DEAN C. LOGAN
Registrar-Recorder/County Clerk

December 19, 2019

TO: Supervisor Kathryn Barger, Chair
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Sachi A. Hamai, Chief Executive Officer

FROM: Dean C. Logan, Registrar-Recorder/County Clerk

**NOVEMBER 5, 2019 LOCAL AND MUNICIPAL ELECTIONS
(AMENDMENT TO ITEM NO. 24, AGENDA OF NOVEMBER 19, 2019)**

On November 19, 2019, the Board approved the official certification of the November 5, 2019 Local and Municipal Elections and amended the agenda item to include a report back on the use of the new voting technology used in the pilot election such as any defects, faults or failures that occurred, including lessons learned and any data collected from participants.

SUMMARY

The full rollout of Los Angeles County's Voting Solutions for All People (VSAP) initiative is scheduled for the March 2020 Presidential Primary Election. The Department's VSAP Program has included various milestones to test and refine new equipment and processes prior to full implementation. These events have provided valuable insight to aid in planning for operations, unanticipated administrative challenges and, most importantly, how voters and election workers interact with the new equipment, processes and the overall voting experience. The Department conducted numerous internal VSAP test lab events throughout the summer of 2019 with Departmental staff and our stakeholder and technical advisory bodies. This was followed by a Countywide Mock Election event held on September 28-29, 2019. The Mock Election was the first large-scale Countywide event that promoted and educated the public on the new voting experience.

While these milestones were critical in the preparation of VSAP implementation, the Department also sought a similar opportunity through an actual election. The Department utilized provisions in the California Elections Code that authorize counties to conduct a pilot of uncertified voting equipment in a limited fashion if approved by the California Secretary of State (SOS). By testing

equipment that was not yet certified (parallel to the testing and certification process), this pilot program sought to yield significant information that could be applied to the VSAP Project. On February 3, 2019, the Department requested SOS approval to conduct a pilot program during the November 5, 2019 Local and Municipal Elections. This small-scale election provided an ideal setting for the Department to test the new VSAP voting equipment, which included the Ballot Marking Device (BMD), Tally System (Tally) and Electronic Pollbooks (ePollbooks). On May 6, 2019, the SOS approved the County's request to conduct a pilot program in conjunction with the November 5, 2019 election. This was the first pilot program in the State of California.

The pilot component of the November election was the first opportunity for voters and election workers to interact with the County's new VSAP equipment in a live election setting. Voters were given the option to use the traditional Vote Recorder/InkaVote ballot or to use the new VSAP BMD to cast their votes. The election was held as a traditional precinct-based election where voters went to individual polling places on Election Day. It is important to note that this pilot election was not a simulation of the County's new VSAP voting experience that will be in place during the March 2020 Presidential Primary Election. Much of the new voting experience is based on the vote center model where voters can vote at any location over an extended 11-day period authorized beginning in 2020; therefore, the pilot was limited to testing and assessing new equipment and interactions in parallel to the legacy precinct-based model. The primary intent of the pilot was to test VSAP equipment stability, functionality and procedures in a pre-certification environment.

Although not a full test of the new voting experience, the pilot proved beneficial as it enabled the Department to identify issues and to make refinements and adjustments to the system and procedures prior to system certification and ahead of full implementation. This will lead to greater administrative efficiency and public confidence in Los Angeles County elections. The information gained from the pilot is critically important and contributes directly to improving how future elections are administered and made available to the public.

The following sections of this report outline areas where the Department identified issues and lessons learned from the pilot election.

PROCEDURAL ISSUES

Equipment Deployment

During the pilot election, the Department encountered delays in deploying the VSAP voting equipment. The intention was to have ePollbooks and BMDs operational by 7AM at the 40 participating polling places, however, multiple polling places experienced delays of up to 120 minutes. These delays were a result of misalignment between the technical and supply teams within the Department. Because the InkaVote voting system was also deployed and served as the primary/certified voting system for the election, this did not disrupt voting and did not result in delayed opening of the polls.

While our teams have since identified and assessed the alignment issues and refined the processes and procedures for deploying equipment, it is important to note deployment of equipment under the full VSAP rollout will function much differently than in the pilot. The polling place model which was in place during the pilot, required that equipment be sent out on Election Day. In March and for future elections under the VSAP model, equipment will be delivered by a

professional transportation company and set-up will be completed during the 10 days in advance of the voting period at each Vote Center.

TECHNICAL ISSUES

ePollbook Printing

During the pilot election, the Department identified a couple of issues with the ePollbook's thermal printer. The thermal printer is utilized to print a quick response (QR) code onto the voter's ballot matched to the ballot style assigned based on the voter's residence address. While printers functioned well at the start of the day, the printer quality began to deteriorate as the day progressed. This degradation in print quality was found to be a result of paper dust accumulation in the printer and the attached paper guide not precisely aligning the ballot.

These issues caused the QR code to be printed outside of the target area. While this did not affect the voter's ballot or cause any disruption to the voter's experience, it did cause delays within the tallying process. Since the Tally system could not locate the QR code, the ballots could not be read by the scanners. Thus, the ballots were outstacked, or set aside, requiring a manual inspection and re-processing for successful tally.

Although the misprint of the QR code occurred in less than 1% of the total ballots processed, it provided the Department with valuable information. First, it proved that the Tally system operates as desired, outstacking ballots that cannot be read. Additionally, it alerted the Department of the need to further examine the accumulation of paper dust and to address that condition through additional testing in coordination with our paper vendor and through procedural modifications. As a result, Vote Center procedures are being modified to include regular cleaning or wiping down of the printer during check-in and election worker training curriculum will include orientation to these procedures. The printer guide used to align the ballot for printing has also been replaced/upgraded to a more precise guide designed for increased consistency. The replacement guide was selected and tested prior to the pilot election, however the new guides were not available at the time of the pilot election, so earlier test guides were used.

ePollbook Sample Ballot Scanning Feature

One of the features – and enhancements – embedded in the use of ePollbooks for voter check-in is the ability to scan the barcode on a voter's Sample Ballot booklet, if available, as a means of expediting the check-in process at Vote Centers. This functionality did not operate properly during the pilot. Upon review, it was identified that a data configuration setting used to import data from the Sample Ballot to the ePollbook was not executed. The pilot proved useful both in identifying the issue as well as in testing the contingency process for disabling the optional enhancement remotely once the issue was identified. Procedural, quality assurance and software changes have been implemented to address this issue prior to the full rollout in 2020.

Ballot Marking Device Hardware and Software

A primary focus of the pilot was to test the stability and viability of BMDs in the field. To that end, the Department focused attention and observation on voter and election worker interaction with the equipment. There were 80 BMD units deployed during the pilot; two each at 40 polling places.

While the BMDs functioned successfully for voters who self-selected to cast their ballots using the pilot equipment, there were issues identified, reported and addressed during the pilot that

informed a series of hardware and user interface modifications prior to final production and certification. Most of the issues related to technical deployment, election worker training and procedures. A smaller number of reported incidents related to paper jams and incomplete error code messages during set-up and reset of the equipment.

The paper jams were resolved by instructing voters to reinsert the ballots or through equipment reset, so they did not prevent a successful voting experience. The conditions associated with the paper jams were also issues logged during hardware testing prior to the pilot. Those conditions have been addressed through firmware upgrades and modifications to the integrated ballot box to allow for more effective, unobstructed movement of the ballot through the paper path from the point of insertion through resting in the ballot box. Those upgrades and modifications have since been subjected to volume testing. Similarly, the BMD set up screens that display error codes and user guides have been updated with more detailed reporting of the error condition and appropriate response or mitigation.

The pilot also served to test and validate system and user interface enhancements that were implemented as a result of feedback from the Mock Election. One key enhancement was the addition of design elements that notify a voter that a list of candidates spans across multiple screen views. This new design element made it easy for voters to identify the need to move down the ballot to see additional candidates. These included:

- adding a pulsating yellow ring to the "MORE" button; and
- adding a gradient effect so when a contest continues there is visible indication that the contest continues vs. the appearance that all options are visible in a single view

The Department recognizes that this is an important issue for compliance with California Voting Systems Standards and for public acceptance of the new voting devices. We believe the refinements and modifications enhanced the visibility of the "MORE" button from the initial design. The user testing, consulting advice from usability and design experts and stakeholders, and the data from the Pilot Election are compelling evidence that voters recognize and respond to the "MORE" button utility.

Additionally, we believe voter orientation and onsite signage at Vote Centers around the "MORE" button is prudent and will further enhance voters' understanding and effective use of the BMD ballot format. Those elements will be incorporated into our Vote Center training program and display resources.

Post-Election Audit

The requirements for conducting a pilot election required the County to conduct a risk-limiting audit of all ballots cast on non-certified voting equipment during the pilot. A risk-limiting audit is a type of post-election audit that requires manually checking statistical samples of paper ballots to see if official election results interpreted and tallied the ballots correctly.

At the time of the pilot, administrative rules defining the mathematical formulas and procedures for conducting risk-limiting audits in California were still pending adoption by the Secretary of State. To comply with the post-election audit requirement, the County conducted a full 100% hand (manual) count of all votes cast on BMD ballots.

A total of 5,852 votes were cast on 4,165 ballots using BMDs in the pilot. A hand (manual) count of the human-readable text on the paper BMD ballot validated the results produced by the VSAP Tally System with no discrepancies.

The post-election audit of the pilot provided the opportunity for the Department to test and validate newly developed procedures for hand counting and tallying BMD summary ballots. The pilot successfully validated the election results and identified areas for refining audit procedures and report formats.

VOTER FEEDBACK

As stated previously, the primary goal of the pilot was to test VSAP equipment, systems, and procedures to identify issues and make refinements prior to certification and full deployment. Due to the nature of this activity, we did not formally collect voter feedback. However, data was collected during the Mock Election which was held on September 28-29, 2019.

Public reaction to the new voting experience, including the new technology, was overwhelmingly positive. We conducted an online survey with those who participated in the Mock Election that resulted in the following:

- 87% of participants stated they were satisfied with the ePollbook;

- 89% stated they were satisfied with the BMD; and

- 91% of participants felt election workers were knowledgeable and helpful.

Additionally, various community organizations including CHIRLA, Disability Rights California and the National Council of Jewish Women gathered data by observing our processes and collecting voter feedback. The feedback presented by these groups was aligned with our survey results. In general, voters found the new voting equipment easy to use and enjoyed the new voting experience.

LESSONS LEARNED

The pilot assisted the Department in identifying and resolving issues that would not have been identified otherwise. Further, the pilot validated key usability features of the new voting equipment and revealed important insights related to training, deployment and voter education. A summary of lessons learned or reinforced includes:

- Sufficient and coordinated resources are needed to ensure timely and efficient distribution, transportation and deployment of Vote Center equipment and supplies;

- Comprehensive election worker and field support staff training, and deployment is needed to ensure successful Vote Center operations and to orient voters to the new equipment and voting model;

- Quality checks and effective documentation of configuration settings must be tested and validated prior to deployment and verified once equipment is in the field;

- Final hardware and firmware modification to improve the paper path and minimize paper jams was appropriate and effective;

- Voter orientation to navigation features on the BMD such as the "MORE" button in contests with multiple candidates; the utility of the integrated ballot box for final casting of ballots; and reinforcement that the printed, human-readable paper ballot is the official record of votes cast is essential to the comprehensive voter outreach and education program; and

- Ongoing field observation and stakeholder engagement are important to monitoring implementation of system changes of this magnitude and essential to identifying ongoing procedural improvements and future system enhancements.

If you have any questions or need additional information, please contact me or your staff may contact Terina Keresoma at (562) 462-3040 or tkeresoma@rrcc.lacounty.gov.

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