2009 Professional Practices Program

Roster Index Book
Imaging and Recognition

Alameda County, CA

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Alameda County Roster Index Book Imaging and Recognition Procedure to Improve the Election Certification Process.

1. Abstract of the Program

Alameda County developed a Roster Index Book imaging and recognition procedure to improve the election certification process. The Roster Index Book is used at 831 polling places to record the voters that came to that location to cast their vote. Each line in the Roster Index Book includes a bubble for staff use only, the voter’s address, a unique barcode to that voter, the voter’s party, a signature line, and the name of the voter. Each voter, after casting their ballot, must sign next to their name in the Roster Index Book. Once done, the Poll Worker will shade the bubble on that line, verifying that the process was completed. After each election, the number of voters in the Roster Index Book is reconciled, by precinct, against the number of votes recorded for that election.

The old process required a manual scanning of bar codes and a visual audit for signatures for each valid voter (~250,000 signatures). A new process was developed using ABBYY Optical Character Recognition (OCR) software that allows the Registrar to utilize high speed scanners to perform the majority of the Roster Index Book reconciliation. This new process reduced the number of staff required for reconciliation and increased the efficiency of the election certification process.

2. The Problem/Need for the Program

After Alameda County’s 831 polling places close on Election Day, the Registrar must reconcile all precinct Roster Index Books prior to tallying provisional votes. The reconciliation of the Roster Index Books is an important piece of the election certification process required by the State. Although the Roster Index Books do not record how one votes, they do record which voters cast a ballot.

Historically, the 831 Roster Index Books arrive at the Registrar after the close of the polls. The reconciliation of the Roster Index Books begins after the votes (Vote-By-Mail, early votes and precinct votes) are counted. In the past, this process began about 5 days after the election. The process of reconciling the Roster Index Books required thirty (30) staff manually reading over 250,000 signatures in the Roster Index Books and recording valid voters by scanning the barcode with a handheld reader. The barcode data was then manually uploaded into Alameda County’s DIMS database of registered voters for reconciliation purposes. This manual process takes approximately three (3) weeks.

3. Description of the Program

The first step of automating the reconciliation was to slightly alter the Roster Index Book itself. The updated system reads the ‘Precinct Number’ and ‘Election Date’ off the Roster Index Books front cover. Inside, a ‘Bubble’ was added to the left of each registered voter’s name. When a voter signed the book after casting a ballot, the poll worker then marked the ‘Bubble’. This was added to ensure accuracy when recording who voted at each precinct.

Once the books arrive after the close of polls they are prepared for scanning. This is a simple process of removing the coil binding so the books can be scanned easily. Each of the Roster Index Books is then inserted into the scanner. The scanned results are sent to the ABBYY Recognition server for processing. The ABBYY Recognition server first reads the ‘Precinct Number’ and ‘Election Date’ off the Roster Index Book’s cover page. After that each voter line is automatically assessed by the ABBYY Recognition server following these rules:

- Bubble mark with Signature: Vote (Processed by ABBYY)
- No Bubble mark and No Signature: No Vote or Vote by Mail (Processed by ABBYY)
- Bubble mark with No Signature: Send to Verification Station (Staff)
- Signature with No Bubble mark: Send to Verification Station (Staff)
If ABBYY cannot determine whether a voter voted ('Bubble without Signature' or 'Signature without Bubble') the server sends what could not be processed to an ABBYY Verification station (staff) to answer. Each station verifies what the ABBYY Recognition Server could not verify. The ABBYY Verification Station will display an image of the line in question at the bottom of the screen. Above, it gives the staff the opportunity to select the correct status (bubble or signature) for that line, and verify it.

Once all questions regarding a Roster Index Book are answered, the ABBYY Recognition server creates a precinct text file (.txt) ready for upload into the Voter Registration system (DIMS). At this point the DIMS Uploader begins processing the files to perform the reconciliation.

4. USE OF TECHNOLOGY

An OCR product called ABBYY was used as the software solution for the scanning process. After configuring ABBYY to recognize the Roster Index Book templates the software was to follow programmed rules for reconciling the Roster Index Books. The project included 4 major components:

- High speed network scanners (2)
- ABBYY Server for processing scan and verification results (1)
- ABBYY Scanner workstations (2)
- ABBYY Verification workstations (6)

5. THE COST OF THE PROGRAM

The one-time capital costs associated with the project was $25,000 for ABBYY licensing and programming. Registrar of Voters utilized existing high speed scanners and workstations for this project. Other potential costs for another Registrar attempting to replicate this system are:

- Server (1): $7,000
- Workstations (8): $7,000
- High speed scanners (2): $70,000

1. THE RESULTS/SUCCESS OF THE PROGRAM

Increased productivity is measured through the improved efficiency of Roster Index Book reconciliation. The new scanning and imaging system drastically reduced the amount of staff and time required to accomplish the task. This new process reduced the Roster Index Book reconciliation process from 30 staff working 3 weeks to 9 staff working 2 days, saving the Registrar of Voters an estimated $50,000 per election. The one-time cost of this project was $25,000.

On November 4, 2008 Alameda County held a general election with 831 polling places (precincts) using the updated Roster Index Books. The polls closed at 8 p.m. and by 9:30 p.m., the first wave of prepped Roster Index Books were ready for scanning and verification. By the afternoon of November 6th all 831 Roster Index Books, over 250,000 signatures had been scanned, verified and the results uploaded into DIMS. ROV has an archived image of each Roster Index Book scanned by the system. This was completed by just 9 staff:

- 2 Scanners
- 6 Verifiers
- 1 DIMS Uploader

Of the 831 Roster Index Books, only 48 (.05%) Roster Index Books needed manual intervention prior to scanning.
Supporting Documents: Screen Shots

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Below is an overview of the Roster Index Book scanning process: