	10	No	No	19	1000	1	0	0.00%	0.0%	0.4%
Uralla Mayor MA	4251	3741	623	116	No	No	1665	1000	1	0	0.00%	0.0%	0.4%
Walcha B Cou/CO	588	488	120	4	No	No	55	1000	1	0	0.00%	0.0%	0.4%
Walcha D Cou/CO	602	467	47	2	No	No	56	1000	1	0	0.00%	0.0%	0.4%
Warren A Cou/CO	492	332	83	5	No	No	8	1000	1	0	0.00%	0.0%	0.4%
Warren B Cou/CO	499	347	75	1	No	No	5	1000	1	0	0.00%	0.0%	0.4%
Warren D Cou/CO	492	335	25	0	No	No	1	1000	1	0	0.00%	0.0%	0.4%
Waverley Hunter CO	10787	8114	1601	81	No	No	866	1000	1	0	0.00%	0.0%	0.4%
Waverley Leno/CO	11830	8770	1388	96	No	No	560	1000	1	0	0.00%	0.0%	0.4%
Wilooughby Mayo MA	46729	37842	6021	333	No	No	2531	1000	1	0	0.00%	0.0%	0.4%
Woolandilly Lond MA	155522	127340	20733	1087	No	No	1812	1000	1	0	0.00%	0.0%	0.4%
Woolahra Sels/CO	7755	6519	1095	89	No	No	1161	1000	1	0	0.00%	0.0%	0.4%
Woolahra Doubl CO	8051	5718	1127	67	No	No	880	1000	1	0	0.00%	0.0%	0.4%
Woolahra Pards CO	8291	5834	1185	87	No	No	1288	1000	1	0	0.00%	0.0%	0.

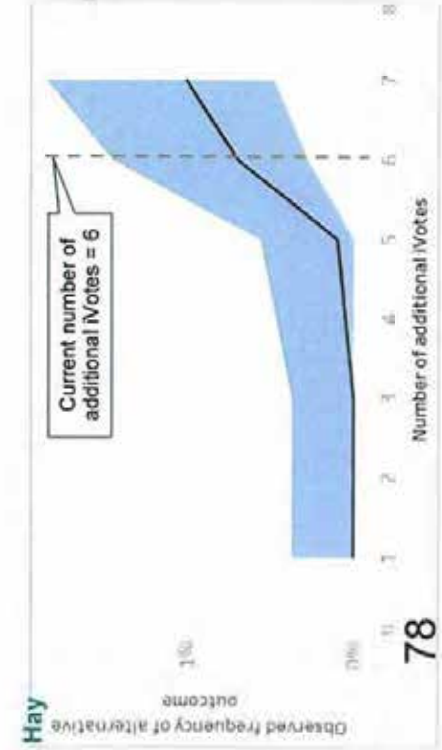
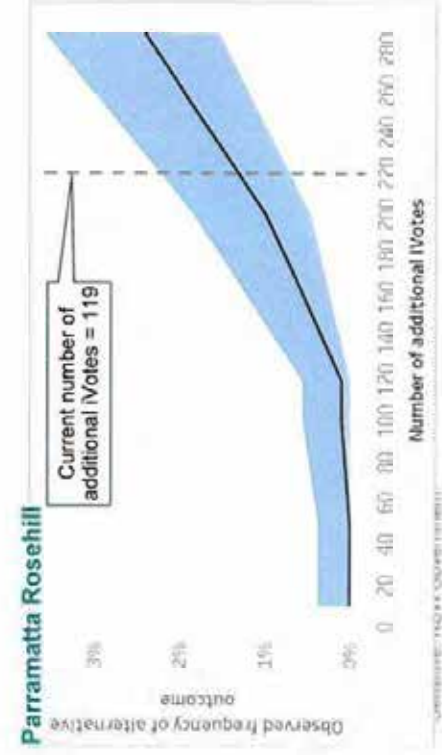
Varying the number of additional votes "H"

To test the sensitivity of election outcomes to the number of potential additional votes, the Monte Carlo simulation analysis was run with varying numbers of additional votes for each election. This allows the frequency of alternate outcomes to be plotted against the number of potential additional votes for each election.



— Observed frequency of alternative outcome
 ■ 95% confidence interval

Frequency of alternative outcomes reaches a plateau for Singleton and Kempsey



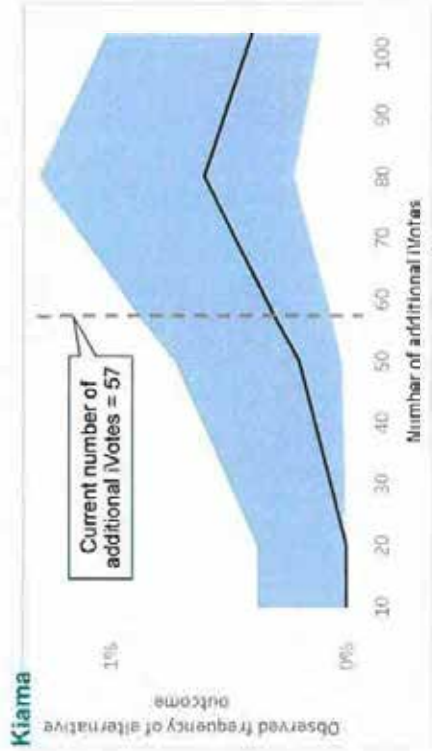
For Parramatta Rosehill and Hay, the frequency of alternative outcomes increases with number of additional votes

This and the following page is the annexure marked "H" in the affidavit of Simon Kwok dated at this 10th day of June 2012 before me.
 Justice of the Peace/Solicitor

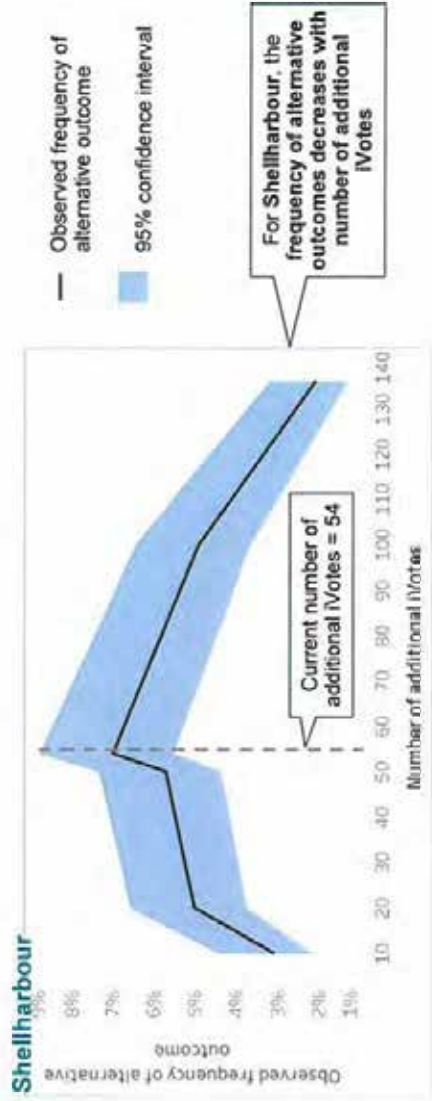
Varying the number of additional votes

2

To test the sensitivity of election outcomes to the number of additional votes, the Monte Carlo simulation analysis was run with varying numbers of additional votes for each election. This allows the frequency of alternate outcomes to be plotted against the number of missing votes for each election.



For Kiama, the frequency of alternative outcomes remains low but trends upwards with number of additional votes



For Shellharbour, the frequency of alternative outcomes decreases with number of additional votes

NSW Electoral Commissioner's statement: iVote and the 2021 NSW Local government elections

All of the Local Government Elections held on 4 December 2021 managed by the NSW Electoral Commissioner have now been declared.

Although the ordinary election processes are now complete, the Electoral Commission previously indicated that a number of electors who registered on election day to use the iVote system did not receive the necessary security credentials to cast their vote before the close of the poll.

The Electoral Commissioner indicated he would be undertaking an assessment of the materiality of this iVote issue.

Analysis of the impact of the iVote issue on these elections

An analysis of the potential impact of this iVote issue on the outcome of all the election has been completed. This analysis has now been posted on the Commission's website www.elections.nsw.gov.au/NSWEC/media/NSWEC/LGE21/iVote-Assessment-Methodology.pdf (<https://www.elections.nsw.gov.au/NSWEC/media/NSWEC/LGE21/iVote-Assessment-Methodology.pdf>)

The Electoral Commissioner is satisfied, based on this analysis, that there was no material impact on these elections, with the important exception of three contests.

In relation to:

- Kempsey – Councillor elections
- Singleton – Councillor Elections
- City of Shellharbour – Ward A – Councillor elections

The Electoral Commissioner has formed the view there is a possibility that, if all individuals who registered to use iVote on election day had been able to vote, a different outcome might have occurred.

Why the Electoral Commissioner has approved the declaration of these three contests

Under the *Local Government (General) Regulation 2021*, an election manager is to approve a returning officer declaring an election as soon as practicable once any recovery period has expired. The Electoral Commissioner decided it was appropriate to provide approval in accordance with the Regulation, and usual practice, despite the uncertainty raised by the iVote issue, including for the following reasons:

- while there is a possibility of a different outcome in these contests, it is not certain that this would have occurred had all registered individuals cast a vote using the iVote system
- if the three elections had not been declared, and subsequently failed, due to a number of logistical factors (including the forthcoming Federal Election) it may be practically impossible to hold fresh elections until the middle of 2022
- these elections have already been deferred twice due to the COVID-19 pandemic and a delay or refusal to approve a declaration over the Christmas/New Year holiday period would have caused additional uncertainty for election participants and their communities
- declaring the elections means the impacted councils can function with a governing body as soon as possible, which supports the operation of the local government sector, noting the important role of councils in responding to the COVID-19 pandemic impacts on the

communities.

The Electoral Commissioner notes that the exercise of his approval function for the returning officers to declare the elections is not a determination that these three elections are valid more generally.

Next steps in relation to these three elections

To address the risk of ongoing ambiguity about the materiality of the iVote issue for the elections, as well as to support the integrity of the electoral system more generally, the Electoral Commissioner will be applying to the Supreme Court as soon as practicable after the Christmas/New Year holiday period for a declaration about the validity of the election results in these three elections only.

The candidates in these contests, relevant registered political parties and the general managers of the three councils involved will be kept informed by the Electoral Commission about these proceedings via Bulletin. Any candidate who may be entitled to become a party to any proceedings in the Supreme Court will also be contacted directly early in the new year.



"J"

2021 NSW Local Government elections: Political Participants Bulletin

Bulletin No.19

Issued 23 December 2021

This and the following 2..... pages is the annexure marked "J....." in the affidavit of Simon Kwok sworn/affirmed at Sydney this 10th day of January 2022. Before me:

NSW ELECTORAL COMMISSIONER'S STATEMENT: iVOTE AND THE 2021 NSW LOCAL GOVERNMENT ELECTIONS

Justice of the Peace/Solicitor

All of the Local Government Elections held on 4 December 2021 managed by the NSW Electoral Commissioner have now been declared.

Although the ordinary election processes are now complete, the Electoral Commissioner previously indicated that a number of electors who registered on election day to use the iVote system did not receive the necessary security credentials to cast their vote before the close of the poll.

The Electoral Commissioner indicated he would be undertaking an assessment of the materiality of this iVote issue.

Analysis of the impact of the iVote issue on these elections

An analysis of the potential impact of this iVote issue on the outcome of all the elections has been completed. This analysis has now been posted on the Commission's website at:

https://elections.nsw.gov.au/NSWEC/media/NSWEC/L_GF21/iVote-Assessment-Methodology.pdf

The Electoral Commissioner is satisfied, based on this analysis, that there was no material impact on these elections, with the important exception of three contests.

In relation to:

- Kempsey – Councillor elections
- Singleton – Councillor Elections
- City of Shellharbour – Ward A – Councillor elections

the Electoral Commissioner has formed the view there is a possibility that, if all individuals who registered to use iVote on election day had been able to vote, a different outcome might have occurred.

Why the Electoral Commissioner has approved the declaration of these three contests

Under the *Local Government (General) Regulation 2021*, an election manager is to approve a returning officer declaring an election as soon as practicable once any recount period has expired. The Electoral Commissioner decided it was appropriate to provide his approval in accordance with the Regulation, and usual practice, despite the uncertainty raised by the iVote issue, including for the following reasons:

- while there is a possibility of a different outcome in these contests, it is not certain that this would have occurred had all registered individuals cast a vote using the iVote system
- if the three elections had not been declared, and subsequently failed, due to a number of logistical factors (including the forthcoming Federal Election) it may be practically impossible to hold fresh elections until the middle of 2022
- these elections have already been deferred twice due to the COVID-19 pandemic and to delay or refuse to approve a declaration over the Christmas/New Year holiday period would have caused additional uncertainty for election participants and their communities
- declaring the elections means the impacted councils can function with a governing body as soon as possible, which supports the operation of the local government sector, noting the important role of councils in responding to the COVID-19 pandemic impacts on their communities.

The Electoral Commissioner notes that the exercise of his approval function for the returning officers to declare the elections is not a determination that these three elections are valid more generally.

Next steps in relation to these three elections

To address the risk of ongoing ambiguity about the materiality of the iVote issue for these elections, as well as to support the integrity of the electoral system more generally, the Electoral Commissioner will be applying to the Supreme Court as soon as practicable after the Christmas/New Year holiday period for a declaration about the validity of the election results in these three elections only.

The candidates in these contests, relevant registered political parties and the general managers of the three councils involved will be kept informed by the Electoral Commission about these proceedings via Bulletin. Any candidate who may be entitled to become a party to any proceedings in the Supreme Court will also be contacted directly early in the new year.

Kind Regards,
Candidate Helpdesk
NSW Electoral Commission

This message is intended for the addressee named and may contain confidential information. If you are not the intended recipient, please delete it and notify the sender.

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Tel: 1300 022 011 | www.elections.nsw.gov.au



