

## Use Cases, Lists and Forms for Colorado Risk Limiting Vote Tabulation Audits

This note explains two accompanying preliminary rough draft spreadsheets that I hope may help the Participants Group and other interested individuals and groups envision, discuss, and refine specific steps and forms (often simple spreadsheets) that will be necessary to conduct risk-limiting vote tabulation audits in Colorado later this year.

After you review this note and the two spreadsheets, please suggest specific corrections and additions in order to refine and improve the initial proposed spreadsheets, which in turn will help us develop database and software requirements and initial designs in the coming weeks.

If you have comments or questions (and I hope you will!) please refer to specific steps and/or cells in [“Use Cases”](#) and specific spreadsheets and/or cells in [“RLVTA Forms – Sheets”](#) if possible. You can comment directly on the evolving dynamic versions of these spreadsheets on Google Drive or simply submit questions and suggestions for improvement via email, with reference to specific spreadsheets, columns, rows and cells as appropriate.

The spreadsheet titled [“Use Cases for Risk-Limiting Vote Tabulation Audits”](#) attempts to summarize about 30 individual “actions” that counties and the proposed “Audit Center” will need to take, along with what functions, software and forms or lists are likely to be needed for each step.

The second spreadsheet titled [“RLVTA Forms – Sheets Descriptions”](#) describes the purpose of several proposed draft spreadsheets that are referred to in the “Use Cases” spreadsheet, along with descriptions of individual columns that might be included in each of the following spreadsheets (terms in parentheses suggest the general purpose or nature of each spreadsheet):

1. Standard Contest Names (List) List of standard contest names
2. Candidate Names (List) List of standard candidate names
3. Ballot Style Contests (Spreadsheet) shows which contests are on each ballot style in a county
4. Style Counts (Spreadsheet) shows number of registered voters and cast ballots for each ballot style in county
5. Ballot Manifest (Spreadsheet) shows location and number of ballots in each batch in county
6. Individual Ballot Votes (Form) Form to record votes from individual ballots selected for auditing
7. Contest Results (Spreadsheet) shows vote counts for each contest in a county
8. Forms Columns (Spreadsheet) describes individual forms/spreadsheets and what data goes in each individual column of each sheet

All the spreadsheets listed above are contained as separate “sheets” with named tabs in a single snapshot Excel Workbook file (and the corresponding evolving master Google Spreadsheet on Google Drive). Most of the sheets include a few simple example rows to illustrate the kinds of data they would contain.

Details in all these spreadsheets are intended to be starting points for discussion, not final products. I undoubtedly have included some steps, columns and example data that may be irrelevant or erroneous for Colorado. I hope election officials and other experts will help correct those and suggest improvements. For example, we might want to use .pdf forms rather than spreadsheets for some types of data. At this point, the most important question is whether the columns in these draft spreadsheets capture all the types of data necessary for a risk-limiting audit, and whether counties can provide that data without too much difficulty.

Another question for the future is how we can best communicate data from counties to the Audit Center and vice-versa, and file naming conventions for uploading and downloading data. One familiar

mechanism, for example, might be a capability to “drag and drop” files or sets of files from one window to another and/or to present a file selection menu -- ala Google Drive and Dropbox.

Harvie has already made several useful suggestions concerning the Contest Results form, including

- break down votes by voting method (mail, drop-off, in-person), since a number of counties provide that information;
- include “residual votes” as a category, since under and over votes may not be distinguished due to onscreen adjudication;
- allow for incremental and/or cumulative results reporting, either by adding more Vote Count columns with corresponding time-stamps or multiple time-stamped versions of the Contest Results form itself.

It would be even better if the Audit Center could pull Contest Results data from the new Election Night Reporting (ENR) system or let counties submit the same data to both ENR and the Audit Center.

In any case, I hope these spreadsheets will help facilitate our work together, and look forward to suggestions for improvement of the “[Use Cases](#)” and “[RLVTA Forms – Sheets](#)” spreadsheets.