VSAP BOARD REPORT

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1. Executive Summary

Executive Summary - Key Points:

During the Presidential Primary Election in March, Los Angeles County introduced a new voting system that served nearly 1 million voters at more than 970 vote centers throughout the County.

Post-election surveys and voter exit polls indicate that most voters (70%) had a positive experience, while 20% reported a negative experience. Overall 15% percent of voters reported waiting more than 2 hours to vote. RR/CC acknowledges that not all voters were properly supported on Election Day, resulting in long waits and great frustration for many voters.

At the request of the Board of Supervisors, the RR/CC, with a team of experts, examined the issues and analyzed the causes behind those failures, which relate primarily to technology, training and capacity issues.

As a result, RR/CC already has started to improve training and procedures and to refinine its systems to ensure a better experience for ALL voters in future elections.

Los Angeles County introduced new Ballot Marking Devices (BMDs) in the March 2020 Presidential Primary Election. Voters reported that their experience with the BMDs was positive. The BMDs are new and, as with anything new, it will take some time for voters to become accustomed to using them, including features that ensure ballot security and voter privacy.

RR/CC looked carefully into the root causes of the issues experienced by voters. Here are some key findings:

- Vote Centers were open for 10 days before Election Day. 27% of voters cast ballots in the first 10 days; 73% on Election Day. RR/CC also received and processed 1,141,594 Vote by Mail (VBM) ballots.

- Longer wait times primarily resulted from technical issues with the electronic pollbooks (PollPads) that are used to check-in voters as they arrive at the Vote Centers. Even though ample network bandwidth was available, the PollPads had issues synchronizing data with the voter database and the voter search function was too limited for the size of the County's electorate. This resulted in delays as voters checked in. Also, some Vote Centers had fewer PollPads than needed to handle voter turnout on Election Day.

- While there was a perception among voters and the media that BMDs were not operable and contributed to wait times, generally this was not the case. Based on the data, BMD availability did not contribute to wait times, but some BMDs were unavailable for two reasons:

    1. While not intended, Election Workers did not make all BMDs available at the Vote Centers. Some BMDs were not turned on in larger Vote Centers because they were not identified as necessary to meet voter needs during the election. Had all BMDs been needed, Election Workers would have powered them on.

    2. There was a known issue with a printer gear that affected more BMDs than originally identified, causing 1,297 to be taken out of service because of paper jams. This affected 5.6% of the BMDs in the field.

- Network bandwidth between the PollPads and the voter database was sufficient and was not a constraint on Election Day.

- While RR/CC recruited the overall number of Election Workers needed, delays in Vote Center selection and late assignement of Election Workers caused some Vote Centers to be overstaffed and some to be understaffed because either too many Election Workers were assigned to a Vote Center or the Election Workers did not report as scheduled or at all. In most cases, multilingual Election Workers were stationed where needed, but the under/overstaffing issue applied to them as well. The need to have Vote Center Leads work 11 consecutive days proved to create difficulties for Vote Center Lead attendance and also caused difficulties filling those critical roles.

- Election Worker training started while many elements were still changing – procedures being finalized and new legislation being passed (Senate Bill 207) – which caused differences between training conducted earlier vs. later in the cycle. This represented a lot of change – new technology and new/changing procedures – for Election Workers to absorb.

- There were challenges and constraints in gaining access to and setting up Vote Centers, with some closing early or opening late, and some not opening at all on some days.

- The Help Desks where Election Workers and voters call to get help did not have adequate staff needed to respond to incoming call volume promptly. Technical issues with the telephone system also led to excessive wait times.

The RR/CC is committed to addressing each issue below in preparation for the November 2020 General Election.

Voter Wait Times

- Continue to put more resources toward encouraging voters to vote before Election Day at a Vote Center of their choice. With a broader distribution of voters across the voting period, fewer bottlenecks are likely todevelop and issues can be immediately identified and addressed.

- Work with the Secretary of State and KnowiNK, the vendor for PollPad, to reduce the PollPad synchronization time to rapidly receive and process updates from the KnowiNK ePulse voter database server and ensure the availability of PollPads to check in voters through KnowiNK's ongoing improvement and certification of the PollPad and ePulse products.

- Improve the search function to quickly match voters based on multiple criteria, and make it easier for voters to obtain and bring with them a scannable Voter ID from the Sample Ballot or access it on a mobile device using the Voter Registration Lookup Tool.

- Ensure that all Vote Centers have at least 5 PollPads and an appropriate number of BMDs for adequate capacity.

- Implement procedures to ensure all deployed PollPads are powered on, updated and ready for use in Vote Centers.

- Track wait times at Vote Centers and communicate wait times to voters in real time through an app that will better assist voters in selecting a Vote Center.

Ballot Marking Devices

- Continue work to replace the printer assemblies on all BMDs affected by the faulty printer gear.

- Train Election Workers to turn on all BMDs daily during the voting period.

Vote Center Locations

- Encourage voters to use the Online Vote Center Locator Tool.

- RR/CC also will implement a more effective management tool to maintain and manage a database that tracks identification, recruitment and updates, and Vote Center profiles on a real-time basis.

Vote Center Staffing

- Assign Field Support Technicians to specific Vote Centers rather than through a dispatch-only model to ensure that Election Workers receive technical support quickly to assist with any equipment issues.

- Assess and improve the process of assigning multilingual staff to ensure that staff who speak the languages of the community are available in Vote Centers.

- Complete implementation of the database to support Election Worker and Vote Center management (PollChief), to provide visibility into election worker assignments and ensure more consistent staffing across Vote Centers.

- Streamline the Vote Center Lead Program to ensure better Lead coverage across Vote Centers, including potentially breaking up the 11 consecutive days of service.

- Start Election Center Worker recruitment earlier.

Election Worker Training

- Generally, Election Workers assigned high grades to the quality of their training and received high marks from voters, but there is more to do.

- RR/CC will carefully examine the feedback from Election Workers and Leads gathered through the Election Worker Survey and Vote Center Leads Survey, feedback from voters, and other input.

- RR/CC will adapt the Election Worker training program to account for areas where deeper training is needed or where additional topics should be covered. Options include additional computer-based training (CBT) and/or extending in-person training.

- The Department will improve training on how best to communicate important instructions to voters, including how to cast their ballot in the BMD.

Voter and Election Worker Help Desk[1]

- RR/CC Help Desks for voters and Election Workers were inadequate, particularly on Election Day. The Department will engage an experienced outside firm to assess and document requirements for scaling Help Desk operations, infrastructure and telephone systems.

- Outsource IT Help Desk operations to an experienced telecommunications company that provides help desk/support services.

- Migrate all Help Desks onto a single incident management system, ensuring the ability to escalate and provide issue visibility across all groups.

- Ensure adequate numbers of staff and agent IDs for all Help Desk lines.

Vote by Mail Ballots

- Procedural and systems failures resulting in 17,000 voters receiving their Vote by Mail ballots later than scheduled trace to limitations in the County's Election Management System (EMS) and insufficient staff capacity.

- Incorporation of the Special Congressional District 25 contest following an extended candidate filing period required creation of ad hoc scripts and reports from the EMS that over taxed system and staffing resources to address the other election contests.

- The Department is working with the EMS vendor on modifications to better adapt to similar conditions in future elections.

Measure FD

- The issue involving three cities and Measure FD related to boundary changes that had not been updated in the Department's system.

- The error, in part, related to insufficient quality checks, a flaw in the process of regularly requiring updates to election boundaries and failure to validate those boundaries with the districts that placed measures on the ballot.

- The Department has put in place measures to address frequency and verification of jurisdictional boundaries and to ensure accuracy and currency of Geographic Information Systems data.

Ballot Boxes

- Voters in Los Angeles County are accustomed to a centralized ballot box at their polling place.

- While the integrated ballot box on the new Ballot Marking Devices allows voters to cast their ballot with greater accessibility and privacy, the new feature caused voters confusion. Over time, this will improve as voters become more familiar with the system.

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[1] RR/CC will work with the County's Chief Executive Officer to secure funding to accomplish this item. Because of the financial effects of addressing the COVID-19 health emergency the RR/CC may be unsuccessful in obtaining the necessary funding to accomplish these desired changes.

- The Department is modifying messaging in the user interface to make the process for casting ballots easier to understand.

Voter Feedback

- RR/CC will continue to utilize voter surveys to improve the volume and quality of feedback. Responses from the post-election surveys in March found 70% of respondents had a positive overall voting experience; 20% had a negative experience.

- A Loyola Marymount University exit poll found somewhat similar numbers: 87% of respondents said they had a positive overall voting experience at the Vote Centers, while 13% reported a fair or poor experience.

Conclusion

These results – and the findings derived from the Board's motion – will assist the Department in continuing to improve the voter experience for Los Angeles County voters.

RR/CC is engaged with the Secretary of State and a broad range of community stakeholders to prepare for the November 2020 Presidential General Election considering the effects of COVID-19 on the voting experience.

The actions RR/CC will take in preparation to address the Board Motion Items are listed below:

Board Motion Item	Potential Solutions
1. Excessive wait times that may have resulted from technical issues from the check-in process	▪ KNOWiNK to modify the ePulse and PollPad software to increase performance related to synchronization and lagging screen navigation seen in the March Election ▪ A minimum of 5 PollPads will be deployed to Vote Centers along with the appropriate associated number of BMDs to accommodate expected voter turnout with acceptable wait times ▪ Deployed PollPads will be connected every morning ▪ Define maximum PollPad allocation by network capacity ▪ KNOWiNK will fix the search functionality to retrieve reliable results ▪ Improve CVR processing through application modifications and additional training ▪ Modify the Sample Ballot to make it easier for voters to bring a scannable Voter ID Code to the Vote Center ▪ Modify the Voter Registration Lookup Application to allow voters to obtain their Quick Check-in Code on a smartphone while waiting in line to vote or before visiting the Vote Center ▪ Work with partners to implement a solution to track wait times at Vote Centers and communicate them to voters, giving voters the ability to choose Vote Center locations based on wait times
2. Ensuring appropriate staffing is maintained at each Vote Center location, including staff that speak languages of the community they serve, and enough staff to respond and fix technical challenges that arise at Vote Center locations	▪ Ensure appropriate multilingual staff is maintained at the Vote Center locations that speak the languages of the community they serve ▪ Include capability to generate appointment letters via new Election Worker Management System ▪ Streamline Vote Center Lead Program with a focus on time commitment and recruitment process for temporary staff ▪ Streamline Reservist Program with a focus on time commitment and recruitment process ▪ Assign Field Support Technicians to Vote Centers during the voting period to ensure adequate technical support
3. Evaluating the training required of election workers to ensure it is adequate and include feedback from election workers	▪ Finalize procedures before training begins ▪ Include in Election Worker training an orientation to training materials and support documents on the PollPad ▪ Based on survey results other data, RR/CC will assess the length and duration of training required for the November election

Board Motion Item	Potential Solutions
4. Determine what led to 17,000 voters not receiving their Vote by Mail ballots as scheduled	▪ Enhance the EMS to provide the ability to exclude districts and ballot types in data extracts ▪ Implement Quality Control in the extract data validation processes, assuring that all voters receive a VBM ballot as expected ▪ Test custom-developed scripts, which are intended to automate tasks, prior to implementation ▪ Work with EMS vendor and consultants to address database issues ▪ Normalize IT staff requirements, including overhaul of VoteCal/EMS sync processes ▪ Complete an analysis and seek legislative review to prevent shortened election schedules because of special vacancy elections from impacting legal deadlines

5. Determine how 3 cities and other smaller precincts were not included for Measure FD	▪ Require Special Districts to provide map and data files along with ordinances/resolutions for late submissions
	  ▪ Execute verbal and written validation of details and communicate submission deadlines
	  ▪ Cross-train staff in RR/CC quality control processes.
	  ▪ Create an online guide with a checklist of key tasks and milestones.
	  ▪ Structure and streamline the intake process.
	  ▪ Verify boundaries before every election

6. Discrepancies between official publications of Vote Center locations and actual/final Vote Center locations	▪ Continue encouraging the public to use the online Vote Center Locator Tool
7. Problems with the 'hotline' used for voters and election workers to report problems to ensure adequate staffing, including callers being disconnected because of high call volumes	▪ Engage a third-party vendor to provide IT Help Desk Call Center assessment and logistical planning. ▪ Engage a third-party vendor to provide IT Call Center staffing and management (outsourced) services ▪ Migrate all Help Desks into one incident management system ▪ Conduct call volume analysis to determine staffing needs ▪ Increase number of agent IDs for Pollworker Services Help Desk
8. An assessment of the set up at Vote Centers, deployment of resources and availability of staff at the Vote Centers	▪ Outsource Vote Center deployment ▪ Implement a data warehouse for Vote Center and Election Worker management ▪ Complete Vote Center recruitment by e-85 ▪ Enlist support for public site compliance and private site recruiting ▪ Operationalize Account Manager program
9. Identify the technical issues, including IT/internet connectivity and inoperable voting machines	▪ Complete BMD printer assembly replacements ▪ Test remaining BMDs for printer gear issues ▪ Train Election Workers to turn on all BMDs on Election Day

Board Motion Item	Potential Solutions

10. Assess whether ballot boxes should be separate from the Ballot Marking Devices	▪ Refine messaging as part of Voter Outreach and in Vote Centers emphasizing high-level, simple steps
	  ▪ Clarify on-screen text and imagery on the BMD to reinforce how to cast the ballot
	  ▪ Create a Check-in Clerk script advising voters on key points, including how to cast the ballot

11. Develop a plan to receive feedback from voters regarding their experience	▪ Administer voter survey and analyze results

2. Board Motion Items

Item 1. Excessive wait times that may have been a result of technical issues from the check-in process

Key findings:

- On Election Day, some voters experienced unacceptable wait times attributable to the check-in process at a number of Vote Centers.

- Lines at Vote Centers resulted from the check-in process; BMD capacity was not a constraint.

- During the 10-day voting period prior to Election Day, there were no reports of long wait times at Vote Centers. 27% of in-person voters voted during the 10-day period.

- On Election Day (March 3), some voters experienced an unacceptable wait time attributable to the check-in process at a number of Vote Centers. 73% of in-person voters voted on Election Day.

- Smaller Vote Centers were more likely to have longer wait times after 8 p.m. on Election Day.

- Technical issues related to PollPads contributed to wait times on Election Day

- Vote Centers with fewer than five PollPads experienced longer wait times.

- Network bandwidth at Vote Centers was not a constraint on Election Day.

- Using a Sample Ballot or other printed material containing the Voter ID Code significantly improved the speed of check-in.

Solutions/Remedies

*1. **KNOWiNK to modify the ePulse and PollPad software to increase performance related to synchronization and lagging screen navigation seen in the March Election.***

During this investigation, KNOWiNK recreated the election and data transactions in the production environment to simulate the events on Election Day. Analysis after the simulation highlighted various areas for their development team to address inefficiencies in the application, hardware utilization, and data transfer as part of the synchronization process. For example, the KNOWiNK team identified record duplication in the PollPad database that slowed the display of search results.

Prior to re-certification, the vendor (KNOWiNK) must load-test the application to ensure the modifications address the issues experienced on Election Day. A mock Voter Center will be created with 20 Check-in Clerks to test the behavior of the PollPads while thousands of transactions synchronize. This test will use the March Election transactions as a baseline, however, more transactions will be added to simulate the volume of a General Election. KNOWiNK will demonstrate to the County the product is still certified prior to use in the November election.

A number of modifications to the PollPad have already been made, and others are underway, to improve synchronization and latency.

2. *A minimum of 5 PollPads will be deployed to Vote Centers along with the appropriate associated number of BMDs to accommodate expected voter turnout with acceptable wait times.*

Each Vote Center will have at least 5 PollPads synchronized and available for use on Election Day. The number of BMDs in Vote Centers will be determined based on voter throughput analysis at check-in and at the BMDs using actual data related to check-in times and BMD voting session times collected during the March election.

3. *Deployed PollPads will be connected every morning.*

Training procedures will be modified to ensure that Election Workers are informed that all PollPads must be set up, powered, and connected to the network every morning. This will ensure that all the PollPads are synchronized during the entire election period. By having the PollPads synchronized daily, network bandwidth will not be consumed with larger datasets that negatively impact the other PollPads.

4. *Define maximum PollPad allocation by network capacity.*

KNOWiNK will provide minimum bandwidth requirements per PollPad taking the County's daily data volumes into consideration. AT&T will conduct a network assessment of every Vote Center's hardline and cellular capability to determine the potential networks available for the PollPad connections. From the minimum requirements, Vote Center device allocation will strictly adhere to the number of PollPads deployed to ensure network bandwidth does not become a constraint.

5. *KNOWiNK will fix the search functionality to retrieve reliable results.*

KNOWiNK will fix the deficiencies associated with the voter look-up search functions so returned results accurately filter voters. The search function will allow Election Workers to search using first name, last name, house number, and street name. This additional filter will significantly reduce the number of results returned from a voter search.

The new search functionality will be tested prior to the November election to ensure the results are as expected. The test will include all voter records to ensure non-unique names are present, so filtering can be tested will real data.

6. *Improve CVR processing through application modifications and additional training.*

KNOWiNK will modify the Precinct Selection screens when adding or editing a voter's address. When a voter's address is correctly selected on the interface, the precinct screen will be bypassed. The precinct selection screen will only be displayed if the entered address does not have a corresponding precinct.

Additionally, Election Workers will receive more training on the steps required to check in a CVR voter with the PollPad. Election Workers will also spend more time during training practicing CVR check-in with hands-on training. (For more detail, see Item 3. Evaluating the training required of Election Workers to ensure it is adequate and include feedback from Election Workers.)

7. *Modify the Sample Ballot to make it easier for voters to bring a scannable Voter ID Code to the Vote Center.*

A Sample Ballot is mailed to every registered voter in the County before Election Day. Included on the back cover of the Sample Ballot is the voter's unique Voter ID Code (barcode). The Voter ID Code is currently placed on the top half of the back cover, which is the detachable Application to Vote by Mail (VBM). Once a voter applies to receive a VBM ballot, the Voter ID Code is no longer available on the Sample Ballot, which is not ideal if the voter then chooses to vote at a Vote Center.

The back cover of the Sample Ballot will be modified to include the Voter ID Code in a second location and labeled as "Quick Check-in Code". Ideally, this location will be detachable to allow the voter to bring the Quick Check-in Code with them to the Vote Center without having to bring the entire Sample Ballot booklet. Placement of a detachable Quick Check-in Code is subject to change as RR/CC works with the vendor. A sample back cover of a Sample Ballot booklet containing the Quick Check-in Code could look like this:

Figure 1.   Sample Ballot with Quick Check-in Code
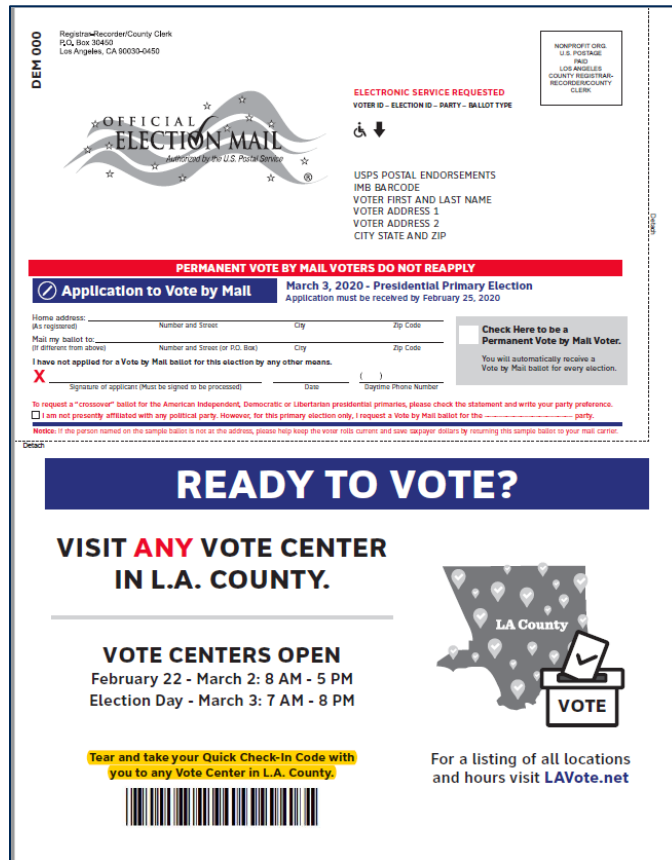
As part of the voter outreach campaign, voters will be encouraged to bring the Sample Ballot or the detachable portion containing the Quick Check-in Code with them to the Vote Center.

8. *Modify the Voter Registration Lookup Application to allow voters to obtain their Quick Check-in Code on a smartphone while waiting in line to vote or before visiting the Vote Center.*

Currently RR/CC has a Voter Registration Lookup tool that allows registered voters to look up their current voter registration status. The tool requires the voter to input their name, birthdate, house number and zip code. Once a voter record is found, the tool returns the voter's information including voter registration status, political party and Permanent Vote by Mail (PVBM) registration status.

RR/CC will determine how to include the Quick Check-in Code as part of the information available in the Voter Registration Lookup tool. Voters in line at a Vote Center, who do not have a Sample Ballot with them, would be able to access the Voter Registration Lookup tool on a smartphone and obtain their Quick Check-in Code. At check-in, the Election Worker would use the PollPad to scan the Quick Check-in Code from the smartphone, and quickly retrieve the correct voter record.

A mock-up of the potential output from the Voter Registration Lookup tool is shown below. Explicit instructions will be affiliated with the lookup tool to describe the benefits of the barcode. The Voter ID Code is shown as the Quick Check-in Code in the mockup.

Figure 2.   Voter Registration Lookup Tool Output

Verification
We located the following record.

Voter Registration Status

Registration Status: Active
If you are an inactive voter, please call (800) 815-2666 for assistance or you can re-register to vote here.

Permanent Vote By Mail: No
If you are not a permanent Vote by Mail voter, you can sign up here to automatically receive a ballot and vote by mail in every election.

Party Preference: NO PARTY PREFERENCE

You are a registered voter eligible to vote in the following election(s):

• 05/12/2020 - CONGRESSIONAL DISTRICT 25 SPECIAL GENERAL ELECTION

Quick Check-in Code:

2186556

Click here to view your Vote Center.

For assistance, call (800) 815-2666.

Reset

9. ***Work with partners to implement a solution to track wait times at Vote Centers and communicate them to voters, giving voters the ability to choose Vote Center locations based on wait times.***

RR/CC will work with the California Institute of Technology (CalTech) and other third parties to develop feasible options for providing wait-time tracking. RR/CC will incorporate findings from the CalTech report on ePulse data, which included findings related to March 2020 Election wait times[1]. As recommended in the report, RR/CC also will increase the Election Worker training to include procedures for collecting wait time data and to strengthen the collection of wait time tracking data at Vote Centers.

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[1] Report Citation: R. Michael Alvarez, Daniel Guth, Claudia Kann, and Seo-young Silvia Kim (2020). Los Angeles County ePulse Data Analysis Preliminary Report Super Tuesday, March 2020. California Institute of Technology.

Resources and Implementation Plan

The table below includes resources required and a high-level implementation plan for the solutions/remedies included in this section.

Table 1.   Board Motion Item 1 Resources and Implementation Plan

Solution	Resources Required	Implementation Plan
1. KNOWiNK to modify the ePulse and PollPad software to increase performance related to synchronization and latency experienced in the March 2020 Election.	▪ **Staff:** Time from existing staff required to work with KNOWiNK as needed ▪ **Equipment/Tools:** Testing existing PollPads ▪ **Budget:** To be considered in the Department's operational budget	▪ April 2020: Begin development/modifications ▪ June 2020: Complete User Acceptance Testing (UAT) ▪ July/August 2020: State Certification ▪ September 2020: Ready for production
2. A minimum of 5 PollPads will be deployed to Vote Centers along with the appropriate associated number of BMDs to accommodate expected voter turnout with acceptable wait times.	▪ **Staff:** Technical staff may be needed to make modifications to existing Vote Center diagrams to add more check-in stations for existing sites. Technical staff are hired as Election Worker IIs. ▪ **Equipment/Tools:** May require additional PollPads. This will be determined conducting throughput analysis and planning for BMD allocations to Vote Centers. ▪ **Budget:** Additional budget may be required to fund PollPad purchases if required (TBD).	▪ July/August 2020: Modifications to existing Vote Center diagrams
3. Deployed PollPads will be connected every morning	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** None	▪ Modifications to training will follow the normal pre-election training update cycle
4. Define maximum PollPad allocation by network capacity.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** None	▪ Network assessment already planned for the November election

Solution	Resources Required	Implementation Plan
5. KNOWiNK to fix search functionality to retrieve reliable results	▪ **Staff:** Development: KNOWiNK staff; Testing: Existing RR/CC IT Staff to coordinate functional tests. ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in the Department's operational budget	▪ See Implementation Plan for Solution #1.
6. Improve CVR processing through application modifications and additional training.	▪ **Staff:** Development: KNOWiNK staff; Testing: Existing RR/CC IT Staff to coordinate functional tests; Training: No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in the Department's operational budget	▪ See Implementation Plan for Solution #1. ▪ Modifications to training would follow the normal pre-election training update cycle
7. Modify the Sample Ballot to make it easier for voters to bring a scannable Quick Check-in Code to the Vote Center.	▪ **Staff:** Will use Graphic Designer on existing staff. ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in the Department's operational budget	▪ Modifications to the Sample Ballot would occur on the regular pre-election schedule. ▪ June 2020: Begin working with the vendor on the feasibility to print the Quick Check-in Code onto the back cover ▪ June/July 2020: Determine action plan if feasible (including associated costs, timelines, data, quality control, etc.) ▪ July/August 2020: Begin designing modified covers to include the Quick Check-in Code July/August 2020: QC and test with vendor ▪ August 2020: provide vendor with final Sample Ballot design, covers and pages

Solution	Resources Required	Implementation Plan
8. Modify the Voter Registration Lookup Application to allow voters to obtain their Quick Check-in Code on a smartphone while waiting in line to vote or before visiting the Vote Center.	▪ **Staff:** Existing development staff will be used ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in the Department's operational budget	▪ April 2020: Design new quick check-in functionality on the Voter Registration Status tool ▪ May 2020: Begin infrastructure development/ modifications ▪ June 2020: Complete User Acceptance Testing and functionality is ready for production ▪ July 2020: Incorporate functionality into training plans ▪ August 2020: Begin creating informational/ educational resources for the public ▪ September 2020: Distribute information to the public on a continuous and recurring basis through media campaign messaging, website, social media, email marketing, etc.
9. Work with partners to implement a solution to track wait times at Vote Centers and communicate them to voters, giving voters the ability to choose Vote Center locations based on wait times.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** Development or procurement funds may be needed as this solution is explored and implemented	▪ May 2020: Evaluate solutions and approaches with vendor. ▪ June/July 2020: Determine any solutions to be implemented for November 2020 election ▪ August/September: Undertake implementation tasks and develop procedures (testing) ▪ September/October: Incorporate procedures into Election Worker training; deliver training

Item 2. Ensuring appropriate staffing is maintained at each Vote Center, including staff who speak languages of the community they serve, and enough staff to respond and fix technical challenges that arise at Vote Center locations

Key findings:

- Minimal number of Vote Centers reported lack of multilingual Election Workers at their location.

- Lack of an effective data warehouse affected recruitment and tracking of Election Workers.

- Delay in generation and mailing of appointment letters resulted in no-shows at Vote Centers.

- Delay in finalizing the number of Vote Centers and Vote Center sizes resulted in understaffed/overstaffed Vote Centers.

- Vote Center Lead recruitment challenges resulted in Lead vacancies close to the beginning of the voting period.

- Reservist recruitment challenges and Lead vacancies depleted Reservist pool on Election Day.

- The shared pool of IT support staff was insufficient to handle the compressed Vote Center deployment schedule.

- Higher than anticipated attrition rates for Vote Center IT Support Teams

Solutions/Remedies for Election Worker Staffing

1. *Ensure appropriate multilingual staff who speak the languages of the community they serve.*

To ensure appropriate multilingual staff is maintained at Vote Centers, an assessment of the current methodology for assigning multilingual workers will be completed to identify process improvements. The primary focus for the assessment will be on staffing allocations and worker schedules. Additionally, to address the issue related to no-shows, feedback will be gathered from workers to identify the root cause for them not following through with their commitment. RR/CC also will consider the use of a bilingual stipend.

Streamlining the program will decrease vacancies and will assist in maintaining appropriate multilingual staffing levels at Vote Center locations.

To accomplish this, RR/CC will work in coordination with community stakeholders, such as the County's Language Accessibility Advisory Committee (LAAC).

2. *Include capability to generate appointment letters via new Election Worker Management System.*

In addition to the tracking and assigning requirements needed for the Election Worker Management system (PollChief), generation of appointment letters via the system is essential.

The system must be capable of producing letters containing Vote Center location information and schedule of assignment. This information is critical to properly inform Election Workers of their reporting location and schedule.

The system must be able to track when changes are made to a worker's assignment and generate a new letter providing the worker with the updated information.

The customization required for appointment-letter generation will be combined with other customizations as it will require the same subject matter experts for completion. Additional funding will be needed to cover the customization work required.

3. ***Streamline Vote Center Lead Program with a focus on time commitment and recruitment process for temporary staff.***

To ensure Vote Center Lead recruitment reaches 100% and volunteers follow through with their commitments, an assessment of the Vote Center Lead program will be completed to identify process improvements in preparation for the November 2020 Election. The primary focus of the assessment will be on time commitment and program requirements.

Considerations for the 11-day voting period will include the following:

- Begin recruitment early within the election cycle
- Reduce number of consecutive service days
- Establish date to begin recruiting temporary employees
- Set target dates for onboarding temporary employees

Considerations for the 4-day voting period will include the following:

- Begin recruitment early within the election cycle
- Clearly explain requirements on all outreach materials
- Re-assess time commitment for this position

Streamlining the program will decrease vacancies and will assist in maintaining adequate staffing within the Reservist pool. Additionally, it will decrease worker fatigue, which was experienced during the March 2020 Election.

To accomplish this task, brainstorming meetings will be held between management staff and subject-matter experts from operations and Human Resources to complete assessments and prepare an implementation plan.

4. ***Streamline Reservist Program with a focus on time commitment and recruitment process.***

To ensure an adequate pool of Reservists is maintained throughout the voting period, an assessment of the Reservist Program will be completed to identify process improvements in preparation for the November 2020 Election. The assessment will focus on time commitment and program requirements. Considerations will include the following:

- Establish overall recruitment goal
- Restructure time commitment parameters
- Determine distribution of Reservists based on critical timeframes within the voting period
- Re-visit requirements to increase pool

The process improvements implemented as part of this assessment coupled with the improvements to the Vote Center Lead Program will alleviate Reservist shortages throughout the voting period, most importantly on Election Day.

To accomplish this task, brainstorming meetings will be held between management staff and subject-matter experts from operations to complete assessments and prepare an implementation plan. If it is determined that the Reservist pool needs to be increased, additional funding will be needed.

Solutions/Remedies for IT Staffing

5. *Assign Dedicated Field Support Technicians to Vote Centers during the voting period to ensure adequate technical support.*

During the voting period, Field Support Technicians will be assigned to Vote Center locations for direct support, rather than being dispatched as needed. The ratio of FSTs to Vote Centers will be determined based on available funding. In the assigned Vote Centers, the FST will be responsible for:

- Supporting the Vote Center Lead and Election Workers in opening the Vote Center on the first day of voting by ensuring equipment is set up and functioning properly. This includes all VSAP-related equipment: BMDs, PollPads, mobile phones assigned to Leads, Cradlepoint routers (through coordination with AT&T).
- Troubleshooting issues with Vote Center equipment during the voting period.
- Coordinating with IT Help Desk on any equipment replacements needed.
- Contacting and interfacing with the IT Help Desk and the Level 2 Help Desk as needed.

Supporting the Vote Center Lead and Election Workers with any equipment-related issues associated with closing Vote Centers. The Vote Centers assigned to an FST will be close enough geographically to allow for short travel time between locations. When assigning Vote Centers, the sizes of the Vote Centers in terms of the number of BMDs and PollPads will be considered to appropriately manage workload.

Solutions/Remedies Referenced Elsewhere in this Report

In addition, the following Solutions/Remedies referenced elsewhere in this Report will contribute to improvements in Election Worker and IT staffing at Vote Centers, as described below:

- *See Item 8. An assessment of the set up at Vote Centers, deployment of resources and availability of staff at the Vote Centers, Solution 2. Implement a system for Vote Center and Election Worker management.*

  Tracking of Election Worker assignments is essential to ensure successful Election Worker administration; therefore, RR/CC has initiated important enhancements to and developed an implementation plan for PollChief. The system will support the assignment of Election Workers for multiple days and for different positions and will produce customized reports for tracking purposes. Additionally, PollChief will associate Vote Centers with service areas for proper assignment of workers. Implementation of this data warehouse will assist in tracking and visually identifying vacancies to ensure the Department recruits the staffing levels set forth in recruitment goals

To accomplish this task, dedicated staff from the Information Technology Bureau, Pollworker Services Section, and the system vendor, Konnech, will be required to meet regularly to conduct real-time review and on-demand customization of PollChief. Additional subject matter experts will be required to ensure the system integrates with other departmental systems such as the PollPads, Cherwell and DIMS.

- ***See Item 8. An assessment of the set up at Vote Centers, deployment of resources and availability of staff at the Vote Centers, Solution 3. Establish final number of Vote Center locations by e-85 and complete Vote Center recruitment by e-55.***

Establishing final number of Vote Center locations by e-85 and completing Vote Center recruitment by e-55 will provide clarity around actual Vote Center size, location and duration. Changes to Vote Centers after agreements have been made must be minimized, barring unforeseen circumstances. These two milestones will ensure a clear set of goals for the Vote Center equipment allocation and staffing.

Resources and Implementation Plan

The table below includes resources required and a high-level implementation plan for the solutions/remedies included in this section.

Table 2.   Board Motion Item 2 Resources and Implementation Plan

Solution	Resources Required	Implementation Plan
1. Ensure appropriate multilingual staff is maintained at the Vote Center locations that speak the languages of the community they serve.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** Funding will be required for a bilingual stipend if that is implemented.	▪ May 2020 – Gather feedback from workers who did not show up ▪ June 2020 – Conduct brainstorming meetings ▪ July 2020 – Establish staffing allocations and develop schedules ▪ July/August 2020 – Begin recruitment ▪ October 2020 – Complete recruitment
2. Include capability to generate appointment letters via new Election Worker Management system	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** Additional funding will be needed for customization	▪ May 2020 – Meet with vendor to discuss scope and requirements ▪ May/June 2020 – Begin customization ▪ July/August 2020 – Implement system ▪ August 2020 – Generate test files ▪ September 2020 – Begin generating production files
3. Streamline Vote Center Lead Program with a focus on time commitment and recruitment process for temporary staff.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in the Department's operational budget	▪ May/June 2020 – Complete program assessment ▪ June 2020 – Identify process improvements ▪ July 2020 – Develop recruitment plan ▪ July 2020 – Begin recruitment ▪ August 2020 – Complete recruitment
4. Streamline Reservist Program with a focus on time commitment and recruitment process.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** Additional funding will be required if Reservist pool is increased. Cost is dependent on number of positions added/days of service.	▪ May/June 2020 – Complete program assessment ▪ June 2020 – Identify process improvements ▪ July 2020 – Develop recruitment plan ▪ July 2020 – Begin recruitment ▪ August 2020 – Complete recruitment

Solution	Resources Required	Implementation Plan
5. Assign Field Support Technicians to Vote Centers during the voting period to ensure adequate technical support	▪ **Staff:** 500-1,000 potential contract staff assigned to 1,000 Vote Centers. ▪ **Equipment/Tools:** None ▪ **Budget:** For 1 FST to 1 Vote Center, estimated contract staff cost: $3,652,000 For 1 FST to 2 Vote Centers, estimated contract staff cost: $1,827,000	▪ May/June 2020 – Identify the firm number of Vote Centers ▪ July 2020 – Finalize requirements with staffing vendors ▪ August 2020 – Finalize the firm number of staffing with multiple vendors ▪ October 2020 – Finalize training for designated FSTs.

Item 3. Evaluating the training required of Election Workers to ensure it is adequate and includes feedback from Election Workers

Key findings:

- Election Workers resolved BMD errors they were trained to clear.
- Training content changed during the training period.
- Training materials were available on the PollPad, but many Election Workers were not aware of them.
- Rules related to CVR and changing voter information were not well understood by Election Workers.

Solutions/Remedies

1. *Finalize procedures prior to the beginning of training.*

Finalizing procedures prior to starting training will help ensure that Election Workers are trained on the same content. This should result in less variation in executing tasks in the Vote Centers, and greater ability for Leads to guide and support Election Workers in completion of tasks.

2. *Include in Election Worker training an orientation to training materials and support documents on the PollPad.*

Reinforce that Election Workers know where to find training materials on the PollPads and understand the appropriate time to review them during the voting period.

3. *Based on survey results and other data, RR/CC will assess the length and duration of training required for the November election.*

RR/CC will carefully examine the feedback from Election Workers and Leads gathered through the Election Worker Survey and Vote Center Leads Survey, feedback from voters, and other input as appropriate to understand areas where training is needed in more depth or where additional topics should be covered in training. Options for improving training include requiring Election Workers and Leads to complete a computer-based training (CBT) module prior to attending in-person training, and/or extending in-person training. Modifications to the training approach will focus on ensuring an adequate understanding of roles, procedures and equipment, and providing ample opportunity for hands-on practice.

Resources and Implementation Plan

The table below includes resources required and a high-level implementation plan for the solutions/remedies included in this section.

Table 3.   Board Motion Item 3 Resources and Implementation Plan

Solution	Resources Required	Implementation Plan
1. Finalize procedures prior to the beginning of training.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** None	▪ E-120: Need 75% of procedures finalized to have information updated into the Training Handbooks, Train-the-Trainer and training PPTs. ▪ E-90: Online training complete for Election Workers to begin using. Training Handbooks need to be completed and sent to the Printshop/Print vendor. ▪ E-60: Training begins in the field.
2. Include in Election Worker training an orientation to training materials and support documents on the PollPad.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in the Department's operational budget	▪ On the regular pre-election schedule for updating training materials, incorporate into the Election Worker training slide deck and PollPad Guide the information about how and where Election Workers will access all the training materials on the PollPad. ▪ E-120: Update PollPad procedures on orientation of training materials in the training manuals and slside decks on how to access training materials on PollPad. This will ensure participants receive hands-on training on PollPad. This includes, training manuals, handouts, job cards, scripts etc. ▪ E:30: Send all training to IT to upload on the PollPad. ▪ E:25: Confirm/test verification with IT that all training materials have been uploaded
3. Based on survey results and other data, RR/CC will assess the length and duration of training required for the November election.	▪ **Staff:** Possible need for more staff if training needs to be extended ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in the Department's operational budget	▪ September/October 2020: Communication to Election Workers regarding training classes, including pre-requisite online training. ▪ E: 170: Meet with Manager and subject matter experts to determine feasibility ▪ E-: 150: Make final decision to determine if we will be moving forward with plan ▪ E- 120: Meet with management to prepare plan and dates to incorporate implementation

Item 4. Determine what led to 17,000 voters not receiving their Vote by Mail ballots as scheduled

Key findings:

- The Election Calendar was compromised because of the late candidate filing period of the CD25 special vacancy election.
- Election Management System does not support district exclusions, which was required to accommodate the processing of CD25 separately.
- RR/CC IT resources were constrained and had competing priorities.
- The automated Quality Control process to validate the VBM voters list was not thoroughly tested before use.
- An overly aggressive Quality Control process filtered voters.
- Quality Control validation was executed late.

Solutions/Remedies

1. ***Enhance the EMS to provide the ability to exclude districts and ballot types in data extracts.***

RR/CC and the EMS vendor are assessing requirements to enable the exclusion of Districts and ballot types as a separate extraction in the EMS. RR/CC will define and discuss the requirements with the EMS vendor, and will determine the level of effort (resources, time, cost) to develop and thoroughly test before implementing in a live election. RR/CC will submit a Change Request proposal to either implement changes to the code or incorporate the requirements in the upcoming contract extension with the EMS vendor for future enhancement to the EMS functionality.

2. ***Implement Quality Control to validate the data extracts, providing assurances that all voters receive a VBM ballot as expected.***

Analyze potential QC scenarios that can be implemented to validate the data as well as improve the quality and effectiveness of custom scripts. Based on the analysis, select the appropriate solution(s) to implement, automating the QA validation process instead of manually completing the QA tasks, building the desired functionality into the EMS, and validating VBM data extract lists with the VBM vendor. The contract renewal with the EMS vendor should be modified to specify that the EMS provides a means for the County to test, identify risks, and validate proposals prior to implementation to ensure quality assurance. The four different potential QC proposals include:

- Comparing the daily extracted VBM files against the EMS VBM election records to determine if all the required data was extracted and sent to VBM vendor.
- Comparing the list of mailed VBM ballots (per the VBM vendor) against the EMS VBM election records to determine if all the required data was extracted, sent to the VBM vendor and mailed to voters.
- Using a QC script to compare the daily extracted VBM file against the EMS VBM election records to determine if all the required data was extracted.
- Ensuring that the EMS vendor and the VBM vendor build a QC validation process to confirm that the correct VBM records and quantity of records were extracted within their

systems. This would enable validation of extracted records through each of the processes, from the EMS to the VBM vendor mailing.

3. *Thoroughly test custom-developed scripts, which are intended to automate tasks, prior to implementation.*

To ensure the validity of RR/CC scripts and avoid unforeseen errors in the EMS, a change control and review process will be implemented. This will involve peer review of scripts and uptraining of staff to allow shared expertise, as well as consultation with and guidance from the EMS vendor, as needed.

4. *Work with the EMS vendor and consultants to address database configuration issues.*

Because the County has the largest voting population in the State, RR/CC has the largest database of voters. This large amount of data creates unique issues such as not being able to extract all of the more than 3 million voters in a single job. RR/CC will work with the EMS vendor and other external consultants (as needed) to identify and address issues with the EMS database that cause problems with transfers and extractions. This will be a high priority for resolution as the County considers mailing a ballot to all registered voters.

5. *Normalize IT staff requirements including overhaul of VoteCal/EMS sync processes.*

Work assigned to staff is bottlenecked because of resource availability on other prioritized issues. Currently, there is only one highly technical SQL analyst overtaxed with supporting all the issues and requests, especially the resolution of VoteCal/EMS sync issues (e.g., the process of syncing County's voter data with the Statewide database – VoteCal). This process, which should be automatic, is a recurring challenge and is time intensive, requiring coordination with the SOS and the County's EMS vendor to manually synchronize data.

A dedicated resource is required to manage and address issues related to synchronization. If voter records at the County do not sync or match VoteCal's database, problems can occur, such as voters not receiving Statewide publications via mail/email, voters not being credited for their vote history, voter records with the wrong information, etc. To prevent exclusion of voters, the VoteCal/EMS sync is required to be completed and is both time and resource intensive. Additional resources and training of existing staff to manage these tasks and responsibilities, especially during critical election periods, are required to more effectively manage current workload.

As a long-term goal, RR/CC will assess the operational needs, schedule and plan to replace the EMS system to ensure that the system meets functionality requirements, including the VoteCal/EMS sync. Additionally, efforts to address system performance issues, resource allocation and efficiencies in the interface between the local EMS and the VoteCal team at the SOS's office remain a priority.

6. *Complete an analysis and seek legislative review to prevent shortened election schedules caused by special vacancy elections from impacting legal deadlines.*

Conduct an analysis of special vacancy election timelines and their impact on compliance with all legal deadlines. The analysis should account for the time required for proper and extensive quality control processes. Based on the analysis, identify and propose recommendations for legislative review.

Resources and Implementation Plan

The table below includes resources required and a high-level implementation plan for the solutions/remedies included in this section.

Table 4.   Board Motion Item 4 Resources and Implementation Plan

Solution	Resources Required	Implementation Plan
1. Enhance the EMS to provide the ability to exclude districts and ballot types in data extracts.	▪ **Staff:** Section Manager and Supervisor will work with lead analyst to define the criteria on what is to be modified to enable the exclusion of Districts and ballot types in the extracts from EMS. ▪ **Equipment/Tools:** The EMS vendor will review and determine the code changes that will need to be implemented. ▪ **Budget:** Change order will be drafted and submitted to the EMS vendor to determine the scope of work for the change to be implemented before the November 2020 General Election.	▪ **May 1-8, 2020**: Conduct an analysis of the code changes required. RR/CC will work with the EMS vendor to test specific requirements prior to implementation to ensure that the required extracts are properly processed and validated before the upcoming Election. This validation is required to ensure that the EMS generates the extraction results required for the specified criteria. ▪ **May 11, 2020**: Submit a Change Order to the EMS vendor to conduct Technical and Cost analysis to implement this change into the EMS.
2. Implement Quality Control to validate the data extracts, providing assurances that all voters receive a VBM ballot as expected.	▪ **Staff:** Assign staff to specifically conduct QA/QC on all extractions and script validations from EMS. Section Manager and Supervisor will work with lead analyst to define the criteria on how the EMS could perform inline QA, as well as train additional staff to conduct QA/QC procedures. Additional Development team to create QA processes would require Principal, Sr and Assistant Developer resources over 6 months. The EMS vendor will review the scripts and queries developed by RR/CC. ▪ **Equipment/Tools:** Provide QA/QC knowledge training to staff to ensure the validation of the script and extract. The EMS vendor will review and determine the code changes that will need to be implemented. The VBM vendor will	▪ **April 2020:** RR/CC implements QA process with the VBM vendor near end of extraction period for the ongoing elections. ▪ **May2020**: RR/CC will work with the EMS vendor to specify EMS-based QA processes. ▪ **June 2020:** RR/CC IT staff explore development of automated QC process based on using the EMS extracts. IT Staff will be trained in building QA processes. ▪ **July - August 2020**: RR/CC and the EMS vendor will conduct User Acceptance Testing (UAT). RR/CC will review, perform UAT/QA and test the necessary code changes prior to approval for implementation. Code changes will be tested and validated through each step of the extraction process to ensure that data is processed and validated according to the extract logic requirements.

Solution	Resources Required	Implementation Plan
	review requirements to determine report changes. ▪ **Budget:** See Solution #5 below. Apart from the Department's existing database administrator, the additional resources as sought in Solution #5 will be assigned to implement QC and validation of data extracts. EMS vendor costs will be identified during the change order process.	
3. Thoroughly test custom-developed scripts, which are intended to automate tasks, prior to implementation.	• **Staff:** Section Manager and Supervisor will identify staff to cross train/uptrain to implement a comprehensive review process. The EMS vendor will review custom and ad hoc scripts. ▪ **Equipment/Tools:** The EMS vendor will collaborate with RR/CC to manage the implementation of scripts and address issues, as required. ▪ **Budget:** EMS vendor costs will be identified during the change order process.	▪ **June 2020:** RR/CC will discuss resource training and implementation plan to uptrain and transfer knowledge for script development and comprehensive validation of scripts and extracts before any code changes are implemented to the System.
4. Work with EMS vendor and consultants to address database issues.	▪ **Staff:** Section Manager and Supervisor will work with lead analyst and database administrator to define and test the scripts through extensive data collection processes and compare the output differences between the scripts versus the EMS version of the extracted data. The EMS vendor will assist in the new server configuration requirements and installation procedures. ▪ **Equipment/Tools:** The EMS vendor will work with RR/CC to address issues and implement requirements needed to ensure the extraction of data according	▪ **May 2020:** RR/CC works with the EMS vendor to upgrade its primary server. ▪ **June 2020:** RR/CC and EMS vendor perform analysis and repetitive testing to isolate issues. ▪ **July 2020:** EMS vendor addresses any issues in the EMS application. RR/CC and EMS vendor will conduct UAT. RR/CC will review, perform UAT/QA and test the necessary code changes prior to approval for implementation. Code changes will be tested and validated.

Solution	Resources Required	Implementation Plan
	to data logic standards. Microsoft consultants will also be tasked to analyze the system issues. ▪ **Budget:** EMS vendor costs will be identified during the change order process.	
5. Normalize IT Staff requirements, including overhaul of VoteCal/EMS sync processes	▪ **Staff:** Two new full-time positions are required – Information Systems Analyst I and Application Developer I – to add additional quality controls in voter registration database maintenance. Section Manager and Supervisor will identify staff to cross train/uptrain to support voter systems tasks, address technical issues and ad hoc requests that occur within the department, and especially assist with resolving VoteCal/EMS issues, including syncing voter data. Work closely with the EMS vendor, State, and RR/CC's technical services team to facilitate testing and ensure system functionality **Equipment/Tools:** RR/CC to work with Procurement Section to identify the specific training tools and equipment required to uptrain Voter Systems Unit staff. ▪ **Budget:** Training Course outline and Equipment purchases will be determined under Departmental budget. Two new full-time positions: – Application Developer 1: $141,000 – Information Systems Analyst I: $139,000	▪ **May 11-22, 2020**: Provide SQL Training and Knowledge transfer to staff within the Voter Systems Unit. RR/CC will provide SQL and query development training to the Voter Systems Unit to ensure staff have the knowledge required to properly extract and QA specific data from the EMS, as well as collaborate with the EMS vendor and State to address/resolve issues of concerns. ▪ **May – August 2020:** Recruit, select and onboard two new full-time positions to add capacity and add additional quality controls in voter registration database maintenance. The two additional positions sought are: App Dev I & Information Systems Analyst I**.** ▪ **Long Term Goal:** There is an effort underway by RR/CC to replace the County's aging EMS (DIMSnet). The current timeline for a new EMS is to release the solicitation before end of 2020 and complete the development in 2021. The new EMS will then be deployed in time for the 2022 Gubernatorial Election. RR/CC expects the new EMS vendor will work with the SOS to address current limitations, such as the lack of automatic synchronization. The ability to address all limitations, however, will depend (in part) on VoteCal changes by the SOS.
6. Complete an analysis and seek legislative review to prevent shortened election schedules	▪ **Staff:** RR/CC's Legislative staff to complete an analysis and seek legislative review.	▪ **May - June 2020:** IT staff will collaborate with RR/CC's Legislative staff to conduct an analysis of special vacancy election timelines and their impact

Solution	Resources Required	Implementation Plan
caused by special vacancy elections from impacting legal deadlines.	**Equipment/Tools:** Collaborate with RR/CC staff and executives to prepare and submit legislative review proposal to legislative representatives for consideration. **Budget:** To be considered in the Department's operational budget	to RR/CC being compliant with all legal deadlines. The analysis will account for the time required for proper and extensive quality control processes. Based on the analysis, team will identify and propose recommendations for legislative review.

Item 5. Determine how 3 cities and other smaller precincts were not included for Measure FD

Key findings:

- Current boundaries of the Los Angeles County Fire District were not validated.
- RR/CC's standard Quality Control (QC) process to review ordinances was deficient.

Solutions/Remedies

1. ***Require Special Districts to provide map and data files along with ordinances/resolutionsfor late submissions.***

Require special districts that miss the 180-day adjusted map deadline to submit, along with their ordinances or resolutions, a map and companion data files, regardless of recent or past boundary changes. This is to ensure that RR/CC can review and validate the proper administration of that contest and the accuracy of district lines.

2. ***Execute verbal and written validation of details and communicate submission deadlines.***

Execute verbal and written validation of special details or parameters with (potentially) participating jurisdictions, whether RR/CC is already aware or becomes aware through timely communications. Emphasize and enforce the date by which election consolidations must be finalized.

Remind jurisdictions through a mass communication about the 180-day and 88-day legal deadlines and encourage earlier start times (i.e., 6 to 8 months prior to the date of the election or about 3 to 5 months prior to the consolidation deadline) to allow for adequate preparation, identification and remedy of potential issues.

RR/CC should advise that, whenever possible, drafts of ordinances or resolutions be ready at e-160 and submitted to the Board of Supervisors by e-130 for agenda placement by e-100.

3. ***Cross-train staff in RR/CC quality control processes.***

Cross-train supervisors and clerical staff as an added quality assurance check. Implement additional levels of review to avoid issues when there is a personnel gap.

Implement a "reading circle" to review ordinances and other documents to ensure jurisdictional compliance and clarity. Include staff from other Units. The "reading circle" is currently used in other RR/CC operations such as the creation of training material.

4. ***Create an online guide with a checklist of key tasks and milestones.***

Create an online guide intended for external stakeholders with milestone checklists (modeled after RR/CC guide for County initiatives) that emphasize adherence to both legal and recommended timelines.

5. Structure and streamline the intake process.

RR/CC will take steps to explore adding more structure to or streamlining the intake process, such as developing an intake form, tracking submissions, triaging problems, prioritizing responses/solutions, and documenting outcomes/final status per jurisdiction and sub-jurisdiction type (e.g., municipality, district, agency, authority).

6. Verify boundaries before every election.

Before every election, verify that boundaries for jurisdictions have not been modified since the previous election. This process verifies whether boundaries were inadvertently changed. Additionally, to verify that boundaries in the GIS dataset are confirmed with the District, RR/CC must enforce the existing process of requiring jurisdictions to provide a map, and preferably a GIS shapefile, of their current boundaries. If this data is provided timely, the GIS Section would be able to make any necessary corrections to the boundaries of a jurisdiction.

Resources and Implementation Plan

The table below includes resources required and a high-level implementation plan for the solutions/remedies included in this section.

Table 5.   Board Motion Item 5 Resources and Implementation Plan

Solution	Resources Required	Implementation Plan
1. Require Special Districts to provide map and data files along with ordinances/resolutions for late submissions.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in the Department's operational budget	▪ April-May 2020: Send reminders to all Special Districts of the deadline to submit an adjusted map of their boundaries ▪ June 2020: Should a Special District miss the deadline, require annual submission of a map and companion data files, along with their ordinances or resolutions in order for proper processing
2. Execute verbal and written validation of details and communicate submission deadlines.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in the Department's operational budget	▪ April-May 2020: Send annual reminders to potentially participating jurisdictions of milestone due dates should they be interested in placing a contest on the ballot for the November 2020 General Election
3. Cross-train staff in RR/CC quality control processes.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in the Department's operational budget	▪ June 2020: Meet with Training Section to learn effectiveness, implementation, and customization of reading circle ▪ July 2020: Determine number of participants, sources and samples of information, cross check procedures, practice sessions ▪ August 2020: Validate and share special details that may impact other Election operations, including Admin and Info Tech, and execute reading circle
4. Create an online guide with a checklist of key tasks and milestones.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in the Department's operational budget	▪ May 2020: Meet to identify content such as key events, legal requirements, critical tasks, consolidation timeline, and important reminders ▪ June 2020: Produce/distribute 1st draft of online guide, review, edit, re-distribute ▪ July 2020: Publish online, receive feedback from jurisdictions

Solution	Resources Required	Implementation Plan
5. Structure and streamline the intake process.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in the Department's operational budget	▪ April 2020: Issue mass email blast with preliminary survey/intake form of election details such as number of offices and measures, terms of office, method of election (at large or by district), special vacancies, and jurisdiction contact information ▪ May 2020: Review submissions, identify special details, confirm with jurisdictions, alert division management, discuss/coordinate with other operations, and resolve potential issues (missed deadlines) ▪ June 2020: Continue ongoing process (through August 7) of reviewing submissions, identifying special details, confirming with jurisdictions, alerting division management, discussing/coordinating with other operations, and resolving potential issues (missed deadlines)
6. Verify boundaries before every election.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in the Department's operational budget	▪ May 2020: Require jurisdictions to submit a PDF map (shapefile if possible) to the GIS Section; compare jurisdiction boundaries, provide feedback ▪ June 2020: Finalize corrections to precincts ▪ July 2020: Post changes to precincts in the Election Management System and provide maps to Districts for verification.

Item 6. Discrepancies between official publications of Vote Center locations and actual/final Vote Center locations

Key findings:

- Some Vote Centers did not open as scheduled.
- Posters redirecting voters to alternate locations were erroneously mailed to some Vote Centers.

Solutions/Remedies

1. *Continue encouraging the public to use the online Vote Center Locator Tool.*

Leading up to and during the voting period, the Vote Center Locator Tool should be voters' primary source for Vote Center location information. This tool provides the most up-to-date information available. In printed communications, continue to encourage voters to use this resource prior to visiting a Vote Center.

Solutions/Remedies Referenced Elsewhere in this Report

In addition, the following Solutions/Remedies referenced elsewhere in this Report will contribute to improvements in communications to voters regarding Vote Centers, as described below:

- *See Item 8. An assessment of the set up at Vote Centers, deployment of resources and availability of staff at the Vote Centers, Solution 2. Implement a data warehouse for Vote Center and Election Worker management.*

  A more robust solution to manage the Vote Center recruitment process will help ensure that "former polling place" posters are distributed accurately with a single, centralized system with a clear data governance structure and built in quality controls. The data needed for publication across all platforms can be extracted at specified points, ensuring accuracy and uniformity between publications and systems consuming the data.

- *See Item 8. An assessment of the set up at Vote Centers, deployment of resources and availability of staff at the Vote Centers, Solution 3. Establish final number of Vote Center locations by e-85 and complete Vote Center recruitment by e-55.*

  Following this deadline will help ensure recruitment is complete, or nearly so, with sufficient time to perform quality control checks on location data and to finalize printed communications to the public ahead of the voting period/Election Day.

Resources and Implementation Plan

The table below includes resources required and a high-level implementation plan for the solutions/remedies included in this section.

Table 6.   Board Motion Item 6 Resources and Implementation Plan

Solution	Resources Required	Implementation Plan
1. Continue encouraging the public to use the online Vote Center Locator Tool.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in department operational budget	▪ E-85: Vote Center recruitment complete, sites shared with IT Developers ▪ E-54: GIS begins geolocating the Vote Centers ▪ E-52: GIS completes geolocating the Vote Centers ▪ E-51: IT Developers update locator to User Acceptance Testing (UAT) environment ▪ E-50: IT begins location QC ▪ E-43: IT completes QC, sends the UAT link to Vote Center team to do final QC ▪ E-38: Vote Center team completes final QC ▪ E-37: IT Developers publish the Vote Center Tool from UAT to production and sends link to Media ▪ E-36: Media begins updating pages in test environment ▪ E-34: Media completes updating test environment pages ▪ E-30: Media requests pages to be published to live site ▪ E-29: Vote Center Tool available/accessible on LAVote.net

Item 7. Problems with the 'hotline' used for voters and Election Workers to report problems to ensure adequate staffing, including callers being disconnected because of high call volumes

Key findings:

- Actual Election Day call volume for the IT Help Desk was close to estimates. Actual call durations were as expected. Actual call abandonment rates were higher than estimates.

- IT Help Desk had an insufficient number of call takers to adequately handle incoming calls.

- Technical calls taken in other groups were not always entered into the IT Help Desk system.

- Calls from Election Workers were dropped after a specified time because of caps on queue times.

- Pollworker Services Help Desk had a significantly high volume of calls with long wait times and a high percentage of abandoned calls.

- The Pollworker Services Help Desk had a limited number of operators to adequately handle the call volume because of an insufficient number of agent IDs/licenses issued to the Section.

- There were some reports of long wait times with the Voter Help Desk.

- Callers experienced longer-than-expected wait times because of extraordinary operational and technical issues.

<u>Solutions/Remedies</u>

1. ***Engage a third-party vendor to provide IT Help Desk Call Center assessment, telephone system assessment and implementation and logistical planning***

Conduct an IT Call Center operations assessment using an experienced telecommunication company that can make recommendations related to RR/CC's election related requirements. The expectation is that a competent vendor can assess, create recommendations and assist with implementation and logistical planning.

The contract for the assessment should include:

- Assessment of the current Call Center operations, infrastructure, call tree and telephone systems

- Creation of recommendations for improvement, workflows, architecture, configurations and runbooks

- Assistance in the implementation of recommended solutions (such as cloud-based solutions for scalability)

- Logistical planning for the IT Help Desk Call Center solution

- Assessment of resources supporting IT Help Desk

2. *Engage a third-party vendor to provide staffing and management services for IT Call Center operations*

IT Call Center operations should be outsourced to an experienced telecommunication company that provides Help Desk/support services. Based on the assessment, the call scripts will be documented. The outsourcing approach will help with the capacity issues at RR/CC as well as reduces reliance on contract staffing. The contract for these services should include:

- Implementation of the solutions emerging from the outcome of the assessment as described in the solution above
- Training of vendor staffing on call scripts and Call Center solutions
- Management, staffing and support services for IT Help Desk
- Management and monitoring reports for the Help Desk operations

3. *Migrate all Call Centers into one incident management system*

The use of several different disparate incident management systems affected the efficient flow of information and inhibited timely response to Vote Centers.

All Call Centers and Help Desk teams need to operate on one incident management system to avoid issues experienced with incorrect logging, excessive hold times and call abandonment. RR/CC is currently working with an incident management software vendor to assist with consolidation of Help Desk systems.

4. *Ensure adequate numbers of staff for all Help Desk lines (IT, Pollworker Services, Voters).*

Estimate call volumes, talk times and other associated metrics for the November election, and estimate the number of operators and licenses required. The staffing model should be flexible to account for attrition where it may occur and still ensure adequate Help Desk staffing. The result of the third-party assessment should be taken into account and exploration of call-intake specialists to route all the calls to the appropriate call centers should be explored.

5. *Conduct call volume analysis to determine staffing needs.*

To determine expected call volume for the IT Help Desk and Pollworker Services Help Desk for November 2020 Election, a pre-election analysis will be completed.

The analysis will include estimated:

- Call volume
- Call duration
- Wait times
- Abandonment rate

The analysis will assist in identifying the number of operators needed to handle the call volume. Most importantly, it will decrease Election Worker wait times and abandonment rate.

To accomplish this task, management staff and subject matter experts from operations will collaborate with the RR/CC's data analytics team to complete analysis and determine expected call volumes and staffing needs.

5. Increase number of agent IDs for Pollworker Services Help Desk.

To ensure Pollworker Services Help Desk assigns an adequate number of operators to handle call volume, the number of agent IDs must be increased. Using a scalable system (like AWS Connect) will help RR/CC scale the Call Centers appropriately. This will allow additional operators in Pollworker Services to log-in to the phone system and answer calls received. The number of additional IDs will be determined once call volume analysis is completed.

Resources and Implementation Plan

The table below includes resources required and a high-level implementation plan for the solutions/remedies included in this section.

Table 7.   Board Motion Item 7 Resources and Implementation Plan

Solution	Resources Required	Implementation Plan
1. Engage a third-party vendor to provide IT Help Desk Call Center assessment and logistical planning.	▪ **Staff:** None ▪ **Equipment/Tools:** AWS Connect and RR/CC may need space to collocate the Call Center agents should an assessment determine that the disparate IT Help Desk Tiers need to be consolidated. ▪ **Budget:** $200,000	▪ May 2020 – Finalize Call Center requirements and work to finalize the existing contracting vehicle to be used for the required services/software. ▪ July 2020 – Begin Call Center and telephone systems requirements analysis.
2. Engage a third-party vendor to provide IT Call Center staffing and management (outsourced) services.	▪ **Staff:** None ▪ **Equipment/Tools:** Potential cloud-based call-center solution (such as AWS Connect) ▪ **Budget:** $1,300,000	▪ May 2020 – Finalize the contracting vehicle to be used for the required services. ▪ July 2020– Based on the outcome of assessment (as part of the solution above), finalize the requirements for Help Desk (outsourced) services. ▪ September 2020 – All recommended operational documentation to be finalized and system/processes implemented
3. Migrate all Help Desks into one incident management system.	▪ **Staff:** None ▪ **Equipment/Tools:** Cherwell ▪ **Budget:** To be considered in Department's operational budget	▪ April 2020 – Begin analysis and requirements gathering of all Call Centers ▪ May 2020 – Begin implementation of Call Center migration ▪ September 2020 – All recommended changes to be finalized and documented and migration completed
4. Conduct call volume analysis to determine staffing needs.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in Department's operational budget	▪ May 2020 – Meet with project team to discuss analysis ▪ June 2020 – Complete analysis ▪ June/July 2020 – Determine staffing needs

Solution	Resources Required	Implementation Plan
5. Increase number of agent IDs for Pollworker Services Help Desk.	▪ **Staff:** Additional staff may be required. Number will be determined once call volume analysis is completed. ▪ **Equipment/Tools:** Additional agent IDs are needed. ▪ **Budget:** TBD, as a result of third-party assessment.	▪ June 2020 – Meet with ISD to discuss need for additional agent IDs and determine cost. ▪ July 2020 – Submit formal request to ISD. ▪ July 2020 – Receive additional agent IDs from ISD

Item 8. An assessment of the set-up at Vote Centers, deployment of resources and availability of staff at the Vote Centers

Key findings:

- Deployment of some Vote Centers was not completed as scheduled, resulting in sites not being open to serve voters as communicated.

- RR/CC has inadequate staffing, experience and resources for deployment at this scale.

- On set-up day, some sites were not able to accommodate the planned number of BMDs.

- There are insufficient tools in place to manage Vote Center recruitment, placement and deployment.

- Account Manager team was created through short-term assignments of staff without relevant experience.

- Many public facilities initially declined to participate even though the Elections Code mandates their participation as a Vote Center. Some minimized room size or duration.

- Only 42% of private sites contacted to be a Vote Center agreed to serve as one.

- The timeframe for Vote Center deployment was compressed to reach agreements with Vote Centers but caused significant operational challenges.

Solutions/Remedies

1. *Outsource Vote Center deployment.*

All aspects of Vote Center deployment should be outsourced to a competent logistics company that can scale up to adequately meet the timeframe and capacity demands of the County. The expectation is that a competent vendor would be able to set up Vote Centers prior to the beginning of voting and breakdown all Vote Centers within approximately 3 days after Election Day. This should eliminate the use of PODS, reducing costs and risks for the County. The contract for outsourced deployment should include:

- Transportation of all equipment and supplies to and from Vote Centers
- Logistical planning, coordination, and schedule/route creation as it relates to deployment activities
- Set-up of Vote Centers, including all equipment (except for network connectivity)
- Breakdown of Vote Centers, including all equipment (except for network connectivity)
- SWAP truck operation to replace inoperable devices
- Truckyard coordination and provision of staff and vehicles required to sustain this operation

*2. **Implement a data warehouse for Vote Center and Election Worker management.***

RR/CC will continue and complete customization of PollChief, which is a database that organizes communications and logistical details for Vote Centers and Election Workers. Once completed, the tool will:

- Support Vote Center Recruitment, Placement and Management:
  o Maintain a pool of potential Vote Centers with all the data from their assessments.
  o Support communication with potential Vote Centers during recruitment, including the creation of the facility use agreements and details specific to each site.
  o Link Vote Centers with service areas, and provide reporting to give real-time insight into the status of recruitment.
  o Track payments to facilities according to the agreements.
  o Include interfaces, as needed, for compatibility with other systems used by the Department such as the PollPads, Cherwell, Workforce, DIMS, or systems for other functions to ensure that all operations have live data as the situation changes rapidly.
  o Provide robust reporting capabilities.
- Support Election Worker Recruitment, Assignment and Communication: (For more detail, see Item 2. Ensuring appropriate staffing is maintained at each Vote Center location, including staff that speak languages of the community they serve, and enough staff to respond and fix technical challenges that arise at Vote Center locations.)

*3. **Establish final number of Vote Centers by e-85 and complete Vote Center recruitment by e-55.***

Establishing final number of Vote Center locations by e-85 and completing Vote Center recruitment by e-55 will provide clarity around actual Vote Center size, location and duration. Completed recruitment includes a review of compliance with the VCA requirements, a thorough quality-control review of the data for completeness and accuracy, and a fully updated list prior to this deadline. To accomplish this, actual recruitment activities would need to end one week prior to this deadline to allow for the quality checks and any needed corrective actions. This time frame will allow staff and vendors to adequately plan for operational activities, including scheduling deployment, ensuring enough supplies, adequate staff, a suitable delivery capacity and sufficient staff training time.

*4. **Enlist support for public site compliance and private site recruiting.***

To encourage public sites to comply with the legal requirement to serve as Vote Centers, a letter from the Board of Supervisors should be sent to all cities, school districts, County departments, etc. This letter should cite Elections Code Section 12283 and include a strong mandate to accommodate the request of the County Elections Official to use facilities as Vote Centers. It also must clearly state that the request for use includes days for storage, set-up and breakdown. Public buildings should not be allowed to decrease in number because that has a direct impact on the equitable placement of Vote Centers throughout the County.

RR/CC will seek support from Board Offices in identifying suitable Vote Center locations within their Districts, particularly sites that can accommodate larger numbers of BMDs and greater voter capacity.

5. *Operationalize Account Manager Program.*

The Account Manager team must be a pool of full-time staff dedicated to Vote Center recruitment, rather than short-term commitment staff borrowed from various sections at RR/CC. The Account Manager role should be a full-time, permanent assignment with appropriate program oversight established within RR/CC's organizational structure. Staff assigned as Account Managers must have strong verbal and written communication skills and must be knowledgeable in election operations. A lead Account Manager must have prior management experience to supervise a team of 20 Account Managers or more. There also must be equitable distribution of assignments among the Account Managers.

Account Manager training must include customer service, sales techniques, account management, and coverage of technology used in the role (e.g., Vote Center Management Tool, spreadsheets).

Resources and Implementation Plan

The table below includes resources required and a high-level implementation plan for the solutions/remedies included in this section.

Table 8. **Board Motion Item 8 Resources and Implementation Plan**

Solution	Resources Required	Implementation Plan
1. Outsource Vote Center deployment.	▪ **Staff:** Will use existing staff. ▪ **Equipment/Tools:** Technical toolkit supplies, County-issued cell phones, and licensing to RR/CC software (e.g. Workforce, Cherwell, Mobile Device Management (MDM) etc.) would be provided to the third-party vendor(s). Staffing, truckyard and vehicle acquisition would be at the expense of the vendor. ▪ **Budget:** RR/CC currently has existing contracts which could be utilized to expand services to include the scope of deployment activities described within this document. This would enable RR/CC to execute the necessary contracts by July 2020, providing ample time for knowledge transfer, logistics planning, and preparation for the Presidential election. The estimated cost to outsource these services is $13,950,000	▪ April 2020 – Meet with potential vendor(s) to discuss scope and requirements ▪ May 2020 – Obtain cost estimates based on scope ▪ June 2020 – Execute contract Amendments or Work Orders as needed ▪ July 2020 – Vendor to begin assessments and interviews ▪ September 2020 – Complete assessment, implementation and deployment complete for November 2020
2. Implement a data warehouse for Vote Center and Election Worker management.	▪ **Staff:** No new staff are needed for this task. Staff hours for existing staff will be needed to guide the customization efforts with the vendor. Potentially need development time with existing IT developers for integration with other systems used by RR/CC. ▪ **Equipment/Tools:** Customization funds and on-going financing for the PollChief service will be needed. Additional funds may be necessary for the development of integration processes to the other systems used by the department. ▪ **Budget:** Customization funds are yet to be determined until further discussions are held with the vendor.	▪ May 2020 - Meet with vendor to discuss scope and requirements ▪ May 2020 - Receive estimated costs and procure funds ▪ May/June 2020 - Begin customization ▪ July 2020 - Implement tool and import data ▪ August 10, 2020 - Complete recruitment using tool
3. Establish final number of Vote Center locations by e-85 and	▪ **Staff:** Additional Account Managers are needed beginning 9 months prior to the election and continuing for 30 days	▪ May 2020 - Begin service area analysis for November 2020 General Election

Solution	Resources Required	Implementation Plan
complete Vote Center recruitment by e-55	post-election. Account Managers are hired as Election Worker IIs. See Solution 5 below. ▪ **Equipment/Tools:** None ▪ **Budget:** See Solution 5 in this table	▪ May 2020 - Activate Account Manager Cell ▪ June 2020 - Begin field recruits for vacant service areas ▪ July 2020 - Resolve escalations for challenging sites ▪ July 2020 - Ensure compliance with VCA requirements ▪ August 2020 - Complete recruitment
4. Enlist support for public site compliance and private site recruiting.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in the Department's operational budget	▪ May 2020 – Send a Letter of Request to all Vote Centers asking to accommodate RR/CC's intent of using their facility for the November 2020 General Election.
5. Operationalize Account Manager Program	▪ **Staff:** A Lead Account Manager is needed to liaise between the Account Managers, field representatives, and Board Offices. The Lead will be responsible for ensuring that the recruitment efforts are well coordinated and that challenging areas are escalated when necessary. The supervisor would also act as the primary escalation level during recruitment. ▪ The Vote Center recruitment team must include dedicated staff managers specifically selected for this assignment. They must be allocated for the whole duration, from securing the agreements to ensuring access to facilities for the deployment team and during the voting period. Account Managers are needed beginning 9 months prior to the election and continuing for 30 days post-election. ▪ **Equipment/Tools:** The Account Managers need a scheduling tool to lock in dates for equipment delivery, set-up, breakdown and equipment pick-up. The Account Managers must have access to information in real time especially the activities related to deployment such as estimated time of arrival of teams, schedule delays and facility contact persons.	▪ May 2020 – Create formalized organizational structure for Account Manager team. ▪ May 2020 – Create milestones and tracking mechanisms for use by Account Managers in Vote Center recruitment and placement ▪ May 2020 – Onboard and train team of Account Managers

Solution	Resources Required	Implementation Plan
	▪ **Budget:** To be considered in the Department's operational budget	

Item 9. Identify all of the technical issues, including IT/internet connectivity and inoperable voting machines

Key findings:

- Ballot Marking Devices accommodated voters who completed the check-in process.
- Reported issues with BMDs were primarily caused by a faulty printer gear.
- Ballot Activation QR Code errors were appropriately detected and flagged by the BMDs.
- Some BMD issues were left unresolved by Election Workers because there was ample BMD capacity for voters.
- In larger Vote Centers, some BMDs were not turned on every day of the voting period.

<u>Solutions/Remedies</u>

1. Complete BMD printer assembly replacements.

Work is already underway to replace the printer assemblies on all BMDs affected by the faulty printer gear. 29,000 of approximately 31,000 units have been inspected, with 3,523 repairs out of 14,346 completed.

2. Test remaining BMDs for printer gear issues.

All remaining BMDs will be examined and tested to ensure the printer gear is functioning properly. If any faulty printer gears are found, the printer assemblies will be replaced.

3. Train Election Workers to turn on all BMDs on Election Day.

Election Worker training will include clear instructions to turn on all BMDs on Election Day and to make all units available for voting.

<u>Solutions/Remedies Referenced Elsewhere in this Report</u>

In addition, the following Solutions/Remedies referenced elsewhere in this Report will contribute to improvements in this area:

- ***See Item 2, Ensuring appropriate staffing is maintained at each Vote Center location, Solution 5, Assign Field Support Technicians to Vote Centers during the voting period to ensure adequate technical support.***

  During the voting period, Field Support Technicians will be assigned to Vote Center locations for direct support, rather than being dispatched as needed. In the assigned Vote Centers, the FST will be responsible for troubleshooting issues with Vote Center equipment, including BMDs.

Resources and Implementation Plan

The table below includes resources required and a high-level implementation plan for the solutions/remedies included in this section.

Table 9.   Board Motion Item 9 Resources and Implementation Plan

Solution	Resources Required	Implementation Plan
1. Complete BMD printer assembly replacements.	- **Staff:** Existing temporary staffing, which is to be released in June 2020 should be extended until August 2020. - **Equipment/Tools:** None - **Budget:** Vendor responsibility; no additional cost to County.	- The task of replacing BMD printer assembly will be performed by Smartmatic. - The timeline for this task is as soon as all the BMDs are de-processed at VOC. - It is anticipated that May – July timeframe is to be utilized to replace all the faulty printer assemblies.
2. Test remaining BMDs for printer gear issues.	- **Staff:** The existing temporary staffing (5 EAIII and 30 EAII should be extended through the November election. - **Equipment/Tools:** None - **Budget:** Vendor responsibility; no additional cost to County.	- Testing is currently underway.
3. Train Election Workers to turn on all BMDs on Election Day.	- **Staff:** No new staff - **Equipment/Tools:** None - **Budget:** To be considered in the Department's operational budget	- Include training content as part of regular pre-election training update cycle.

Item 10. Assess whether ballot boxes should be separate from the Ballot Marking Devices

Key findings:

- Casting a ballot at the BMD is new for Los Angeles County voters.
- Clarity of on-screen language and prompts could be improved.
- Voting Area Monitors instructed voters on how to cast their ballot, but that became more difficult when Vote Centers became very busy.

<u>Solutions/Remedies</u>

RR/CC has identified potential remedies that could be implemented on the BMDs. These remedies will be reviewed with the VSAP advisory committees and tested with voters prior to implementation. The time needed to implement these changes on the BMDs needs to be confirmed, and these remedies may result in the need for system re-certification by the SOS.

1. *Refine messaging as part of Voter Outreach and in Vote Centers emphasizing high-level, simple steps.*

Reinforce with voters the new way to vote by emphasizing a small number of clear, simple steps. These steps should be included as part of the voter outreach campaign. Some potential simple steps are:

1. Insert blank ballot
2. Make selections
3. Verify printed ballot
4. Cast ballot in the BMD

2. *Clarify on-screen text and imagery on the BMD to reinforce how to cast the ballot.*

Add clarifying text and/or imagery to the on-screen BMD instructions to reinforce that a voter will cast their ballot at the BMD. One solution involves changing the text on the BMD screen to "Yes - I am ready to cast" (instead of "Cast my ballot now"), and adding an icon showing the ballot going into the BMD. This solution also involves changing the "Next" button to read "Cast" when "Yes - I am ready to cast" has been selected, to reinforce that there is one more step.

Figure 3.   Clarifying BMD On-screen Text and Images

Ready to cast screen   Ready to print screen
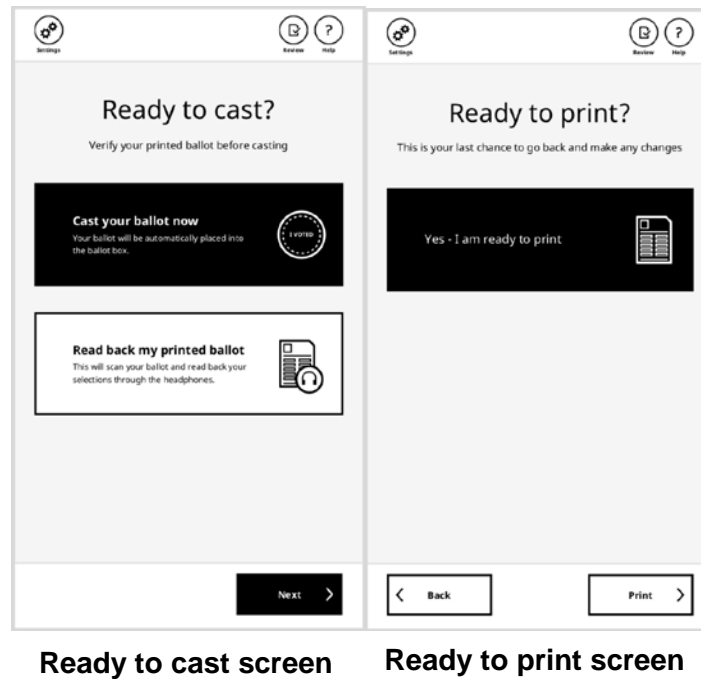
An alternate solution would be to change the intention of the screen from "Ready to cast?" to "Review your printed ballot." This would include changing the title to:

> **Review your ballot**
> Verify your printed ballot before casting

> Selections below would include:

>> **I'm done reviewing**
>> I'm ready to cast my ballot

>> **Read back my printed ballot**
>> Scan my ballot and read the selections back to me through the headphones

> This would be followed by a **Cast your ballot** page, with the only options being to Cast or Eject.

Explore adding a graphic progress tracker to key transition screens to help the voter track the remaining steps in the voting process.

Figure 4. BMD Progress Tracker

Progress
tracker
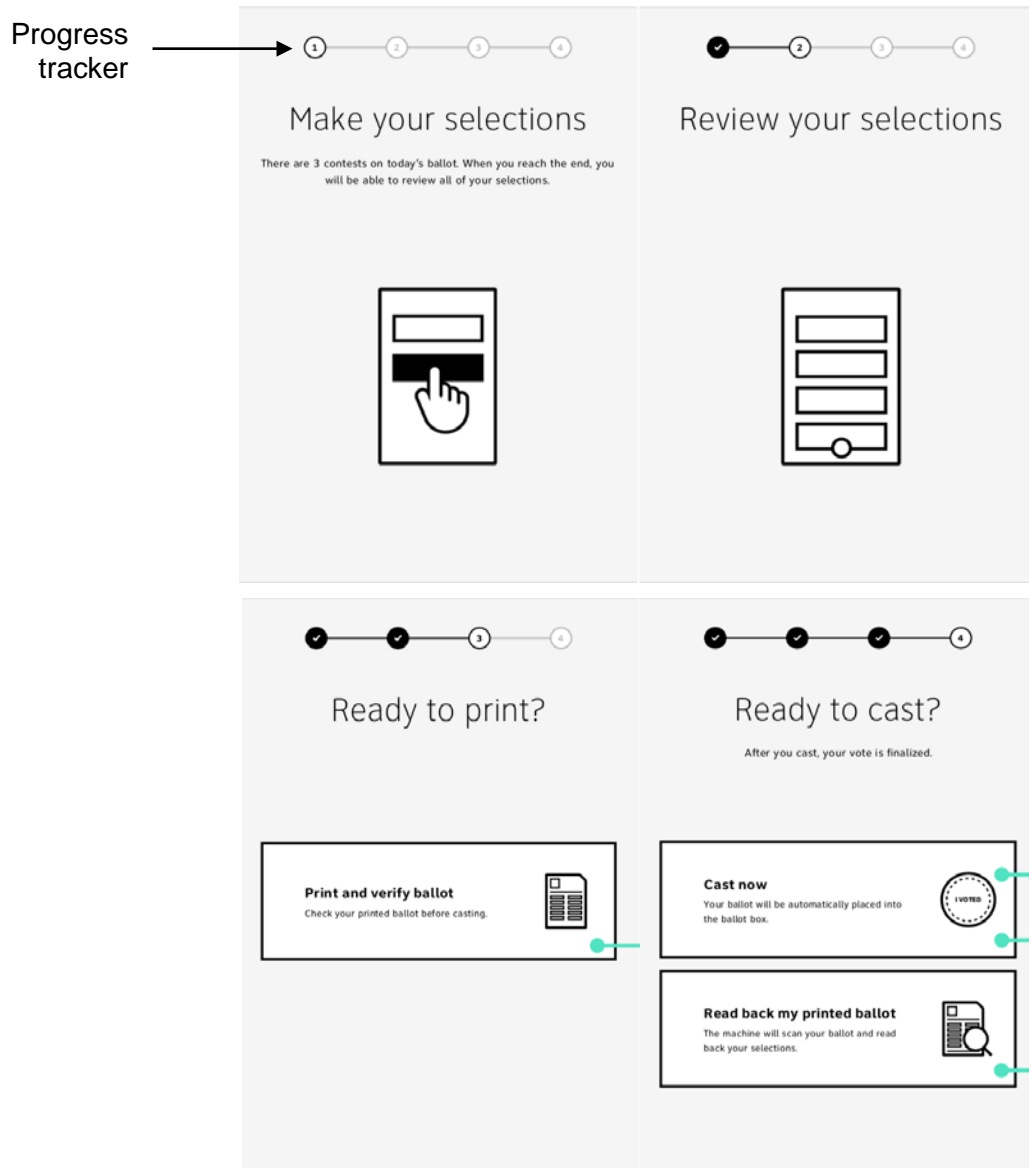
Key potential transition screens

Explore adding unique color and/or animation to the "Cast" button (i.e. the current "Next" button on the "Ready to Cast?" screen) to draw attention to it.

3. *Create a Check-in Clerk script advising voters on key points, including how to cast the ballot.*

A required script for Check-in Clerks will help ensure consistent guidance is provided to each voter on key points. The script would include:

- Look for the "MORE" button at the bottom of the screen. It will indicate that there are more selections.

- Cast your printed ballot at the BMD. You are done when you will see the "Thanks for voting!" screen (or hear it on audio).

Solutions/Remedies Referenced Elsewhere in this Report

In addition, the following Solution/Remedy referenced elsewhere in this Report will contribute to ensuring that voters cast their ballots at the BMDs, as described below:

- ***Item 8. An assessment of the set up at Vote Centers, deployment of resources and availability of staff at the Vote Centers, Solution 2. Implement a data warehouse for Vote Center and Election Worker management.***

  A more robust solution for Election Worker management will help ensure that an adequate number of Voting Area Monitors and Provisional/VBM Clerks are recruited and staffed in order to adequately support voters, particularly on Election Day when Vote Centers are busiest. Clerks will watch for any voters exiting the Vote Center with a ballot, intercept them, and guide them to a Voting Area Monitor for assistance.

Resources and Implementation Plan

The table below includes resources required and a high-level implementation plan for the solutions/remedies included in this section.

Table 10.   Board Motion Item 10 Resources and Implementation Plan

Solution	Resources Required	Implementation Plan
1. Refine messaging as part of Voter Outreach and in Vote Centers emphasizing high-level, simple steps.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in the Department's operational budget	▪ May 2020: Refine messaging working with advisory groups. ▪ May/June 2020: Incorporate new messaging into voter education campaign and associated materials. ▪ June 2020: Begin voter education campaign incorporating new messaging.
2. Clarify on-screen text and imagery on the BMD to reinforce how to cast the ballot.	▪ **Staff:** No new RR/CC staff needed. Support from Smartmatic and IDEO would be needed required. ▪ **Equipment/Tools:** None ▪ **Budget:** Additional budget required for work to be done by Smartmatic. Existing budget to be used for work to be done by IDEO.	▪ May/June 2020: – Update text on "Ready to cast" screen – Complete translations – Add graphic "bread-crumbs" to key screens – Define color and/or animation effect for "Cast" button. – Implement changes to the BMD. ▪ July/August 2020: Undertake recertification effort
3. Create a Check-in Clerk script advising voters on key points, including how to cast the ballot.	▪ **Staff:** No new staff ▪ **Equipment/Tools:** None ▪ **Budget:** To be considered in the Department's operational budget	▪ On the regular pre-election schedule for updating training materials, develop the Check-in Clerk script, and incorporate into Election Worker training and materials.

Item 11. Develop a plan to receive feedback from voters regarding their experience

The Department conducted a Voter Experience Survey and received more than 27,000 responses. Loyola Marymount University conducted an exit poll of 3,956 voters.

Key findings from the RR/CC survey:

- 69% of respondents reported having a positive overall voting experience at the Vote Centers while 21% reported having a negative overall voting experience.

- 68% of voters surveyed reported waiting 30 minutes or less during the voting period. 17% of voters surveyed reported waiting over 2 hours.

- 80% of respondents reported being satisfied with their experience using the new Ballot Marking Devices (BMDs) while 10% reported being dissatisfied with their experience using the new BMDs.

- 33% of respondents reported using the Interactive Sample Ballot (ISB). Of those who used the ISB, 87% reported being satisfied with their experience while 5% reported being dissatisfied with their experience using the ISB.

- Of the respondents who are unlikely to vote at a Vote Center in the future, 65% said this was because they experienced a long wait at the Vote Center during the March Election. Another 32% reported "Other" while 29% prefer to Vote by Mail.

Key findings from the LMU exit poll:

- 87.1% of respondents reported having a positive overall voting experience at the Vote Centers while 12.9% reported having a fair or poor overall voting experience.

- 77.8% reported waiting in line for 20 minutes or less. 22.2% reported waiting in line for more than 20 minutes.

- 92.9% described their experience registering or checking in to receive a ballot as very easy or somewhat easy, 7.1% described it as somewhat difficult or very difficult.

- 95.4% described their experience using the BMD as very easy or somewhat easy. 3.8% described it as somewhat difficult or very difficult.

- 95.4% described their experience printing and casting their ballot as very easy or somewhat easy. 4.6% described it as somewhat difficult or very difficult.

3. Appendices to Board Motion Items

Appendix to Item 1. Excessive wait times that may have been a result of technical issues from the check-in process

Overview of Voter Check-In and Associated Technology

When voters enter a Vote Center, they proceed to an available Check-in Clerk at the Check-in Table. The Check-in Clerk locates the voter's record in the electronic pollbook (PollPad) by scanning the voter's Sample Ballot or other material mailed to the voter by the Registrar-Recorder/County Clerk (RR/CC), or by typing in the voter's name with the stylus and searching for the voter's record by name.

Individuals who are not registered to vote in Los Angeles County (County) may register and vote provisionally on the same day, which is called Conditional Voter Registration (CVR). The Check-in Clerk follows the CVR process and creates a record for the new voter by entering the appropriate information into the PollPad.

Once the voter's record is selected, the voter reads or listens to the voter oath and signs the PollPad using a stylus. The Check-in Clerk prints a ballot activation Quick Response (QR) Code on a blank ballot and provides it to the voter. At this time, the Check-in Clerk also gives the voter information on how to use the Ballot Marking Device (BMD). The voter is then directed to a BMD by the Check-in Clerk and/or by the Voting Area Monitor. The check-in process is complete at this time.

The voter proceeds to the BMD to cast their ballot.

The Vote Center model requires near real-time updates to the County's voter registration database as voters check in. Each PollPad has a local database containing a subset of voter registration data in order to locate voters at check-in. PollPads synchronize with ePulse, the Countywide database that tracks voter activities at other Vote Centers and ballots received through mail. The communication with PollPads either uses a secure cellular connection, through multiple carriers, or a wired connection in the Vote Center.

Figure 5. PollPad Synchronization with ePulse
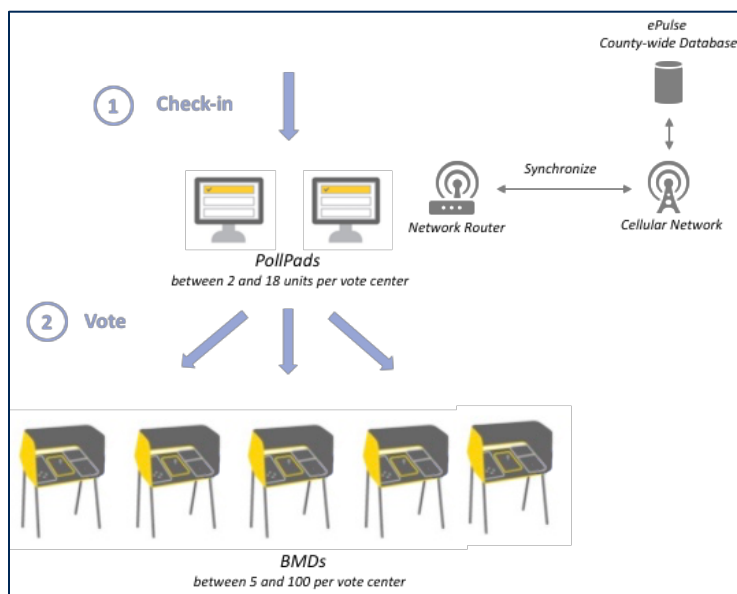
Observations

On Election Day, some voters experienced unacceptable wait times attributable to the check-in process at a number of Vote Centers. Delays in the check-in process were caused by:

1. **Slow PollPad synchronization time:** Long synchronization cycles between PollPads and ePulse, the Countywide voter database, resulted in some voters being issued provisional ballots and left some PollPads inoperable.

2. **Inefficient voter search function:** Difficulty in matching voters with voter registration data because of limited search capability.

3. **High demand at Small Vote Centers:** Locations with less equipment and fewer Election Workers experienced demand similar to that of larger Vote Centers with more equipment and staff.

The following actions will address these issues:

1. Reduce the PollPad synchronization time to rapidly receive and process updates from the ePulse voter database server and ensure the availability of PollPads to check in voters.

2. Improve the search function to quickly match voters based on multiple criteria and make it easier for voters to obtain a scannable Voter ID from the Sample Ballot or on a mobile device through the Voter Registration Lookup Tool.

3. Ensure all Vote Centers have at least 5 PollPads and a sufficient number of BMDs for adequate capacity.

Lines at Vote Centers resulted from the check-in process; BMD capacity was not a constraint.

Analysis shows that excessive wait times on Election Day were caused by constraints and issues in the check-in process. Smaller Vote Centers that experienced relatively high demand were especially impacted.

While there were reported issues with BMDs that reduced the capacity of available devices at Vote Centers, data show that for the vast majority of locations, this was not the case and had minimal documented effect on wait time. Except for a subset of Petite Vote Centers with 5 or fewer BMDs, there was sufficient BMD capacity to support demand. (For more detail, see Item 9. Identify all of the technical issues, including IT/internet connectivity and inoperable voting machines.)

During the 10-day voting period prior to Election Day, there were no reports of long wait times at Vote Centers. 27% of in-person voters voted during the 10-day period.

27% of in-person voters (266,305 voters) in the March 2020 Presidential Primary Election voted during the 10 days prior to Election Day (February 22 through March 2). During this time, RR/CC received no calls or other communications from voters regarding issues with lines or wait times at Vote Centers.

On Election Day (March 3), some voters experienced an unacceptable wait time attributable to the check-in process at a number of Vote Centers. 73% of in-person voters voted on Election Day.

73% of in-person voters (729,248 voters) voted on Election Day (March 3). This is a significant increase in voters on a single day when compared to the total number of voters over the previous 10 voting days.

In *The American Voting Experience: Report and Recommendations of the Presidential Commission on Election Administration*, the Commission addresses the question of what should be considered a "long" line at a polling place. The Report states, "The Commission has concluded that, as a general rule, no voter should have to wait more than half an hour in order to have an opportunity to vote." [1] RR/CC has incorporated the threshold of a 30-minute wait in this analysis of wait times.

RR/CC has evaluated a variety of data sources to understand voter experience with wait times during the March 2020 Election. Key results are summarized below:

Table 11.   Survey Sources and Key Results

Data Source	Key Result
RR/CC Voter Experience Survey	96% of voters surveyed reported waiting 30 minutes or less during the 10 days prior to Election Day.
	53% of voters surveyed reported waiting 30 minutes or less on Election Day.
	10% of voters surveyed reported waiting over 3 hours on Election Day.
LMU Exit Poll	78% of voters surveyed reported waiting 20 minutes or less on Election Day
Complaints received by RR/CC or CA SOS	13% of Vote Centers (a total of 130) were identified through voter complaints to RR/CC or CA SOS related to long wait times

Additional detail from these sources is provided below.

RR/CC Voter Experience Survey: RR/CC conducted a Voter Experience Survey in April 2020. More than 27,000 responses have been received to date. Respondents were asked how long they waited to check in at a Vote Center. A summary of responses is shown below:

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[1] Bauer, Robert F.; Ginsberg, Benjamin L.; Britton, Brian; Eschevarria, Joe; Grayson, Trey; Lomax, Larry; Coleman Mayes, Michele; McGeehan, Ann; Patrick, Tammy; & Thomas, Christopher (2014). The American Voting Experience: Report and Recommendations of the Presidential Commission on Election Administration. http://purl.fdlp.gov/GPO/gpo45379.

Table 12.   RR/CC Voter Experience Survey Wait Time Responses

Survey Response	Full Voting Period (Feb 22 – Mar 3)	February 22 – March 2	Election Day (March 3)
There was no wait	40%	75%	20%
1-15 minutes	20%	18%	21%
16-30 minutes	8%	3%	11%
31-60 minutes	7%	2%	11%
1 hour	7%	1%	10%
2 hours	11%	.7%	17%
Over 3 hours	7%	.4%	10%

While this survey provides insight into a large group of voter experiences, anecdotal reports from observers and the media raised overall concerns related to excessive wait times. Although these are more difficult to quantify, those reports also reflect the voter experience. Some of the observers linked the wait times to the capacity and availability of BMDs. As described further in this report, the data does not support this correlation.

LMU Exit Poll: An Exit Poll was conducted during the March 3, 2020 Presidential Primary Election by students from Loyola Marymount University (LMU). A total of 3,596 voters participated in the exit poll at 50 Vote Centers on Election Day between 7:00 am and 8:00 pm.[1] (For more detail, see Item 11. Develop a plan to receive feedback from voters regarding their experience.)

Exiting voters were asked how long they waited to vote. A summary of responses is shown below:

- Waited 5 minutes or less: 43.2%

- Waited 6-10 minutes: 17.8%

- Waited 11-15 minutes: 7.6%

- Waited 16-20 minutes: 9.2%

- Waited over 20 minutes: 22.2%

According to the LMU exit poll, 78% of voters surveyed waited 20 minutes or less.

Voter Complaints: On Election Day, RR/CC received calls from voters or Election Workers regarding 94 Vote Centers. In addition, the California Secretary of State's Office (SOS) received reports from voters regarding 50 Voter Centers with long lines. Thirteen Vote Centers appeared

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[1] Guerra, Fernando J.; Gilbert, Brianne; Vizireanu, Mariya; Dunsker, Max; & Akella, Vishnu (2020). Vote Center Experience Data Brief: 2020 LA Votes Presidential Primary Exit Poll. Thomas and Dorothy Leavey Center for the Study of Los Angeles, Loyola Marymount University, Los Angeles, California.

on both lists, resulting in a total of 130 Vote Centers with documented complaints regarding wait times.

PollPad Logs: The PollPad software logs check-ins by time. When Vote Centers have no voters that check in after 8:00 pm, that indicates there was no wait to check in at that Vote Center for voters arriving in line by 8:00 pm. For Vote Centers with check-ins after 8:00 pm, it is assumed that the last voter to check in waited for at least the time between 8:00 pm and their check-in time.

The figure below shows the number of:

- Vote Centers with check-in times no later than 8:00 pm on Election Day (shown in green)
- Vote Centers with check-in times after 8:00 pm, and therefore a wait time after 8:00 pm, (shown in blue) in 30-minute increments.

Figure 6.   Vote Centers with Voters Processed after 8:00 pm on Election Day
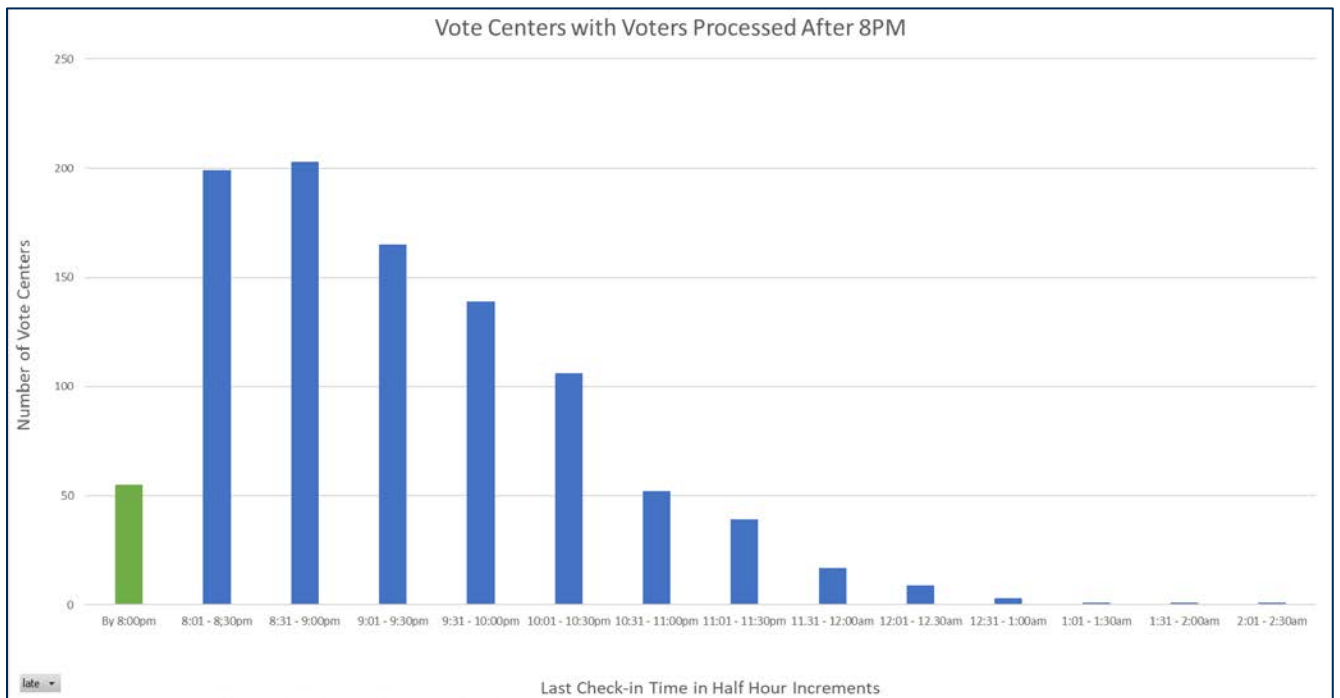
Description of the Issue

Smaller Vote Centers were more likely to have longer wait times after 8:00 pm on Election Day.

Vote Centers are classified by size based on the number of BMDs and PollPads assigned. The maximum number of BMDs and PollPads assigned to a location is determined by a variety of factors (e.g., square footage, available power, available network bandwidth, accessibility requirements, etc.) The number of PollPads assigned to a Vote Center ranges from 2 to 25. The

table below shows the number of Vote Centers by size, along with the number of BMDs and PollPads assigned.

Table 13. Vote Centers, BMD and PollPad Counts

Vote Center Size	# of BMDs per Vote Center	# of ePollbooks per Vote Center	# of Vote Centers	% of Total Vote Centers
Petite	5	2	142	15%
Total Petite:			**142**	**15%**
Small	10	3	235	24%
	15	4	60	6%
Total Small:			**295**	**30%**
Medium	20	5	132	13%
	25	6 / 7	113	12%
	30	8	98	10%
Total Medium:			**343**	**35%**
Large	35	9	37	4%
	40	10	67	7%
	45	12	8	0.8%
	50	13	19	2%
Total Large:			**131**	**13%**
Extra Large	55	14	11	1.1%
	60	15	14	1.4%
	65	16 / 17	15	2%
	70	18	2	0.2%
	75	19	11	1.1%
	80	20	5	0.5%
	85	22	7	0.7%
	100	17 / 25	2	0.2%
Total Extra Large:			**67**	**7%**
	Grand Total		**978**	**100%**

Technical issues related to PollPads contributed to wait times on Election Day

The check-in process constrained voter throughput on Election Day. Technical issues with the PollPad search functionality and voter synchronization affected the rate at which voters could be checked in and presented with a blank ballot with activation code.

The issues observed related to PollPads on Election Day are:

- **Slow initial synchronization made it difficult to use all available PollPads devices on Election Day.** Particularly at larger Vote Centers, not all deployed PollPads were used in early voting, because arriving voters could be checked in with fewer units. When the demand increased on Election Day, Election Workers turned on PollPads that had not been used since earlier in the voting period or perhaps not at all. These PollPads had not been synchronized with changes that had occurred across the County during the previous voting days and took a substantial amount of time to synchronize. In some cases, units took over two hours to synchronize. Other units did not complete synchronization at all and were not able to be used.

- **Slow ongoing synchronization resulted in Provisional ballots being issued to voters**. PollPads synchronize with each other and with ePulse, the vendor-supported Countywide database that tracks voter activities at other Vote Centers and ballots received through mail. One of the purposes of synchronization is to prevent voters from voting more than once. The PollPads were configured with a 15-minute cutoff time for completing synchronization, meaning, if a PollPad has not completed synchronizing with the database within the last 15 minutes, then the voter data within the individual PollPad is no longer considered up to date. In that case, the unit will require any voter checked in on the device to vote provisionally. The threshold of 15 minutes was increased to 30 minutes late on the afternoon of Election Day to accommodate slower-than-expected synchronization times. Even with the higher threshold, many PollPads did not complete synchronization and as a result continued to prompt Election Workers to issue Provisional ballots.

  Facing resistance from voters who did not want to vote provisionally, Election Workers sometimes waited for the synchronization process to complete. In other cases, Election Workers processed voters provisionally, which takes longer than checking-in a non-provisional voter.

- **The search function to locate a voter record had a deficiency that made searching against the large LA County voter database cumbersome and inefficient**. A late-identified software deficiency did not allow for address information to be used in addition to first and last names to search for a voter record. Voter search did not operate as expected based on product demonstrations and in field testing. This resulted in additional time required for Election Workers to review many voter records containing similar names in order to locate the correct record. Voters not found in the database went through the Conditional Voter Registration (CVR) process, which takes longer than checking in a registered voter.

- **Election Workers and observers reported slow navigation of the user interface.** Slow system response occurred most notably with the check-in transition screen and the voter signature screen while the PollPad was synchronizing.

- **PollPads became inoperable during Election Day.** Approximately 169 PollPads that had completed synchronizing after 6 a.m. on Election Day were no longer successfully synchronizing after 5 p.m. That is a reduction of 4% in the number of PollPads available at peak voter turnout time on Election Day when compared to the morning.

- **Some PollPads deployed to Vote Centers were inoperable when turned on for Election Day.** Some PollPads that had not been used during early voting were inoperable when Election Workers attempted to power the devices on.

- **A software bug in the PollPad caused an error in the ballot activation QR code for some voters when they changed their party preference during check-in.** When voters inserted these ballots into the BMD, the BMD rejected the activation code, and voters were required to return to the check-in table to have this corrected and to receive a new ballot.

Independent study by CalTech found PollPad synchronization issues.

A CalTech study[1], based on data extracted from ePulse, shows connectivity problems, which are PollPad synchronization issues, represented by black dots in the following graph:

Figure 7.   CalTech Data on PollPad Synchronization Issues
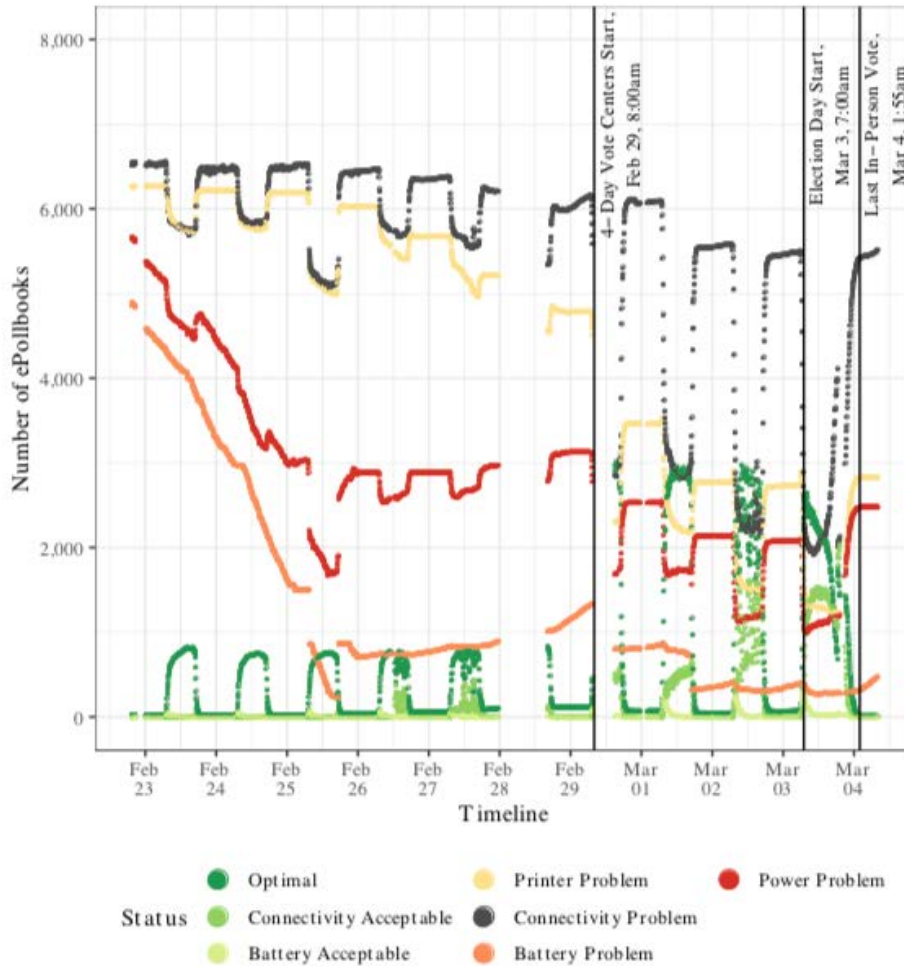
Note: "Connectivity" in the figure above refers to PollPad synchronization.

The report draws a connection between these connectivity problems and having *Provisional ballots cast all throughout the voting period because PollPads were "offline."* The meaning of connectivity problems here does not necessarily mean the connection of the PollPads with the network; it means that there was no or little communication between the PollPad application (on the iPad) and the cloud-based backend. This can be attributed to synchronizing. If a PollPad has not completed synchronizing after a set period of time elapses, the PollPad will only allow

[1] Los Angeles County ePulse Data Analysis Preliminary Report Super Tuesday, March 2020 - R. Michael Alvarez, Daniel Guth, Claudia Kann, and Seo-young Silvia Kim, April 17 2020

voters to be processed provisionally. An analysis of bandwith, conducted by AT&T, and separate from the CalTech study suggests that there were no pervasive network-related issues.

The CalTech study further notes that Vote Center staff were sometimes able to correct the problem by restarting or syncing the PollPads, but this was a constant problem overall.

Finally, the CalTech report states: *of the 7,002 PollPads distributed during the election cycle, 2,108 (30.1%) did not process a single voter. From a Vote Center perspective, at least one PollPad at 354 of the 995 locations (35.6%) did not register a single voter.*

Vote Centers with fewer than five PollPads experienced longer wait times.

Check-in data from Election Day indicates that Vote Centers with only 2-4 PollPads operable after 5 p.m. on Election Day had the longest wait times after 8 p.m.

The figure below shows the average number of minutes between 8 p.m. and the last voter to check in for Vote Centers with a specific number of operable PollPads on Election night (i.e., after 5 p.m.). For example, the last check-in at Vote Centers with one operable PollPad on Election night was an average of ~140 minutes after 8 p.m. If a voter joined the line by 8 p.m. at a Vote Center with one operable PollPad, that voter would wait an average of ~2 hours and 20 minutes.

By contrast, Vote Centers with 5 operable PollPads on Election night had last check-ins that were an average of ~60 minutes after 8 p.m. If a voter joined the line by 8 p.m. at a Vote Center with 5 operable PollPads, that voter would wait an average of ~1 hour.

Figure 8.   PollPads and Last Voter Check-ins

Number of PollPads and Average Last Voter Check-in (978 Vote Centers – March 3)

$y = -34.35\ln(x) + 130.72$
$R^2 = 0.7413$
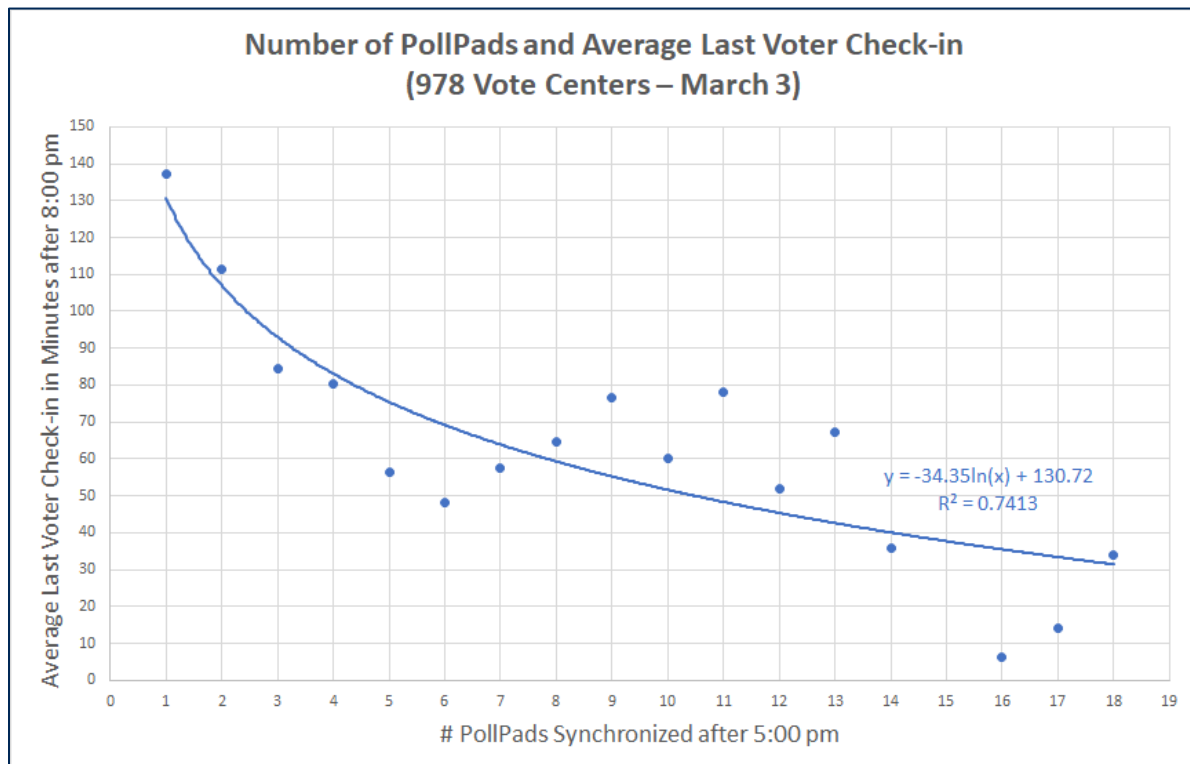
Network bandwidth at Vote Centers was not a constraint on Election Day.

There was a perception that insufficient network bandwidth between the Vote Centers and the ePulse server led to the slow synchronization. Based on reporting from the monitoring team staffing the RR/CC's Network Operations Center (NOC), network bandwidth was not a constraint during Election Day.

Using a Sample Ballot or other printed material containing the Voter ID Code significantly improved the speed of check-in.

When voters brought their Sample Ballot or Vote Center Post Card to the Vote Center, the Voter ID Code (barcode) on those documents could be scanned at the PollPad to immediately retrieve the voter record without manually entering and searching data. The scanning process is significantly faster than searching for a voter by name. Not all voters brought their Sample Ballot with them, however, requiring a search by name for these voters.

If every voter brings their Sample Ballot, or has rapid access to their Voter ID Code, the check-in throughput can be improved significantly.

Root Cause Analysis

Table 14.   Board Motion Item 1 Root Cause Analysis

Issue	Root Cause
Slow initial synchronization made it difficult to use all available PollPads on Election Day.	Before PollPads at Vote Centers can be used for check-in, they must be synchronized with voter activity and changes that occurred after the configuration at the VSAP Operations Center (VOC) prior to the Election. Depending on the amount of time that has passed, the amount of data to be synchronized can be substantial, leading to lengthy synchronization times before the device can be used.
	Vote centers were equipped with various numbers of PollPads. In many cases, Vote Centers only used a subset of devices for early voting, leaving the remainder in their original state. Early voting only accounted for approximately 27% (266,305 voters) of the volume of total in-person voters. When more PollPad devices were needed to support a higher volume on Election Day, the devices needed to be synchronized with all prior changes first. This took several hours per PollPad. In some cases, synchronization did not complete before the end of Election Day rendering a number of PollPad devices unusable.
Slow ongoing synchronization caused voters to voter provisionally	The PollPad solution synchronizes each voter change (voter check-ins and address changes) across all PollPads at all Vote Centers. In addition, the synchronization process distributes data to PollPads about Vote by Mail ballots received by RR/CC.
	The synchronization period is configurable and tested at a 2-minute interval. This meant that each PollPad would begin the synchronization process every 2 minutes. Because of a bug in the Add Voter process, the PollPad vendor, KNOWiNK, suggested that the interval be set to 10-minutes. This meant that each PollPad would begin the synchronization process every 10 minutes. This

Issue	Root Cause
	modification took place on the first weekend of the early voting period.
	Separately, the PollPad was configured to print Provisional activation codes on ballots for all voters checked in on a PollPad if the last synchronization on that PollPad had not completed within the last 15 minutes. On Election Day, this period was extended to 30 minutes to account for slower than expected synchronization. In many cases, this period was still not sufficient for synchronizations to complete. Some Election Workers waited for the synchronization to complete so voters would not have to vote provisionally. That pause in process decreased the throughput of voter check-ins.
Voter search deficiency.	The search function on the PollPad application accepts the voter's first and last name. After the November 2019 election, it was determined these two fields were insufficient to uniquely filter voters in such a large voter database. In many cases, the first and last name search would result in hundreds of results and increased the chance that a voter could not be found. The house number and street name were added as search fields to reduce the number of potential search results.
	Days before the March 2020 Election voting period, it was discovered that the additional search fields had a significant bug which made the functionality unusable. The bug would not reliably return results when a house number and/or street name were entered in the search fields. This bug resulted in making search functionality to be cumbersome and slow for the users. The users had to rely on the name-search, which would result in a large data-set, which then had to be verified with the voter. This search functionality did not work as intended or as represented to the County by the vendor.
	The address search fields were removed, maintaining only the first and last name fields. This required modification of the training procedure for Election Workers. The lack of these additional filters made it difficult for Election Workers to find voter records and significantly slowed the Election Worker's ability to check-in voters.
Slow navigation of the user interface	Slow response times of the PollPad devices increased the interaction time between the voters and the Election Worker during the check-in process.
	Election Workers experienced the PollPad lagging screen navigation, freezes and/or crashes of the application during the PollPad synchronization on Election Day. This application behavior significantly slowed the Election Worker's ability to check-in voters.
	KNOWiNK performed post-election testing and determined there were inefficiencies in the application that contributed to the latency experienced by Election Workers.

Issue	Root Cause
	The PollPad software does not communicate with the ePulse server during the check-in process in real time, rather it batches the records and synchronizes after a period of time. The way the application is built, it consumes significant resources (for example, memory) in the device, resulting in users experiencing slowness.
Some PollPads were unused on Election Day.	On Election Day, some locations reported that the PollPads deployed were not operational. These deployed devices were not used on Election Day for the following reasons: ▪ Lack of synchronization: Election Workers did not turn on the PollPads for the days leading up to Election Day when they were not needed to support demand. When they were turned on, the synchronization had to download records for days of activity and could not successfully download all the data to have a complete synchronization. ▪ Application Issues: Election Workers reported that the PollPads deployed at their site did not work because of the application being slow to respond to user input.
Completing Conditional Voter Registration (CVR) requires more time than checking-in a registered voter.	The PollPad application enables new voters to be added to the database and to cast a conditional ballot. This process requires the voter to register to vote by filling out and signing a conditional registration envelope. After the envelope is signed, the Election Worker adds the voter into the PollPad from the data on the envelope. CVR volume is significantly higher at Vote Centers on or near college/university campuses because of new voter registrations or voters who have moved to attend school. On Election Day CVRs accounted for over 20% of the check-ins at Vote Centers located at universities and colleges. At other Vote Centers, the number of CVRs accounted for only 5% of check-ins on average. Of the top 20 sites that processed CVR voters, 13 of those were located on college campuses. During the CVR/Add Voter Process, Election Workers were prompted with address options that correspond to addresses with recorded precincts. It is vital that an address entered is associated with the corresponding precinct so the voter is provided their correct ballot style. The process to add and select an address confused many Election Workers since they were prompted to call an RR/CC Help Desk number when a corresponding precinct was not found. In addition, the PollPad would allow Election Workers to select an incorrect precinct, which would result in issuing a ballot that did not contain the correct contests for the voter. Also, with the passage of Senate Bill 207, which allowed voters to update their party or address on the PollPad without the need to re-register, voters could edit their address on the PollPads. Similar to the CVR process, the address must correspond to a precinct so the

Issue	Root Cause
	correct ballot style is identified. However, the Edit Voter function incorrectly prompted Election Workers to call the Help Desk number regardless if the address precinct was correctly identified. Inherently, the Add Voter (CVR) and Edit Voter (Senate Bill 207) processes are more time consuming because of the data entry. However, the Edit Voter process was further impacted by the confusion of precinct selection.
Network connectivity was sufficient in Vote Centers.	Analysis from AT&T shows that there were no pervasive network bandwidth constraints at the Vote Centers. Typical bandwidth usage was below 2Mbps, with spikes for early morning and some in the evening on Election night, when additional PollPads were brought online and required synchronization. The bandwidth need did not plateau or exceed capacity.

Appendix to Item 2. Ensuring appropriate staffing is maintained at each Vote Center location, including staff who speak languages of the community they serve, and enough staff to respond and fix technical challenges that arise at Vote Center locations

Overview of Staffing

Election Worker Recruitment and Staffing

To operate Vote Centers over the 11-day period of the March 2020 Election, RR/CC recruited approximately 13,000 Election Workers, including multilingual Election Workers.

Election Worker Roles

Vote Center Lead

The Vote Center Lead (Lead) is responsible for overseeing all activities at the Vote Center, including opening and closing of Vote Center, addressing questions/issues, and delivering ballots to the check-in-center daily.

The target goal was to recruit 250 RR/CC staff to serve as Leads at Vote Centers scheduled to be open for 11 days and 750 employees from other County departments to serve as Leads at the expanded pool of Vote Centers scheduled the final 4 days of the voting period.

Vote Center Clerk (multiple roles)

Vote Center Clerks (Clerk) are responsible for assisting the Lead with opening and closing procedures and assisting voters throughout the day. Clerks are assigned the following tasks:

- Line Monitor – greets voters, asks general questions, and directs them to the appropriate station (e.g., check-in station, voting station, etc.)
- Check-in-Clerk – checks in voters, provides them with their ballot, and directs them to the voting area.
- Voting Area Monitor – directs voters to available Ballot Marking Device (BMD), troubleshoots basic BMD questions/issues, and assists Line Monitor, as needed.
- Provisional/VBM Clerk – assist Provisional/CVR voters, receives Vote by Mail (VBM) envelopes from voters, and issues "I Voted" stickers.

The goal was to recruit approximately 12,000 Clerks to cover all Vote Centers over the 11-day voting period. The Clerk pool consisted of community volunteers, County employees and high school students.

Based on the roles and targets listed above, a Vote Center Staffing Model was developed. The staffing levels within the model consisted of three tiers: weekend staffing, weekday staffing, and Election Day staffing. Staffing numbers were allocated based on Vote Center size and projected daily voter turnout, with the highest expectancy on Election Day as shown in the table below:

Figure 9. Vote Center Staffing Model

Size		Saturdays, Sundays & Monday (e-1)					Days: 5		Monday - Friday (e-8-e-4)					Days: 5		Tuesday (Election Day)					Days: 1
		Lead	Line Monitor	Voting Area Monitor	Check In Clerk	Provisional Clerk	Total Staff per site per day		Lead	Line Monitor	Voting Area Monitor	Check In Clerk	Provisional Clerk	Total Staff per site per day		Lead	Line Monitor	Voting Area Monitor	Check In Clerk	Provisional Clerk	Total Staff per site per day
Large	# of workers	1	1	6	10	1	19	# of workers	1	1	1	2	1	6	# of workers	1	1	7	17	1	27
Medium	# of workers	1	1	2	5	1	10	# of workers	1	1	2	1	1	6	# of workers	1	1	2	9	1	14
Small	# of workers	1	1	1	2	1	6	# of workers	1	1	1	2	1	6	# of workers	1	1	1	3	1	7

Multilingual Election Workers

Multilingual (ML) Election Workers were recruited from all worker pools (e.g., community volunteers, student volunteers, etc.). ML workers serve in the same roles as English-speaking Election Workers but are prioritized to assist voters with language needs. For the March 2020 Election, 43% (5,980) of Election Workers recruited were bilingual.

Specialty Roles – Recruitment and Staffing

In addition to the Lead and Clerk positions, there are three specialty positions: Reservist, Troubleshooter, and Field Support Technician (FST). The roles for each are as follows:

- Reservist – Fills emergent Lead or Clerk vacancies.
- Troubleshooter – Assigned by geographic areas to a range of 10-15 Vote Centers to resolve complicated issues, troubleshoot basic BMD issues, and answer questions from Vote Center staff, voters and members of the community.
- Field Support Technician – See IT Staffing section below for more details.

A Staffing Model also was developed for the specialty positions:

Reservists

The goal was to recruit 450 Reservists to be staffed over the 11-day voting period as detailed in the table below:

Figure 10. Staffing Model for Reservists

# of Reservists	Service Dates	# of Days
50	e-11 - Election Day	11
200	e-4 - Election Day	4
200	Election Day	1

The Reservist pool consisted of experienced Election Workers who had served in past elections in a similar or higher-level capacity. The goal of the Reservist program was to fill emergent Lead or Clerk vacancies at Vote Centers where Election Workers did not show up as scheduled. It was anticipated that Reservists dispatched to locations would fill the vacancy for that day and would return to the Reservist pool if the Election Worker showed up the following day.

Troubleshooters

The goal was to recruit 100 Troubleshooters to work over the 11-day voting period as detailed in the table below:

Figure 11. Staffing Model for Troubleshooters

# of Troubleshooters	Service Dates	# of Days
50	e-11 - Election Day	11
50	e-4 - Election Day	4

The Troubleshooter pool consisted of experienced permanent and temporary RR/CC staff and community volunteers who had served in a similar capacity in past elections.

IT Staffing at Vote Centers

Field Support Technicians

During the voting period, Field Support Technicians (FST) provide onsite technical support at Vote Centers for issues related to BMDs, PollPads, and mobile phones assigned to Leads. FSTs rove in designated coverage areas when there are no active troubleshooting assignments. FSTs were made up of contractor staff and were part of a pool of resources that also completed Vote Center setup/breakdown (deployment), staffed the IT Help Desk, and conducted truckyard activities.

The goal was to recruit 350 and to deploy 100 FSTs (50 teams of 2) to cover 50 coverage areas over the 11-day voting period. Originally, IT had proposed to have 78 coverage areas with 78 teams of two, to mimic the Regional Distribution Center (RDC) model used in past elections. The RDCs were used to replenish election supplies. Because of the lack of any historical experience in replenishing election equipment, the existing model for replenishing via RDCs was used. The staffing model executed for the March 2020 Election is detailed below:

Figure 12. Staffing Model for IT Staff

Three-day (SML MIX) Setup Scenario (e-20 thru e+10)														
Vote Center Setup Schedule														
Date	e-20	e-13	e-12	e-11	e-10	e-9	e-8	e-7	e-6	e-5	e-4	e-3	e-2	e-1	e-0
Day	WED	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE
Large Site	0	42	42	42	0	0	0	42	42	53					
Medium Site	0	42	42	42	0	0	0	42	42	94					
Small Site	0	50	50	50	0	0	0	150	150	80					
Day	0	134	134	134	0	0	0	234	234	227	0	0	0	0	0
Team Schedule															
Date	e-20	e-13	e-12	e-11	e-10	e-9	e-8	e-7	e-6	e-5	e-4	e-3	e-2	e-1	e-0
Day	WED	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE
Large Site Teams	0	42	42	42	0	0	0	42	42	53					
Medium Site Teams	0	21	21	21	0	0	0	21	21	47					
Small Site Teams	0	25	25	25	0	0	0	75	75	40					
Total Number of Teams	0	88	88	88	0	0	0	138	138	140	0	0	0	0	0
Total Staffing Required															
Deployment/Breakdown Staff	0	558	558	558	0	0	0	708	708	708	0	0	0	0	0
Call Center Staff	0	17	17	17	70	70	70	70	70	70	70	70	70	70	70
Backup Staff	0	124	124	124	37	37	37	189	189	189	37	37	37	37	37
Field Support					100	100	100	100	100	100	100	100	100	100	100
Vehicle Coordinator (EA)	0	0	20	20	20	20	20	20	20	20	20	20	20	20	20
TruckDriver (EA II)	0	0	0	0	12	12	12	12	12	12	12	12	12	12	12
Staff Required Per Day	0	699	719	719	239	239	239	1099	1099	1099	239	239	239	239	239
Total Number of Vehicles Needed	0	150	162	162	81	81	81	295	295	297	81	81	81	81	81

Update Historical Percent of	
Site Unavailability Rate	6.0%
Attrition Rate	21%
Call Center/Deployment Ratio	25%

It was anticipated that IT would have sufficient staff, based on the following assumptions:

- IT would be able to hire the required 1,099 staff from various staffing contractors
- Expected attrition rate for contractor staff would not exceed 21% at any given time
- Expected Vote Center unavailability or redeployment would not exceed 6% at any given time
- Field Support Technician staff would receive a week of comprehensive training
- Scheduled Vote Center deployments would not exceed more than 234 sites a day.

During the voting period, which overlapped with the deployment period, it was discovered that a large number of staff (up to 30%) did not show up for their scheduled shifts and that the required staff per day exceeded capacity.

Observations/Issues related to Election Worker Staffing

Minimal number of Vote Centers reported lack of multilingual Election Workers at their location.

Overall, recruitment of multilingual Election Workers proved to be a success for the March 2020 Election. According to the issues recorded in the Help Desk system, AskEd, there was a minimal number of Vote Centers that reported lack of multilingual Election Workers at their location. Over the course of the early voting period, only .02% (23) locations reported lack of multilingual Election Workers at their location.

After reviewing the staffing allocations for the 24 Vote Centers that reported lack of multilingual workers, two main contributing factors were identified. One reason bilingual workers were not present on some days was caused by assigning workers based on a schedule. For example, a bilingual worker for a specific language may have been scheduled to serve on the weekend but not on Election Day. This resulted in not having 100% multilingual coverage throughout the voting period. The other reason for a lack of bilingual workers at some Vote Centers was caused by workers failing to show up for their assignment. This may have been the case for Vote Center locations that did not report lack of multilingual Election Workers.

Lack of an effective data warehouse affected recruitment and tracking of Election Workers.

The existing Election Management System, DIMSnet (DIMS), is not capable of supporting the assignment and tracking of workers for multiple days. The inability to track assignments and run reports in DIMS resulted in manual processes that did not give RR/CC visibility of the recruitment status for each Vote Center.

Although RR/CC procured PollChief, which is a database that organizes communications and logistical details for Vote Centers and Election Workers, the system was procured after Election Worker recruitment had begun. Although productive work was completed, further development of the system was suspended and PollChief was not implemented because of the amount of customization work required to adapt to the needs of RR/CC.

Despite the challenges encountered with DIMS, Pollworker Services successfully recruited approximately 14,000 Election Workers to serve for the March 2020 Election. However, RR/CC was unable to ensure staffing goals for each individual Vote Center were met. To identify staffing deficiencies, ad hoc reports were produced outside of DIMS a few days leading up to the first day of voting. Once the reports were received, staff worked to reallocate staff and fill vacancies for locations that were significantly understaffed.

Delay in generation and mailing of appointment letters resulted in no-shows at Vote Centers.

The system limitations with DIMS affected the generation and mailing of appointment letters for Election Workers. Although RR/CC was able to mail an initial letter to Election Workers, the letter only provided basic information regarding training requirements and confirmed that Election Workers were assigned. DIMS was not able to generate appointment letters for assignments consisting of multiple days since the system only supports a 1-day assignment.

The inability to produce adequate appointment letters through DIMS delayed the issuing of assignments to Election Workers. To address the issue, a workaround was developed for extracting Election Worker information from DIMS onto a template outside of the system. Again, because of system limitations, RR/CC was unable to ensure appointment letters were generated for all Election Workers, specifically for workers that were re-assigned after the first batch of letters for that job title was generated. Mailing of appointment letters was delayed; some were even mailed a couple of days before the assignment began. The timing related to appointment letters significantly affected Election Worker attendance for the March Election.

According to preliminary payroll reports, there was a 27% (3,805) no-show rate for the March 2020 Election across the 11-day voting period.

Delay in finalizing the number of Vote Centers and Vote Center sizes resulted in understaffed/overstaffed Vote Centers.

Recruitment of Election Workers began with a goal of staffing Vote Centers based on size and Ballot Marking Device (BMD) allocation. The initial plan consisted of the following:

- 1,000 Vote Centers total
  - 250 11-day Vote Centers with 50 BMDs
  - 750 4-day Vote Centers (500 Vote Centers with 30 BMDs and 250 Vote Centers with 10 BMDs)

Vote center recruitment proved to be challenging, causing the need for compromises to be made to Vote Center sizes and durations, as well as a delay in attaining final Vote Center numbers and locations. These changes significantly affected Election Worker recruitment goals, resulting in understaffing/overstaffing of Vote Centers. For example, a Vote Center that was previously established as a Small location within the 4-day voting period became an Extra-Large location for 11 days. This meant that recruitment for this location needed to increase from 7 Election Workers to 27 within a very short window. The converse also was true, with Large Vote Centers becoming smaller or reducing their duration. Reassignments are difficult and require manual intervention as County staff are assigned to Vote Centers near their County office buildings and other Election Workers are assigned to Vote Centers near their residences.

Vote Center Lead recruitment challenges resulted in Lead vacancies close to the beginning of the voting period.

Recruitment of Vote Center Leads proved to be very challenging because of the time commitment and requirements of the role. Although RR/CC received a positive response from volunteers early in the recruitment process, it was difficult to reach 100% recruitment for both the 11-day and 4-day voting periods.

As a result, there were 64 Lead vacancies approximately two days prior to the beginning of voting period. Therefore, RR/CC dispatched Reservists to these locations to ensure there was adequate oversight at all Vote Centers.

Additionally, working in a Lead capacity for 11 consecutive days resulted in worker fatigue which caused some Leads to call in sick on some days.

Reservist recruitment challenges and Lead vacancies depleted Reservist pool on Election Day.

Recruitment of Reservists was challenging from the onset because of the knowledge and experience required for this position, along with the number of service days required. To qualify for this position, prospects needed experience serving as Reservist, inspector, or coordinator in past elections. These requirements are essential for this position to ensure there is a flexible pool of volunteers to fill critical vacancies on short notice. In past elections, the recruitment goal was 350 Reservists. However, for the March 2020 Election, the goal was increased to 450 to accommodate going from one day of voting to an 11-day voting period. RR/CC reached 87% (390 Reservists) of the recruitment goal.

The shortage in recruitment and the high number of no-shows during the first 10 days of the voting period affected the number of Reservists available for dispatch on Election Day.

Additionally, the need to fill Lead vacancies in advance of the election depleted the pool for Election Day. There were a total of 100 Reservists available for dispatch on Election Day.

Observations/Issues with IT Staffing

The shared pool of IT support staff was insufficient to handle the compressed Vote Center deployment schedule.

IT support for Vote Centers is based on a shared pool of staff who are cross-trained and shared across key functions:

- **Vote Center Deployment:** Setting up Vote Centers before voting begins and breaking down Vote Centers after Election Day
- **Field Support:** Responding with on-site support for equipment issues at Vote Centers during the voting period, including replacing equipment as needed
- **Help Desk:** Answering calls from Vote Center Leads and Election Workers who need assistance with technology/equipment-related issues, resolving those issues or escalating them as needed

Based on a deployment period of 10 days to set up Vote Centers, RR/CC planned to use a shared pool of 350 staff members to fulfill all of the functions listed above. Of the pool of 350 staff, 100 were intended to work as Field Support Technicians and 70 were intended to staff the Help Desk.

In order to recruit the required number of Vote Centers, the Vote Center deployment schedule was reduced to 4 days to set up the ~250 Vote Centers prior to February 22, and 4-days to set up the ~750 Vote Centers prior to February 28. This compressed schedule reduced the amount of time a facility was dedicated for Vote Center use and encouraged potential sites to agree to serve as a Vote Center. PODS were also added to the deployment model to allow Vote Center sites to store supplies and equipment outside their facility prior to set-up, thereby freeing up their facility for other uses.

To complete Vote Center set-ups within the compressed 4-day schedule, and to accommodate the use of PODS, which added time to each set-up, the number of staff needed in the shared pool increased from 350 to 1,099.

Recruitment of the 1,099 staff in a short time frame proved challenging for IT staffing contractors. RR/CC had to seek staffing from other areas, such as County and city volunteers, and look to other vendor partners for support. Unfortunately, many of the staff acquired through the additional venues had driving and weight-lifting restrictions, which were not aligned with the requirements to complete deployment activities.

Given the staff available in the shared pool and limitations on work that could be assigned, RR/CC's deployment teams could set up 234 Vote Centers per day. On some days, however, 272 Vote Centers had to be set up in order to complete all Vote Centers by the start of voting. The deployment teams could not keep up with demand. In addition, some sites did not make rooms available for set-up as agreed, which pushed set-ups later in the 4-day period. By the end of deployment, over 300 sites per day needed to be set up, far outpacing the deployment teams' capacity.

Because IT staff was in a shared pool, assigning more staff to catch up with Vote Center deployment meant reducing Field Support Technicians and Help Desk staff to support Vote Centers that were already open.

Higher than anticipated attrition rates for Vote Center IT Support Teams

Based on previous experience from early voting and the Mock Election, attrition rates were predicted to be 21%. This was included into the staffing model and, each day, backup staff were to be scheduled at the rate of 21%. However, once deployment activities began, actual attrition rates were considerably higher, as summarized below:

Figure 13. Estimated vs. Actual Attrition Rates for IT Staff

Actual vs Scheduled Staff													
Date:	19-Feb	20-Feb	21-Feb	22-Feb	23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	29-Feb	1-Mar	2-Mar	3-Mar
Scheduled Staff	259	454	473	330	330	195	699	721	1878	1899	871	450	450	540
Actual Staff	652	797	726	251	252	533	833	747	861	840	519	366	466	398
Staffing Deficit/Surplus	393	343	253	(79)	(78)	338	134	26	(1017)	(1059)	(352)	(84)	16	(142)
Staffing Deficit/Surplus Percent	152%	76%	53%	-24%	-24%	173%	19%	4%	-54%	-56%	-40%	-19%	4%	-26%

Root Cause Analysis

Table 15.   Board Motion Item 2 Root Cause Analysis

Issue	Root Cause
There were reports of insufficient multilingual staffing at some Vote Centers.	Multilingual Election Workers were assigned to Vote Center for specific dates only. Some multilingual workers recruited did not show up for their assignment.
Lack of an effective Election Worker Management system affected recruitment and tracking of Election Workers.	Election Worker Management solution was procured too late within recruitment cycle. The system was not implemented because of the customization work required to adapt to the Department's needs and lack of funding.
Delay in generation and mailing of appointment letters resulted in no-shows at Vote Centers.	The system limitations with DIMS affected the generation and mailing of appointment letters for Election Workers.
Delay in finalizing number of Vote Centers and Vote Center sizes resulted in understaffed/overstaffed Vote Centers.	Challenges with recruitment of facilities delayed finalization of number and size. There was no cut-off date for recruitment of facilities.
Vote Center Lead recruitment challenges resulted in Lead vacancies close to the beginning of the voting period.	Requirements and time commitment for Lead position discourages employees from following through with their assignment.
Reservist recruitment challenges and Lead vacancies depleted Reservist pool on Election Day.	Requirements and time commitment for Reservist position discourages volunteers from following through with their assignment. The 11-day work period proved to be unsustainable for a number of Election Workers.
Reduction in deployment schedule and increase in scheduled deployments caused significant staffing shortages for IT operations.	Undependable contract staffing, lack of logistical experience of setup teams and changes to the setup schedule proved to be ineffective during the setup period.

Issue	Root Cause
Higher than anticipated attrition rates in IT positions.	The Vote Center setup operations depended on contract staffing that proved to be ineffective. Also, the lack of team's experience in this staffing and logistical model combined with changes in the setup schedule resulted in delays.

Appendix to Item 3. Evaluating the training required of Election Workers to ensure it is adequate and include feedback from Election Workers

Overview of Training

To prepare Election Workers for the March 2020 Election, RR/CC conducted in-person, instructor-led training as well as online training for Election Workers throughout Los Angeles County. Over 9,000 Election Workers were trained which included community volunteers, high school students and County employees from various departments.

Training was conducted in January and February 2020. Approximately 380 classes were offered at locations across the County. Classes were typically limited to 50 participants

The in-person Election Worker training curriculum consisted of an 8-hour class covering eight modules. These modules featured a combination of lecture, videos, demonstrations, hands-on training, and a Vote Center simulation. Modules covering the new voting system, such as the PollPad, the BMD, opening and closing the Vote Center, included a hands-on component/simulation that provided an opportunity to practice the skills and knowledge participants acquired in the lecture portion of the training. Demonstration practice sessions were also available after the regular. This allowed Election Workers additional hands-on training on the PollPads and BMDs and allowed trainers to answer additional questions or provide additional training.

The Election Worker training curriculum is summarized below:

Table 16. Election Worker Training Curriculum

#	Module	Description
1	Introduction to VSAP	A brief introduction featuring the components of the new voting system and changes in how elections are conducted.
2	Setting up the Vote Center/ Chain of Custody	Overview on how to set up a Vote Center along with the supplies available. Introduction to security procedures at a Vote Center.
3	Vote Your Ballot	Trainees vote on a ballot on a BMD without any assistance
4	Assisting Voters	Comprehensive overview on how to assist a voter.
5	PollPad	Introduction to the PollPad and extensive hands-on training which covers all likely voter scenarios.
6	Ballot Marking Device and Interactive Sample Ballot	Introduction to BMD/ISB including hands-on demonstration.
7	Closing the Vote Center	Details how to close a Vote Center including hands-on demonstration.
8	Vote Center Simulation	Trainees vote and cast a ballot at a BMD without any assistance

Election Workers were cross-trained, meaning that all Election Workers were trained in all Vote Center roles. This allowed for maximum flexibility in overall staffing of Vote Centers, and allowed for an Election Worker to be promoted as a Lead in case of a no-show. Additionally,

Vote Center Leads made assignments at the Vote Center based on the Election Worker strengths and abilities.

Training Assessment and Training survey: At the end of each training class, participants were emailed an assessment (quiz) to test their knowledge. 28% of class participants responded to the post-training assessment. The overall score of Election Workers on the assessment was 72% out of 100%.

Training Materials: A total of 3 training manuals were provided during the training session. These manuals are an invaluable tool for Election Workers not only during training, but also as reference material while working in a Vote Center. Election Workers received the following Training Manuals:

- **Election Guide**: Covers procedures for opening and closing the Vote Center, and assisting voters based on Election Worker role.
- **BMD Guide:** Covers procedures for starting, operating and troubleshooting the BMD. It also includes information about BMD settings and features and touch screen instructions. This Guide also includes instructions for using the Poll Pass to upload pre-selected choices generated using the Interactive Sample Ballot.
- **PollPad Guide:** Covers setting up the PollPad assisting voters with the Pollpad and closing procedures. Also includes information on Vote Center Lead specific scenarios, and troubleshooting.

In addition to the Training Manuals, a variety of other support materials were developed and provided during training. Those materials are intended to support Election Workers during the election period and reinforce their performance of specific tasks or activities. The additional support materials for the March 2020 Election included:

- Additional Fliers
  – Chain of custody - Procedures for conducting chain of custody at various times throughout the day
  – PollPad - Procedures for CVR, cancelling Voter check-in and spoiling a ballot
  – Important Reminders - Covers various new items not discussed in the Handbooks
  – Update Registration Instructions - Procedures for updating a voter's registration using the Change of Political Party/Change of Address Form
  – Official Paper Write-In Ballot - Information and procedures for assisting voters who do not want to use the BMD
  – BMD "MORE" Button - Directs Election Workers to inform the voters about the "MORE" button on the BMD
  – Official Ballot Statement - Instructs Election Workers on completing the Official Ballot Statement at the end of each night
  – Scanning Items Going to the CIC - Instructs Election Workers on using a scanner application on the County-issued phone to scan items going to the CIC each night of voting

– Getting to Training Materials - Instructs Election Workers on accessing the training materials on the PollPad for reference

Online Training

RR/CC also used online training to supplement the in-person training for Election Workers. This online training was mandatory for Vote Center Leads and Reservists, and optional for other workers. The training was approximately 90 minutes and provided an overview of the Vote Center processes and procedures. The online training also included videos, interactive lessons, and mini self-assessments.

Online Training was required for those serving as Leads and Reservists, with a minimum passing assessment score of 80%. If this score was not reached, they could retake the assessment until they achieved the minimum passing score. No limits were set as to how many times they could retake the assessment. 886 Leads and Reservists completed the Vote Center Lead online training. In addition, 2,119 Clerks completed the entire online training, and 1,740 Clerks viewed some portions of the class.

Election Worker Feedback on Training

RR/CC seeks to continuously improve the Election Worker training program to ensure that Election Workers are well prepared to serve voters. A key element in improving the training program is hearing from Election Workers about their experience with training, and how well it prepared them for the voting period. RR/CC conducted three surveys of Election Workers to gather Election Worker feedback and identify opportunities for training program improvement.

Election Training Class Survey

The first survey was the Election Training Class Survey which requested feedback about the training Election Workers received for the March 2020 Election.

The survey was sent via email to 663 Election Workers who attended class at various locations throughout the County. The survey was administered in mid-March, after the March 2020 Election. A total of 137 responses (21% response rate) have been received to date. Approximately 80% of respondents worked as Clerks during the voting period, and approximately 20% of respondents worked as Vote Center Leads. Most respondents were experienced Election Workers, with 80% of respondents having worked in an election prior to March.

Respondents provided very positive feedback on the training. When asked to respond to the statement "This training class helped prepare me for this election," **96% of respondents selected Strongly Agree (58%) or Agree (38%).**

Election Worker Survey

The second survey was the Election Worker Survey, which collected information about their experiences working at a Vote Center in addition to feedback on their training. The survey was sent via email to 6,629 Election Workers and requested feedback about training and their experience working in a Vote Center. Questions about their Vote Center experience covered the new voting system, issues they may have experienced, overall satisfaction with serving as an Election Worker, and likelihood of serving again in a future election. This survey was administered in April 2020, after the March 2020 Election. A total of 2,809 responses were received (42% response rate).

When asked how well training prepared them for working in a Vote Center, approximately 69% responded very prepared or prepared.

Figure 14. Election Worker Survey Response - Training

Q17 How well did training prepare you for working in a Vote Center?

Answered: 2,519   Skipped: 290

■ Very Prepared ■ Prepared ■ Somewhat Prepared ■ Unprepared
■ Very Unprepared

	VERY PREPARED	PREPARED	SOMEWHAT PREPARED	UNPREPARED	VERY UNPREPARED	TOTAL	WEIGHTED AVERAGE
(no label)	27.59% 695	41.29% 1,040	27.59% 695	2.62% 66	0.91% 23	2,519	2.08
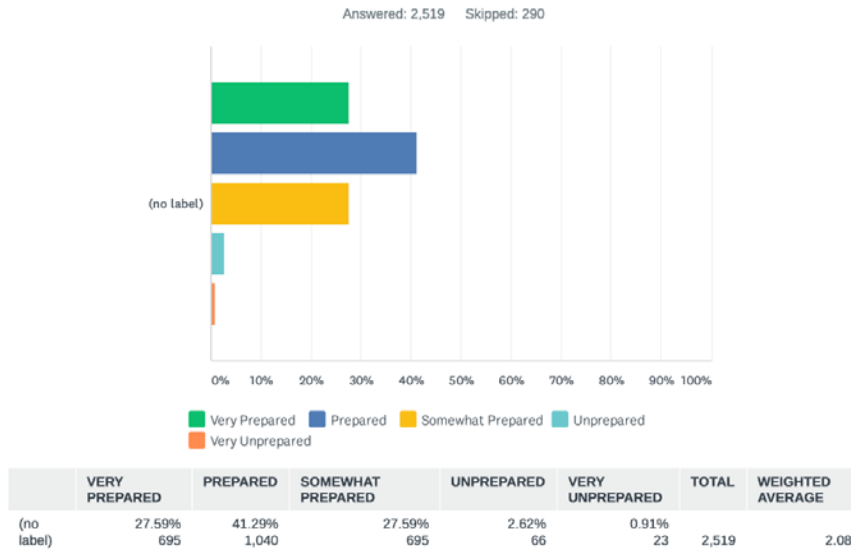
Vote Center Leads Survey

The third survey was the Vote Center Leads Survey, which collected information from Leads about their experiences in training class and working at the Vote Center. The survey was sent via email to 778 Vote Center Leads. This survey was administered in April 2020, after the March 2020 Election. A total of 438 responses were received (56% response rate).

When asked how well training prepared them for working in a Vote Center, 66% of leads responded ''very prepared or prepared.'' Leads responded as shown below:

Figure 15. Vote Center Lead Survey Response - Training

Q25 After your training, how well prepared were you for working as a Vote Center Lead?

Answered: 396   Skipped: 42

■ Very prepared ■ Prepared ■ Somewhat Prepared ■ Poorly Prepared
■ Very Poorly Prepared
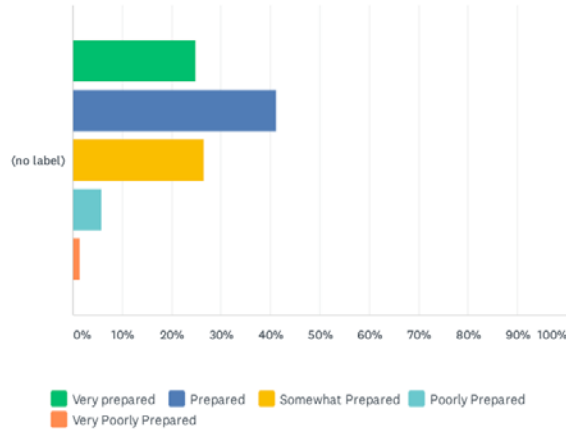
	VERY PREPARED	PREPARED	SOMEWHAT PREPARED	POORLY PREPARED	VERY POORLY PREPARED	TOTAL	WEIGHTED AVERAGE
(no label)	25.00% 99	41.16% 163	26.52% 105	5.81% 23	1.52% 6	396	1.84

When asked how well training prepared their assigned Election Workers to serve voters at the BMDs, over 55% of Leads responded very well prepared or well prepared.

Figure 16. Vote Center Lead Survey Response – Serving Voters at the BMDs

Q23 Overall, how well prepared were your Election Workers to serve voters at the BMDs on the first day of voting?

Answered: 403   Skipped: 35
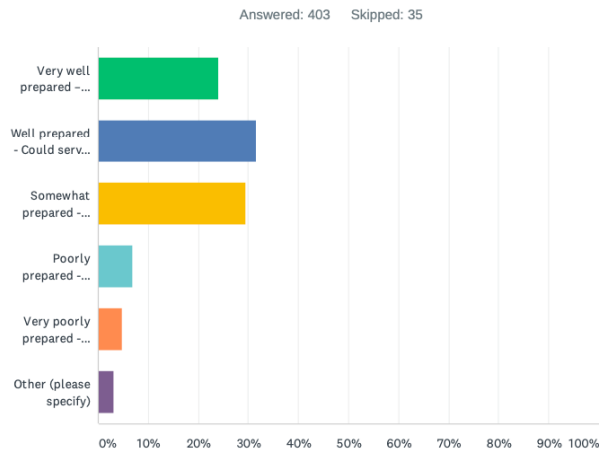
ANSWER CHOICES	RESPONSES	
Very well prepared – Could serve all voters easily	24.07%	97
Well prepared - Could serve most voters easily	31.51%	127
Somewhat prepared - Could serve some voters easily/struggled to serve some voters	29.53%	119
Poorly prepared - Struggled to serve most voters	6.95%	28
Very poorly prepared - Struggled to serve all voters	4.71%	19
Other (please specify)	3.23%	13
TOTAL		403

Voter Feedback Regarding Election Workers

Feedback from the RR/CC Voter Experience Survey showed that most respondents found Election Workers to be very helpful. The survey was sent via email in April 2020 to 285,597 voters. Over 27,000 responses have been received. When asked "How helpful were the Election Workers at the Vote Center you visited?" 88% of respondents reported a positive response with 61% indicating "very helpful," and 28% choosing "helpful." 7% were neutral, and only 4% chose "unhelpful" or "very unhelpful."

Figure 17. Voter Survey Responses Regarding Election Workers

Q16 How helpful were the Election Workers at the Vote Center you visited?

Answered: 25,618   Skipped: 1,416

Legend: Very Helpful | Helpful | Neither Helpful or Unhelpful | Unhelpful | Very Unhelpful
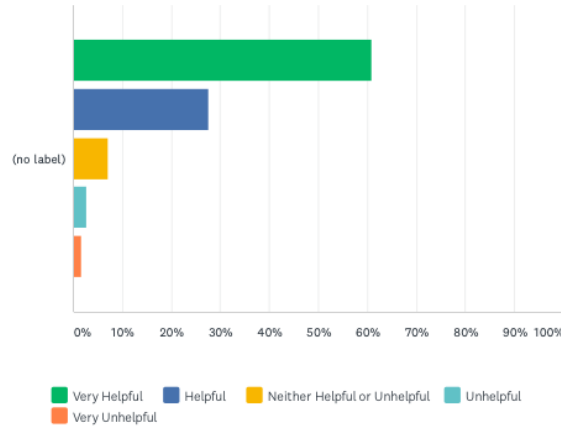
	VERY HELPFUL	HELPFUL	NEITHER HELPFUL OR UNHELPFUL	UNHELPFUL	VERY UNHELPFUL	TOTAL	WEIGHTED AVERAGE
(no label)	60.82% 15,581	27.53% 7,052	7.18% 1,840	2.81% 721	1.66% 424	25,618	1.57

Observations/Issues

Election Workers resolved BMD errors they were trained to clear.

During training, Election Workers were trained to perform basic troubleshooting on the BMDs. This included clearing paper jams, cleaning the rollers in the paper handler, and clearing issues that can be cleared by entering Election Worker credentials. When other errors occurred on the BMDs that they were not trained to resolve, Election Workers typically called the IT Help Desk for assistance. The IT Help Desk would walk Election Workers through additional troubleshooting steps, such as powering the BMD off and on. If these efforts did not resolve the issue, the IT Help Desk would dispatch a Field Support Technician. In these cases, the BMD typically remained inoperable until the Field Support Technician arrived to resolve the issue.

Training content changed during the training period.

Some operational procedures were not finalized until after Election Worker training had begun. This caused variation in the training content provided to Election Workers. For example, if an Election Worker attended a training class earlier in the cycle, some information they received was different than the finalized procedures. This occurred with the late passage of Senate Bill 207, which was legislation that allowed Voters to update their party or address on the PollPad without the need to re-register. Election Workers who attended training earlier in the training cycle received hands-on training and procedures that did not reflect late developments. This issue caused the need for several additional handouts to augment the training manuals that were issued to Election Workers. Election Workers who did not receive finalized details of training procedures received supplemental or updated training materials and training videos with specific instructions via email blast.

The following procedures and forms were modified or finalized after training had begun: including:

- Chain of custody updates put forth by the Conditional System Certification granted by the California Secretary of State (e.g., Security Seal for the Integrated Ballot Box)
- BMD "MORE" button flier and further voter prompts – Received further emphasis in training after flier was created.
- Official Ballot Statement – Changes to form
- Official Paper Write-In Ballot – Created and approved
- Scanning Items Going to Check-in Centers – New procedures
- Getting to Training Materials – New Flier
- Images for the PollPad screens – Updates made because of ending legislation
- Sonim and Samsung Phones – Phones for Vote Center Leads were not delivered in time to be included in training.

Training materials were available on the PollPad, but many Election Workers were not aware of them.

Training manuals and videos were available on the PollPads, but this was not widely known by Election Workers. The presence of training videos on PollPads was communicated to some later training classes, and a flier titled "Getting to Training Materials" was included in the Election Day supplies to help Election Workers navigate to the information.

Rules related to CVR and changing voter information were not well understood by Election Workers.

Conditional Voter Registration (CVR) presented some challenges for Election Workers. Earlier in the training cycle, they were trained on then-current CVR procedures, as well as on pending procedures that would result from Senate Bill 207 if the legislation was approved. Eventually the legislation was approved, allowing a voter to update an address or party affiliation electronically at a Vote Center without the need to re-register using the CVR process. Receiving training on two different procedures simultaneously may have led to confusion for Election Workers trained earlier in the training cycle. When voters simply wanted to change their address or party in their voting record, some Election Workers were uncertain about which forms to use and how to complete those changes.

Root Cause Analysis

Table 17.   Board Motion Item 3 Root Cause Analysis

Issue	Root Cause
Training content changed during the training period.	Procedures were changing while training was being conducted.
Training materials were available on the PollPad, but many Election Workers were not aware of them.	Election Worker training did not reinforce the availability of electronic training materials on the PollPad.
Rules related to CVR and changing voter information were not well understood by Election Workers.	Pending Senate Bill 207 statewide legislation caused Election Workers to be trained on two different procedures, which caused confusion among Election Workers.

Solutions/Remedies

4. Finalize procedures prior to the beginning of training.

Finalizing procedures prior to the start of training will help ensure that Election Workers are trained on the same content. This should result in less variation in executing tasks in the Vote Centers, and greater ability for Leads to guide and support Election Workers in completion of tasks.

5. Include in Election Worker training an orientation to training materials and support documents on the PollPad.

Reinforce that Election Workers know where to find training materials on the PollPads and understand the appropriate time to review them during the voting period.

6. Based on survey results and other data, RR/CC will assess the length and duration of training required for the November election.

RR/CC will carefully examine the feedback from Election Workers and Leads gathered through the Election Worker Survey and Vote Center Leads Survey, feedback from voters, and other input as appropriate to understand areas where training is needed in more depth or where additional topics should be covered in training. Options for improving training include requiring Election Workers and Leads to complete a computer-based training (CBT) module prior to attending in-person training, and/or extending in-person training. Modifications to the training approach will focus on ensuring an adequate understanding roles, procedures and equipment, and providing ample opportunity for hands-on practice.

Appendix to Item 4. Determine what led to 17,000 voters not receiving their Vote by Mail ballots as scheduled

The resignation of Congresswoman Katie Hill in Congressional District 25 (CD25), in October 2019 required the Governor to proclaim a Special Election to fill the vacancy. The Special Election was scheduled to align the special primary with the March 2020 Election. As described and shown below, this late addition to the election compressed the timelines to properly prepare and limited capacity to perform critical quality assurance procedures.

The candidate filing period for this Special Election closed on January 9, 2020 (54 days prior to Election Day). Approximately 26,000 Vote by Mail (VBM) ballots were required to be processed and mailed to uniformed and overseas (UOCAVA) voters by January 18, 2020 (45 days prior to Election Day) and 3.5+ million VBM ballots by February 3, 2020 (29 days prior to Election Day). The extremely short turnaround period was further complicated because of the March 2020 Election ballot already containing a CD25 contest to fill a new term. This then required re-designing the ballot layout to accommodate both contests in a manner that would prevent voter confusion.

Figure 18. Mandated Election Timelines
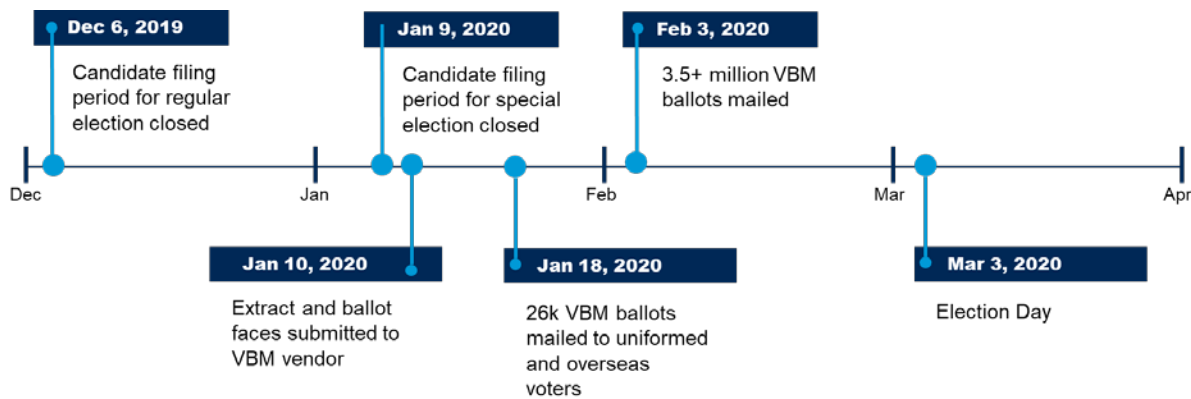
To avoid delays in processing and mailing VBM ballots for the rest of the County, it was necessary to process VBM ballots separately for CD25 to allow time for the ballot re-design and the addition of the late candidate filing data for the Special Election. However, RR/CC's Election Management System (EMS) was not designed to process this District as a separate data extract within the mass data extract of all VBM voters in time to meet VBM ballot mailing deadlines, even with the EMS vendor's assistance. To overcome this challenge, RR/CC created scripts[1], including a quality control script, to process the district separately. The script had not yet been fully tested prior to use and inadvertently excluded 17,000 VBM voters from the initial mass data extract of VBM voters.

To prevent this issue from reoccurring, processes, procedures and scripts have been reviewed with RR/CC management, the EMS vendor and the VBM vendor to take the following actions:

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[1] A programmable sequence of instructions to automate tasks that could otherwise be manually done by a person.

1. Collaborate with the EMS vendor to implement an enhancement to the EMS VBM Module to allow for exclusions of districts and ballot types in an extraction.

2. Prioritize and develop additional Quality Control (QC) procedures to validate extracted data.

3. Validate scripts through a formal change-control process prior to implementation. The validated scripts will then automate the QA extract validation process instead of it being completed manually.

4. Work with the EMS vendor to address and resolve issues with the database configuration that prevented the EMS from extracting 3+ million voters, as designed by the system.

5. Recruit, train and allocate additional resources to respond to critical daily requests within RR/CC. This includes managing and executing critical tasks between the EMS and the VoteCal statewide database, such as the process to sync voter registration data, which is both time and labor intensive.

6. Complete an analysis and seek legislative review to prevent shortened election schedules and special vacancy elections from impacting legal deadlines for ballot delivery.

Description of Issue

The addition of the CD25 Special Vacancy Election with a later candidate filing period than the Presidential Primary Election made it difficult to effectively execute critical election tasks, specifically ballot layout and data extractions for mailing of VBM ballots, while meeting mandated deadlines. To accommodate the difference in the candidate filing period for the contest, a series of workarounds were implemented that caused issues resulting in 17,000 VBM voters not receiving their VBM ballot as scheduled. Once the problem was identified, RR/CC took immediate action and worked with the VBM vendor to resolve the issue. The VBM ballots were mailed to affected voters on February 26 (6 days prior to Election Day). Voters were notified of expected delivery by Election Day through automated phone calls and email.

The Election Calendar was compromised because of the late candidate filing period of the CD25 special vacancy election.

The Election Calendar is used to help coordinate the legally required election deadlines with production timelines. In order to mail VBM ballots, the VBM vendor requires the following:

- Ballot types for every precinct in all the legally recognized languages.

- VBM mailing extract of all the voters assigned to their correct ballot type.

- Adequate time to process, assemble and mail VBM ballots to over 3.5 million VBM voters.

Election law requires the mailing of VBM ballots to uniformed and overseas (UOCAVA) voters 45 days prior to Election Day and remaining VBM ballots to be mailed 29 days prior to Election Day. The processing of VBM ballots Countywide could not be delayed to accommodate CD25's later candidate filing timeline. Therefore, the CD25's 225,000 ballots had to be processed separately and mailed once its ballot types were finalized. To achieve this task, VBM extracts for CD25 and the rest of the County had to be treated as if they were two different elections within the Primary Election cycle.

Election Management System does not support district exclusions, which was required to accommodate the processing of CD25 separately.

RR/CC encountered problems in creating the VBM mailing extract used to send voter data to the VBM vendor. In a typical election, the VBM mailing extract is created through the EMS, which is capable of extracting lists by election districts. However, the EMS is not designed to exclude specific district(s) or ballot types, as a separate extract from VBM extraction for the remaining districts within the County. This functionality was required to extract the VBM voters for the rest of the County excluding CD25.

This process uncovered an additional constraint within the EMS: it couldn't extract the more than 3.5 million VBM voters from the County's database. The immediate need to work around the EMS's functionality gap led RR/CC to create a workaround script to perform the extractions.

RR/CC IT resources were constrained and had competing priorities.

RR/CC has a small team of IT analysts knowledgeable and dedicated to supporting the EMS and its users. Support for the EMS requires knowledge of a comprehensive higher-level analysis process in Structured Query Language (SQL), the database language used by the EMS. These tasks are performed by a single individual within the IT Bureau, who is also frequently tasked with unexpected and challenging assignments during the election period. This was the case with the March 2020 Election where the resource was tasked with the following:

Table 18. RR/CC IT Resource Tasks

Task	Frequency and Requirements
Management of VoteCal sync activities.	VoteCal (the State's voter registration database) and the County's local database (DIMSnet) should always be synchronized. However, this is not the case as VoteCal has inherent limitations that result in RR/CC working with the SOS to identify the out-of-sync records, to research those records, and then to manually synchronize the data. This is true for both the voter records as well as the precincts and districts. Only the SOS has visibility into the out-of-sync records. RR/CC must therefore collaborate with the SOS and the EMS vendor to complete the manual synchronization activity. This is a time-sensitive task that puts pressure on the team that is already spread thin, to manage the voter registration database. Ongoing sync issues and the required semi-annual precinct district updates caused high workload impacts and made it challenging for RR/CC to comply with state's requirement to provide a Report of Registration (ROR) 60-days before an election, which had an original deadline of January 3, 2020. **Task Duration:** The full-time management of VoteCal sync activities took place between December 22, 2019 and January 22, 2020, prior to the Election and throughout the initial extraction, as noted above.
Creation of VBM extraction, disposition and QA scripts.	**Task Duration:** Occurred throughout the extraction period from December 29, 2010 (65 days prior to Election Day) to February 27, 2020 (5 days prior to Election Day).

Task	Frequency and Requirements
Management of other types of VBM exclusions.	Exclusion requirements required a high degree of attention and care throughout the extraction period from December 29, 2010 (65 days prior to Election Day) to February 27, 2020 (5 days prior to Election Day).
Reconciliation of Vote Center EMS and VoteCal data.	Vote Center data had to be reconciled with the EMS and VoteCal on a regular basis for worker, PollPad and VoteCal reporting purposes to function properly. **Task Duration:** Initial data extraction period throughout the Vote Center deployment and implementation periods from December 29, 2010 (65 days prior to Election Day) to March 3, 2020 (Election Day).
Quality Assurance (QA) of PollPad data and processes.	**Task Duration:** Occurred during late extraction period from February 7, 2010 (25 days prior to Election Day) to February 27, 2020 (5 days prior to Election Day)
QA of Absentee Voter (AV) extraction data.	**Task Duration:** Occurred during late extraction period from December 29, 2010 (65 days prior to Election Day) to February 27, 2020 (5 days prior to Election Day)

The automated Quality Control process to validate the VBM voters list was not thoroughly tested before use.

An urgent and pressing timeline to extract data and provide to the VBM vendor as well as competing high priority tasks resulted in a triage approach using a custom script to meet the necessity to extract CD25 separately. After a brief consultation with the EMS vendor, RR/CC modified a 2018 script provided by the EMS vendor to complete the extraction. The EMS vendor also provided performance suggestions to help enable the script to extract the more than 3.5 million voters.

The script was modified by RR/CC IT staff to:

- Address an issue with the EMS's inability to export a large number of voters in the extraction
- Execute the CD25 exclusion
- Log all extracts (to easily accommodate Quality Control (QC) process)

Although the script functioned well, and the extracts passed initial data-validation checks and manual inspections, there was insufficient time and resources to fully test and validate the scripts to ensure accurate functionality. This resulted in the failure to detect the exclusion of the 17,000 voter records later identified which led to the late mailing of ballots.

An overly aggressive Quality Control process filtered voters.

Additional filter criteria were added to mitigate potential risk factors to prevent the mass VBM extraction (not including CD25 voters) from extracting VBM records for:

- Cancelled voters – an issue discovered in the EMS in which it prevents suspension of cancelled voter VBM records.
- CD25 voters who had already been processed in the separate CD25 extraction to prevent duplicate ballots.

It was this QC process that inadvertently excluded voters from the initial extract.

Since the EMS does not have a QA process to validate extract lists, the IT resource tasked with creating the extract script also had to create the automated QA process to validate the script. Although automated QA/QC validation is a simple concept, it requires specialized SQL skills to write, edit, manage, relate multiple databases, as well as implement QA scripts and processes to ensure the integrity of the data. The IT team lacks resources to immediately peer review and create specialized scripts to ensure the validity of the data prior to implementation in Production because of resource shortages.

Quality Control validation was executed late.

Quality Control processes that involve validation with the VBM vendor are difficult to execute in an active election with many pending print jobs. Furthermore, the EMS does not have formal processes to validate the VBM extracts. When an extraction is completed, the EMS only reports the number of lines in an extraction, which can be any part of a voter's information or data (e.g., name, address, etc.) instead of confirming that the correct voters were extracted. Likewise, the number of lines in an extract is also the only method of validation with the VBM vendor. Although the current custom extraction script can perform in-line validation that the correct voters were extracted, that expanded functionality wasn't implemented in time for the initial extraction.

RR/CC IT staff developed informal QC processes to validate, identify and potentially recover voter records missed from all extracts. However, this QC process is manually intensive as it requires editing and combining multiple extract files. Because of resource constraints and competing priorities, the QC processes was not executed early enough in the process to allow quicker identification and response to this issue.

Root Cause Analysis

Table 19.   Board Motion Item 4 Root Cause Analysis

Issue	Root Cause
The addition of CD25 special election disrupted the election calendar and required custom processes and workarounds.	The late insertion of the CD 25 election into the existing Primary Election Calendar cascaded events which opened election processes to failure risks.
The EMS did not provide the necessary functionality to exclude districts and ballot types required for this election.	New circumstances arose during the Primary Election that required excluded districts, ballot types and custom workarounds in the script to accomplish these tasks.
Lack of quality control validation within the EMS to control quality control (QC) processes required custom QC script to be written by RR/CC for each situation.	Insufficient resources were available to peer review specialized domain scripts. There was also an urgent and pressing timeline to extract data to the VBM vendor as quickly as possible.
Reliance on informal and manually intensive QC processes increases risk when workload gets heavy.	Workload issues throughout the election caused lack of available specialized resources to conduct manually intensive QC processes earlier in the process.
Competing demands for specialized resources and resource shortages required triage processes.	The lack of automatic synchronization between VoteCal and DIMSnet is a recurring challenge and RR/CC encounters issues every election. The manual synchronization requires very specialized skillset and analyst time.

Appendix to Item 5. Determine how 3 cities and other smaller precincts were not included for Measure FD

Description of the Issue

The Consolidated Fire Protection District of the County of Los Angeles received approval on December 3, 2019, to place a measure for an annual parcel tax (Measure FD) on the March 3, 2020 Presidential Primary Election ballot. Fire District administrators contacted RR/CC on September 30, 2019, requesting a cost estimate for possible consolidation[1]. In order to generate the cost estimate, RR/CC requested geographical information from the Fire District and received in response a list of cities. RR/CC noted differences between the list provided and the makeup of the District in the County's geographic information system (GIS) data. RR/CC communicated these differences to the Fire District on October 4, 2019, highlighting the cities contemplated in the cost estimate. Following the December 6, 2019 consolidation deadline, two additional cities were activated and added to the District in the GIS system. The consolidations for the election were then regenerated to include all listed cities.

On the afternoon of February 3, 2020, as a result of a City of Pomona voter inquiry, it was determined that Vote by Mail (VBM) ballots for City of Pomona voters did not include Measure FD. Over the next several days, it was determined that some voters in the City of Hawthorne, the City of Calabasas and the City of Signal Hill were also issued voting materials that did not include the FD measure.

In response, RR/CC took corrective action by:

- Contacting the Fire District to review the provisions and boundaries associated with parameters the tax measure (e.g., district GIS mapping, voter eligibility, etc.)
- Working with the County's VBM vendor to produce and mail a supplemental ballot to all voters who were missing the tax measure from the original material between February 7 and February 14, 2020
- Loading the corrected ballot style onto all Ballot Marking Devices (BMDs) prior to deployment to Vote Centers
- Executing 20,065 email notifications and 15,581 robocalls to affected voters

Summary totals of voters who should have received Measure FD but did not:

- 64 election precincts
- 59,093 VBM voters

A post-election analysis of the response rate for Measure FD compared to a similar contest, Measure R, found that approximately 8% more voters voted on Measure R than Measure FD.

- In affected city, Hawthorne, 74% of VBM voters cast a vote Measure FD; in comparison, 82% of VBM voters cast a vote on Measure R

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[1] Consolidation is the holding of multiple contests in multiple jurisdictions at various levels of government in the same territory on the same date.

- In affected city, Pomona, 76% of VBM voters cast a vote on Measure FD; in comparison, 84% of VBM voters cast a vote on Measure R

Table 20. Comparison of Measure FD and Measure R Votes Cast in Affected Cities

City	FD Votes Cast	R Votes Cast	VBM Ballots Returned
Hawthorne	4,805	5,310	6,456
Pomona	7,438	8,238	9,799

Current boundaries of the Los Angeles County Fire District were not validated.

The last time the Fire District had an election was in June 1997. Since then, the District has added more cities, but RR/CC was not aware of these additions.

When the District was authorized to have a measure on the ballot for the March 2020 Election, it provided a list of the incorporated cities that would have the right to vote on their contest. RR/CC queried the DIMSvoter database for a list of cities that were part of the Fire District. The list included the cities of Pomona and Hawthorne because portions of each are in the Fire District. However, the list did not indicate whether all or part of a city belonged to the District and a visual verification of the Fire District's existing boundary in the GIS system was not completed. Visual verification would have shown that only small parts of the cities of Pomona and Hawthorne were activated and corrective action was needed.

RR/CC's standard Quality Control (QC) process to review ordinances was deficient.

The deadline for jurisdictions to request placement of a measure on the March 3, 2020 Presidential Primary Election ballot was December 6, 2019 (e-88). Generally, jurisdictions contact RR/CC many months prior to the date of the election to coordinate and ensure all standard and/or necessary steps are taken. This includes submitting requests for a specific letter designation for the ballot measure or a joint review of resolutions, ordinances, enclosures, and other documents.

With Measure FD, the process began later than usual. A list of cities provided by the Fire District was used to prepare for the election. The list was initially considered sufficient for GIS and ballot layout purposes. However, it was later determined that the list was different from the subsequent ordinance, which affected voter participation. Although RR/CC reviewed the ordinance as part of its QC process, the review was deficient.

Root Cause Analysis

Table 21. Board Motion Item 5 Root Cause Analysis

Issue	Root Cause
Current boundaries of the Los Angeles County Fire District were not validated.	DIMS query for Fire District cities incorrectly identified inclusion of the entire City of Pomona and City of Hawthorne when only portions were activated. The query did not indicate whether all or only parts of the cities were included in the District. A visual verification of the existing boundary of the Fire District was not done with the GIS system.

Issue	Root Cause
RR/CC's standard QC process to review ordinances was deficient.	While a QC process was completed, it was subpar given a critical resource gap.

Appendix to Item 6. Discrepancies between official publications of Vote Center locations and actual/final Vote Center locations

Description of the Issue

Vote Center recruitment continued, and some locations provided verbal agreements to be a Vote Center, but then declined after published materials were mailed.

RR/CC provided three main sources of information to the public about Vote Centers for the March 2020 Election. These sources are described below:

- **Vote Center Locator Tool:** The online Vote Center Locator Tool was activated on LAVote.net on January 24, 2020. At the time of publishing, the Locator Tool included 902 confirmed Vote Centers.

- **Vote Center Booklet:** During the week of February 7-14, 2020, RR/CC mailed to every Postal Patron in Los Angeles County (3,583,796 addresses) a Vote Center Booklet that included a list of 902 confirmed Vote Centers. The front cover of this publication included this prominent message: *"Vote Centers are subject to change. Please visit **LAVote.net** for the most up-to-date list of Vote Centers in L.A. County."*

- **Vote Center Post Card:** During the period of February 14-17, 2020, RR/CC mailed to every registered voter in Los Angeles County a personalized Post Card listing the six Vote Centers closest to their residence. Just below the list of the six closest Vote Centers, this publication contained this message: *"Vote Centers are subject to change. **Please visit LAVote.net for the most up-to-date list of Vote Centers in L.A. County**."*

Recruitment of Vote Center locations continued until the beginning of the voting period, resulting in a total of 978 fixed Vote Centers operating during the voting period. Five Vote Centers were included in the Extended Hour Vote Center program, which provided five Vote Centers throughout the County that were open continuously for a the 24-hour period prior to Election Day. In addition to the 978 fixed Vote Centers, RR/CC deployed 13 Mobile and Flex Vote Centers throughout the County that targeted specific voting audiences and large-scale events, respectively.

After mailing the Vote Center Booklet and Vote Center Post Card:

- 78 additional Vote Centers were recruited
- Two previously confirmed Vote Centers declined to participate
- Four previously confirmed 11-day Vote Centers reduced their duration to 4 days

These changes resulted in a <u>net increase</u> of 76 actual Vote Centers, and a reduced duration for four Vote Centers when compared to the information in printed materials.

The Vote Center Locator Tool was updated daily to reflect additional Vote Center locations as they were confirmed, and to reflect changes to previously confirmed locations. The Vote Center Locator Tool also was updated with minor corrections (e.g., minor updates to location name, street abbreviation). The Vote Center Booklet and Post Card encouraged voters to check the Vote Center Locator Tool for the most updated information.

Some Vote Centers did not open as scheduled.

Of the 232 Vote Centers scheduled to open on February 22, 2020, 199 (86%) opened as scheduled. The remaining 33 locations were all open for voting by Monday, February 24.

On February 28, 2020, RR/CC determined that 165 (22%) of the 744 Vote Centers scheduled to open on February 29, the first day of voting for 4-day Vote Centers, would not be able to be open by 8:00 am. To help ensure voters would not go to a location that was not ready to serve voters, RR/CC immediately removed those locations from the Vote Center Locator Tool. Those locations remained unviewable on the Vote Center Locator Tool until it was confirmed that they were open and ready for voters. All locations were open for voting and viewable on the Vote Center Locator Tool by March 2.

Posters redirecting voters to alternate locations were erroneously mailed to some Vote Centers.

On February 26, RR/CC mailed a poster to every polling place from the 2018 General Election that was not participating as a Vote Center in the March 2020 Election. The objective was to provide messaging and direction to voters who may go to their "traditional polling place" and find that it was no longer a polling place. A total of 2,018 posters were issued to those former polling places with a letter asking that location to place the poster near the entrance of their location.

Of the 2,018 posters issued, 15 posters were mistakenly issued to locations that were, in fact, serving as a Vote Center for the March 2020 Election. One location understood the poster to mean that they were no longer to serve as a Vote Center. This location did not open as scheduled. Once this issue was known, RR/CC communicated with the location and it was ultimately opened.

Root Cause Analysis

Table 22.   Board Motion Item 6 Root Cause Analysis

Issue	Root Cause
Vote Center recruitment continued, and some locations declined, after published materials were mailed.	Challenges recruiting Vote Center locations resulted in a recruitment period that was longer than planned. As with Polling Places in previous elections, Vote Centers may become unavailable for a variety of reasons that are outside the control of RR/CC and, in some cases, the facility itself. The movement of the California Presidential Primary Election from June to March provided additional challenges. A truncated timeframe to complete the required Vote Center assessments/recruitment and going through the property approval process affected operations.
Some Vote Centers did not open as scheduled.	Vote Centers may not open on time for a variety of reasons (e.g., facility staff do not unlock site on time, equipment/materials are delayed, Election Workers are delayed).

Issue	Root Cause
Posters redirecting voters to alternate locations were erroneously mailed to some Vote Centers.	The confirmed Vote Center list is maintained in a spreadsheet outside of the Election Management System (EMS). The prior polling places list is maintained in the EMS database. The information captured about Vote Centers in these two systems is slightly different. Identifying locations that should receive posters requires matching current Vote Centers in the spreadsheet against previous polling locations stored in the EMS. Fifteen locations with information that was slightly different in the two systems were mistakenly issued a poster stating they were not serving as Vote Centers during the March Election.

Appendix to Item 7. Problems with the 'hotline' used for voters and Election Workers to report problems to ensure adequate staffing, including callers being disconnected because of high call volumes

Description of the Issue

RR/CC maintains several work groups that take calls from voters and Election Workers during the voting period. These groups are:

- **IT Help Desk:** Takes calls from Election Workers and Field Support Technicians about technical issues. IT Help Desk is also responsible for dispatching Field Support Technicians and SWAP trucks to Vote Centers. Field Support Technicians are the roaming teams positioned around the County that are meant to go physically to a Vote Center if a technical issue arises. In case a replacement is determined, SWAP trucks with BMDs are dispatched.

- **Pollworker Services Help Desk:** Takes calls from Election Workers about non-technical issues (e.g., procedures, Election Workers, Vote Center issues).

- **Voter Help Desk:** Takes calls from voters about a variety of Election-related issues (e.g., where is my polling place, how do I register). Also takes calls from Election Workers needing accurate precinct numbers when processing CVR voters.

IT Help Desk Observations/Issues

Actual Election Day call volume for the IT Help Desk was close to estimates. Actual call durations were as expected. Actual call abandonment rates were higher than estimates.

Prior to the March 2020 Election, RR/CC analyzed similar election call data to determine the expected call volume over the 11-day voting period in February and March 2020. Based on this analysis, estimated calls per day was approximately 1,802 incoming calls for the IT Help Desk.

The 1,802 expected call volume was based on the following assumptions/estimates:

- The average call duration: 11 minutes
- The Call Center agent would require 3 minutes for incident documentation
- The Call Center has a 75% utilization rate
- Targeted 8% or less abandonment rate
- BMD and PollPad troubleshooting would be between 3% to 6%

Actual call volumes for the March 2020 Election were:

- An average of 1,077 incoming calls per day between February 22 - March 2
- 62.8% of calls handled between February 22 – March 2
- 1,578 incoming calls on Election Day
- 80.5% of calls handled on Election Day

Actual data for other IT Help Desk measures are shown below:

- The average call duration: 10.46 minutes
- The Call Center utilization rate cannot be determined by current data
- Abandonment rate: 9.18%
- Actual BMD failure rate: As of 4/17/2020 - 8.8%

Figure 19. IT Help Desk Call Handling Estimates vs Actuals

IT Helpdesk Estimated vs Actual Call Handling								
Level	**Estimated Calls a day**	**Actual Calls a day ***	**Estimated Actual handling Time (AHT)**	**Actual Actual handling Time (AHT) ***	**Estimated Abandoned Rate**	**Actual Abandoned Rate***	**Estimated HeadCount**	**Actual HeadCount ***
Tier 0	1802	1077	14 min	11:16 min	<8%	9.18%	70	29
Tier 1	495	192 (based on incidents)	17	N/A	<8%	N/A	156	105**
L2 Tier 1	152	179 (Based on incidents)***	12 min	6.48 min	<8%	10.68%	16	16
* Average between 2/22 to 3/3								
** Eletion Day its was 200								
*** Tier 2:Smartmatic has a separate incident managements								

The chart above depicts the estimated versus actual metrics as they relate to the Tier 0, Tier 1, and Tier 2 skill groups of the IT Help Desk. Tier 0 Call Center was responsible for the intake and initial troubleshooting of every call received for Tech Support option 6. If Tier 0 was unable to resolve the issue over the phone, the incident was escalated to Tier 1 (Dispatch), which was responsible for either dispatching Field Support Technicians or SWAP trucks to the Vote Center or escalating the incident to Tier 2. Tier 1 did not take direct calls from the Vote Centers but followed up on escalated incidents. Tier 2 was comprised of monitoring staff from AT&T in the RR/CC's Network Operations Center (NOC) and Security Operations Center (SOC), PollPads (KNOWiNK), and Smartmatic expert support.

The estimation for anticipated peak call volume and call handling time were close to the initial estimates, as shown below. There was less than optimal response to the callers because of the staffing shortages.

Figure 20. Calls Received vs Calls Handled by Level 0 Help Desk
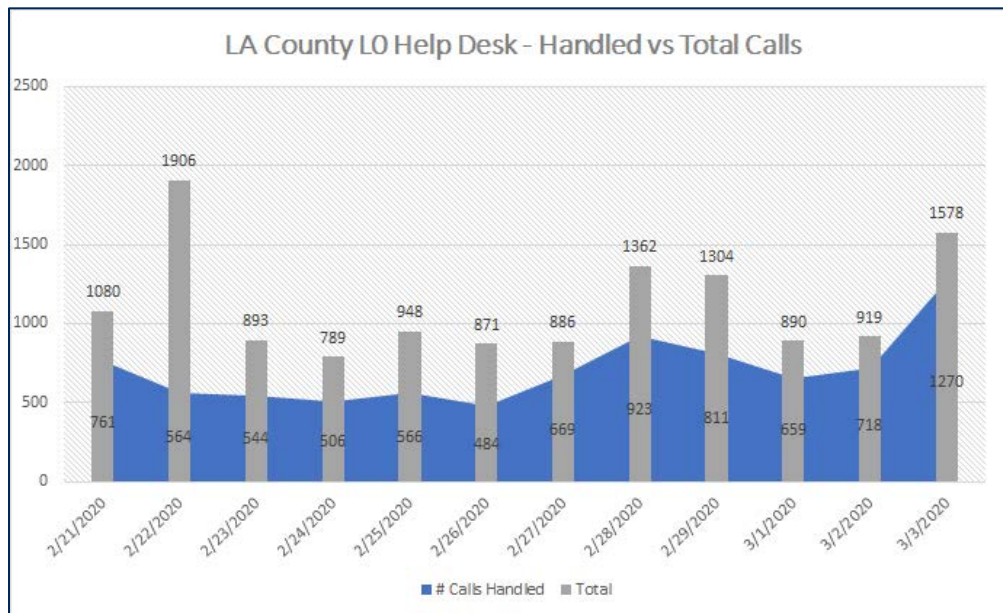
VSAP Call Center (Option 6) took in 1,578 calls from Vote Center workers on Election Day. The longest wait times for those calls occurred between 6:00 am and 9:00 am. There were a large number of callers placed in the general queue for up to an hour. Numerous callers hung up before being routed to the Technical Support queue. The RR/CC's Call Center phones connect

to a legacy phone network using physical lines, which limits the number of simultaneous calls allowed into the call centers.

In the future, the capacity of the phone system needs to be assessed by a third-party and considerable progress should be made on cloud-based systems (such as AWS Connect) and also by directing a percentage of calls to other call centers.

IT Help Desk had an insufficient number of call takers to adequately handle incoming calls.

Based on estimated call volumes and associated assumptions, it was determined the IT Help Desk would require the following during the voting period:

- 70 Call Center agents,
- 6 Call Center supervisors,
- 6 quality assurance agents
- 2 managers

Actual staffing during the voting period, was:

- 26 Call Center agents,
- 3 Call Center supervisors,
- 0 quality assurance agents
- 1 manager

IT Help Desk staff were part of a pool of resources used for Help Desk, Vote Center deployment and field support. Initial Help Desk staffing levels, prior to beginning of Vote Center deployment, were approximately 37% of what was required. In late January 2020, the Vote Center deployment schedule was reduced from 10 days to 4 days. Although some additional contract staff were acquired to undertake deployment, the compression of the deployment period resulted in IT Help Desk staff being reassigned to deployment/setup.

The expected attrition rate for the pool of resources used for Help Desk, Vote Center deployment and field support was projected to be less than 20%. Actual attrition rate, primarily because of the changes and pressure involved with the compressed deployment schedule, was 29.23%. This further reduced the number of qualified staff available to support the IT Help Desk throughout the voting period.

Technical calls taken in other groups were not always entered into the IT Help Desk system.

Because of disparate systems being used (AskEd system used by Non-IT Help Desk and Cherwell system used by IT Help Desk), the information being routed between these two systems did not go through seamlessly. These issues are attributed to different systems being used and lack of training.

As an example, the graph below highlights the number of incidents assigned to inactive skill groups. Out of 5,818 incidents, 1,672 or 28.7% of tickets were assigned to incorrect or unstaffed skill groups.

Figure 21. Incident Assignments

Incidents per Day by Technical Support Skillgroup														
	2/21/2020	2/22/2020	2/23/2020	2/24/2020	2/25/2020	2/26/2020	2/27/2020	2/28/2020	2/29/2020	3/1/2020	3/2/2020	3/3/2020	3/4/2020	Total
Count of Created Date Time														
Administrator		2						1	4	1	1	1	9	19
Asset Management		1												1
E-CSOC (2)			2		4			3	1					10
Election Operations Center		1	4		1	5	4	4	3	1	2	4		29
Election Worker Manager									1			1		2
ePollbook Support (Level 2)				3	1	1	1	4	7	4	5	12		38
Field Support Technician (1)	1	114	109	134	119	119	151	217	215	106	132	130	1	1548
IT Vote Center Deployment			1						19			1		21
KnowInk (Level 2)		1	4	3	2	2	3	7	10	28	33	90		183
Media									1					1
Network Operations Center (2)		4	6	5	3	2	7	6	12	5	6	18		74
Pollworker Services		1	3	2	5		3	1	1	5	4	3		28
RRCC Security		40	17	11	39	15	27	32	96	61	29	50		417
Security Operations Center (2)							1	1	1	3	2	1	1	10
Service Desk				1	1	1								3
Smartmatic Support (Level 2)		4	4	12	4	4	6	8	41	81	61	83		308
Smartmatic Warranty		1	1		1	1								4
Tech Support Call Center (0)		68	80	35	48	38	48	91	117	75	73	135		808
Tech Support Dispatch (0)		140	165	105	127	125	208	345	289	247	182	264	107	2304
VOC Warehouse			3		1	1								5
Vote Center Leads										3	1	1		5
Grand Total	1	377	399	311	356	315	459	740	803	617	531	792	117	5818

Calls from Election Workers were dropped after a specified time because of caps on queue times.

RR/CC's telephone system is built on legacy platforms. The phone system lacks tracking of hold times as well as tracking the queues. These need to be reviewed by a third-party for scalability and usage tracking. RR/CC is also exploring the use of cloud-based systems (AWS Connect) for scalability.

Pollworker Services Help Desk Observations/Issues

Pollworker Services Help Desk had a significantly high volume of calls with long wait times and a high percentage of abandoned calls.

Actual call volumes for the Election were:

- An average of 1,678 calls were received per day between February 22 – March 2
- 31% of calls were handled between February 22 – March 2
- 3,476 calls were received on Election Day (March 3)
- 35% of calls were handled on Election Day (March 3)

Actual data for other help desk measures are shown below:

- Average call duration: 6 minutes
- Average wait time: 1:44 minutes
- Abandonment rate: 49%

The Pollworker Services Help Desk had a limited number of operators to adequately handle the call volume because of an insufficient number of agent IDs/licenses issued to the Section.

Pollworker Services consists of eight skills groups that receive calls during the election cycle. Each group has a unique phone number and is used for specific recruitment efforts.

Additionally, a skill group has a limited number of agent IDs to log in to the phone system. Group 7 receives incoming calls from the 800 number, which is the number that was provided to Election Workers to report issues for the March 2020 Election.

Because of an insufficient number of agent IDs for the 800 number (Group 7), the Pollworker Services Help Desk was limited in the number of operators it could assign to the call line. This resulted in callers experiencing long wait times and/or being disconnected because of high call volumes.

In previous elections, Election Workers were provided a unique phone number to call based on the Supervisorial District their polling place was assigned in. This allowed calls to be distributed throughout the entire Pollworker Services Call Center via five skill groups with 40 operators to answer calls. However, because of the new voting system and new equipment implemented for the March 2020 Election, a change to the call number was required to allow Election Workers to call a single number to report issues (procedural vs. technical). Workers were directed to call the 800 number (Group 7) and press option 6 for technical assistance or option 7 for procedural questions.

Group 7 only had 26 agent IDs issued to that group; therefore, Pollworker Services assigned 18 operators and 8 supervisors to that skill group to answer incoming calls from the 800 number for the March Election. The remaining 33 staff in Pollworker Services answered calls received in the other skill groups where the call volume was significantly lower. Although Pollworker Services had additional staff that could be assigned to answer incoming calls from the 800 number, there were no additional agent IDs available to log in to that number. Optimization of the system needs to be explored by a third party-assessment and through cloud-based systems going forward.

Voter Help Desk Observations/Issues

There were some reports of long wait times with the Voter Help Desk.

Actual calls answered for the March 2020 Election were:

- 938 calls were answered over the 10-day period before Election Day (Feb 22-Mar 2). The daily breakdown was:
  - 2/22 – 45; 2/23 – 82; 2/24 – 26; 2/25 – 37; 2/26 – 42; 2/27 – 43; 2/28 – 53; 2/29 – 156; 3/1 – 157; 3/2 – 297
- 1,225 calls were answered on Election Day.

Note: The Department's legacy phone system cannot provide verifiable data for wait times and call abandonment for the Voter Help Desk call center.

Callers experienced longer-than-expected wait times because of extraordinary operational and technical issues. Issues included:

- Because of system issues and detailed researching of voter problems
- Non-responsive or very slow Election Management System
- Addressing non-election related inquiries
- Delayed hiring of staff which resulted in inadequate training period
- Use of multiple systems to provide voter information (AskEd Help Desk/DIMS)

- Assisted voters to navigate the new Interactive Sample Ballot (ISB) on the website

- Assisted Military and overseas voters to locate and print ballot pages online

- Vote Centers were not opened as listed on some outreach material

- Inquiries about long lines

- Voters information could not be located on the PollPad and voters were upset that they had to vote provisionally

- Insufficient service at curbside for voters with disabilities

- Paper jams and inoperable equipment

- Vote Center staff could not get through to IT Support

Root Cause Analysis

Table 23.   Board Motion Item 7 Root Cause Analysis

Issue	Root Cause
IT Help Desk	
IT Help Desk had insufficient number of call takers to adequately handle incoming calls.	Shared pool of resources supporting Help Desk, and field support was shifted to deployment because of compressed schedule, and experienced higher than expected attrition, further reducing available staff for Help Desk.
Technical calls taken in other groups were not entered into the IT Help Desk system.	Call takers in other call centers were not properly trained on call transfers/ticket-taking for technical calls. Inconsistent and disparate procedures across call centers.
Calls from Election Workers were dropped frequently	The legacy system lacks tracking of queue time and wait times. This needs third party assessment.
Pollworker Services Help Desk	
Pollworker Services Help Desk had a significantly high volume of calls with long wait times and a high percentage of abandoned calls	No analysis or projection of call volume was conducted prior to the beginning of the voting period.
The Pollworker Services Help Desk had a limited number of operators to adequately handle call volume.	Insufficient number of agent IDs for the 800 number (Group 7), limited the number of operators could be assigned to the call line.
Voter Help Desk	
There were some reports of long wait times with the Voter Help Desk.	The Department's legacy phone system does not provide verifiable data for wait times and call abandonment for the Voter Help Desk.

Issue	Root Cause
	Callers experienced longer than expected wait times because of extraordinary operational and technical issues.

Appendix to Item 8. An assessment of the set-up at Vote Centers, deployment of resources and availability of staff at the Vote Centers

Overview of Vote Center Recruitment, Placement and Deployment

Vote Center Recruitment and Placement

The process to identify potential Vote Centers included an engagement in 2018 with Placeworks, a contractor that specializes in geospatial analysis. This engagement produced a database of 2,000 potentially suitable locations compiled from grassroots community meetings, public suggestions through an online portal, and ground truthing activities conducted by Placeworks. Sites deemed potentially suitable reported they were large enough to house the minimum number of voting units and had the infrastructure capable of running the voting equipment during a short interview with Placeworks staff.

Potentially viable sites fell into two main groups – private facilities and public facilities. The private facilities category consisted of places of worship, shopping centers, entertainment venues, museums, etc. The public facilities categories consisted of recreation centers, parks, schools, colleges/universities, senior centers and other government facilities. They may be State, County, city, school/college district or special district facilities.

RR/CC and its vendor partner AT&T conducted detailed assessments of each potential location to ensure requirements were met for accessibility, electrical power capacity and network connectivity.

To ensure equitable distribution of Vote Centers across the County, geographical boundaries called service areas were created. A target number of Vote Centers at a target size and duration (4-day, 11-day) was established for each service area (SA).

When identifying potential Vote Centers, RR/CC considered the requirements of the Voter's Choice Act, including:

- Geographic distribution of registered voters
- Proximity to public transportation
- Communities with historically low Vote by Mail usage
- Population centers
- Language minority communities
- Voters with disabilities
- Communities with low rates of household vehicle ownership
- Low-income communities
- Communities of eligible voters who are not registered to vote and may need access to same day voter registration
- Geographically isolated populations, including Native American reservations
- Access to accessible and free parking
- The distance and time a voter must travel by car or public transportation
- The need for alternate methods for voters with disabilities for whom Vote by Mail ballots are not accessible to cast a ballot
- Traffic patterns near Vote Centers and ballot drop-off locations

- The need for mobile Vote Centers in addition to the number of Vote Centers established.
- Vote center location on a public or private university or college campus.

Initial Vote Center recruitment was delayed because of a number of factors including the delayed implementation of a tracking system, the late establishment of recruitment boundaries, lack of an official facility use agreement, uncertainty of site criteria prioritizations, and a lack of fully assessed sites. Once recruitment could be delayed no longer, initial recruitment efforts proved too slow to meet required targets. Organizational changes were made to support the efforts and speed up successful recruitments.

Vote Center recruitment was undertaken by a variety of RR/CC staff taken from other roles and assigned as Account Managers to supplement the staff already selected for the efforts. The revamped recruitment entailed "cold calling" facilities, gaining consent to participate, preparing facility agreements, scheduling a series of appointments, providing ongoing communication, and resolving issues with facility contacts. This team, too, struggled to meet targets, requiring substantial assistance from the RR/CC executive management team to assist in garnering assistance from other public agencies and locate sites in difficult to recruit areas. The team was also hampered by the holiday season, making it very difficult to reach decision makers at the facilities who could sign the required facility agreements.

Vote Center Formula

The minimum required number of Vote Centers is prescribed by Election Code Section 4007. For the March 2020 Election, the legally required minimum number of Vote Centers was as follows:

- 912 Vote Centers total
- 182 11-day Vote Centers (20%)
- 730 4-day Vote Centers (80%)

Understanding the unique needs of the voters of the County, RR/CC felt that meeting the legal minimum would not adequately serve the population and set the following goals:

- 1,000 Vote Centers total
- 250 11-day Vote Centers (25%)
- 750 4-day Vote Centers (75%)

RR/CC provided the following actual Vote Centers during the March 2020 Election:

- 978 Vote Centers total
- 233 11-day Vote Centers (24%)
- 744 4-day Vote Centers (76%)
- 3 Mobile Vote Centers
- 10 Flex and Pop-Up Vote Centers
- 5 Extended Hour Program (24-hour) Vote Centers

The number of actual Vote Centers by size (in terms of the number of BMDs at each site) along with duration (11-day or 4-day) are shown below:

Figure 22. Vote Centers by Size and Voting Period Duration

Vote Center Size (# of BMD's Per Vote Center)	Total Vote Centers*	11 Day Vote Centers	4 Day Vote Centers
Extra Large (55 BMDs - 100 BMDs)	67	27	40
Large (35 BMDs - 50 BMDs)	110	32	78
Medium (20 BMDs - 30 BMDs)	364	51	313
Small (10 BMDs -15 BMDs)	295	46	249
Petite (5 BMDs)	142	77	65
Grand Total ***	978	233	745

Note: This table includes fixed Vote Centers and does not include Mobile, Flex or Pop-up Vote Centers.

Vote Center Deployment

Vote Center deployment happened in eight stages. Those stages were:

1. POD deliveries
2. Equipment deliveries to PODS or rooms
3. Equipment set up
4. Network establishment
5. Actual voting at Vote Centers
6. Equipment break down
7. Equipment pick up from PODS or rooms
8. POD pick ups

POD containers were used to reduce the window of time that a Vote Center would need to provide their valuable rooms. By placing the containers on the property, the interior space was not needed until closer to opening of the site. Equipment could be securely stored in the container instead of in their facilities, allowing more facilities to agree to participate.

RR/CC employed a transportation vendor to deliver equipment and supplies to Vote Centers. In some locations, equipment and supplies were stored in the facility. In others, equipment and supplies were stored in POD storage units either in the parking lot of the building or elsewhere on the property. Approximately 507 unique Vote Center locations used 646 PODS to store equipment and supplies.

Figure 23. POD Assignment and Vote Center POD Usage

# of PODS Assigned	Vote Center POD Usage by Vote Center	% of Vote Centers
0 PODS Used	471 VCs Didn't Use PODS	48.2%
1 PODS Used	393 VCs Used 1 POD	40.2%
2 PODS Used	91 VCs Used 2 PODS	09.3%
3 PODS Used	21 VCs Used 3 PODS	02.1%
4 PODS Used	2 VCs Used 4 PODS	00.2%
978 Vote Centers Total		

PODS began arriving at Vote Centers on February 4, 2020. The transportation vendor began placing equipment into those PODS on February 10, 2020.

Vote Center set-up for 978 sites started on February 19, 2020 and was completed on March 2, 2020.

The deployment process, meaning Vote Center set-up and support, required approximately 1,099 staff obtained from within RR/CC, through staffing contracts, through our partners (AT&T, Smartmatic), and from other County departments. The process utilized 317 trucks/vehicles. The operation also required the use of three warehouses, two truckyards, and a deployment center to prepare and deploy the required materials.

Post-election, all the materials and equipment were disassembled, packed and returned to the PODS or placed back in the designated location for the transportation vendor to access and retrieve the supplies. At that time POD collection process began.

Observations/Issues

Deployment of some Vote Centers was not completed as scheduled, resulting in sites not being open to serve voters as communicated.

Of the 232 Vote Centers scheduled to open on February 22, 2020, 199 (86%) opened as scheduled. The remaining 33 locations were all open for voting by Monday, February 24.

On February 28, 2020, RR/CC determined that 165 (22%) of the 744 Vote Centers scheduled to open on February 29, the first day of voting for 4-day Vote Centers, would not be open by 8:00am on that day. To help ensure voters would not go to a location that was not ready to serve voters, RR/CC immediately removed those locations from the Vote Center Locator Tool. Those locations remained unviewable on the Locator Tool until it was confirmed that they were open and ready for voters. All 165 locations were open for voting and viewable on the Locator Tool by March 2.

The factors contributing to Vote Centers not being open as scheduled are discussed in the Root Cause section below.

RR/CC has inadequate staffing, experience and resources for deployment at this scale.

The combination of the shorter deployment timeframe, variability in the size of Vote Centers, last-minute confirmation of Vote Centers, the use of PODS to store equipment and supplies,

and the number of qualified staff makes the current Vote Center deployment model unsustainable. RR/CC does not have the capacity, expertise or tools to conduct a deployment of this magnitude effectively.

Staff working back-to-back shifts without enough rest periods leads to safety concerns. Vote Centers not being open as communicated results in voter complaints. Visibility into completion of Vote Center set-up, which was expected to happen through self-reporting by deployment teams, was limited as teams were under significant time pressure to complete set-ups. Operating SWAP trucks for 11-day Vote Centers needing to replace inoperable equipment or provide missing supplies put further pressure on Field Support Technicians who were still setting up 4-day Vote Centers.

The overall lack of experience and requested resources in this kind of deployment resulted in inefficiencies in many operations, causing staff and managers to resort to sustained efforts to complete deployment while still unable to ensure quality and effectiveness. The reduced time frames also placed a strain on the equipment delivery vendor to meet the demand of delivering equipment to 978 Vote Centers in just a few weeks.

On set-up day, some sites were not able to accommodate the planned number of BMDs.

Sometimes during the set-up process, staff would identify that only a portion of the equipment on site could be set up. For example, some portion of rooms were discovered to be unusable (e.g., contained an immovable piece of furniture or other obstacle), and therefore the deployment team would set up only the number of BMDs possible, not the number intended. While not frequent, in some cases, this reduced the number of BMDs from 10 down to 2 or 3, depending on the size and shape of the room.

There are insufficient tools in place to manage Vote Center recruitment, placement and deployment.

The existing Election Management System, DIMS, is not capable of handling the complexities of the tasks involved in recruiting, placing and tracking 1,000 Vote Centers that are open for 4 and 11 days.

Recognizing the limits of DIMS, RR/CC attempted to use other tools for this effort. After hitting a data limit on SharePoint for live spreadsheets, there was no tool other than 20 disparate Excel spreadsheets that needed to be reconciled at the end of each day and cleaned. The Lead Account Manager also needed to consolidate the data upon request, supervise the recruitment process, change strategies as issues arose, help ensure achievement of targets, and report out on a regular basis. Using a complex series of spreadsheets was inadequate for completing and tracking tasks. Providing visibility into which Vote Centers had been successfully recruited in each service area was a manual process. Accurate reports were not readily available for management decision-making or for communication of fundamental Vote Center information within RR/CC or with partners.

Without a unified and dedicated Vote Center management tool, it was difficult to ensure that all needed assessments (e.g., accessibility, power, data connectivity) had been completed on the specific room in a facility slated to serve as a Vote Center. This resulted in power and data connectivity assessments being conducted very close to deployment and, for a small number of sites, assessments not completed.

Using multiple systems during the Vote Center deployment process resulted in continuous manual updates to locations, addresses, and room names coming from the Vote Centers, and systems were out of sync. In the case of systems where a vendor hand-off was needed, the information in those systems could be 48 hours behind. With each system at a different state of lag, ensuring that deployment teams went to the right location according to schedule was challenging.

While RR/CC did work to implement PollChief, a database that organizes communications and logistical details for Vote Centers and Election Workers, the system was procured after Vote Center recruitment was well underway. Ultimately the effort did not have sufficient funds to cover the customization work required to make the tool effective. While productive work was completed, further development on Poll Chief was suspended during the March 2020 Vote Center recruitment cycle.

Account Manager team was created through short-term assignments of staff without relevant experience.

The Account Manager role was envisioned to be the one point of contact responsible for building a strong relationship with Vote Center facilities and communicating important information related to Vote Center operations – equipment delivery, Vote Center set-up, voting period, breakdown and equipment pick-up.

The group of Account Managers was a combination of hired staff and short-term commitment staff borrowed from various sections in the Department. The staff had varying levels of skills and some had no prior elections or customer-service experience. There was no formal training for this team, and policies and directions changed frequently to adapt to new information and priorities/challenges.

Many public facilities initially declined to participate even though the Elections Code mandates their participation as a Vote Center. Some minimized room size or duration.

Despite citing specific authorization outlined in the California Elections Code, there were public facilities that declined requests for use. Many of them required approvals from top management that caused delays and significant pushback. Public facilities asked for a reduction in the voting period from 11 days to 4 days to lessen the impact on their programming. RR/CC received tremendous resistance from school principals and superintendents, citing student safety and conflict with activities as primary reasons. Other city-owned facilities such as recreation centers and senior centers had scheduled programming, some were federally mandated programs, which minimized availability.

In many cases, to reach a compromise and secure an agreement, the Account Manager settled for a smaller room within the same facility, or an alternate facility close to the requested site. There were public buildings that accommodated the request, however, they granted limited access for set-up in many cases late afternoon or evening access. There was a peak in set-up appointments on the two days leading up to the start of the voting period that had a direct impact on capacity to complete the set-up operations.

Only 42% of private sites contacted to be a Vote Center agreed to serve as one.

A total of 644 private sites were contacted to host the March election. Of this number, RR/CC secured agreements with 271. The other 373 sites declined, never responded or did not accept the terms of the agreement. The primary reason for decline was pre-scheduled events. Private facilities earn revenue through rentals for events such as, parties and conferences. These events are normally booked several months, even more than a year, in advance. Another reason for the inability to use these sites was that RR/CC could not pay the rental fee. Private sites ask for high rental fees above RR/CC's maximum budget allocation for facility use. Some sites declined participation because they did not agree to the terms of the agreement, such as providing free parking for voters, or the liability clause that would make them accountable for any damage to the voting equipment.

The timeframe for Vote Center deployment was compressed to reach agreements with Vote Centers but caused significant operational challenges.

Vote Center set-up was planned to occur up to 10 days prior to the beginning of the voting period for each location. Breakdown of Vote Centers and removal of equipment was also planned for approximately 10 days after Election Day. This meant that the room designated as the Vote Center could be occupied by the County for up to 31 consecutive days. Many potential Vote Center sites declined to serve as Vote Centers because of this long duration. In order to increase the number of sites agreeing to participate, the period for deployment was reduced to 3 days prior to the beginning of voting, and 4 days after Election Day for a total of 18 days. Because of the amount of work required for setup of the equipment, the deployment period we increased from 3 days to 4 days.

A significant and sudden increase in staffing for deployment was required to execute this schedule. Staff was obtained through contracts and through vendor partners.

Root Cause Analysis

Table 24.   Board Motion Item 8 Root Cause Analysis

Issue	Root Cause
Deployment of some Vote Centers was not completed as scheduled, resulting in sites not being open to serve voters as communicated.	Vote Centers did not open as planned for a variety of reasons, some of which were outside the control of RR/CC. These include: ▪ Site declined after publication of communications to the public about Vote Center locations. ▪ Site reduced number of days to serve as a Vote Center after publication of communications to the public about Vote Center locations. ▪ Poster sent to the site in error indicating that the site was not a Vote Center ▪ Site did not unlock facility on time for equipment delivery and/or set-up ▪ Election Worker/Lead staffing shortages Some causes were within RR/CC's control. These include:

Issue	Root Cause
	- Equipment not delivered to site on time by deployment team - Equipment not set up on time by deployment team - Equipment malfunctions - No network connectivity - Supplies missing (either not provided or locked in PODS) - Lack of Regional Distribution Centers - Inadequate numbers of Troubleshooters to provide additional supplies as needed. - Access to equipment prevented or delayed because POD location (i.e., POD far from site, physical obstacles between POD and site)
RR/CC has inadequate staffing, experience and resources for deployment at this scale.	RR/CC has not undertaken a deployment of this kind and additional expertise and resources are required to do this effectively. There were two deployments: 11-day Vote Centers – February 19, 2020 through February 23, 2020 4-day Vote Centers (including 24-hour Vote Centers) – February 26, 2020 through March 2, 2020 The deployment of voting equipment, supplies, and staff to 978 Vote Centers had never been done by any County prior to March 2020. RR/CC did not have the experience in logistics operations at this scale. RR/CC requested additional staffing based on their staffing analysis, which included time and motion studies, historical Call Center data, historical attrition rates, site unavailability rates, and industry standards. However, because of a budgetary cap on the staffing contract, which was in place prior to the implementation of the compressed deployment schedule, there were insufficient resources to staff to the scale required. Therefore, RR/CC utilized other means, such as other County departments and city agencies to obtain staff.
Placement of Vote Centers resulted in some geographical areas being more densely populated with Vote Centers, while others were more sparsely populated.	Challenges in recruiting Vote Center sites at the needed size and in the needed geographical location resulted in areas with fewer sites than planned, and in areas with more sites than planned.
On set-up day, some sites were not able to accommodate the planned number of BMDs.	Incomplete information from Vote Center sites about room details, or changes to the actual room, sometimes resulted in less space for BMD set up than originally planned.

Issue	Root Cause
There are insufficient tools in place to manage Vote Center recruitment, placement and deployment.	PollChief was procured, but too late in the recruitment cycle for March 2020. Lack of budget and time resulted in work to customize PollChief being discontinued.
Account Manager team was created through short-term assignments of staff without relevant experience.	The workload and required skills of Account Managers were not well known at the time the team was assembled. There is a much better understanding now of the need for continuity in staff and well-developed sales and account management skills.
Many public facilities initially declined to participate even though the Election Code mandates their participation as a Vote Center. Some minimized room size or duration.	Recruiting started late in 2019, and many public sites already had events/programming in place for potential Vote Center facilities. Cancelling events/programming is problematic for the public entity and its customers. expecting sites to comply.
Only 42% of private sites contacted to be a Vote Center agreed to serve as one.	Private sites declined primarily because of having events already scheduled. Some sites did not agree to the terms of the Vote Center Agreement.
The timeframe for Vote Center deployment was compressed to gain agreements with Vote Centers but caused significant operational challenges.	As noted above, recruiting started late in 2019, and many public sites already had events/programming in place for potential Vote Center facilities. Compromises were reached to reduce the amount of time needed in the room to gain site agreement to participate.

Appendix to Item 9. Identify all of the technical issues, including IT/internet connectivity and inoperable voting machines

Overview of Voting System

Ballot Marking Devices

RR/CC deployed 23,104 Ballot Marking Devices (BMDs) across the County at 978 Vote Centers for the March 2020 Election.

The BMDs are not connected to the Internet in any way. (Technical issues and IT/Internet issues related to PollPads are discussed in Section 1. Excessive wait times that may have been a result of technical issues from the check-in process.)

BMDs were deployed in Vote Centers in the configurations shown below:

Figure 24. Vote Centers, BMDs, and ePollbook Counts

Vote Center Size	# of BMDs per Vote Center	# of ePollbooks per Vote Center	# of Vote Centers	% of Total Vote Centers
Petite	5	2	142	15%
Total Petite:			**142**	**15%**
Small	10	3	235	24%
	15	4	60	6%
Total Small:			**295**	**30%**
Medium	20	5	132	13%
	25	6 / 7	113	12%
	30	8	98	10%
Total Medium:			**343**	**35%**
Large	35	9	37	4%
	40	10	67	7%
	45	12	8	0.8%
	50	13	19	2%
Total Large:			**131**	**13%**
Extra Large	55	14	11	1.1%
	60	15	14	1.4%
	65	16 / 17	15	2%
	70	18	2	0.2%
	75	19	11	1.1%
	80	20	5	0.5%
	85	22	7	0.7%
	100	17 / 25	2	0.2%
Total Extra Large:			**67**	**7%**
Grand Total			**978**	**100%**

BMDs served nearly one million voters during the voting period (995,553 total check-ins at Vote Centers), with 73% of those occurring on Election Day.

On average, voting sessions took 6 minutes and 17 seconds on Election Day, with the following distribution:

Figure 25. Vote Session Duration
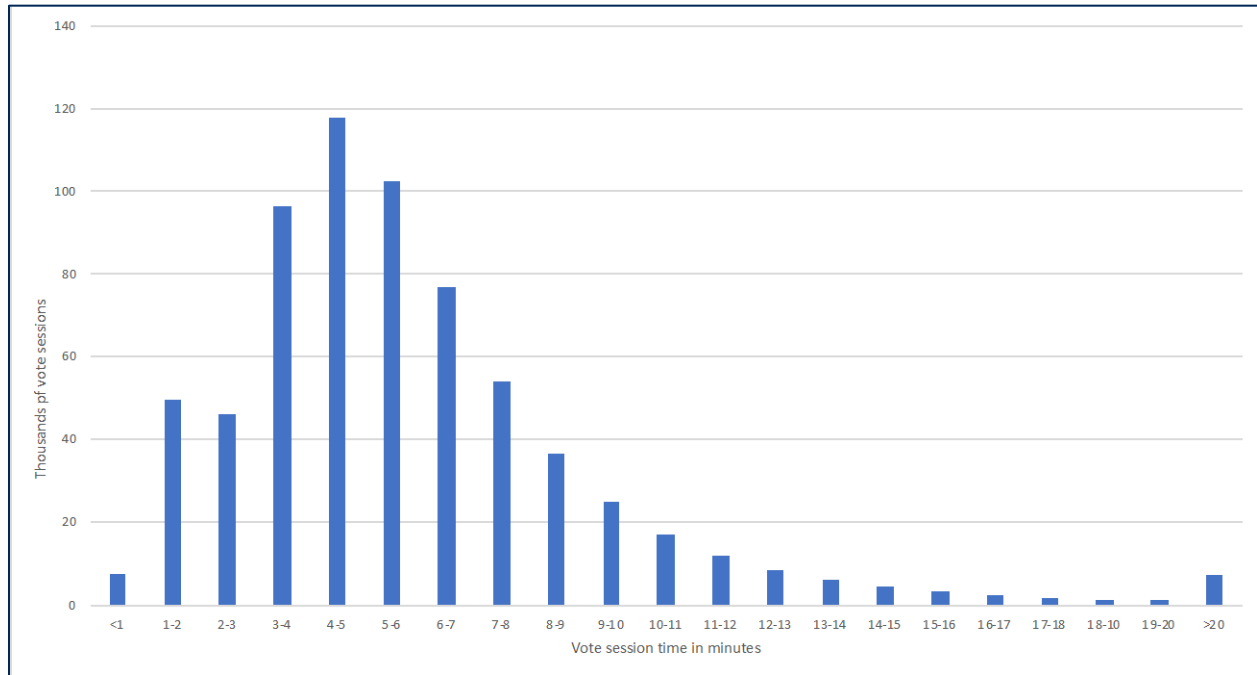
During the voting period, 1,584 incident tickets were logged with the Level 2 Help Desk. This Help Desk was responsible for troubleshooting BMD issues that could not be resolved by the IT Help Desk (Level 1). Callers to the Level 2 Help Desk were typically Field Support Technicians, Troubleshooters and Vote Center Leads.

Of the 1,584 incident tickets logged, 169 were resolved and 1,415 resulted in a BMD being taken out of service because it could not be repaired in the field. 91% of the BMDs taken out of service were the result of a faulty printer gear. The remaining BMDs removed from service were for a small number of other reasons (e.g., a bar code reader issue or touchscreen malfunction).

In some cases, a BMD may have been taken out of service because the caller was not able to successfully work with the Level 2 Help Desk to resolve the issue. In cases where the caller had insufficient time or technical proficiency to clear BMD issues during the call to the Level 2 Help Desk, issues remained unresolved and the BMD was taken out of service.

When a BMD was taken out of service, the BMD was scheduled for replacement. Replacements (called "swaps") were made once a certain threshold of required replacements was reached at a Vote Center. The threshold for dispatching replacement BMDs was on a sliding scale depending on Vote Center size.

The replacement threshold for BMDs was established to be 25%. As long 75% of the BMDs originally allocated to a Vote Center were working, the threshold was not reached, and a swap was not initialized. This is a setting in the incident management system and the system prompts the IT Help Desk to initiate the BMD swap as soon as the threshold is reached. In the absence of any historical data (as March 2020 was the first time BMDs were used), this threshold was based on lessons learned in the Mock Election and Pilot Elections conducted in 2019.

736 BMDs were replaced in the field during the voting period. This number reflects the swap records obtained from the system (incident management) and does not account for ad-hoc impromptu swaps that were necessary at locations that didn't meet the threshold.

Certification

On January 24, 2020, the California Secretary of State (SOS) approved Los Angeles County's VSAP 2.0 Voting System. The approval allowed the County to move forward with its implementation plan for the March 3, 2020 Presidential Primary Election.

California's voting system certification process is among the most rigorous in the country and California Voting System Standards exceed the federal voting system guidelines. Operating within the conditions set forth by the SOS, the VSAP 2.0 system was found to be compliant with all applicable California and federal laws.

As part of the testing and approval process, the system went through rigorous functional and security testing conducted by the California Secretary of State's testing consultants. Additionally, the County subjected the system to independent, third-party security and penetration testing that exceeded state requirements.

As a part of its approval for use, the SOS also required conditions on VSAP, which is common in all voting system certifications/approvals in California. The following are some of the programming changes and reporting requirements that were added as conditions for VSAP use:

Programming changes that need to be submitted to the SOS for testing and review:

1. Improve BMD jamming rate.
2. Remedy low severity findings in the Source Code Report.
3. Audit Log descriptions must match on-screen event.
4. Restrict USB Access on the workstations and servers.

Reporting requirements that need to be submitted to the SOS for review:

1. Any occurrence of the "white screen" event, related logs, including the chain of custody documentation.
2. Information regarding Election Worker Training, and the number of workers trained; Copy of notice provided to voters; Total number of ballots cast on BMDs; Summary of errors, jams, misfeeds; Inventory of BMDs with issues, all logs, including chain of custody, etc.
3. A review of the "MORE" button.
4. Plan to encrypt components of VSAP.

Tally System and VSAP Ballot Layout

RR/CC will continue with development of VSAP Ballot Layout (VBL) Application and Tally systems in order to:

- Enhance capacity and functionality to align with the potential requirement to send Vote by Mail (VBM) ballots to all County registered voters.

- Meet the VSAP conditions of use defined by the SOS (including a resubmission of both VBL and Tally components in July 2020).

- Conduct operations for elections.

- Implement necessary enhancements to address lessons learned from the March 2020 Election.

- Conduct knowledge transfer to RR/CC development team for future enhancements/fixes and support.

Observations/Issues

BMDs accommodated voters who completed the check-in process.

Based on an analysis of voter check-ins and the start of voter sessions, there was no evidence of lines forming between the check-in table and BMDs, after voters checked in and were ready to vote. The following graph is a sample from a Vote Center with a substantial wait time after 8:00 pm, illustrating the correlation between check-ins and the start of voter sessions per hour:

Figure 26. Voter Check-ins and Start of Voter Sessions
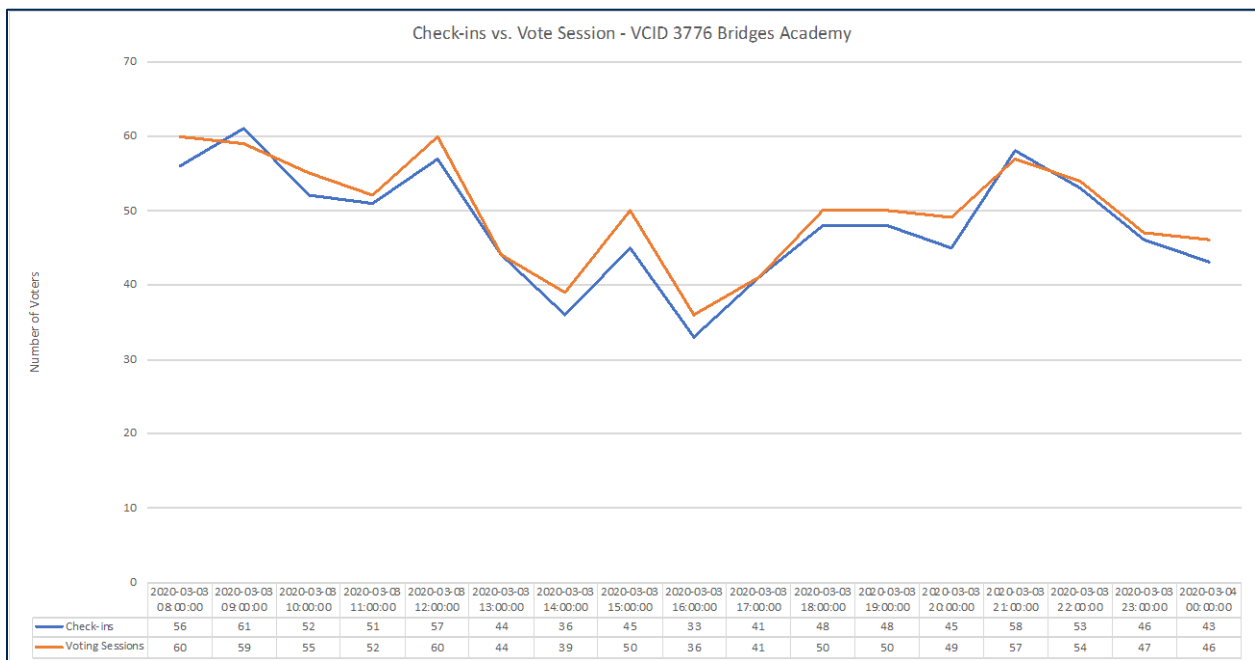
Reported issues with BMDs were primarily caused by a faulty printer gear.

During quality-assurance testing conducted prior to the election as BMDs were being received from the manufacturer, it was discovered that some BMD units had a faulty printer gear. This printer gear issue caused paper jams or the inability for the BMD to accept a ballot.

Pre-election QA testing determined that this printer gear issue occurred in approximately 10% of BMDs manufactured during a specific 2-week period. Before the election, all BMDs manufactured during those production weeks were identified, segregated, and the entire printer assembly, including the gear, was replaced on those BMDs. Those modified devices were QA tested again before being deployed to Vote Centers.

During the voting period, it became clear that the manufacturing issue resulting in the faulty printer gear affected an additional 2 weeks of production. Evidence of the faulty printer gear was detected in 1,297 BMDs out of 23,104 BMDs deployed.

While Election Workers were trained to clear paper jams, and generally did that when needed, jams caused by the printer gear issue could not be cleared by Election Workers. This issue could not be cleared and instead required taking affected devices out of service.

Work has already begun to replace the printer assemblies of all BMDs that showed evidence of this issue during the voting period.

Ballot Activation QR Code errors were appropriately detected and flagged by the BMDs.

During the check-in process, the PollPad prints Ballot Activation QR code on the voter's ballot which is then read by the BMD to bring up the correct ballot for the voter on the BMD interface. The BMD is designed to detect any issues with the Ballot Activation QR code that prevent identifying the correct ballot for the voter. These QR code issues include:

- QR code incorrectly positioned on the ballot (e.g., QR code partially printed off the page, printed on top of other printing already on the ballot)
- QR code faded or unclear
- Voter's party affiliation is blank, preventing the correct ballot from being identified

When QR code issues are detected by the BMD, Election Worker intervention is required to assist the voter in returning to the check-in table where the issue is resolved on the PollPad. When the BMD detects misprinted or invalid Ballot Activation QR codes, the BMD is operating as designed to ensure that each voter receives the correct ballot.

Some BMD issues were left unresolved by Election Workers because there was ample BMD capacity for voters.

If the voter check-in process did not fill all available BMDs, Election Workers would often not take action to clear BMDs and ready them for use (e.g., clear a paper jam, or use credentials to unlock a screen). When Vote Centers became very busy, all available Election Workers were focused on voter check-in, supporting voters at BMDs and line management. If there were ample open BMDs, some BMDs remained out of service in need of Election Worker attention.

While some BMDs had issues that could only be resolved by replacing them, others were not resolved by Election Workers because they were not needed to meet the voter demand.

In larger Vote Centers, some BMDs were not turned on every day of the voting period.

During the first 10 days of the voting period, voter turnout was such that many BMDs went unused. In larger Vote Centers, Election Workers did not turn on BMDs that were not needed to handle the flow of voters. On Election Day, while most Vote Centers did turn on all BMDs, some larger Vote Centers left BMDs turned off if the voter demand did not require the use of all BMDs. This may have given voters, observers and the media the impression that BMDs were "down" or inoperable, when in fact, they were never turned on.

Root Cause Analysis

Table 25.   Board Motion Item 9 Root Cause Analysis

Issue	Root Cause
The majority of BMD issues were caused by a faulty printer gear which occurred during the manufacturing process.	Faulty printer gear in some BMDs was detected pre-election and those units were isolated. Manufacturing defect affected more units than identified pre-election.
Ballot Activation QR Code errors were appropriately detected and flagged by the BMDs.	The BMD is designed to detect any issues with the Ballot Activation QR code that prevent identifying the correct ballot for the voter. Detection of QR code issues require Election Worker intervention in order to assist the voter in resolving the issue at the PollPad.
Some BMD issues were left unresolved by Election Workers because there was ample BMD capacity for voters.	Low turnout during the first 10 days of voting and slow throughput at check-in on Election Day resulted in ample BMD capacity, which allowed Election Workers to not attend to BMDs requiring clearing.
In larger Vote Centers, some BMDs were not turned on every day of the voting period.	Low turnout during the first 10 days of voting and slow throughput at check-in on Election Day resulted in ample BMD capacity, which allowed Election Workers to not turn some BMDs on in larger Vote Centers.

Appendiux to Item 10. Assess whether ballot boxes should be separate from the Ballot Marking Devices

Overview of the Integrated Ballot Box (IBB)

A key goal of the VSAP program has been to make voting as easy as possible for all voters, regardless of their background or abilities. That is a hallmark of the BMD design. It allows each voter to have a private, independent, and secure experience on the same device as they complete the voting process.

The Integrated Ballot Box (IBB) is a key part of the BMD – it allows every voter to cast their ballot at the BMD independently, without needing to traverse the room with a visibly marked ballot to reach a communal ballot box. It also allows a voter to cast a ballot at the BMD without needing to handle their printed ballot, which makes it possible for voters who are blind or have dexterity or limited mobility challenges to complete voting independently.

The IBB vs. central ballot box approach was explicitly tested in a holistic voting experience study during the design phase in 2015 with a diverse group of voters. The testing found that a majority of voters who used the IBB found it to be more usable, private and accessible. Specifically, 72% of the voters who used the IBB during the study characterized their experience as private, as opposed to 63% of the voters who used the central ballot box. When asked how easy or difficult it was to protect their votes from being seen by others during the entire process of voting, 88% of the IBB users said it was "pretty easy" as opposed to 54% of the central ballot box users responding with "pretty easy". Several voters who used the central ballot box noted that the printed ballot might be easy to read from a distance and they were interested in ways to keep it private as they walked across the room. This could lead to voters folding ballots, which would complicate tally.

To help educate voters, instructional materials were developed about how to vote on the BMD, including how to cast the ballot. These materials included:

- Line Cards available in each Vote Center and proactively distributed to voters in line or at the check-in table.
- Informational kiosk in each Vote Center showing graphically how to use the BMD and cast a ballot.

During the voting period, RR/CC sent frequent "pop-up" messages to every PollPad and County-issued cellphone reminding Leads and Check-in Clerks to advise voters at check-in about how to cast their ballot at the BMD.

Observations/Issues

Casting a ballot at the BMD is new for Los Angeles County voters.

The experience of using the BMDs to make selections, print, and cast a ballot was very new for voters in the County. During the March 2020 Election, some voters did not understand that the printed ballot was their official ballot, that they needed to cast their ballot at the BMD, or how to complete casting their ballot. While we fully expect that voters will become used to the new system over time, new voters will need support. To support all voters – Line Cards and Sample Ballots for the upcoming May and June elections were modified to add clarity on how to cast a ballot back into the BMD.

Figure 27. Line Card Including Messaging About How to Cast Ballots at the BMDs

Clarity of on-screen language and prompts could be improved.

While voting at the BMD, voters make their selections, print the ballot and then can visually verify the selections on their ballot. Then, the voter has the option to "Cast my ballot now" or "Read back my printed ballot." After selecting either option, the voter then must press the "Next" button to proceed. This pattern of making a selection and then pressing the "Next" button is consistently used throughout the BMD voting experience. This extra step also prevents a voter from unintentionally casting their ballot, which is irrecoverable (i.e., a voter cannot ask to spoil their ballot if they unintentionally cast it).

While there is solid rationale for the process as designed, the instances of voters moving away from the BMD while holding a ballot indicates that the on-screen language and visual prompts were not direct enough for some voters to ensure compliance.

Voting Area Monitors instructed voters on how to cast their ballot, but that became more difficult when Vote Centers became very busy.

To instruct voters on how to use the new voting system, the County prepared informational Line Cards distributed to each voter in line or at the check-in table, produced a "how to vote" video available on LAVote.net, and assigned Voting Area Monitors to assist voters with the new process. The primary role of the Voting Area Monitor is to instruct voters on how to use the BMD and provide any assistance voters may need, including assistance on how to cast a ballot. Election Workers were trained to watch for voters who leave the BMD holding a ballot, and to quickly intercept them, redirect them to any BMD and guide them in casting their ballot. When Vote Centers became very busy, however, Voting Area Monitors were stretched to assist many voters at once, and may not have been able to quickly help every voter who needed instruction on casting their ballot.

Root Cause Analysis

Table 26.   Board Motion Item 10 Root Cause Analysis

Issue	Root Cause
Casting a ballot at the BMD was new for Los Angeles County voters.	Voters are accustomed to the process of casting a ballot in a central box based on their experience with the InkaVote system.
On-screen language and prompts were not sufficient for some voters.	As using the BMD to cast a ballot is new, voters require very clear and simple instructions about the new way of voting.
Voting Area Monitors instructed voters on how to cast their ballot, but that became more difficult in very busy Vote Centers.	Voting Area Monitors did not have consistent, efficient ways to proactively instruct voters about how to cast their ballot. This resulted in Voting Area Monitors having to intercept voters moving away from BMDs with their ballots at the end of the voting session. It is more efficient to instruct voters at the beginning of their voting session than to intercept them at the end of the session.

Item 11. Develop a plan to receive feedback from voters regarding their experience

RR/CC Voter Experience Survey

Survey Objectives and Methodology

RR/CC has initiated its effort to receive feedback from voters regarding their experience. This effort consists of a voter survey. The objective of the voter survey was to gather feedback from voters who cast a ballot at a Vote Center during the voting period for the March 2020 Election. Specifically, the survey asked for input in the following areas:

- **Before Voting**: Were voters informed about the new way to vote before arriving at a Vote Center? How did voters select a Vote Center?

- **Voting Experience**: How satisfied were voters with their experience in the Vote Center? Topics included wait times, experience with check-in, Ballot Marking Devices, Interactive Sample Ballot, Election Workers, and other areas.

- **Future Behavior**: Will voters choose to vote at Vote Centers in the future? Topics included likelihood of voting during the early voting period, and recommendations for improving the voting experience.

The target audience for the survey was voters who cast a ballot at a Vote Center during the voting period for the March 2020 Election. The survey was sent in April 2020 to any voter meeting that criteria who also had an email on file with RR/CC. The survey was sent to more than 285,000 recipients, with more than 27,000 responding.

RR/CC Key Findings and Survey Results

Below are key findings from the survey.

- 69% of respondents reported having a positive overall voting experience at the Vote Centers while 21% reported having a negative overall voting experience.

- 68% of voters surveyed reported waiting 30 minutes or less during the voting period. 17% of voters surveyed reported waiting over 2 hours.

- 80% of respondents reported being satisfied with their experience using the new Ballot Marking Devices (BMDs) while 10% reported being dissatisfied with their experience using the new BMDs.

- 33% of respondents reported using the Interactive Sample Ballot (ISB). Of those who used the ISB, 87% reported being satisfied with their experience while 5% reported being dissatisfied with their experience using the ISB.

- Of the respondents who are unlikely to vote at a Vote Center in the future, 65% said this was because they experienced a long wait at the Vote Center during the March Election. Another 32% reported "Other" while 29% prefer to Vote by Mail.

Figures for these key findings as well as other responses are shown below.

Figure 28.   RR/CC Voter Experience Survey – Overall Experience Response

Q6 How was your overall voting experience during this election?

Answered: 25,835   Skipped: 1,199

Very Positive ■ Positive ■ Neither Positive or Negative ■ Negative
■ Very Negative
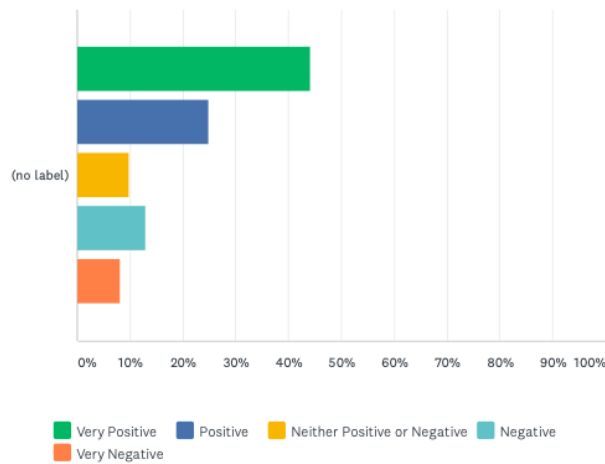
	VERY POSITIVE	POSITIVE	NEITHER POSITIVE OR NEGATIVE	NEGATIVE	VERY NEGATIVE	TOTAL	WEIGHTED AVERAGE
(no label)	44.13% 11,401	24.99% 6,455	9.77% 2,523	13.04% 3,368	8.08% 2,088	25,835	2.39

Figure 29.   RR/CC Voter Experience Survey – Check-in Experience Response

Q8 How satisfied were you with your check-in experience at the Vote Center?

Answered: 25,420   Skipped: 1,614
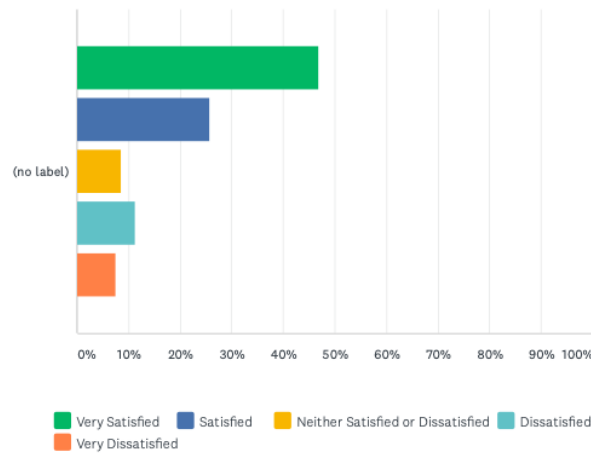
Very Satisfied ■ Satisfied ■ Neither Satisfied or Dissatisfied ■ Dissatisfied
■ Very Dissatisfied

	VERY SATISFIED	SATISFIED	NEITHER SATISFIED OR DISSATISFIED	DISSATISFIED	VERY DISSATISFIED	TOTAL	WEIGHTED AVERAGE
(no label)	46.85% 11,908	25.68% 6,527	8.49% 2,159	11.35% 2,886	7.63% 1,940	25,420	2.07

Figure 30. RR/CC Voter Experience Survey – Check-in Issues Response

Q9 Once at the check-in table, did you encounter any issues?

Answered: 25,783   Skipped: 1,251
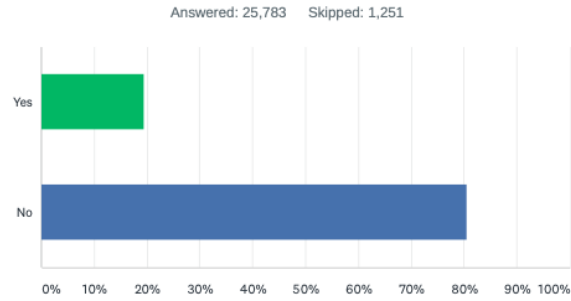
ANSWER CHOICES	RESPONSES	
Yes	19.37%	4,995
No	80.63%	20,788
TOTAL		25,783

Figure 31. RR/CC Voter Experience Survey – Overall Wait Time Response

Q11 Approximately, how long did you wait in line to vote?

Answered: 25,714   Skipped: 1,320
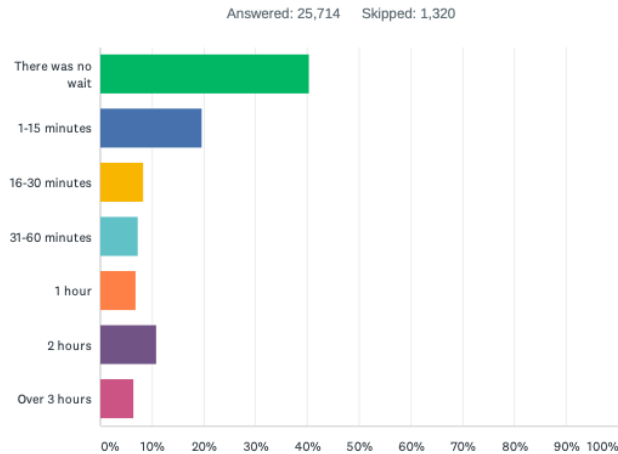
ANSWER CHOICES	RESPONSES	
There was no wait	40.43%	10,395
1-15 minutes	19.63%	5,047
16-30 minutes	8.40%	2,161
31-60 minutes	7.33%	1,884
1 hour	6.88%	1,768
2 hours	10.82%	2,783
Over 3 hours	6.52%	1,676
TOTAL		25,714

Figure 32. RR/CC Voter Experience Survey – Election Day Wait Time Response

Q11 Approximately, how long did you wait in line to vote?

Answered: 16,284   Skipped: 73

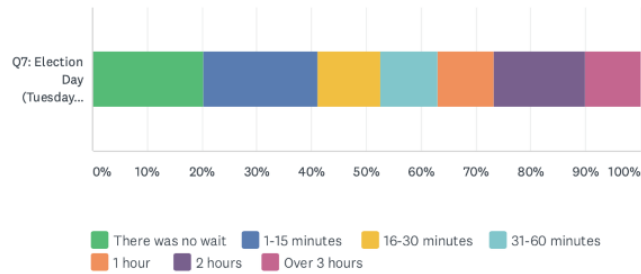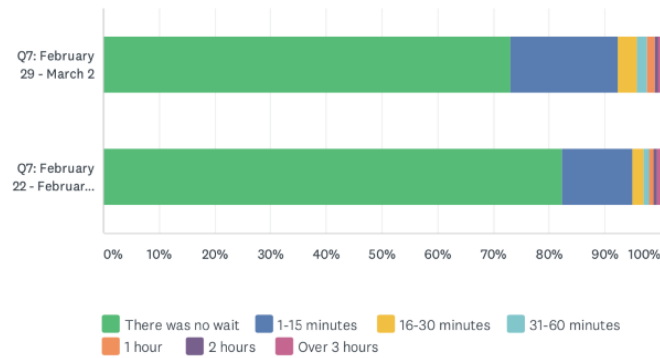Legend: There was no wait | 1-15 minutes | 16-30 minutes | 31-60 minutes | 1 hour | 2 hours | Over 3 hours

	THERE WAS NO WAIT	1-15 MINUTES	16-30 MINUTES	31-60 MINUTES	1 HOUR	2 HOURS	OVER 3 HOURS	TOTAL
Q7: Election Day (Tuesday, March 3)	20.34% 3,312	20.73% 3,376	11.45% 1,864	10.61% 1,728	10.20% 1,661	16.63% 2,708	10.04% 1,635	100.00% 16,284
Total Respondents	3,312	3,376	1,864	1,728	1,661	2,708	1,635	16,284

Figure 33. RR/CC Voter Experience Survey – 10 Days Prior to Election Day Wait Time Response

Q11 Approximately, how long did you wait in line to vote?

Answered: 9,388   Skipped: 22

Legend: There was no wait | 1-15 minutes | 16-30 minutes | 31-60 minutes | 1 hour | 2 hours | Over 3 hours

	THERE WAS NO WAIT	1-15 MINUTES	16-30 MINUTES	31-60 MINUTES	1 HOUR	2 HOURS	OVER 3 HOURS	TOTAL
Q7: February 29 - March 2	73.04% 5,261	19.28% 1,389	3.50% 252	1.82% 131	1.26% 91	0.72% 52	0.37% 27	76.73% 7,203
Q7: February 22 - February 28	82.38% 1,800	12.68% 277	1.97% 43	0.96% 21	0.73% 16	0.78% 17	0.50% 11	23.27% 2,185
Total Respondents	7,061	1,666	295	152	107	69	38	9,388

Figure 34. RR/CC Voter Experience Survey – BMD Experience Response

Q12 How satisfied were you with your experience using the new ballot
marking device (BMD)?

Answered: 25,696   Skipped: 1,338

	10 EXTREMELY EASY	9	8	7	6	VERY SATISFIED	SATISFIED	NEITHER SATISFIED OR DISSATISFIED	DISSATISFIED	VERY DISSATISFIED	0 EXTREMELY DIFFICULT
(no label)	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	49.71% 12,773	30.74% 7,900	9.98% 2,564	5.79% 1,489	3.77% 970	0.00% 0
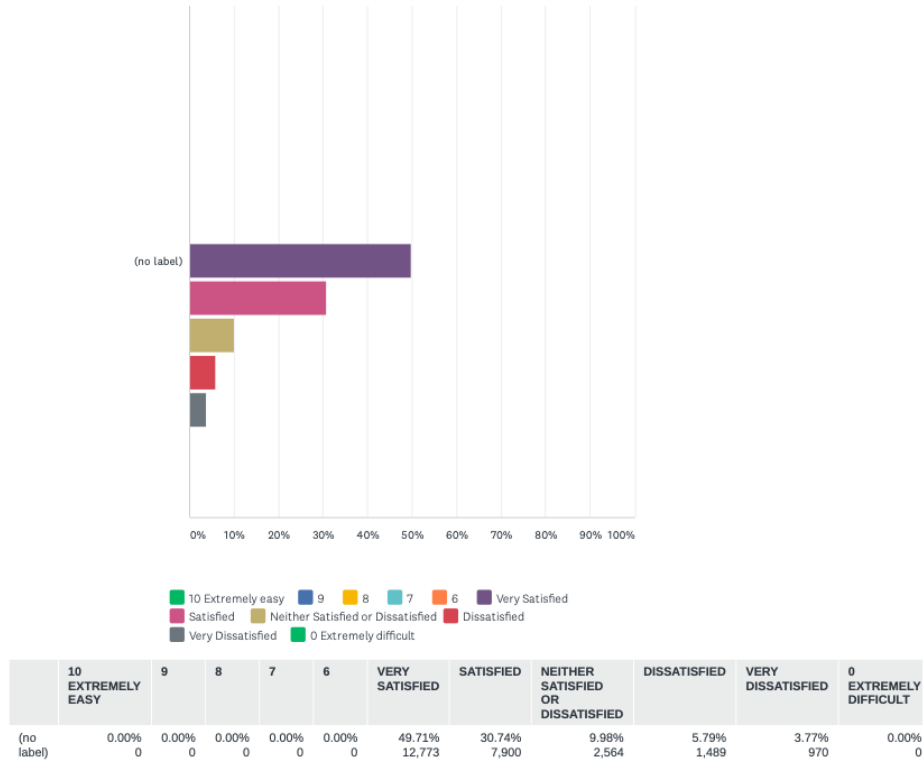
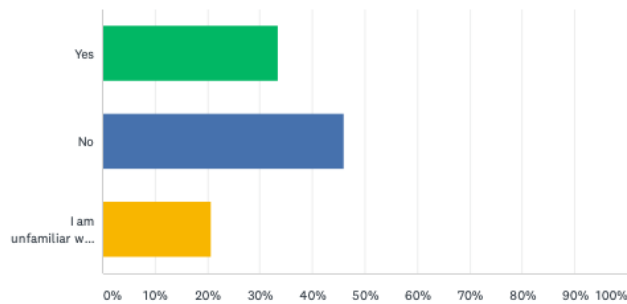**Figure 35. RR/CC Voter Experience Survey – IBS Utilization Response**

Q14 Did you use the Interactive Sample Ballot (ISB) online to pre-mark
your selections before voting?

Answered: 25,662   Skipped: 1,372

ANSWER CHOICES	RESPONSES	
Yes	33.41%	8,574
No	45.98%	11,799
I am unfamiliar with the Interactive Sample Ballot	20.61%	5,289
TOTAL		25,662

Figure 36. RR/CC Voter Experience Survey – ISB Experience Response

Q15 If yes, how satisfied were you with your experience using
the Interactive Sample Ballot (ISB)?

Answered: 8,571   Skipped: 18,463
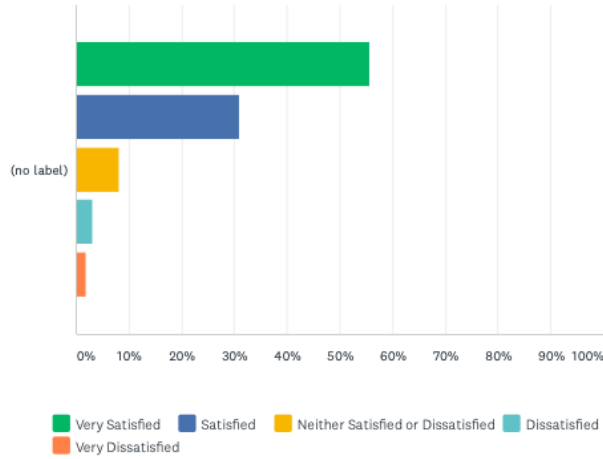
■ Very Satisfied ■ Satisfied ■ Neither Satisfied or Dissatisfied ■ Dissatisfied
■ Very Dissatisfied

	VERY SATISFIED	SATISFIED	NEITHER SATISFIED OR DISSATISFIED	DISSATISFIED	VERY DISSATISFIED	TOTAL	WEIGHTED AVERAGE
(no label)	55.65% 4,770	31.05% 2,661	8.12% 696	3.20% 274	1.98% 170	8,571	1.65

Figure 37. RR/CC Voter Experience Survey – Helpfulness of Election Workers Response

Q16 How helpful were the Election Workers at the Vote Center you
visited?

Answered: 25,618   Skipped: 1,416

■ Very Helpful ■ Helpful ■ Neither Helpful or Unhelpful ■ Unhelpful
■ Very Unhelpful
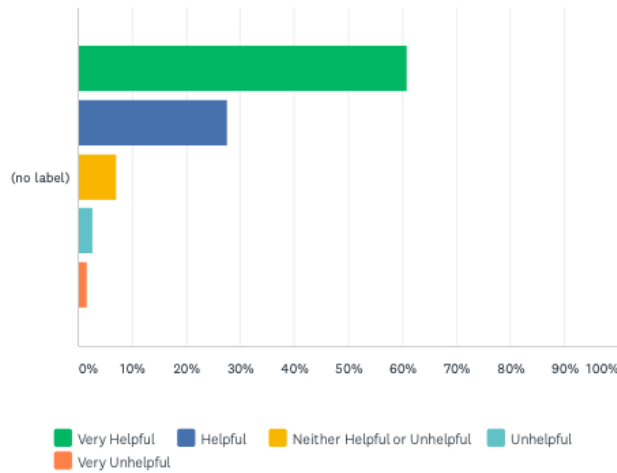
	VERY HELPFUL	HELPFUL	NEITHER HELPFUL OR UNHELPFUL	UNHELPFUL	VERY UNHELPFUL	TOTAL	WEIGHTED AVERAGE
(no label)	60.82% 15,581	27.53% 7,052	7.18% 1,840	2.81% 721	1.66% 424	25,618	1.57

**Figure 38. RR/CC Voter Experience Survey – Unlikely to Vote at Vote Center Response**

Q18 If you are unlikely or very unlikely to vote at a Vote Center during the next election, please tell us why. Select all that apply.

Answered: 3,125   Skipped: 23,909
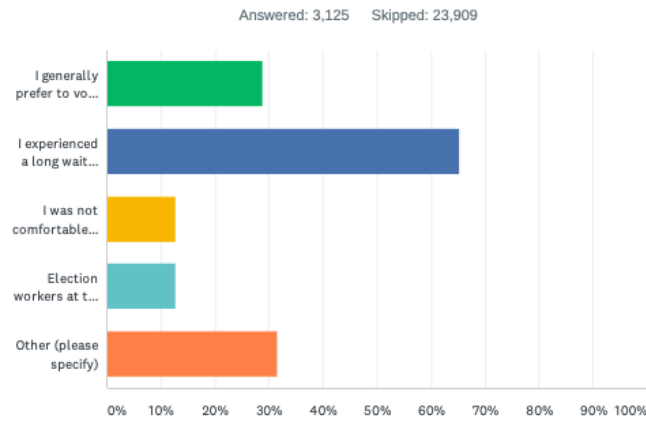
ANSWER CHOICES	RESPONSES	
I generally prefer to vote by mail	28.77%	899
I experienced a long wait time at a Vote Center	65.22%	2,038
I was not comfortable using the new ballot marking device	12.77%	399
Election workers at the Vote Center I visited were not helpful	12.70%	397
Other (please specify)	31.52%	985
Total Respondents: 3,125		

Figure 39. RR/CC Voter Experience Survey – Likelihood of Early Voting Response

Q19 There may be 11 days to vote at Vote Centers in future elections. How likely are you to vote before Election Day in the next election?

Answered: 25,564   Skipped: 1,470

■ Very likely ■ Likely ■ Unsure ■ Unlikely ■ Very Unlikely
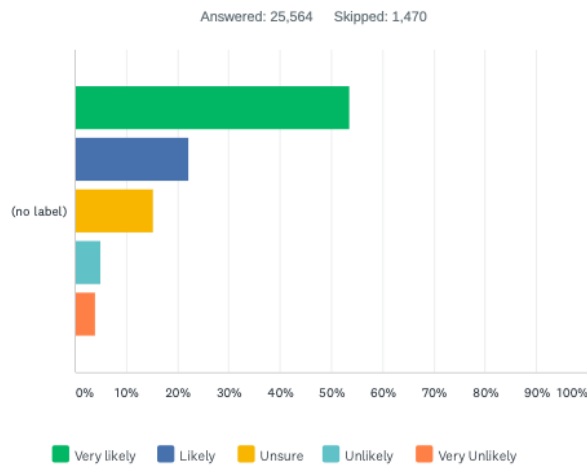
	VERY LIKELY	LIKELY	UNSURE	UNLIKELY	VERY UNLIKELY	TOTAL	WEIGHTED AVERAGE
(no label)	53.60% 13,702	22.24% 5,686	15.20% 3,885	5.01% 1,282	3.95% 1,009	25,564	1.83

Loyola Marymount University (LMU) Exit Poll

Survey Objectives and Methodology

In addition to the voter survey conducted by RR/CC, an exit poll was conducted during the March 3, 2020 Presidential Primary Election by students at Loyola Marymount University (LMU) which provides valuable voter experience feedback. [1]

The objective of the LMU 2020 Presidential Primary Election Exit Poll was to ask Los Angeles County voters for whom and for what they voted as well as to gather feedback on their overall voting experience at their respective Vote Centers.

Key elements of the approach and methodology include:

- Over 250 LMU students served as field researchers, distributing surveys in both English and Spanish.

- 3,596 voters were surveyed, with field researchers surveying every other voter who exited the Vote Center.

- Surveys were conducted on March 3, 2020, from 7 a.m. to 8 p.m. at 50 randomly selected Vote Centers throughout the County.

- Because the survey was an exit poll, only voters who completed their voting session by 8 p.m. were included in the survey.

Key Findings and Survey Results

Below are key findings from the LMU survey.

- 87.1% of respondents reported having a positive overall voting experience at the Vote Centers while 12.9% reported having a fair or poor overall voting experience.

- 77.8% reported waiting in line for 20 minutes or less. 22.2% reported waiting in line for more than 20 minutes.

- 92.9% described their experience registering or checking in to receive a ballot as very easy or somewhat easy, 7.1% described it as somewhat difficult or very difficult.

- 95.4% described their experience using the BMD as very easy or somewhat easy. 3.8% described it as somewhat difficult or very difficult.

- 95.4% described their experience printing and casting their ballot as very easy or somewhat easy. 4.6% described it as somewhat difficult or very difficult.

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[1] Survey Citation: Guerra, Fernando J.; Gilbert, Brianne; Vizireanu, Mariya; Dunsker, Max; & Akella, Vishnu (2020). Vote Center Experience Data Brief: 2020 LA Votes Presidential Primary Exit Poll. Thomas and Dorothy Leavey Center for the Study of Los Angeles, Loyola Marymount University, Los Angeles, California.

Figure 40. LMU Exit Poll Survey Responses

SURVEY FINDINGS

How would you rate your overall experience at the Vote Center today?

Excellent	59.0%
Good	28.1%
Fair	8.8%
Poor	4.1%

How many minutes did you spend in line at the Vote Center?

5 minutes or less	43.2%
6-10 minutes	17.8%
11-15 minutes	7.6%
16-20 minutes	9.2%
More than 20 minutes	22.2%

This year, LA County implemented new voting technology. Compared to voting in previous elections, technology made voting in this primary:

Much easier	57.5%
A bit easier	17.6%
The same	13.2%
A bit more difficult	7.4%
Much more difficult	4.3%

Did you know that all Vote Centers in LA County were open either 3 or 10 days before Election Day to allow you to vote early?

Yes	71.9%
No	28.1%

This year, voting in LA County changed from traditional polling places to Vote Centers. How much did you know about the switch to Vote Centers?

A lot - I had been following the news about the switch	30.4%
Some - I had heard about it but did not know the details	39.8%
I did not know about the switch	29.8%

When did you learn about the switch to Vote Centers?

Today	31.4%
Within the last week	18.2%
Within the last month	27.1%
Longer than a month ago	23.3%

How did you find out about the switch to Vote Centers? (Select all that apply)

Online	20.9%
Newspapers	4.7%
Television	14.3%
Bus advertisements	0.5%
Billboards	2.0%
Word of mouth	14.9%
Mail/flyers	18.4%
Social media	7.2%
Other	15.1%

Describe your voting experience in this election: Finding your Vote Center

Very easy	84.9%
Somewhat easy	11.7%
Somewhat difficult	2.6%
Very difficult	0.8%

Describe your voting experience in this election: Registering or checking in to receive your ballot (e-pollbook)

Very easy	76.4%
Somewhat easy	16.5%
Somewhat difficult	4.5%
Very difficult	2.6%

Describe your voting experience in this election: Using the new voting machines to mark your ballot

Very easy	79.2%
Somewhat easy	17.0%
Somewhat difficult	2.4%
Very difficult	1.4%

Describe your voting experience in this election: Using the new voting machines to print and cast your ballot

Very easy	80.1%
Somewhat easy	15.3%
Somewhat difficult	3.1%
Very difficult	1.5%