

CORLA

Run Book

Introduction

What the RLA Tool Does

The Risk-Limiting Audit (RLA) tool, developed by Free & Fair for the Colorado Department of State for use in elections from November 2017 forward, supports a Risk-Limiting Audit as required by Colorado statute and as described in the Colorado Secretary of State's Rule 25 for elections. RLA-related terms and processes are defined and prescribed in Rule 25. See http://www.sos.state.co.us/pubs/rule_making/CurrentRules/8CCR1505-1/ElectionRules.pdf.

The RLA Tool enables the Secretary of State and each individual County to carry out a Risk-Limiting Audit. The Secretary of State can enter the risk limit, the random seed and the contests that drive the audit process. The Secretary of State can also identify contests that should go to a full hand count. Counties can upload ballot manifests and cast vote record (CVR) files. The RLA tool performs the necessary calculations (such as choosing random samples of ballots for audit and determining actual risk levels). County Audit Boards can enter interpretations of ballots into the tool. And the Secretary of State can monitor the progress of the individual Counties.

The RLA Tool also creates export files for use in the Audit Center, a website disseminating audit-related information to the public.

What the RLA Tool Does Not Do

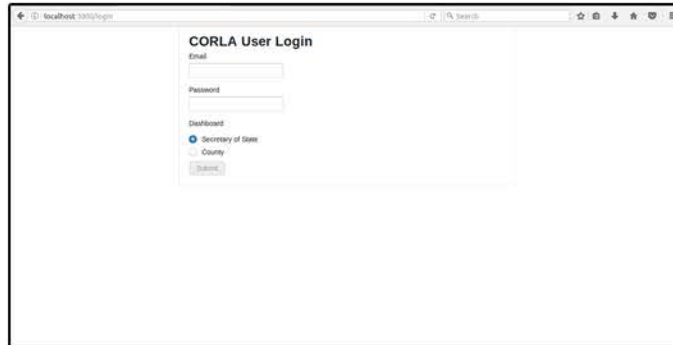
Although the rules governing the RLA requires Counties to generate and preserve a Summary Results Report and a Results File Export, the RLA Tool does not interact with these particular files in any way. Nor does the RLA Tool aid the CVR Export Verification required by the rules. These processes and files are not discussed in this Run Book.

While the RLA Tool does provide for upload of the hashed Ballot Manifest, the hashed CVR file and their hashes, the RLA Tool does not provide a hashing utility.

The current version of the RLA Tool does not provide any support for chain of custody logs. Nor does it provide any rules or suggestions for interpretation of the marks on any particular ballot.

For Secretary of State Users

Logging In



A screenshot of a web browser showing the 'CORLA User Login' page. The page has a white background with a light gray border. At the top, there's a search bar. Below it, the title 'CORLA User Login' is centered. There are two input fields for 'Email' and 'Password'. Below these, there's a 'Dashboard' section with two radio buttons: 'Secretary of State' (which is selected) and 'County'. At the bottom of this section is a 'Submit' button.

Entering the Risk Limit

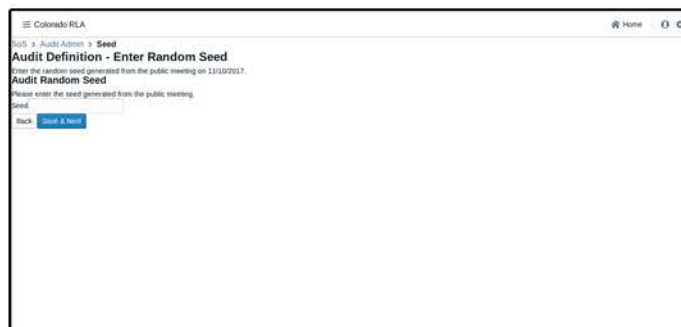
The Secretary of State will enter the Risk Limit for comparison audits.



A screenshot of a web browser showing the 'Administer an Audit' page. The page has a white background with a light gray border. At the top, there's a breadcrumb trail: 'Home > Audit Admin > Administer an Audit'. Below this, the title 'Administer an Audit' is centered. There's a section for 'Audit Definition' with a text input field for 'Enter the date the election will take place, and the type of election.' and a 'Submit' button. Below this, there's a 'Risk Limits' section with a text input field for 'Enter the risk limit for a class, change the percentage shown.' and a 'Submit' button. At the bottom, there's a 'Comparison Audits' section with a text input field for 'Enter the comparison audit name.' and a 'Submit' button.

Entering the Random Seed

The Secretary of State will enter the random seed.



A screenshot of a web browser showing the 'Audit Definition - Enter Random Seed' page. The page has a white background with a light gray border. At the top, there's a breadcrumb trail: 'Home > Audit Admin > Seed'. Below this, the title 'Audit Definition - Enter Random Seed' is centered. There's a text input field for 'Enter the random seed generated from the public meeting on 11/19/2017.' and a 'Submit' button. Below this, there's a 'Please enter the seed generated from the public meeting.' section with a text input field for 'Seed' and a 'Submit' button.

Selecting Contests

The Secretary of State will select the contests that will drive the sample size and stop/go decisions for each round.

localhost:3000/sos/audit/select-contests

Search

Colorado RLA

Home

SoS > Audit Admin > Select Contests

Contest ID	Contest Name	Full hand count	Audit?	Reason
22	State Representative - District 56	<input type="checkbox"/>	<input type="checkbox"/>	
63	Proposition 108 (Statutory)	<input type="checkbox"/>	<input type="checkbox"/>	
21	State Representative - District 42	<input type="checkbox"/>	<input type="checkbox"/>	
15	State Representative - District 9	<input type="checkbox"/>	<input type="checkbox"/>	
68	BALLOT QUESTION 301	<input type="checkbox"/>	<input type="checkbox"/>	
41	Colorado Court of Appeals Judge - Dunn	<input type="checkbox"/>	<input type="checkbox"/>	
81	BALLOT ISSUE 5D	<input type="checkbox"/>	<input type="checkbox"/>	
42	Colorado Court of Appeals Judge - Furman	<input type="checkbox"/>	<input type="checkbox"/>	
14	State Representative - District 3	<input type="checkbox"/>	<input type="checkbox"/>	
16	State Representative - District 36	<input type="checkbox"/>	<input type="checkbox"/>	
66	BALLOT ISSUE 2C	<input type="checkbox"/>	<input type="checkbox"/>	
62	Proposition 107 (Statutory)	<input type="checkbox"/>	<input type="checkbox"/>	
5	State Board of Education Member - Congressional District 6	<input type="checkbox"/>	<input type="checkbox"/>	
43	Colorado Court of Appeals Judge - Hawthorne	<input type="checkbox"/>	<input type="checkbox"/>	
31	COUNTY COMMISSIONER DISTRICT 3	<input type="checkbox"/>	<input type="checkbox"/>	
4	Representative to the 115th United States Congress - District 6	<input type="checkbox"/>	<input type="checkbox"/>	
50	District Court Judge - 18th Judicial District - Martinez	<input type="checkbox"/>	<input type="checkbox"/>	
0	Presidential Electors	<input type="checkbox"/>	<input type="checkbox"/>	
39	Colorado Court of Appeals Judge - Berger	<input type="checkbox"/>	<input type="checkbox"/>	
9	State Senator - District 26	<input type="checkbox"/>	<input type="checkbox"/>	
25	Regional Transportation District Director - District D	<input type="checkbox"/>	<input type="checkbox"/>	
6	Regent of the University of Colorado - At Large	<input type="checkbox"/>	<input type="checkbox"/>	
57	Amendment 69 (Constitutional)	<input type="checkbox"/>	<input type="checkbox"/>	
27	Regional Transportation District Director - District F	<input type="checkbox"/>	<input type="checkbox"/>	
70	BALLOT ISSUE 3A	<input type="checkbox"/>	<input type="checkbox"/>	
34	Councilmember District 1	<input type="checkbox"/>	<input type="checkbox"/>	
13	State Senator - District 31	<input type="checkbox"/>	<input type="checkbox"/>	
11	State Senator - District 28	<input type="checkbox"/>	<input type="checkbox"/>	
32	COUNTY COMMISSIONER DISTRICT 5	<input type="checkbox"/>	<input type="checkbox"/>	
36	Councilmember District 5	<input type="checkbox"/>	<input type="checkbox"/>	

Back

Save & Next

Audit Ongoing Page

This screen provides an overview of the audit in progress, both counties, and contests.

localhost:3000/sos

Search

Home

No notifications.

County Updates

ID	Name	Started	Submitted	Progress
1	Adams			
2	Alamosa			
3	Arapahoe			
4	Archuleta			
5	Baca			
6	Bent			
7	Boulder			
8	Chaffee			
9	Cheyenne			
10	Clear Creek			
64	Broomfield			

Contest Updates

ID	Name	Status	Target Risk Limit	Risk Level
22	State Representative - District 56			
63	Proposition 108 (Statutory)			
21	State Representative - District 42			
15	State Representative - District 9			
68	BALLOT QUESTION 301			
41	Colorado Court of Appeals Judge - Dunn			
81	BALLOT ISSUE 5D			
42	Colorado Court of Appeals Judge - Furman			
14	State Representative - District 3			
16	State Representative - District 36			
39	Colorado Court of Appeals Judge - Berger			
9	State Senator - District 26			
25	Regional Transportation District Director - District D			
6	Regent of the University of Colorado - At Large			
57	Amendment 69 (Constitutional)			
27	Regional Transportation District Director - District F			
70	BALLOT ISSUE 3A			
34	Councilmember District 1			
13	State Senator - District 31			
11	State Senator - District 28			
32	COUNTY COMMISSIONER DISTRICT 5			
36	Councilmember District 5			

Seed: deadbeefdeadbeefdeadbeefdeadbeefdeadbeefdeadbeefdeadbeefdeadbeefdeadbeef

Final Audit Report

Declaring a Full Hand Count

localhost:3000/sos/audit/select-contests

Search

Colorado RLA

Home

SoS > Audit Admin > Select Contests

Contest ID	Contest Name	Full hand count	Audit?	Reason
22	State Representative - District 56	<input type="checkbox"/>	<input type="checkbox"/>	
63	Proposition 108 (Statutory)	<input type="checkbox"/>	<input type="checkbox"/>	
21	State Representative - District 42	<input type="checkbox"/>	<input type="checkbox"/>	
15	State Representative - District 9	<input type="checkbox"/>	<input type="checkbox"/>	
68	BALLOT QUESTION 301	<input type="checkbox"/>	<input type="checkbox"/>	
41	Colorado Court of Appeals Judge - Dunn	<input type="checkbox"/>	<input type="checkbox"/>	
81	BALLOT ISSUE 5D	<input type="checkbox"/>	<input type="checkbox"/>	
42	Colorado Court of Appeals Judge - Furman	<input type="checkbox"/>	<input type="checkbox"/>	
14	State Representative - District 3	<input type="checkbox"/>	<input type="checkbox"/>	
16	State Representative - District 36	<input type="checkbox"/>	<input type="checkbox"/>	
66	BALLOT ISSUE 2C	<input type="checkbox"/>	<input type="checkbox"/>	
62	Proposition 107 (Statutory)	<input type="checkbox"/>	<input type="checkbox"/>	
5	State Board of Education Member - Congressional District 6	<input type="checkbox"/>	<input type="checkbox"/>	
43	Colorado Court of Appeals Judge - Hawthorne	<input type="checkbox"/>	<input type="checkbox"/>	
31	COUNTY COMMISSIONER DISTRICT 3	<input type="checkbox"/>	<input type="checkbox"/>	
4	Representative to the 115th United States Congress - District 6	<input type="checkbox"/>	<input type="checkbox"/>	
50	District Court Judge - 18th Judicial District - Martinez	<input type="checkbox"/>	<input type="checkbox"/>	
0	Presidential Electors	<input type="checkbox"/>	<input type="checkbox"/>	
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9	State Senator - District 26	<input type="checkbox"/>	<input type="checkbox"/>	
25	Regional Transportation District Director - District D	<input type="checkbox"/>	<input type="checkbox"/>	
6	Regent of the University of Colorado - At Large	<input type="checkbox"/>	<input type="checkbox"/>	
57	Amendment 69 (Constitutional)	<input type="checkbox"/>	<input type="checkbox"/>	
27	Regional Transportation District Director - District F	<input type="checkbox"/>	<input type="checkbox"/>	
70	BALLOT ISSUE 3A	<input type="checkbox"/>	<input type="checkbox"/>	
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11	State Senator - District 28	<input type="checkbox"/>	<input type="checkbox"/>	
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36	Councilmember District 5	<input type="checkbox"/>	<input type="checkbox"/>	

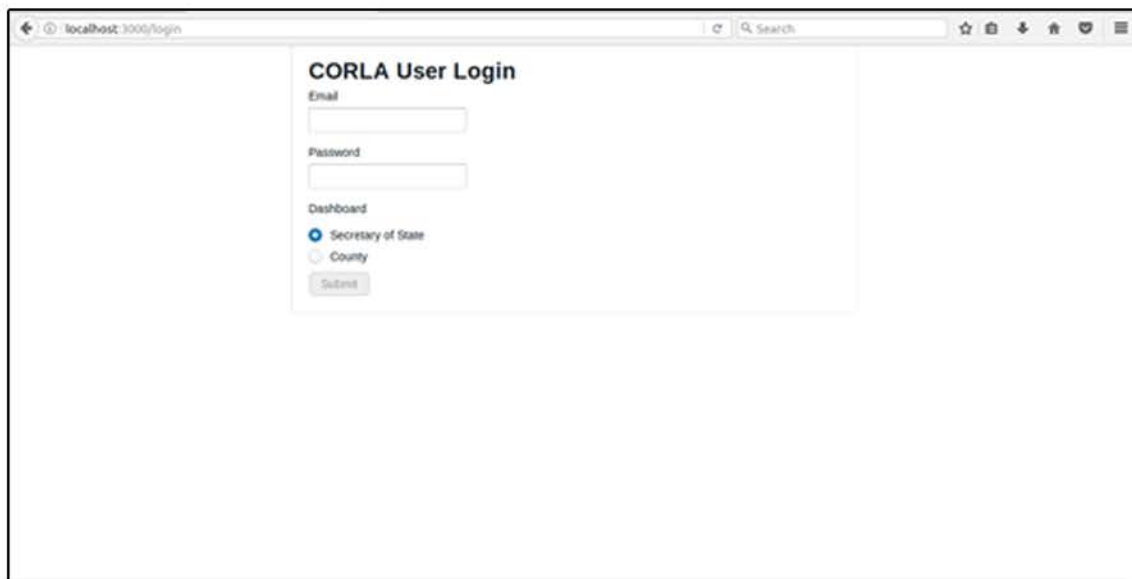
Back

Save & Next

For County Administrators

For the 2017 Colorado implementation, the full functionality of the RLA Tool requires exports from the Dominion System.

Logging In



A screenshot of a web browser window showing the 'CORLA User Login' page. The browser's address bar displays 'localhost:3000/login'. The login form is centered on the page and includes the following elements:

- CORLA User Login**: The title of the login form.
- Email**: A text input field for the user's email address.
- Password**: A text input field for the user's password.
- Dashboard**: A section with two radio button options:
 - ☒ Secretary of State
 - ☐ County
- Submit**: A button to submit the login information.

Comparison Audit Upload

To prepare for upload the ballot manifest and the CVR file must be first verified and hashed. The RLA Tool does not provide a utility for the verification and hashing.

Once the ballot manifest and CVR files are verified and hashed, they can be uploaded. If the upload process is interrupted the process will have to be repeated, it will not resume uploads.

The screenshot shows the Colorado RLA tool interface for Acme County. The header includes the Colorado RLA logo and navigation links for Home, Help, and Settings. The main heading is "Hello, Acme County!" followed by the instruction "Please upload your Ballot Manifest and Cast Vote Records." Below this, there are two upload sections: "Ballot Manifest" and "Cast Vote Records", each with a "No file uploaded." status and a "Browse" button. A "Start Audit" button is located below the upload sections. The interface is divided into two columns: "County Info" and "Contest info".

County Info

Election Date: 11/07/2017
Audit Date: 11/18/2017

Contest info

Regent of the University of Colorado - At Large

ID	Name
1	Harley Acosta
2	Tessa McKinney
3	Regina Robles

Proposition 107 (Statutory)

ID	Name
4	Yes
5	No

COUNTY COMMISSIONER - At Large

ID	Name
7	Maya McLaughlin
8	Rachelle Kramer
9	Nina Jimenez
10	Felicia Reid
11	Julian Jenkins

Note that the RLA Tool does not support export of the tabulation results to the Election Night Reporting System.

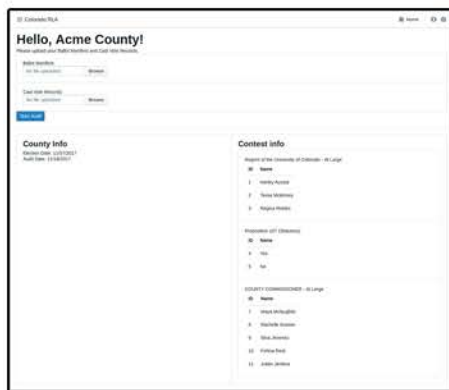
Ballot Polling Audit Upload

The current version RLA Tool is designed for comparison audits, which require a voting system capable of exporting CVR files. However, Counties whose voting systems do not export CVR files can use the RLA Tool to upload ballot manifests, described in the Comparison Audit Upload section.

For County Audit Boards

Signing In

The Audit Board does not log directly into the RLA Tool with computer system usernames and passwords. However, whenever the Audit Board begins to interact with the RLA Tool, either at the beginning of an audit round or after taking a break, there is an informal sign-in process. After the authenticated County Audit Administrator formally logs in, there is a screen where the identity and party affiliation of Audit Board Members can be entered or changed.



The screenshot shows the 'Hello, Acme County!' interface. At the top, there are two input fields: 'Enter members' and 'Load data manually', each with a 'Browse' button. Below these is a blue 'Start Audit' button. The main content area is divided into two columns. The left column, titled 'County Info', contains 'County Code: 00100001' and 'Audit Date: 11/18/2021'. The right column, titled 'Contest Info', contains a dropdown for 'Segment of the University of Colorado - All College' with 'All' selected, and a list of contests: '1. County Auditor', '2. County Treasurer', and '3. Judge of Probate'. Below this is a section for 'Propositions and Measures' with a dropdown for 'All' and a list of measures: '1. Ballot Measure', '2. Ballot Measure', '3. Ballot Measure', '4. Ballot Measure', '5. Ballot Measure', '6. Ballot Measure', '7. Ballot Measure', '8. Ballot Measure', '9. Ballot Measure', '10. Ballot Measure', '11. Ballot Measure', '12. Ballot Measure', '13. Ballot Measure', '14. Ballot Measure', '15. Ballot Measure', '16. Ballot Measure', '17. Ballot Measure', '18. Ballot Measure', '19. Ballot Measure', '20. Ballot Measure', '21. Ballot Measure', '22. Ballot Measure', '23. Ballot Measure', '24. Ballot Measure', '25. Ballot Measure', '26. Ballot Measure', '27. Ballot Measure', '28. Ballot Measure', '29. Ballot Measure', '30. Ballot Measure', '31. Ballot Measure', '32. Ballot Measure', '33. Ballot Measure', '34. Ballot Measure', '35. Ballot Measure', '36. Ballot Measure', '37. Ballot Measure', '38. Ballot Measure', '39. Ballot Measure', '40. Ballot Measure', '41. Ballot Measure', '42. Ballot Measure', '43. Ballot Measure', '44. Ballot Measure', '45. Ballot Measure', '46. Ballot Measure', '47. Ballot Measure', '48. Ballot Measure', '49. Ballot Measure', '50. Ballot Measure', '51. Ballot Measure', '52. Ballot Measure', '53. Ballot Measure', '54. Ballot Measure', '55. Ballot Measure', '56. Ballot Measure', '57. Ballot Measure', '58. Ballot Measure', '59. Ballot Measure', '60. Ballot Measure', '61. Ballot Measure', '62. Ballot Measure', '63. Ballot Measure', '64. Ballot Measure', '65. Ballot Measure', '66. Ballot Measure', '67. Ballot Measure', '68. Ballot Measure', '69. Ballot Measure', '70. Ballot Measure', '71. Ballot Measure', '72. Ballot Measure', '73. Ballot Measure', '74. Ballot Measure', '75. Ballot Measure', '76. Ballot Measure', '77. Ballot Measure', '78. Ballot Measure', '79. Ballot Measure', '80. Ballot Measure', '81. Ballot Measure', '82. Ballot Measure', '83. Ballot Measure', '84. Ballot Measure', '85. Ballot Measure', '86. Ballot Measure', '87. Ballot Measure', '88. Ballot Measure', '89. Ballot Measure', '90. Ballot Measure', '91. Ballot Measure', '92. Ballot Measure', '93. Ballot Measure', '94. Ballot Measure', '95. Ballot Measure', '96. Ballot Measure', '97. Ballot Measure', '98. Ballot Measure', '99. Ballot Measure', '100. Ballot Measure'.

Click on "Start Audit"
Screenshot (page:Audit Board Sign In) ---



The screenshot shows the 'Audit Board Sign-in' screen. At the top, there is a header 'Colorado RLA' and a 'Home' button. Below the header, there is a section titled 'Audit Board Sign-in' with a prompt: 'Enter the full names and party affiliations of each member of the Acme County Audit Board who will be conducting this audit today:'. The main content area is divided into two sections, each for an 'Audit Board Member'. The first section has a 'Full Name' field with 'John Smith' entered and a 'Party Affiliation' dropdown menu with 'Democratic Party' selected. The second section has a 'Full Name' field with 'Jane Doe' entered and a 'Party Affiliation' dropdown menu with 'Republican Party' selected. At the bottom left, there is a blue 'Next' button.

Click "Next"

Auditing Ballots

Note: do not use your browser's "back" arrow during the audit process.

The screenshot shows a web application titled "Colorado RLA" with a "Ballot verification" section. It includes instructions on how to use the page to report voter markings, a list of ballot IDs (44) and styles (C), and a warning to ensure the paper ballot matches the listed style. Below this, there are two contest sections. The first is for "Regent of the University of Colorado - At Large" with 3 choices: Harley Acosta, Tessa McKinney, and Regina Robles, plus a "No consensus" option. The second is for "COUNTY COMMISSIONER - At Large" with 5 choices: Maya McLaughlin, Rachelle Kramer, Nina Jimenez, Felicia Reid, and Julian Jenkins, plus a "No consensus" option. Each section has a "Comments" field with a "Click to Edit" link. At the bottom, there are "Back" and "Review" buttons.

Colorado RLA Home

Ballot verification

Use this page to report the voter markings on the ballot with ID #44, out of 7 ballots that you must audit.
The current ballot is:

- 44
- Style C

Please ensure that the paper ballot you are examining is the same ballot styleID.

Record here the **voter intent** as described by the Voter Intent Guide from the Secretary of State. All markings **do not** need to be recorded. Replicate on this page all **valid votes** in each ballot contest contained on this paper ballot. Or, in case of an **overvote**, record all final voter choices that contribute to the overvote. Please include notes in the comments field.

Regent of the University of Colorado - At Large
A contest with 3 choices, where 1 may be selected.
Vote for 1 out of 3

☐ Harley Acosta
☐ Tessa McKinney
☐ Regina Robles

☐ No consensus

Comments:
[Click to Edit](#)

COUNTY COMMISSIONER - At Large
A contest with 5 choices, where 3 may be selected.
Vote for 3 out of 5

☐ Maya McLaughlin
☐ Rachelle Kramer
☐ Nina Jimenez
☐ Felicia Reid
☐ Julian Jenkins

☐ No consensus

Comments:
[Click to Edit](#)

[Back](#) [Review](#)

Before recording voter intent, please double-check that the paper ballot ID and Ballot Style match the ID and ballot style listed on the screen. Then record on the screen all final voter intent marked on the paper ballot. In case of an overvote, mark each of the (too many) choices the voter intended; the RLA tool will recognize the overvote. In case the Audit Board cannot reach consensus, mark the "No Consensus" box on the screen. Audit Board members can make notes in the comment field.

Click "Review"

Check that the information on the review screen reflects the Audit Board's interpretation of the ballot. Note that in case of an over-vote, the review screen will say, simply, "overvote".

The screenshot displays a web interface for reviewing a ballot. At the top, the header reads "Colorado RLA" with a home icon and a settings icon. The main content area contains three distinct ballot review sections, each for a different contest:

- Contest 1:** "Regent of the University of Colorado - At Large". It specifies "A contest with 3 choices, where 1 may be selected." and "Vote for 1". Below this, there is a "Votes for:" field containing "Blank Vote" and an empty "Comments:" field.
- Contest 2:** "COUNTY COMMISSIONER - At Large". It specifies "A contest with 5 choices, where 3 may be selected." and "Vote for 3". Below this, there is a "Votes for:" field containing "Blank Vote" and an empty "Comments:" field.
- Contest 3:** "COUNTY COMMISSIONER - At Large". It specifies "A contest with 5 choices, where 3 may be selected." and "Vote for 3". Below this, there is a "Votes for:" field containing "Blank Vote" and an empty "Comments:" field.

At the bottom of the screen, there are two buttons: a "Back" button and a "Submit & Next Ballot" button.

Note: do not use your browser's "back" arrow during the audit process. If the review screen does not match the Audit Board's interpretation, click the "Back" button.

If the review screen matches the Audit Board's interpretation, click "Submit and Next Ballot". This submission is final. There is no way to revise a ballot interpretation once it has been submitted from the Review Screen.

This process continues until the audit is complete, or a Full Hand Count has been called by the CDOS.