Dear Office of the Secretary of State:

I have read the report of the City and County of Denver Office of the Auditor concerning the 11/2017 RLA in Denver County, dated February 2018, and offer a few comments:

1. While it is commonly said that RLAs have a large chance of correcting outcomes that are incorrect, the Auditor's report has lost an important ingredient: that is only true if the paper trail (of ballots) is complete and intact. Other procedures and checks are needed to provide affirmative evidence that the paper trail is itself trustworthy.

2. This statement is slightly inaccurate: "The risk limit is a number, set by the Colorado Secretary of State, that is the largest statistical probability that an incorrect outcome is not detected and corrected by the RLA." A more accurate restatement would be "The risk limit is a number, set by the Colorado Secretary of State, that is the largest statistical probability that, if an outcome is incorrect, the RLA does not correct that outcome." Again, "correct" has the important nuance related to the integrity of the paper trail, as mentioned in point 1 above.

3. "The imprinted ID is used to create the cast vote record []" I think this statement is inaccurate. The imprinted ID is used to link the cast-vote record to the corresponding paper ballot. The cast-vote record is created by the voting system's software.

4. "[] each county audit board must retrieve each selected ballot card to prepare for the RLA. Once the selected ballot cards have been retrieved, the Denver audit board and Denver Elections Division officials compare the original ballot cards to the responses recorded by the scanning machines[]" This is not correct. (a) Retrieving the ballot cards is part of the RLA, not preparation for the RLA. (b) The comparison should not be performed by the audit board or the elections division: they should input their interpretation of voter intent without any reliance on the cast vote record. The RLATool software should perform the comparison.

5. I believe the report says CORLA (the audit procedure) where it means RLATool (the software).

6. I agree with the findings that Salesforce software is not an appropriate tool to create ballot manifests. However, some hand entry of data is probably unavoidable, because the manifests should be based on counts of paper obtained without reliance on the voting system. It is possible that SCORE or another system could reduce the need for manual data entry.

7. I am not aware of any requirement to "group ballots into small batches" for the RLA. Grouping ballots into small batches facilitates finding a particular ballot, but is not required for any technical reason.

8. The report stresses that manual systems are not as reliable as automated systems. That might be true when the automated system performs correctly, but the entire point of the audit is that automated systems for inferring voter intent, for counting pieces of paper, and for tabulating votes are not entirely trustworthy, and require some manual double checking. It is completely inappropriate to rely on the voting system to create the ballot manifest. That would render many kinds of error invisible to the audit, even if they altered electoral outcomes. Of course, the process for building a ballot manifest should have controls, whether the process is manual or automatic.

9. I disagree with the assertion that the audit process does not account for multi-page ballots. It does. As I discuss at length elsewhere (see the submission with Ron Rivest, Neal McBurnett, Mark Lindeman, and Kellie Ottoboni, sent in a separate email), one cannot rely on the voting system to identify which cards contain any particular contest. The audit needs to check ballot style (or card

style) information, not assume that the voting system correctly interpreted each piece of paper--even to tell whether a ballot card contains a particular contest. If there is external information to constrain the number of ballots of each style, e.g., from SCORE, there are audit methods that can then rely on the voting system for ballot style information, check the accuracy of that information, account for errors in that information, and still yield a risk-limiting audit. But absent external touchstones and statistically appropriate rules for dealing with discrepancies between the reported ballot style and the style according the a manual audit, the current process is as efficient as it can be.

10. I agree that it would be very desirable to develop and track performance metrics, such as the cost per batch opened, the cost per ballot retrieved, and the cost per vote audited.

Sincerely,
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