

Vote-PAD

(Voting-on-Paper Assistive Device)

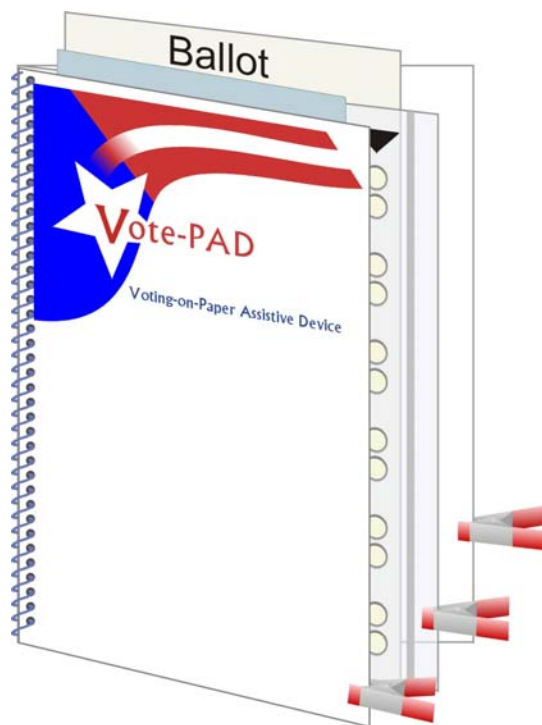


Independent Voting for People with Disabilities

Vote-PAD, Inc.
Patent Pending

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"I can't use my fingers, so I have to hit a touch screen with my whole hand and I get lots of error messages. But I can use the Vote-PAD."

*~ Maria Matos, Tester with quadriplegia at
Boston Center for Independent Living*

"I was very impressed with the entire process. I was able to vote independently and privately, with very little assistance."

*~ Alvin Blazik, Board Member,
Bucks County Association for the Blind*

We are grateful for the input from people with dexterity impairments and people with visual impairments, whose advice and suggestions we included in the design.

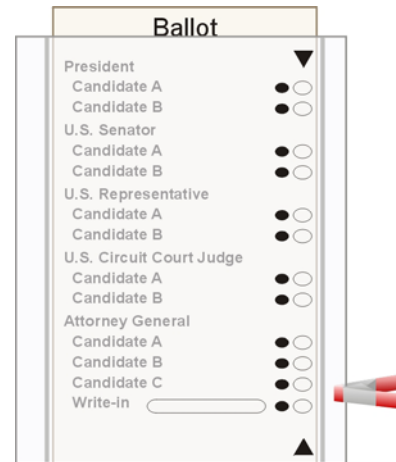
Introduction to the Vote-PAD

The Voting-on-Paper Assistive Device, called the “Vote-PAD,” is an inexpensive, non-electronic, voter-assist device that helps people with a broad range of visual or dexterity impairments to vote independently. The Vote-PAD can be used in any jurisdiction that uses voter-marked ballots. It is customized for each ballot in each election to provide access to the precinct’s hand-counted or optically-scanned paper ballot.

The Vote-PAD is composed of one custom “ballot sleeve” for each sheet of a one-sided or two-sided ballot. The sleeve or sleeves are bound between front and back opaque covers for privacy.

The heart of the Vote-PAD is the transparent ballot sleeve, which encloses the ballot on both sides and reveals the content of the ballot that slips into it. Holes are cut out of the sleeve at locations where a voter can mark choices. The sleeve protects the ballot from stray marks.

A page-turning aid is attached to the right edge of each sleeve and each cover to assist voters in turning the pages.

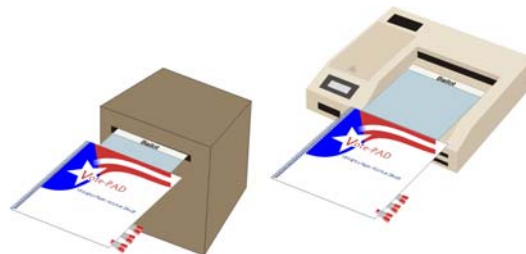


Raised dots attached to the sleeve beside each cutout provide tactile indications for blind voters. An audio tape interprets the raised dots so listeners know which hole corresponds to which candidate and can mark their choices.

Unlike voter-assist methods that only offer audio assistance for voters with visual disabilities, the Vote-PAD is also accompanied by Braille instructions and large-print instructions. Those who read Braille often prefer Braille instructions to audio instructions, and the Braille supplement makes the Vote-PAD the only system that provides independent voting for the blind-deaf.

A verification wand allows voters with visual impairments to review their selections. As they replay the audio tape, or re-read the Braille instructions, they point the wand at each marking location to receive feedback indicating whether or not the location is marked. If the hole is marked the wand vibrates.

An opaque, sliding “privacy shield” sits in a pocket inside the front cover and slides part-way out to conceal the ballot as it is being deposited in a ballot box or precinct scanner.



One Vote-PAD would be needed in every polling place. Officials customize each

Vote-PAD booklet with holes at appropriate places for the ballot it is intended to contain, adding raised dots and page-turning aids.

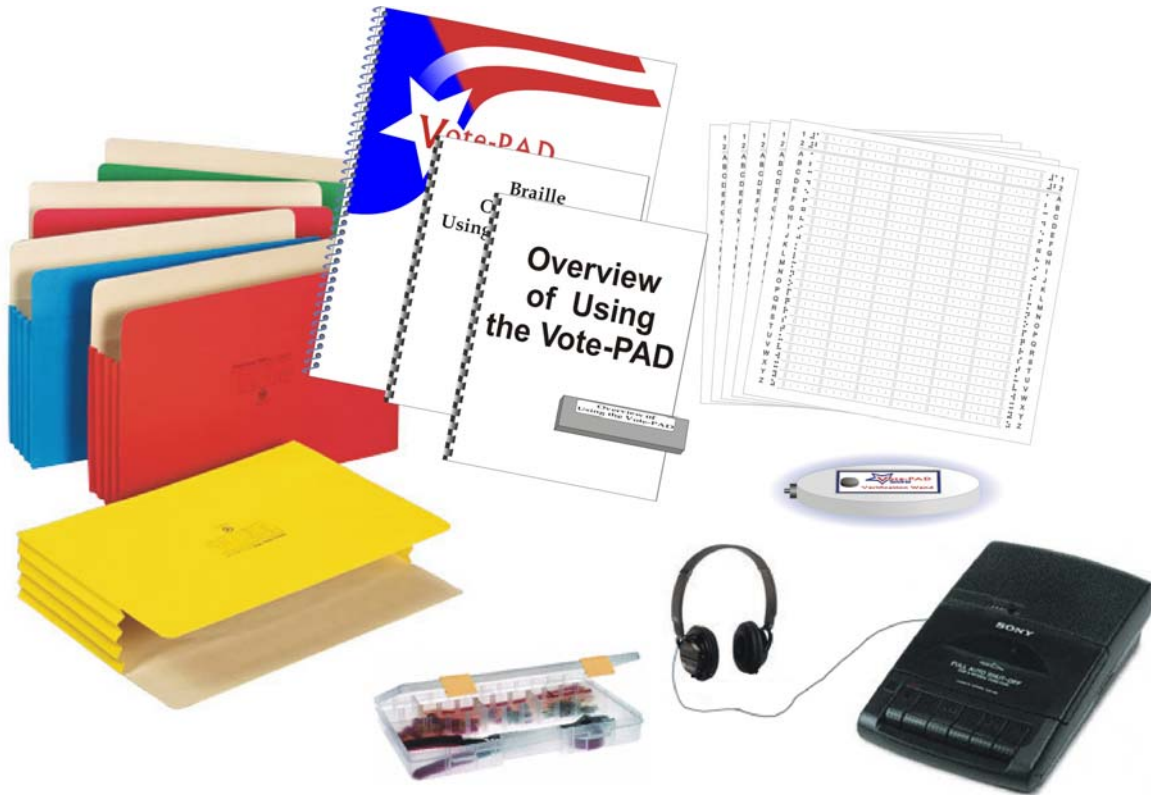
Though costs will vary depending on the size of the ballot and the number of unique ballots needed, using Vote-PADs for many years would be a fraction of the cost of merely acquiring computerized equipment. And Vote-PADs, unlike computers, need no maintenance, special storage, or repairs.

A Standard Vote-PAD Package

Up to Five Years of Elections

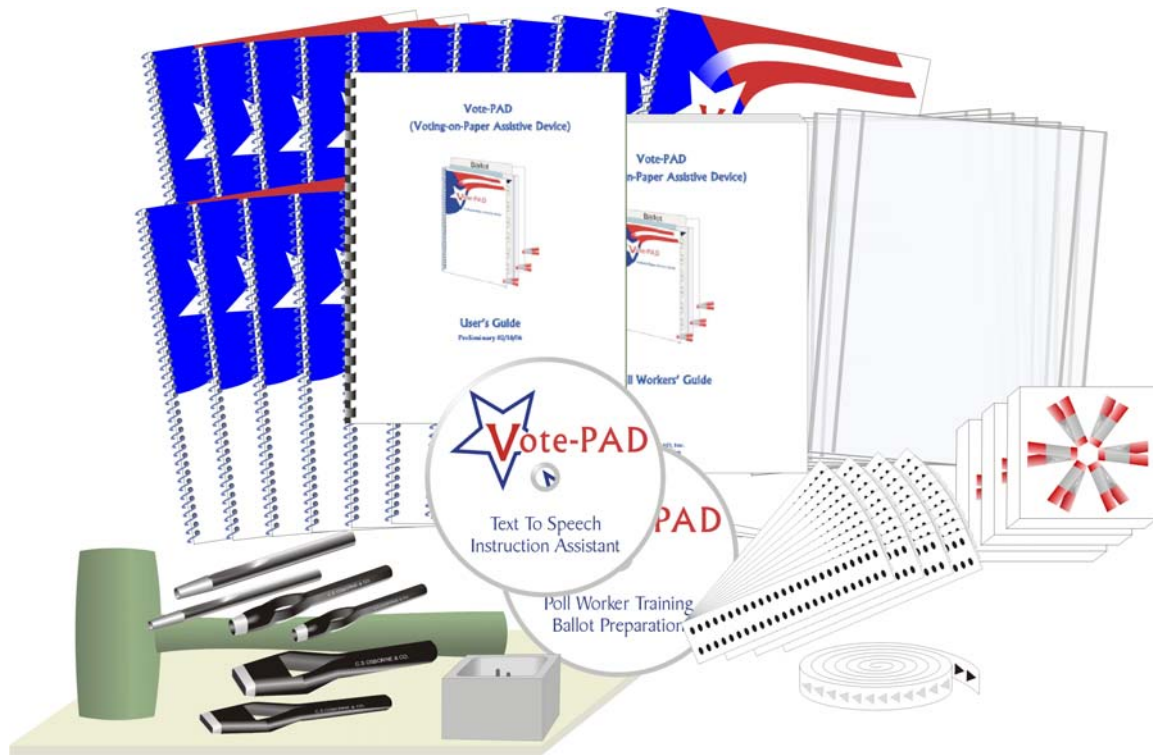
The standard Vote-PAD package includes all the materials needed for 20 ballots. In a small jurisdiction this can represent as many as five years of elections. We invite customized orders to fit your special needs.

Supplies for the polling place:



- | | | | |
|---|---|-----------|-----------------------------|
| 1 | Coil-bound Vote-PAD booklet with front cover, back cover, and one ballot sleeve (+19 additional booklets, see next page). | 10 | Write-in sheets |
| 1 | Audio set, including tape player and headset | 5 | Expansion pocket folders |
| 1 | Verification wand | 1 | Plastic utility box |
| 1 | Braille booklet with general instructions for voters using the Vote-PAD | Not shown | |
| 1 | Audio tape with general instructions | 2 | Non-skid mats |
| 1 | Large-print booklet with general instructions | 2 | Packages of removable tape |
| | | 1 | Magnifier |
| | | 1 | Package of 10 foam ear pads |
| | | 1 | Package of 25 pencil grips |

Supplies and tools for the Election Director:



19 Additional coil-bound Vote-PAD booklets with front cover, back cover, and one blank ballot sleeve. Sizes are available for the following ballot sizes:

8.5" x 11"

8.5" x 14"

Other sizes will be developed as requested.

2000 black oval bumpons, and 200 black triangular bumpons, with tweezers to apply them.

10 Spare sleeves

3 Packages of page-turning aids (red-tipped clamps) with six clamps in each package.

Tool set for punching holes in ballot sleeve. Thin, strong plastic anvil plate slips into sleeves to absorb impact. Chad tray provides posts to tap chad out of the punches and collect the chad.

Vote-PAD User's Guide and Vote-PAD Poll Worker's Guide

Natural Reader Text-to-Speech program with NeoSpeech Kate Voice, and Vote-PAD Instruction Assistant, Excel workbook with macro for creating audio Braille, and large-print voting instructions, and

Demo video showing how to customize a Vote-PAD sleeve for an election, how a poll worker sets up a Vote-PAD for people with disabilities

Not shown:

1 Package of 250 removable labels, and

6 Blank audio tapes or CDs

How People with Disabilities Use the Vote-PAD

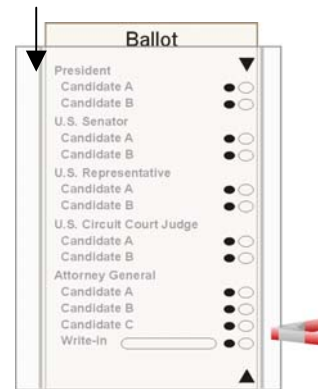
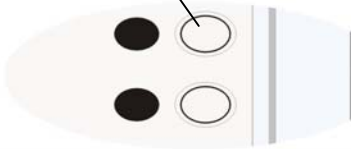
With very little instruction, most people with disabilities can learn how to use the Vote-PAD to vote independently. The Vote-PAD serves blind voters, visually-impaired voters, and voters with dexterity impairment such as severe arthritis and spinal damage. It provides the assistance they need to mark a ballot privately and unassisted by another person.

Use the following discussion to get a sense of the assistance the Vote-PAD provides, and use it as a guide for training poll workers to instruct voters.

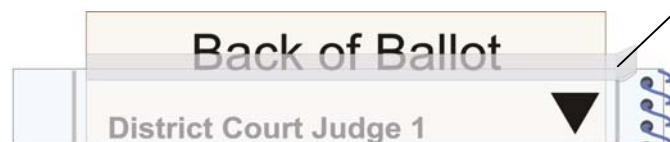
How a voter with visual impairments uses a Vote-PAD

To prepare the Vote-PAD, the poll worker does the following:

1. Slides the ballot into the ballot sleeve.
2. Aligns the holes in the sleeve with the marking positions on the ballot.



3. Tapes the top of the sleeve to the back of the ballot with removable tape package extended past the edge of sleeve, making sure one end of the tape is turned under so it is easy to remove the tape.



The tape holds the ballot in place while the voter marks it and can be removed without damaging the ballot.

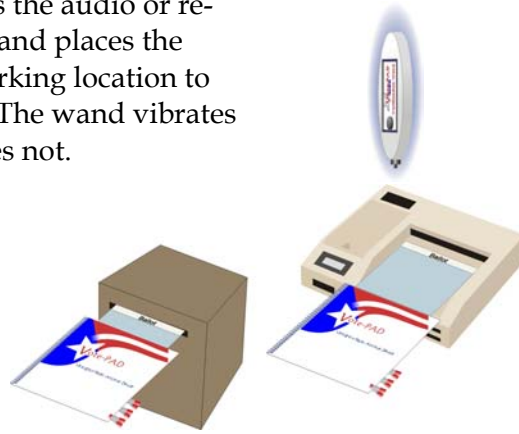
The poll worker then escorts the voter to a booth along with the Vote-PAD and explains the assistive features. If the voter is blind or visually-impaired, the poll worker inserts the correct audio tape or CD into the audio player and explains how to operate it. If the voter prefers Braille or large-print, the poll worker provides the appropriate booklets.

In order to mark the ballot, the voter does the following:

1. Puts on the headset, starts the audio instructions, and uses the controls on the audio player to pause and resume the instructions. Or, begins reading the Braille or large-print instructions.
2. Uses the page-turning aids to easily find and turn pages.
3. Follows the instructions, which explain the correspondence of raised bumps with the candidate or issue positions, and marks the choices beside the appropriate bumps, using the marking tool provided by the poll worker.



4. After marking the choices, the voter replays the audio or re-reads the Braille or large-print instructions and places the light-sensing verification wand on each marking location to make sure the desired choices are marked. The wand vibrates when it senses a mark. It is still when it does not.
5. When done, the voter closes the booklet and deposits the ballot into a ballot box, sliding the privacy shield out with the ballot to cover the ballot and protect the secrecy of the votes.



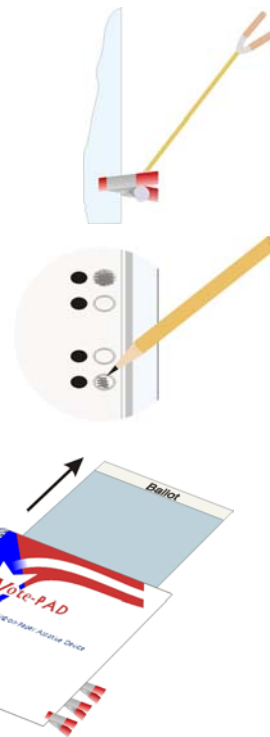
Or, in a polling place that uses precinct optical scanners, the voter slides the privacy shield and ballot out together and lays them in the optical scanner tray, moving them toward the back of the tray until the scanner rollers catch the ballot and pull it into the ballot box.

How a voter with dexterity-impairments uses a Vote-PAD

Just as when serving a voter with visual impairments, the poll worker slides the ballot into the ballot sleeve, aligns the holes in the sleeve with the marking positions on the ballot, and tapes the ballot to the sleeve with removable tape. Then the poll worker escorts the voter to a booth and explains how to use the Vote-PAD.

In order to mark the ballot, the voter does the following:

1. The voter uses the page-turning aids to turn the pages easily. Most voters with dexterity impairments will be able to grasp the page-turning aid with a finger or a fist. Others might use mouth-stick (as shown) or a prosthesis.
2. As the voter marks the ballot, the plastic sleeve protects the ballot from stray marks, a feature appreciated by many voters with dexterity impairments. Most voters can grasp a pencil or pen. Some may need a pencil cushion to make the diameter of the instrument larger and softer.
3. If the voter needs help to deposit the completed ballot, the poll worker can assist, sliding the privacy shield out with the ballot to cover the ballot and protect the secrecy of the voter's votes, while the voter observes.



Frequently Asked Questions

What are the long term costs of the Vote-PAD?

A standard initial package, which includes all you need to prepare for up to five years of elections, costs from \$2000 to \$2200. You are invited to customize your order to fit the needs of your municipality.

With the Vote-PAD, you can continue to use the same paper ballots you have used in the past. Preparing for an election is less time-consuming and less costly than the ballot programming and testing required with electronic equipment, and election officials maintain control over their administrative procedures. Preparation includes:

- ◆ Customizing the ballot sleeve for each election, using the materials provided in the initial package, according to the instructions on the supplied video.
- ◆ Using the automated Vote-PAD Instruction Assistant to generate text for the audio, Braille, and/or large-print “Guide to Contest Choices” for voters with visual impairments,
- ◆ Converting the text to audio medium either with your personal voice recording or by using the automated Text-to-Speech package included with Vote-PAD.
- ◆ Transcribing the Braille text, either through your own service or one recommended in the Vote-PAD User’s Guide.
- ◆ Formatting and printing the large-print instructions.
- ◆ Training poll workers on using the Vote-PAD, using the supplied video.

There are no annual maintenance or license fees. Subsequent costs are the cost of replacing items consumed in an election, such as Vote-PAD booklets or sleeves, bumpers, labels, and such. HAVA may cover an initial purchase of consumables as well as the initial package price. Supplies and tools can be stored in a closet with no special environmental concerns.

What are the long term costs of using electronic systems?

HAVA funding may cover much of the cost of one electronic machine in each polling place, but ongoing costs are a local responsibility. To determine the ongoing cost, gather the following information.

Election preparation

- ◆ **Polling place enhancements.** Do all your polling places have electricity? If not, will you move the polling place, or have the building wired for power?
- ◆ **Training.** It is important to consider the effect any change will have on the ability to retain poll workers, the turnout of elderly voters, and long term costs. Retaining your familiar, hand counted paper ballot system should have no substantial effect. Purchasing a computerized system will require retraining your voters, retraining your poll workers, and it is likely to intimidate many elderly voters and poll workers, perhaps even discouraging them from participating in the election. In 2005, ES&S charged Jefferson County, Washington \$1,300 per day for training and election day support.

- ◆ **Ballot printing.** Are special ballots required to be used with the machinery? What do they cost, and how does that compare to your current ballot costs?
- ◆ **Ballot programming.** Ballots must be sent to the computer company to be programmed. Regular paper ballots must still be prepared for absentees. What would each vendor charge to do the ballot programming for one of your longer ballots?
- ◆ **Testing.** What is the cost of performing the pre-election and post-election testing on the machine?
- ◆ **Security.** If the programmed and tested computerized systems are delivered to the polling places before the election, they must be secured from tampering. What is the cost of providing that security?
- ◆ **Software configuration management.** The contract between ES&S and Jefferson County, Washington says, "ES&S Firmware versions may change between execution of the Agreement and first election usage due to ongoing certification of Updates." Who will ensure that the software approved by your state is the same version as the software installed on your systems? What will that testing cost?
- ◆ **Transporting equipment.** What are the costs associated with transporting large equipment to the polling places and securing the equipment before the election?

Maintenance

- ◆ **Licensing fees.** What is the annual licensing fee for the tally software? Each county using electronic equipment must have at least one copy of the tally software. In 2001, Palm Beach County, Florida agreed to pay Sequoia a \$37,500 annual license fee, and gave Sequoia the right to raise the fee after five years. In 2002, Snohomish County, Washington agreed to pay Sequoia a \$40,000 annual license fee, subject to an annual increase of not more than 3% per year. In 2005, Jefferson County, Washington agreed to pay ES&S a \$38,500 annual license fee for the election management software required for one central count optical scanner.
- ◆ **Warranty fees.** How long is the warranty period? What is the charge for an extended warranty. In 2001 and 2002, Sequoia was giving a one-year warranty. In 2001, Palm Beach County agreed to pay \$50 per unit, per year for an extended warranty after the first year.
- ◆ **Maintenance fees.** What are the annual maintenance fees after the warranty expires? In 2005, Jefferson County, Washington agreed to pay ES&S \$2,600 per year for standard hardware maintenance for one central count optical scanner and \$8,380 per year for software support and maintenance.
- ◆ **Upgrade fees.** What is the software upgrade fee? How often are upgrades released? Who installs the updates into the computer? What is the charge for installing?
- ◆ **Storage.** The machines must be stored in a climate controlled environment. Is your town hall heated and cooled all year? Where will the fragile equipment be stored?
- ◆ **Battery charging.** The machines must be plugged in every few weeks so the battery remains charged. A battery that loses its charge must be replaced. In February of 2004, Arapahoe County, Colorado paid \$105,000 to replace all the batteries in their machines just before an election, when they discovered they had all lost their charge. Who will be responsible for keeping the batteries charged, and what will the cost be?

- ◆ **Battery replacement.** Even if they remain fully charged, the batteries need to be replaced every three years. What will the new batteries cost? Will you be able to replace them yourself, or will you have to hire a vendor technician to do it? Arapahoe County paid \$15,000 to have the batteries installed. What is the toxic waste charge for disposing of the old batteries?

Repairs and replacements

- ◆ **Replacing machines during elections.** Federal certification standards allow a failure rate of nearly 9.2% in a 15 hour day, and this failure rate has been observed in many previous elections. This means that in a county with 33 municipalities, on average, 3 can be expected to fail on a given election day. Will your county purchase extra machines to replace those that fail? How long will voters have to wait before the replacement takes place?
- ◆ **Repairs during elections.** If the system malfunctions during an election, technicians may need to be called in to quickly repair the machine or program the replacement. Will the vendor provide enough technicians to provide support for all the systems, which will be operated by inexperienced poll workers at the first few elections. What is their charge for maintenance calls on election day, and how much mileage will they charge to service the machine? In 2001, Palm Beach County agreed to pay Sequoia up to \$175 per hour with an 8-hour minimum, in addition to paying the travel and expenses.
- ◆ **Repairs between elections.** What are the costs of repairing any machines that malfunctioned during an election?
- ◆ **Spare parts.** What is the cost of the spare components you need to keep on hand?
- ◆ **Full replacement.** How soon will the machine be obsolete and need to be replaced?

Cost Comparison Summary: Vote-PAD vs. Electronic Systems

Costs	The Vote-PAD	Electronic Systems
Direct	<p><u>Acquisition:</u></p> <p>For a jurisdiction with one precinct, approximately \$2000 to \$2200 for an initial package. This provides all necessary equipment and materials including twenty Vote-PAD booklets for use with twenty different ballots. At one ballot per precinct per election this would represent 20 elections or, on average, five years of elections. For larger jurisdictions, the cost per precinct can be significantly less.</p> <p><i>Subsequent Costs:</i></p> <p>No additional ballot printing costs or yearly recurring fees.</p> <p>Purchase of additional consumables after the 20 Vote-PAD booklets and other materials in the initial package are used up, estimated at \$30 to \$50 per ballot per election, depending on the size and complexity of the ballot.</p>	<p><u>Acquisition:</u></p> <p>From \$3000 to \$8000 for one unit.</p> <p>Equipment for people with disabilities (extra on some systems).</p> <p>Dedicated computer to run tally software.</p> <p>Results cartridges and voter-access cards.</p> <p>Card activator devices.</p> <p>Spare equipment in case of machine malfunction.</p> <p>Replacement of failed equipment after warranty period.</p> <p><i>Recurring Costs:</i></p> <p>Annual software licensing fees.</p> <p>Technical support fees.</p> <p>Maintenance and repairs</p> <p>Replacement batteries every three years.</p> <p>Software updates.</p> <p><u>Per -Election Costs:</u></p> <p>Ballot programming fees.</p> <p>Emergency paper ballots in case of breakdowns.</p> <p>Transportation to the polling place.</p>
In-house	<p>Estimated at less than \$75 per ballot to prepare the Vote-PAD for an election: customizing one ballot sleeve using the materials provided in the initial package; generating audio instructions for voters with visual impairments, either with your personal recording or by using the automated Vote-PAD Instruction Assistant and Text-to-Speech; transcribing the Braille instructions; and printing large-print instructions.</p> <p>Training poll workers on using the Vote-PAD.</p> <p>Educating voters with disabilities on using the Vote-PAD.</p>	<p>Developing new administrative procedures.</p> <p>Developing troubleshooting procedures.</p> <p>Training election staff on electronic equipment.</p> <p>Pre-election and post-election equipment testing.</p> <p>Inspecting computer audit logs after the election.</p> <p>Training poll workers on electronic equipment.</p> <p>Educating voters on using the electronic equipment.</p> <p>Recharging batteries between elections.</p> <p>Environmentally controlled storage for equipment.</p> <p>Toxic waste fees for rechargeable batteries.</p>

