

# **Innovations in Election Administration 2**

**Optical Scanning  
Technology for  
Purposes Other  
Than Ballot  
Counting**





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# Optical Scanning Technology for Purposes Other Than Ballot Counting

**Author:**

Barbara Rossetti  
Consultant in Election Administration  
5535 East Fifth Place  
Tulsa, Oklahoma 74112-2935

**Managed and Edited by:**

William C. Kimberling  
National Clearinghouse on Election Administration

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# Introduction by the Clearinghouse

This report is the second of a new series on Innovations in Election Administration being published by the FEC's National Clearinghouse on Election Administration.

The purpose of this series is to acquaint State and local election officials with innovative election procedures and technologies that have been successfully implemented by their colleagues around the country.

**Our reports on these innovations do not necessarily constitute an endorsement by the Federal Election Commission either of the procedures described or of the vendors or suppliers that might be listed within the report. Moreover, the views and opinions expressed in these reports are those of the author and are not necessarily shared by the Federal Election Commission or any division thereof.**

We welcome your comments on these reports as well as any suggestions you may have for additional topics. You may mail these to us at:

The National Clearinghouse on  
Election Administration  
Federal Election Commission  
999 E. Street, N.W.  
Washington, D.C. 20463

or else call us

toll free on 800/424-9530 or  
direct on 202/219-3670.

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# Optical Scanning Technology for Purposes Other Than Ballot Counting

Optical scanning is an automated data collection method by which a device called a scanner is used to scan direct or directed light from a surface, such as a printed page. This scanner converts symbols to electrical signals for data input and storage. It reads and identifies patterns of coded information. Some types of scanning technology are:

## Bar Codes

Bar coding is comprised of bars and spaces. In this form of optical scanning, information is encoded with widths of bars, spaces between bars, and relative positions of bars and spaces. There are many formats of bar coding, and standards for these formats have been developed by the Uniform Code Council.

The use of bar codes has progressed from curious, obscure patterns on grocery items in the early 1970's to universal use in wholesale and retail marketing, manufacturing, shipping and inventory control. In 1982, the Department of Defense required a bar code on all items shipped to them. Then the automobile industry began to require bar codes on every item moved between suppliers, a decision that involved at least 25,000 companies. (Harry E. Burke, *A Handbook of Bar Coding Systems*).

The strategy for using bar codes is to place the symbols on every item of interest. The bars are then scanned using a device called a scanner which "reads" the symbol, decodes it and trans-

mits the data to a computer which stores the information to be used in a variety of controls. Bar coding has alpha and numeric capabilities.

Bar codes are everywhere. They are on almost every item you buy at any store. They are on airline luggage tags, parcel delivery items, medical supplies, and United States Mail.

A U.S. Bankruptcy Court used bar codes to make laborious data entry disappear. The same technology can mean big savings in time and money for other administrative tasks, including elections.

The benefits of using bar coding include:

- **Accuracy:** Manually keyed 12 characters error rate is 1 in 300. The bar code accuracy rate is 1 error in 15,000 to 36 trillion. (Craig K. Harmon and Russ Adams, *Reading Between the Lines*, New Hampshire: Helmers Publishing, Inc. 1989).
- **Low Cost:** In many cases there is a payback in less than one year.
- **High Speed Data Collection**
- **Readability:** From a distance and on moving objects.

Bar coding does, however, require some education of users.

Requirements for using bar codes include:

- **Printing capability for producing the bar code symbols.**

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- **Host Computer:** Personal Computer or Mainframe and software to interpret codes.
  - **Readers:** Hand-held scanner wands, pen lights, scan lamps and counter-top models.

- **Speed:** Faster than manually keyed data entry.
- **Human Readable:** Easy to print, easy to copy and word processing compatible.

Some other types of Optical Scanning are:

## Optical Character Recognition

Optical Character Recognition is another data collection method using specially formed characters optimized for machine recognition. This method also can read alpha and numeric characters. Optical Character Recognition is considered by experts to be more reliable than manually keyed data entry, but less reliable than bar codes. "The OCR reader must be within a more precise orientation to the symbol being read. The operator using a hand-held OCR reader frequently must make multiple passes over the symbols, and when long strings of information are read, it is difficult to maintain correct placement of the wand over the entire string. OCR is far more sensitive to the motion of the operator's hand during scanning than bar code." (Craig K. Harmon and Russ Adams, *Reading Between the Lines*, New Hampshire: Helmer's Publishing, Inc. 1989).

The strategy for using OCR is the same as for bar coding; encode every item of interest.

The use of Optical Character Recognition is wide-spread; however, "... many retail users have lost confidence and abandoned this technology because of frustrations with the reading process." (Craig K. Harmon and Russ Adams, *Reading Between the Lines*, New Hampshire: Helmer's Publishing, Inc. 1989).

The benefits of Optical Character Recognition include:

- **Accuracy:** More accurate than manually keyed data entry. (1 error in 10,000 characters entered) (Craig K. Harmon and Russ Adams, *Reading Between the Lines*, New Hampshire: Helmer's Publishing, Inc. 1989).
- **Costs:** Moderate when compared to manual method and bar code.

## Magnetic Ink Character Recognition (MICR)

This method is similar to OCR, and reads special magnetic inks. Banks and credit card companies use this method of data collection.

## Imaging

A relatively new technology involving advanced Optical Character Recognition is full-page text recognition in a desktop environment. New products on the market are flat-bed desktop scanners which convert a printed page into word-processor documents, spreadsheets, desktop publishing or database applications automatically and accurately. It is compatible with PC's and "Windows".

According to Rick Hsieh, owner of Doctor PC in Richardson, Texas, "Scanners are the hottest selling peripherals for personal computers, giving a 99.9% accuracy rate with optical character recognition. This has been a slow but very promising process. Four years ago, prices were around \$3,000, the quality was poor, and machines could only scan typewritten pages. Only three years later, we have flat-bed scanners with autofeed and software capable of reading 250 fonts with basically no training at all for the user." (Angie Summers, "OCRs and SCANNERS—Their Time Has Arrived", *D/FW COMPUTER CURRENTS*, July, 1990).

A major airline is implementing a new program to scan the 300,000 handwritten employment applications it receives each year. The scannable forms will soon be in use to computerize all applicant information. The new system will pro-

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vide more accurate and consistent data. The new system is considered to be more accurate and less expensive than manual data entry and manual screening of applications for basic qualifications. ("New Program Computerizes Applications", *Flagship News*, American Airlines, January 13, 1992).

A County in Minnesota has "embarked on an ambitious plan to move from a government that works with paper to one that operates with images." "Imaging systems using optical disc storage require less than one percent of the space required for paper. File cabinets cost \$495 while an optical disc, which can store at least as many documents, costs \$125." (Tod Newcombe, "Distributed Computing Helps County Imaging", *Government Technology*, February, 1992).

The Cook County, Illinois jail is using retinal scanners to identify inmates. The blood vessel pattern in the retina is unique to each person and is a form of identification as reliable as fingerprints. (Tom Wilson, "Retinal Scanners Identify Inmates", *Government Technology*, March, 1992). Is it possible that this form of identification might someday be used to identify voters?

In a broad sense, imaging is optical scanning. In this method, a document (which can be a printed page, photograph, drawing, etc.) is scanned, then digitized into machine readable language, and input into a computer. This method is being used by geographic systems to produce maps. Satellites are now regularly circling the globe and photographing the entire world. These photos are then digitized and lines drawn on them to represent districts of many kinds. Since legislative and precinct boundaries are of particular interest to election administrators, this technology is becoming very popular in election offices around the States.

There is a new and exciting technology emerging called Multi Media, which includes full-motion video and digitized speech. This could be useful in developing presentations for training pollworkers and new employees.

## **Applications to Election Administration**

What does all of this mean for the election administrator who is trying to manage ever increasing amounts of data more accurately and who is trying to streamline election administration?

Scanning technology can be used for any task that requires tracking and security. It can develop audit trails and produce reports in such areas as absentee ballot processing, updating voter history, maintaining an inventory of supplies and equipment, delivering and returning election supplies, and other election mailings.

### **Absentee Ballot Processing**

#### **■ Using bar codes**

Bar codes can be placed on the absentee application. The bar code can represent the voter's permanent registration identification number, or it could be a sequential number. Then, every transaction associated with that absentee ballot and encoded with that number, from the initial absentee request through the mailing labels both to the voter and the return envelope could be bar coded. Once the bar codes are on every item, they can be scanned with a reader and the appropriate data accurately and quickly recorded and tracked.

If Postnet bar codes are included as a part of the mailing address and meet U.S. Postal Service specifications, the mailing of absentee ballots will be faster and less expensive. The use of bar codes would eliminate the manually keyed error prone data entry; and therefore, after the initial investment of the setup, would be more accurate and cost effective from a labor standpoint.

#### **■ Using Optical Character Recognition**

Optical Character Recognition can be used in very much the same way for absentee ballot processing. The only difference would be that the software must be capable of recognizing the char-





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acters rather than bar codes. The strategy would be to have the characters on every item of interest, applications/requests and mailing labels. The labels could even include ballot style, party affiliation, district and/or ward information.

### **Updating Voter History**

#### ■ Using bar codes

Print the voter registry including the encoded identification number in a column beside the signature space. After the election, scan all of the bar codes where there is a voter's signature. This quickly builds a file, with a minimum of errors, and voting credit is applied to each person who voted in that election. This method simplifies the maintenance of active voter files and helps at purge time.

#### ■ Using Optical Character Recognition

Print the precinct registries including the voter's identification number using characters that are recognizable by the readers. These readers are usually hand-held wands. The special OCR characters are a special print font and take longer to print; therefore, careful planning is needed to ensure enough time is allotted for printing the registries. After the election, the operator passes the wand/reader over each I.D. number where a voter has signed. The voter history file is built and the manual key-entry has been eliminated.

### **Maintaining Inventory**

#### ■ Using bar codes

It is not difficult to imagine how bar codes could be used for inventory control when practically everything we buy has a bar code on it that is used for pricing and inventory purposes. All election supplies and equipment could be bar coded with labels. Forms could be printed with the form number encoded in bar codes. This could facilitate the return of election supplies from the

precincts on election night. As they are returned the bar codes can be scanned and each item is then immediately tracked. This can be helpful in maintaining security and ensuring that the proper documentation is in your hands.

Bar coding extra supplies would also provide a means of knowing when supplies are low and reordering necessary.

#### ■ Using Optical Character Recognition

This would be used in very much the same way, except that OCR characters would be placed on every item of interest and the readers must be capable of reading those characters. Many libraries are using OCR for checking out books and this technology could be used for checking out election supplies to precinct workers.

### **Delivering Election Supplies**

#### ■ Using bar codes

In large jurisdictions where the delivery of voting devices and equipment are a big election preparation project, a bar coding system could be developed to ensure that the proper election equipment and supplies are delivered to the appropriate polling place. A curbside pickup recycling program is working well in St. Louis Park, MN using bar codes, and the same principles could be applied in the delivery and pickup of election supplies. It would be worth the initial investment only in jurisdictions where hundreds or thousands of pieces of equipment are delivered. (Clint Pires, *Government Technology*, Nov. 1991).

### **Other Election Mailings**

Other election mailings — whether they be voter I. D. cards, voter information items, or even an all-mail election — are a large part of election administration. And postage is a major cost item in any election budget.

In the December 1991 meeting of the FEC's Clearinghouse Advisory Panel, Mr. Rudy

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Nothenberg, Chief Administrative Officer for the City of San Francisco, spoke about the explosion in absentee balloting in his jurisdiction. He told members of the Panel that if they had not yet experienced that explosion, they soon would. With that in mind, and with the budgetary problems that all election officials are facing, the cost and efficiency of mailing absentee ballots becomes an even larger issue.

The U. S. Postal Service is in the process of automating delivery service with the use of bar codes. In order for this automation to be successful, it requires customer participation. To encourage customer participation, the Postal Service has some incentives for bulk mailers, in the form of significant discounts.

The automation program has already begun and more changes are on the way. Currently, the Postal Service has installed equipment that scans the address on your mail and imprints a bar code. The letter is then sent to a machine called a bar-code reader which automatically sorts the mail. The automation plan is estimated to save 100,000 workers between now and 1993.

A California Automobile Club spends \$6.5 million a year on postage to help serve its 3 million members. The auto club expects to cut \$500,000 a year of this cost by taking advantage of the new Postal Service Prebarcoding Program. A Bell & Howell Jetstar 3000 Barcode/Sorter machine will process first class outgoing mail at a rate of 35,000 pieces per hour. This new technology will lighten the Postal Service's burden and save the Auto Club postage costs. (*Motorland/CSAA*, March/April, 1992).

In order to qualify for the discounts, mail must be pre-bar coded using the ZIP+4 bar codes. There are very specific requirements for addressing and placement. Brochures which describe these requirements are available at any U.S. Postal Service Business Center. There you can obtain lists of software that has been approved and certified to be compatible with the automation plan. U.S. Postal Service Publication

No.67, *Automation Plan for Business Mailers*, September 1991, and *Barcode Update*, September 1991 are particularly informative.

Pre-bar coding must include the 9 digit zip code and the Postal Service has a free service which will add the 4 digits to each address if the mailer provides a mailing list on a floppy disk. Request forms may also be obtained from you local Postal Service Business Center.

There are numerous related software packages and hardware vendors. Some, but by no means all, are listed in Appendix 2. Most software packages print bar codes on envelopes, forms, and labels. One "shareware" package is available for as little as \$50 (FastZip Mail Program, Westcoast Software, 976 W. Foothill, Ste 344, Claremont, CA 91711). This program will handle 5,000 addresses, and another one can handle an unlimited number of addresses (QuikZip, Postnet Barcode Printer, Westcoast Software, 976 W.Foothill Ste.344, Claremont, CA 91711).

For jurisdictions with programmers on staff, these programs can be developed in house, and customized to be compatible with other County shared mainframes. For smaller jurisdictions, the local yellow pages will surely have listings of computer companies who specialize in bar coding. Another good source would be computer trade magazines, such as *BYTE* and *ID SYSTEMS*. And too, there are always vendors at election conferences.

Some excellent books for reference before installing any scanning system would be: *Reading Between the Lines*, by Craig K. Harmon and Russ Adams and soon-to-be-published, *Lines of Communication*, by the same authors.

## Summary

When new technology is first introduced, it is usually expensive. But, in time, the installation and implementation costs are reduced. Depending on the features and requirements, paybacks

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can be realized in just a few elections. The savings, plus the increased productivity and accuracy are certainly worth investigating.

Many large election jurisdictions are already using Optical Scanning Technology, but even smaller election jurisdictions can take advantage of it. The Personal Computer has become so powerful and universally used and is relatively inexpensive, that even a very small jurisdiction can manage their voter registration and absentee ballot processing with a minimum investment. And with the inclusion of bar coding and/or OCR, accuracy and efficiency will be enhanced.

Appendix 1 provides a list of some election jurisdictions, large and small, that are now using scanning technology.



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# **Appendix 1**

## **Jurisdictions Using Optical Scanning Technology**

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### **Brevard County, Florida**

Contact: Shirley P. Baccus  
Supervisor of Elections  
P.O. Box 1119  
Titusville, FL 32781-1119  
Phone: (407) 264-5005  
FAX: (407) 264-5120

192,114 Registered voters with 126 precincts.

Bar coding is used on precinct registries. The voter's I.D. number is bar coded and a scanner attached to a PC captures voter history. OCR scanning is used to track the issuance and return of Absentee Ballots; also to process returned renewal cards as part of the renewal process and to record the issuance of I.D. cards. Cost was \$145,347 to implement OCR System, including hardware and software. The County Information System wrote the program for accepting OCR readings, since it interacts with Voter Registration file, residing on the County mainframe. Optical Scanning System was custom developed by IdentiTech, Inc., 1333 Gateway Dr., Mail Stop 1022, Melbourne, FL 31901.

Currently using County Geographic Information System for redistricting/precincting process.

Has future plans for expanding use of scanning technology, such as using it for inventory purposes.

Cost comparison for Absentee Ballot Processing:

1988	1990
Governor's Election (Manual)	Governor's Election (Electronic)
12,348 ballots	18,667 ballots
6 employees	2 employees
Cost per name: \$1.80	Cost per name: \$.23

### **District of Columbia**

Board of Elections and Ethics  
Contact: Joe Baxter  
District Bldg., Room Four  
1350 Pennsylvania Ave. NW  
Washington, D.C., 20004

Phone: (202) 727-2525

FAX: (202) 347-2648

325,000 Registered voters with 140 precincts

Uses Optical Character Recognition to capture voter history and to process and track absentee ballot requests and returned ballots. Has saved time and labor costs and improved efficiency. Used GIST software from Calliper Corp. with the Census Bureau TIGER files to redistrict. Has also used ATLAS software for mapping and considers this package to have good presentation.

### **Leon County, Florida**

Contact: Thomas R. James  
Election System Program Analyst  
Leon County Courthouse  
Room 302  
Tallahassee, FL 32301  
Phone: (904) 488-1350  
FAX: (904) 488-1774

88,528 Registered voters with 75 precincts

Uses bar coding for precinct registry books to capture voter history. Before using bar codes, 6 to 8 employees were needed; now only 3 are needed.

### **Maricopa County Arizona**

Contact: Jim Shumway  
Elections Director  
111 S. 3rd Ave  
Phoenix, AZ 85003  
Phone: (602) 506-1540

1,100,000 Registered voters with 1,102 precincts

Uses bar codes to audit precinct returns on election night and bar codes control ballot transfer boxes. All registration forms are scanned and indexed on a "Filenet" system. Before using optical scanning, it was virtually impossible to verify signatures on petitions and 35,000 absentee ballot applications. Now, fewer people are needed. At least 10 employees on two shifts for three weeks were eliminated from the work force.

NOVEMBER 6, 1990 GENERAL ELECTION

11/06/90

PRECINCT 41  
REPORT PAGE 7077  
PRECINCT PAGE 2

**ION SANCHO**  
SUPERVISOR OF ELECTIONS  
LEON COUNTY, FLORIDA

MY INITIALS CERTIFY THAT SIGNATURES WERE  
COMPARED TO REQUIRED FORMS OF IDENTIFICATION

MY SIGNATURE CERTIFIES THAT I AM ONLY REGISTERED AND  
QUALIFIED TO VOTE IN THIS ELECTION AND, IF APPLICABLE,  
ANY REFERENDUM OR SPECIAL ISSUE ON THE BALLOT. I  
ACKNOWLEDGE THAT VOTING FOR AN ISSUE FOR WHICH I AM  
NOT QUALIFIED WILL SUBJECT ME TO CRIMINAL PENALTIES.  
I ALSO FURTHER CERTIFY THAT, IF I AM A PURGED  
VOTER, MY STATUS HAS NOT CHANGED.

NAME/VOTER ID NUMBER		ADDRESS		ID NUMBER	PARTY	INSP
ADDISON, BRENDA A 084182		2221		084182	D	CA
BIRTH DATE	BIRTH PLACE	SEX	RACE	ASST	STATUS	
12/09/56	FL	F	W	N		
NAME/VOTER ID NUMBER		ADDRESS		ID NUMBER	PARTY	INSP
ADDISON, BRENDA A 084182		ATAPHA NENE				
ADDISON, GEORGE L 011325		2221		011325	D	CA
BIRTH DATE	BIRTH PLACE	SEX	RACE	ASST	STATUS	
09/22/29	FL	M	W	N		
NAME/VOTER ID NUMBER		ADDRESS		ID NUMBER	PARTY	INSP
ADDISON, GEORGE L 011325		ATAPHA NENE				
AHMED, RAZIA H 308337		2132		308337	D	CA
BIRTH DATE	BIRTH PLACE	SEX	RACE	ASST	STATUS	
04/14/43	I	F	M	N		
NAME/VOTER ID NUMBER		ADDRESS		ID NUMBER	PARTY	INSP
AHMED, RAZIA H 308337		ATCHENA NENE				
AKER, JON KENT 133346		2003		133346	D	CA
BIRTH DATE	BIRTH PLACE	SEX	RACE	ASST	STATUS	
12/19/61	IN	M	W	N		
NAME/VOTER ID NUMBER		ADDRESS		ID NUMBER	PARTY	INSP
AKER, JON KENT 133346		WAHALAW NENE				
AKER, MIGNETTE Y 271585		2003		271585	D	CA
BIRTH DATE	BIRTH PLACE	SEX	RACE	ASST	STATUS	
10/16/61	CA	F	W	N		
NAME/VOTER ID NUMBER		ADDRESS		ID NUMBER	PARTY	INSP
AKER, MIGNETTE Y 271585		WAHALAW NENE				
ALCORN, MARY LOU 066376		1414		066376	D	CA
BIRTH DATE	BIRTH PLACE	SEX	RACE	ASST	STATUS	
08/19/53	FL	F	W	N		
NAME/VOTER ID NUMBER		ADDRESS		ID NUMBER	PARTY	INSP
ALCORN, MARY LOU 066376		LOLA DR				
ALCORN, ROBERT L 120432		1414		120432	D	
BIRTH DATE	BIRTH PLACE	SEX	RACE	ASST	STATUS	
02/28/60	MO	M	W	N		
NAME/VOTER ID NUMBER		ADDRESS		ID NUMBER	PARTY	INSP
ALCORN, ROBERT L 120432		LOLA DR				
ALDAY, DONNA LAURA 125736		2837		125736	D	CA
BIRTH DATE	BIRTH PLACE	SEX	RACE	ASST	STATUS	
02/21/55	FL	F	W	N		
NAME/VOTER ID NUMBER		ADDRESS		ID NUMBER	PARTY	INSP
ALDAY, DONNA LAURA 125736		BOTANY DR				

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### **State of Maryland**

Contact: Marvin Meyn, Deputy  
Board of Election Laws  
P.O. Box 231  
Annapolis, MD 21404-0231  
Phone: (301) 974-3711

Two counties are using bar codes for voter history credit. Bar codes are printed on the Voter Authority Cards. Registered voters who vote have their cards scanned to update the voter history. Maryland has a five year voting requirement to avoid losing the right to vote. State has considered using optical scanning to store campaign reports and other filing documents; however, budget reductions have delayed this project.

### **Orange County, Florida**

Contact: Betty Carter, Supervisor  
Orange County Board of Elections  
P.O. Box 562001  
Orlando, FL 32856-2001  
Phone: (407) 836-2070

Uses bar codes to capture voter history on precinct registries. Also uses bar codes on voter registration renewal notices. The voter's number is encoded with bar codes and the Election Board's address on the return card is bar coded. Currently developing procedures to use bar coding to process absentee applications and ballots.

### **Ramsey County Minnesota**

Contact: Joan M. Pelzer  
Election Supervisor  
5 Kellogg Blvd. W Room 113  
St. Paul, MN 55102-1697  
Phone: (612) 292-7097  
FAX: (612) 298-6885

292,000 Registered voters with 211 precincts

Uses bar codes for return of 12,000 absentee ballot applications; mail is processed faster. Uses Ultimap GS software to produce maps.

### **Sacramento County, California**

Contact: Marion D. Carlson  
Voter Registration and Elections  
Election Manager, Campaign Services  
3700 Branch Center Rd.  
Sacramento, CA 95827  
Phone: (916) 366-2765

Uses Kodak Electronic Imaging System (KIMS) for storage of Campaign Disclosure filings. Utilizes 650 MB optical disk. Monitor has full size data window, views both portrait and landscape documents. Prints copy slightly smaller than original. Software generates reports and has the ability to transfer data of existing files. The scanner is flat-bed. It takes approximately 2 to 3 seconds to scan, then another 2 to 3 seconds to appear on the screen per document; retrieval time is 2 to 3 seconds.

Documents are scanned daily and are immediately available for viewing and reproduction. The Fair Political Practice Commission of California recognizes Optical Disk Management as an acceptable means of document storage and retrieval, although this may not be true of all documents in all states. The use of this imaging process saves paper storage space and provides the public with current and easy accessibility to the Campaign Disclosure records. It also eliminates the possibility of misplacement or theft of the original documents. This system cost \$231,000 to install with 2 scanning stations and supporting hardware and software, with additional fees for maintenance and upgrade contracts.

### **San Diego, California**

Contact: Ingrid Gonzales  
Asst. Registrar of Voters  
P.O. Box 85093  
San Diego, CA 92186-5093  
Phone (619) 694-3402  
FAX: (619) 2955

1,200,000 Registered voters with 1,600 precincts





PLACE  
STAMP  
HERE

BETTY CARTER  
SUPERVISOR OF ELECTIONS  
ORANGE COUNTY  
P.O. BOX 562001  
ORLANDO, FLORIDA 32856-2001



**IMPORTANT NOTICE  
VOTER REGISTRATION RENEWAL**

Pursuant to Florida S. 98.081-98.210, this card is being mailed to electors who have not voted during the last two years or requested a status change in writing or who may have become otherwise disqualified. We are required to remove your name from the official Orange County voter rolls unless the attached card is signed BY YOUR HAND with any changes noted, and returned by December 10, 1991.

If all information is correct, sign in the pink box, add a stamp and return the card. To make corrections, mark each box noting changes, fill in the correct information and sign in the pink box.

If you have questions, please call 836-2070.

**ACT NOW, PRESERVE YOUR RIGHT TO VOTE**

Orange County Supervisor of Elections

Name Change

Change Mailing Address

Party Change

Change Orange County Home Address

Name \_\_\_\_\_ 000900114 - 11/08/91  
COCKE MARION C

DOB \_\_\_\_\_ PARTY \_\_\_\_\_ 617 HILLCREST ST  
ORLANDO FL 32803-0000

STREET \_\_\_\_\_ PCT. 001 DEMOCRAT

ADDRESS \_\_\_\_\_



000900114

MAILING \_\_\_\_\_

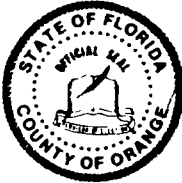
ADDRESS \_\_\_\_\_

(if different) \_\_\_\_\_

*Sample*

Detach Card Here. Place Stamp on Reverse Side and Mail.

**BETTY CARTER**  
SUPERVISOR OF ELECTIONS  
ORANGE COUNTY  
119 WEST KALEY  
ORLANDO, FLORIDA 32806-3997



PRESORTED  
FIRST CLASS MAIL  
U.S. POSTAGE PAID  
ORLANDO, FL  
PERMIT NO. 1413

COCKE MARION C

FLAT 4 76 BRONDES BURY ROAD  
LONDON NW6 6RX EN 00000000

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Uses bar code system to capture voter history. Voter's record on the precinct roster is scanned with a wand rather than keyed data entry. Manually, this process took 400 hours; with bar codes, it takes 200 hours. Absentee voter applications and ballots are processed using bar codes. In a recent election, 100,000 absentee voter applications were expected; in fact, 257,000 were processed. Scanning bar codes on returned ballot envelopes eliminates key entry of voter information. Speed ratio of data entry is 2 to 1 over manually keyed entry.

The back cover of sample ballots has bar coded mailing label and also serves as an absentee voter application. Two thirds of all absentee voter applications are received this way. Scanning saves key entry of voter's name or affidavit number. Bar coding is twice as fast. Also uses bar codes to check accuracy of Votomatic ballot pages assembly. Scanning pages eliminates manual check of pages and sequence and prevents errors. It took 9 people in the past and now takes 2 people with this method.

Bar coding is a feature of Election Management System developed by Data Information System. (DIMS), 42116 Fish Hatchery Rd., Scio, OR. Wands were \$2,250 each and the printer was \$31,050. It was purchased as a turn-key system.

Some problems encountered: Label quality is critical; if labels are unclear or are smudged, they cannot be read. Testing is extremely important. Size of bar codes is important; they must be large enough so bars are clear and small enough to fit on label and be scanned easily.

County is in process of developing a Regional Urban Info System, which is a computer mapping system with layers of information serving the City and County of San Diego. Portions are now complete and expected to be fully automated in two years.

Is experimenting with scanning candidate statements, but no statistics available at this time.

Bar coding is easy to use, relatively inexpensive to install and pays for itself in a few months. The use of bar codes on absentee voter applications printed by campaigns is encouraged. Discounts are offered on data tapes and lists sold to candidates and campaigns if they agree to include bar codes on their mailings.

Other counties in California using this system are: Alameda, El Dorado, Monterey, Nevada, San Bernardino, San Benito, San Francisco, Stanislaus, Yolo. Also, Sussex County, NJ and City of Long Beach, CA.

In the early 1980's **Tulsa County, Oklahoma** began using Optical Character Recognition for capturing voter history to maintain voters' activity. The voter registry was printed using OCR characters. It was necessary to use a special print font to prepare the registries, and printing was somewhat slower. On election day, the voter signed beside the printed name and unique voter I.D. number. After the election the number was scanned and the voter was given credit for voting, and therefore, remained on the active list. This method proved to be very successful and was a great help at purge time.

The accuracy was much improved over manual key entry. Before using OCR entry, it took about six months, using 10 to 12 operators to manually enter this data. The process was started after the November election. After implementing this program, it was possible to keep up with each election before the next one. For example; the scanning for the August Primary was finished before the September Runoff. The September Runoff scanning was finished before the November General and the November General was finished by year end.



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## **Appendix 2**

**Those Who Provided Materials  
and Information for this Report**

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## **Bar Codes**

ASAP, INC. Bar Code Systems  
13101 Washington Blvd. Ste. 111  
Los Angeles, CA 90066 (310) 578-6766

Bottom Line Solutions  
11420 E. 20  
Tulsa, OK 74128 (918) 438-2800

Shirley P. Baccus, Supervisor of Elections  
Brevard County  
P.O. Box 1119  
Titusville, FL 31781-1119 (407) 264-5005

Bar Code Library  
Programmers Paradise  
New Jersey 1-800-445-7899 Ext.236

Betty Carter, Supervisor  
Orange County Board of Elections  
119 W. Kaley Street  
Orlando, FL 32806-3967 (407) 836-2070

Hewlett Packard  
Customer Information Center  
Bldg. 49AV h) 19310 Pruneridge Ave.  
Cupertino, CA 95014 1-800-752-0900

Thomas R. James  
Election System Program Analyst  
Leon County Courthouses, Room 301  
Tallahassee, FL 32301 (904) 488-1350

Marvin Meyn, Deputy Administrator  
Maryland State Administrative Board of Elec-  
tion Laws  
P. O. Box 231  
Annapolis, MD 21401-1991 1-800-222-VOTE

Jim Shumway, Election Director  
Maricopa County, Arizona  
111 S. 3rd Ave  
Phoenix, AZ 85003 (602) 506-1540

Westcoast Software  
FASTZIP Mail Program and QUIKZIP PostNet  
Barcode Printer  
976 W. Foothill, Ste.344  
Claremont, CA 91711 (714) 624-1936

Ramsey County Office of Elections  
Joan M. Pelzer, Supervisor  
15 Kellogg Blvd. W Room 113  
St. Paul, MN 55102-1697 (612) 298-6885

Ingrid Gonzales, Assistant Registrar  
San Diego Registrar of Voters  
P.O. Box 85093  
San Diego, CA 92186-509 (619) 298-6885

Seiko Instrument USA, iNC.  
Smart Label Printer Plus  
1130 Ringwood Court  
San Jose, CA 95131 (408) 922-5800

Uniform Code Council, Inc.  
8163 Old Yankee Rd. Ste. J  
Dayton, OH 45458 (513) 435-3870

## **Imaging**

Eastman Kodak Company  
Imaging Information Systems  
343 State Street  
Rochester, NY 14650

Sacramento County Voter Registration and  
Elections  
Marion D. Carlson, Election Manager  
3700 Branch Center Rd.  
Sacramento, CA 95827 (916) 366-2765

Business Computer Center  
Debra Morgan, Director CAD Division  
5460 S. Garnett  
Tulsa, OK 74146 (918) 664-4014 Ext.228

Nova, Inc.  
2500 W. Higgins Rd. Ste. 1144  
Hoffman Estates, IL 60195

## **Optical Character Recognition**

Ocron, Inc.  
Perceive (tm) Automatic  
Advanced OCR for Desktop Scanners  
(No address available)

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Calera Recognition Systems, Inc.  
WordScan (tm) Plus  
475 Potrero Ave.  
Sunnyvale, CA 94086 (408) 720-8300

Logitech, Inc.  
6505 Kaiser Dr.  
Fremont, CA 94555 (415) 795-8500

UMAX Technologies, Inc.  
Read Station  
3170 Coronado Dr.  
Santa Clara, CA 1-800-562-0311

### **Other Acknowledgements**

BYTE: April, 1990 - Hardware  
May, 1990 - Scanning  
August, 1990 - Pen Tax IQ Scan  
November, 1990 - Logitech ScanMan  
December, 1991 - MultiMedia-On  
Track Presentations

Election Data Services, Inc.  
1225 I Street, NW Suite 700  
Washington, D. C. 20005-3914  
Tele: (202) 789-2004

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**For information about other**

**Innovations in Election Administration**

**contact**

**National Clearinghouse on Election Administration**  
**Federal Election Commission**  
**999 E. Street, N.W.**  
**Washington, D.C. 20463**

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**Toll Free 800/424-9530**  
**Direct 202/219-3670**  
**FAX 202/219-3880**

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FEDERAL ELECTION COMMISSION  
WASHINGTON, DC 20463

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