



BOULDER COUNTY, COLORADO
VOTING TABULATION



resolve questions of voter intent. As issues are resolved, Elections Officials use a simple menu-driven interface to make and record decisions.

Since all resolution is accomplished on-screen there is no need to alter or handle the paper ballots. Therefore all ballots are preserved in original form, without alteration, in the event re-evaluation of the voter's intent is required. All actions taken during the ballot resolution activity are descriptively added to the audit log.

A tremendous advantage provided by Ballot Now is that it uses off-the-shelf digital high speed scanners. This means that advances to scanning technology are brought to the election industry by Ballot Now. The digital imaging industry is growing with millions of dollars a year spent on research and development to advance the technology. Hart has teamed with Kodak, an industry-leading manufacturer of digital scanners and is committed to continuous improvement of the technology.

The proposed i830 Document Scanner scans up to 160 pages per minute (A4 letter, landscape mode, 200 dpi). It handles an unsurpassed range of document sizes, thickness, and surface quality to minimize stoppages and the need for rescans.

(6) Describe the report generation faculty of your absentee/mail/provisional ballot component.

Hart InterCivic Response

Ballot Now produces a series of standard reports designed to provide complete management control of the application and ballot production and processing. The reports include:

- Election Report
- Scan Batch Report
- Scanned Ballots By Precinct Report
- Scanned Ballots By Batch Report
- Unresolved Ballots Report
- Printed Ballots By Precinct Report
- Certified Write-ins Report
- Audit Trail Report

In addition to the standard reports, ad-hoc reports designed per customer specification may be delivered using Crystal Reports, the leading database reporting tool, which is included in Hart InterCivic's proposal.



BOULDER COUNTY, COLORADO
VOTING TABULATION



We provide a complete list of the reports printed from the eSlate Voting System in *Attachment 2: eSlate System Reports*.

(7) Provide a description of your experience in generating absentee/mail/provisional ballot processes in live elections.

Hart InterCivic Response

Ballot Now has been used to process nearly a quarter of a million ballots for live elections.

Harris County (Houston), Texas, uses Ballot Now to provide absentee by-mail capabilities as part of the overall eSlate Electronic Voting System implementation. Ballot Now was successfully used for absentee/mail voting in the March 2002 primary and runoff. Both Travis County (Austin), Texas, and the City of Philadelphia used Ballot Now for absentee/mail voting for the first time in their November 2002 Election.

Using Ballot Now, Hart InterCivic also successfully completed the recent election for the State Bar of Texas and Texas Young Lawyers Association, including:

- formatting and printing of ballots,
- overseeing the mail house operation for ballot packet assembly and mailing,
- daily reporting of return rates,
- ballot scanning and resolution, and
- tabulating and reporting of results.

During the 2003 election cycle, members were provided ballots using 64 different ballot styles. Of the 71,190 ballots distributed, 20,865 ballots were returned to Hart for processing and tabulation. This was the third year Ballot Now was used by the State Bar of Texas for this Election.

Arapahoe County, Colorado, recently concluded a successful election, including the use of Ballot Now to process approximately 28,000 ballots. Arapahoe County also employed a technique of projecting Ballot Now's resolution screen for discussion by the Resolution Board.

In December 2002, Hart InterCivic provided services for the City of Longmont Special Municipal election, which was a mail election. This was a complete election services contract, with Hart InterCivic performing all ballot related activities including coordinating mail house vendor participation. A total of 48,769 ballots were mailed out, with 7,673 returned. Results were available just over one hour after the polls closed.



BOULDER COUNTY, COLORADO
VOTING TABULATION



- (8) Include actual samples of absentee/mail/provisional ballots generated from your system. These samples should include ballots of various sizes and colors.

Hart InterCivic Response

We present samples of ballots printed by Ballot Now as *Attachment 3: Ballot Now Ballot Samples*.

- (9) Describe all options for printing ballots generated by your system. Can they be generated by third party vendors, printed "on-demand", printed on-site, etc.?

Hart InterCivic Response

Ballots are printed on demand or sent in electronic format to commercial printers and mailed to voters in standard sized envelopes according to the requirements of the voting jurisdiction. Ballot Now can print on-demand, on-site, using commercial, off-the-shelf printers. A key advantage of the Ballot Now application, however, is that ballots do not have to have the precise registration typical of older generation optical scanning systems. Therefore, there is no need to employ costly pre-printed ballot templates.

The competitors' "on-demand" systems require ballots to be preprinted for specific precincts or ballot styles. This means that County election officials must forecast and manage the inventory of ballots for requirements that are difficult to anticipate. Other ballot on-demand systems require special stock with preprinted "ovals" or other target marks which may or may not conform to particular ballot requirements; this is typical of traditional optical scan systems. Ballot Now ballots require no pre-formatting, and can be printed directly on blank Colorado certified ballot stock.

Ballot Now can also export .PDF files for delivery to commercial printers for volume printing. Returned mailed ballots are processed using commercially available scanners. For Boulder County, we are recommending Kodaks i380 high-speed document scanner. Processing includes scanning of the ballots, extraction of cast vote data, and delivery of Cast Vote Records (CVRs) on the same elections MBBs to the Tally application for tallying.

- (10) Describe how the optical scan type ballot system would be integrated if its use were to become necessary.

Hart InterCivic Response

Ballot Now ballots can be distributed by mail or at a polling place. When a voter finishes casting his/her vote, the ballots are returned and processed. As described



BOULDER COUNTY, COLORADO
VOTING TABULATION



previously, the cast votes are then tabulated in a process that is fully integrated with votes cast on the eSlate DRE System.

If the question is asking how an optical scan system from another vendor will be integrated in the event that becomes necessary, the eSlate System can also accommodate this possibility. Integration with a third party optical scan system, if necessary, would occur at the point cast votes are tabulated and reported. Hart would work with the vendor to establish a standard output file format from their system and then use it to import the data into a consolidated, comprehensive report. The eSlate System's Fusion utility was designed to facilitate this kind of integration.

Hart InterCivic has substantial experience in such integration. This expertise has been demonstrated in several recent applications:

- In Harris County (Houston), Texas, the Hart InterCivic team installed a completely new PC based network election management system using Citrix metaframe driving thin-clients, fully integrated with the eSlate Electronic Voting System, to provide county election officials with a seamless process for early voting in-person. The team also integrated cast vote data from the County's existing ES&S punch card system with the electronic totals from eSlate, and provided tabulation and reporting through eSlate's Tally software.
- In Tarrant County (Fort Worth), Texas, the Hart InterCivic team integrated the eSlate System with a county-developed, mainframe voter registration system, and provided consolidated cumulative and final reports integrating results from the County's (ES&S) Optech Eagle Optical Scan system used on Election Day with Early Voting results cast on eSlate.
- In Travis County (Austin), Texas, election results from two different election vendors (Global's AccuVote touch screen system and ES&S' optical scan system) were merged by Hart InterCivic's technical team into eSlate's Tally tabulation and reporting software to provide consolidated totals.

6.0 EARLY VOTING

One or more DRE voting units will be used at each early voting site.

Hart InterCivic Response

The eSlate Electronic Voting System is ideal for In-Person Early Voting locations. Each MBB holds all ballot styles required by the County, and when inserted into a Judge's Booth Controller (JBC), can present ballot styles for *any* precinct at *every* early voting location.



BOULDER COUNTY, COLORADO
VOTING TABULATION



6.1 Requirements

- a. DRE units used for early voting shall have the capabilities of the DRE units used for precinct/polling place voting.**

Hart InterCivic Response

The same eSlate devices are used during Early Voting and on Election Day. When used for Early Voting, the eSlate operates identically to those used on Election Day, although eSlate includes specific functionality supporting efficient operation of Early Voting.

For example, an important feature of the eSlate System is the suspended polls tape for Early Voting. Printed at the close of polls after each day of voting, these reports contain daily and cumulative summaries of Access Code activity, summary vote totals from each voting unit, and detailed precinct-by-precinct listings of how many voters from each precinct voted at that location. This information provides a wide degree of flexibility in monitoring the number of votes cast and comparing these totals daily to the poll list.

- b. The proposed system shall be capable of presenting the correct ballot style to the voter.**

Hart InterCivic Response

The eSlate consistently delivers the correct ballot to the voter. Through the BOSS application, ballot styles are linked to precincts. This information, along with all formatted ballot styles, is stored on the MBB.

When the MBB is inserted in a Judge's Booth Controller placed at an Early Voting site, all ballot styles are immediately available at the site. The voter is issued a four digit Access Code that is linked to the voter's precinct (but not the voter's identity). The voter then goes to any available machine and enters the Access Code. The Access Code instructs the JBC which ballot to present to the voter.

- c. The proposed system shall be able to accommodate multiple ballot combinations on a single DRE voting unit.**

Hart InterCivic Response

Any eSlate unit at an Early Voting polling place can accommodate any ballot combination required for an election. The MBB can hold well in excess of 50,000 ballot styles.

- d. The proposed system shall allow for units used during early voting to be de-programmed and re-programmed for use at polling places, if necessary.**



BOULDER COUNTY, COLORADO
VOTING TABULATION



Hart InterCivic Response

eSlate units used during early voting are easily reset for use at Election Day polling places, if necessary. When Early Voting is complete, the Early Voting MBBs are removed from the JBCs and secured for later use with Tally to tabulate election results. The Cast Vote Records and other data stored redundantly on early voting equipment (internal memory of the JBC and eSlate/DAU units to be used on Election Day) is backed up and reset using SERVO. The eSlates are then ready for Election Day deployment.

- e. Results from the early voting period shall be easily moved to the final vote tally. The proposed system shall provide the Boulder County Clerk & Recorder with the option to move the results daily or at the end of the early voting period.**

Hart InterCivic Response

Cast Vote Records are moved through the Early Voting MBB. One MBB is used for each Judge's Booth Controller at an Early Voting location. The MBB holds all votes cast at the location during the Early Voting period. Therefore, the MBB is moved to tabulation at the close of Early Voting. The MBB is secured for later use with Tally.

- f. The vendor shall build an automated interface between the Election Management Absentee System and the early voting components to allow the issuance of correct ballot styles to the voters electronically.**

Hart InterCivic Response

The Hart staff is experienced in the integration of the eSlate System with other Election Management Information Systems. For example, in Harris County, issuance of Access Codes and presentation of the correct ballot style to early voters is fully integrated and automated at the Early Voting polling place.

As part of this response, Hart has included the implementation of this automated interface. During the initial Work Process Analysis, Hart will assess the system requirements for automating the interface between that Election Management Absentee System and the eSlate System, and ensure that operational requirements to support Early Voting are achieved.

The votes cast through the early voting process shall be identifiable in the vote tabulation system for balancing purposes. Ballots cast in early voting will be recorded in a declared absentee precinct, requested absentee precinct or polls precinct when reporting results.

- g. The votes cast through the early voting process shall be identifiable in the vote tabulation system for balancing purposes. Ballots cast in early voting**



BOULDER COUNTY, COLORADO
VOTING TABULATION



will be recorded in a declared absentee precinct, requested absentee precinct or polls precinct when reporting results.

Hart InterCivic Response

Tabulation and reporting for early voting is accomplished through the same process used to tabulate and report Election Day Cast Vote Records and absentee/mail/provisional appear ballots. Votes cast during the Early Voting period are tracked separately by the eSlate System. Consolidated results are reported through the Tally tabulation application and these reports identify votes cast by type.

- h. Reports and/or data export that detail where the ballots were cast will be generated and used to balance the ballots cast against the absentee request system by precinct as part of the canvass process.**

Hart InterCivic Response

The eSlate System tracks cast ballots by polling location (or early voting site) and by precinct both on the MBB and on the JBC. The MBB is read by Tally and the information is reported by precinct. SERVO can produce a report that details the number of ballot cast by precinct, and the information can be used to reconcile against the County's absentee request system.

6.2 Proposer's Response

a. Will you meet these requirements?	Yes	X	No
---	------------	----------	-----------

- b. How do you propose to meet these requirements? Address all requirements listed above, making sure to include item(s) listed below:**

- (1) Provide a detailed description of your abilities to meet the conditions for a successful early voting project.**

Hart InterCivic Response

With the eSlate System, voters from any precinct in the County may cast their ballots at any voting site. The eSlates utilized in Early Voting are the same as those used for Election Day voting, and feature all of the capabilities of the eSlate, DAUs, and JBCs. All eSlate components are part of a comprehensive architecture that was designed as an integrated voting system. This produces uniform and consistent ballot definition, vote tabulation, and integrated results reporting whether using the eSlate voting device, the DAU, or the Ballot Now digital scanning component.



BOULDER COUNTY, COLORADO
VOTING TABULATION



(2) Provide a description of your experience in successfully conducting early voting projects.

Hart InterCivic Response

The eSlate System has been used extensively to support Early Voting in each of the counties that have acquired it. Examples of early voting use of the system include:

- In Harris County Texas, eSlate has been used in Early Voting in the last six elections, including statewide primary and municipal elections. Harris County operates 30 Early Voting locations.

In May 2003, 25 entities in Harris County used the eSlate for early voting. These entities ran their elections independently, with support from Harris County based on previous training and support from Hart.

- Tarrant County, Texas, operates 28 Early Voting locations, and has also used eSlate for six election cycles.
- Arapahoe County, Colorado, uses the eSlate System for Early Voting in seven locations. The County also operates a mobile voting unit during the early voting period, which is also equipped with eSlate units. The County acquired the eSlate System despite having purchased a competing DRE system prior to the commercial release of eSlate in 2000. The County's decision to replace the competing DRE with eSlate was based upon eSlate's greater ease of administration in supporting countywide Early Voting and a much lower cost of ownership.
- Travis County, Texas, recently implemented the system and has used eSlate for Early Voting in three elections. The County operates 26 locations for Early Voting. Travis County has emphasized the availability of Early Voting, and as a consequence it is not unusual to see as much as 40% of the turnout in Early Voting. The eSlate has accommodated this volume with no issues.
- Brazos County, Texas, successfully used the eSlate in its first election cycle in May 2003. This included early voting sites.

For each of these counties, Hart InterCivic has provided pre-election support, training, voter education, Early Voting and Election Day support, and Post Election support, serving in all cases as an extension of the local election authority.

7.0 BALLOT MANAGEMENT (AUTOMATED BALLOT LAYOUT)

The Boulder County Clerk & Recorder currently uses Integrity Software to manage contests and candidates for countywide elections. Information is



BOULDER COUNTY, COLORADO
VOTING TABULATION



extracted and sent to for input into the ballot layout process, including: election precincts, district information, ballot typing, contests (including party, vote for, order of candidates), and measures.

The printing vendor currently performs all tasks necessary to produce the ballot layout for each ballot type used to generate ballot cards for our existing DataVote devices. They also merge this data to generate the required TABOR notice packets.

7.1 Requirements

- a. The proposed software will contain automated routines capable of performing all ballot layout functions now performed by the County's printing vendor.

Hart InterCivic Response

Ballot layout is managed by the eSlate's Ballot Origination Software System (BOSS) application. BOSS supports automated routines capable of performing ballot layout functions now performed by the County's ballot printing vendor. BOSS provides Automated Ballot Layout and Ballot Management through a Windows-based software application that manages all the election-specific data, creates the ballot formats, and writes the multiple flash memory cards (MBBs).

- b. The proposed software shall support both automated and manual ballot layout for DRE and optical scan ballots.

Hart InterCivic Response

The ballot generation feature of BOSS creates electronic ballot styles based on the information specific to the jurisdiction and election supplied by the user. Manual layout options, such as page breaks and column breaks, are also supported through BOSS.

- c. The proposed DRE system shall have the capability to print the ballot in its original format.

Hart InterCivic Response

The eSlate System prints ballots in original formats.

- d. It is desirable for the software to automatically lay out the DRE ballots and optical scan ballots in one operation.

Hart InterCivic Response

BOSS automatically lays out the DRE ballots, for Election Day, Early Voting, and absentee/mail/provisional ballots in one operation. Ballot generation creates a



BOULDER COUNTY, COLORADO
VOTING TABULATION



single data file that is written to the MBB and is used to conduct the election at any polling location, for absentee/mail voting, and Early Voting.

- e. The vendor shall be prepared to support an Optical Scan type ballot, should the need arise.**

Hart is prepared to support an optical scan type ballot, should the need arise. Ballot Now produces an optical scan type ballot and is available as required.

- f. The proposed software shall provide for manual entry of contest and candidate information for small jurisdictional elections where the DIMS Candidate Filing module is not utilized (e.g., city elections where there is only one contest, one ballot type and a few candidates).**

Hart InterCivic Response

Per RFP Addendum 1, Boulder County does not currently use or have plans to use the DIMS Candidate Filing module. For small jurisdiction elections, the eSlate System provides an easy-to-use means to enter information.

BOSS, a Windows based interface, allows Election Officials to manage election data and format and design ballots. Data entry is as easy as filling in an electronic form or template -- there is no programming -- and choosing options for ballot styles and formatting is as simple as checking a box or selecting from pull-down menus. As a result, manual data entry is fast and easy.

- g. The proposed software shall allow for additional districts to be added to the election structure without affecting the existing ballot typing in the ballot management software. These changes shall not require re-proofing of the election structure information entered prior to these changes.**

Hart InterCivic Response

Any time prior to securing the election database against further changes, additional districts can be added to the election structure through BOSS without affecting the existing ballot typing and contests. BOSS allows for multiple levels of data management, all of which can be edited and added to the election structure without affecting the existing ballot typing in the ballot management software.

- h. The proposed software shall allow adding contests, ballot measures, and/or candidates to the existing ballots without re-proofing the ballot pages that are not affected by changes**

Hart InterCivic Response

BOSS allows adding contests, ballot measures, and/or candidates to the existing data without re-proofing the previous data that is not affected by changes -- a key capability, especially when last minute changes occur. Jurisdiction and election



BOULDER COUNTY, COLORADO
VOTING TABULATION



information that is used from one election to the next is maintained in an administrative database, which serves as the beginning point for data entry. This eliminates repetitive entering of information that is used consistently in the election process.

7.2 Proposer's Response

a. Will you meet these requirements?	Yes	X	No
--------------------------------------	-----	---	----

b. How do you propose to meet these requirements? Address all requirements listed above, making sure to include item(s) listed below:

(1) List all the devices or ballot designs (e.g., optical scan) including sizes and formats your system will automatically lay out with your ABL software.

BOSS is designed to provide Automated Ballot Layout for the eSlate System, including the eSlate DRE voting device and the Ballot Now absentee/mail/provisional application. BOSS supports letter, legal and tabloid formats in duplex or simplex, with up to 4 columns as well as multi-page ballots. All of these different sizes of ballots, however, may be folded into the same size standard ballot envelope.

(2) Provide a list and description of each report your ABL system generates for ballot proofing (e.g. ballot layout, candidate order, rotation, etc).

Hart InterCivic Response

BOSS provides the reports detailed in *Exhibit IV-5: Ballot Proofing Reports* to support ballot proofing. Version 3.0 of the eSlate System includes the capability to print a fully formatted ballot for proofing. Additional ad-hoc reports may be designed per the customer's specifications using Crystal Reports.



BOULDER COUNTY, COLORADO
VOTING TABULATION



Ballot Proofing Reports	
Name	Data Elements
Ballot Content Proof	■ Ballot formats ■ Ballot styles created for a ballot format ■ Ballot header text ■ Precincts that will use a particular ballot style in the election ■ Precinct/precinct split name ■ Number of registered voters in the precinct/precinct split ■ Number of precincts that use the ballot style ■ Number of registered voters that use the ballot style ■ For each active contest in each ballot style, lists in order of appearance on the ballot ▪ Contest type ▪ Contest name ▪ Number of write-ins allowed in the contest ▪ Straight Party if the contest is assigned to Straight Party
Entire Ballot Slate	■ Ballot text for the contest ■ Contest name ■ Number of write-ins allowed in the contest ■ Contest type ■ Number of options in the contest ■ Straight Party if the contest is assigned to Straight Party ■ If the contest is cumulative, displays Cumulative ■ If the contest is dependent, displays Dependent on XXX, where XXX is the choice in the related contest that this item is dependent upon number of votes allowed in the contest ■ Options for an Office type contest, including ▪ Party affiliation, name, and incumbent status (shown as (I) if is incumbent) for each candidate ▪ Write-ins ▪ Delegate names for each candidate ■ Options for a Proposition type contest, including ▪ Text for the proposition ▪ For (Yes) ▪ Against (No)

Exhibit IV-5: Ballot Proofing Reports. The eSlate System produces reports that permit fast and accurate ballot proofing.



BOULDER COUNTY, COLORADO
VOTING TABULATION



(3) Provide detailed steps for setting up and preparing the ballot, both for the DRE and the optical scan paper ballot.

Hart InterCivic Response

The eSlate DRE and absentee/mail/provisional ballots are formatted at the same time, using the same processes within the BOSS application. All user actions in BOSS are guided by an intuitive interface including point and click actions and drop down menus.

Definition of an election begins with the creation of an election database. Typically, jurisdiction information that does not need to be refreshed with each election cycle is carried forward from the existing database, which serves as an administrative database. If Boulder County prefers, this information can be imported with each election.

The user first defines the Election's Type, Date, and Title, and then enters the Jurisdiction information (for example precincts, polling places, and so on). This information can be manually entered or imported from the Integrity system.

Definition continues with the entry or import of election information, including political parties, contest titles, candidates, voting options for contests, data associations, and other information. The user may then select formatting options (for example page or column breaks), and produce ballot proofing reports.

Audio strings for disability-access-enabled eSlates are then recorded. The database is saved and ballot formats generated, including paper format if Ballot Now is in use. Ballot formats are then written to the MBBs and audio strings for the accessible units are written to separate PC Cards that are inserted in the eSlate Disability Access Units.

When BOSS generates the file for the MBB, the BOSS database is locked so that no more changes can be made, thus protecting the integrity of the MBB data file. Audit Trail and Polling Places Reports are printed and examined. The BOSS database is subsequently used to initialize the Tally database, eliminating the need to manually re-enter data required for tabulation, and extending data integrity to tabulation.

(4) Describe the proposed software's flexibility to allow modifications to the ballot layout at the last minute. Indicate how the following would be affected: election precincts, districts, ballot types, voting locations (polls), contests, measures, candidates, and recalls.

Hart InterCivic Response

Last minute changes in ballot information may be incorporated quickly and smoothly. If the BOSS database has not been locked, changes are as simple as



BOULDER COUNTY, COLORADO
VOTING TABULATION



editing data fields. If the BOSS database has been locked and the MBBs have been written, Elections Officials can copy the existing BOSS database and create a new database to make the necessary last minute changes. MBBs and audio cards are then prepared.

A key advantage of the eSlate System's architecture is the fact that **only one MBB** is required per polling place; there is no need to reprogram individual stand alone machines to accommodate last minute changes. Through the placement of the edited MBB in the JBC, all machines at the polling place reflect up-to-the-minute ballot styles and data.

8.0 BALLOT MANAGEMENT (LANGUAGE SUPPORT)

Adhering to the Federal Voting Rights Act, Boulder County provides election materials in both English and Spanish. It is possible that the County will be required to provide assistance in one or more additional languages.

Hart InterCivic Response

The eSlate System has supported both English and Spanish since its earliest version. With Version 3.0, the eSlate System supports up to 10 languages, including both character-based and non-character-based languages.

8.1 Requirements

- a. The system will provide all functions listed above under Ballot Management (Automated Layout) for English, Spanish and other required languages, including character-based languages.**

Hart InterCivic Response

The eSlate System Version 2.1, as certified in Colorado, currently supports English and Spanish. The eSlate System Version 3.0 provides support for up to 10 languages including character-based languages.

Ballot layout for all languages is managed through BOSS. All of the functions listed in the previous question apply to all languages supported. This includes:

- a. Supporting automated routines capable of performing all ballot layout functions now performed by the County's printing vendor.
- b. Supporting both automated and manual ballot layout for DRE and optical scan ballots.
- c. Printing the ballot in its original format.
- d. Automatically laying out the DRE ballots and optical scan ballots in one operation.
- e. Supporting an optical scan type ballot, should the need arise.



BOULDER COUNTY, COLORADO
VOTING TABULATION



- f. Providing for manual entry of contest and candidate information for small jurisdictional elections where imported data is not utilized (e.g., city elections where there is only one contest, one ballot type and a few candidates).
- g. Adding additional districts to the election structure without affecting the existing ballot typing in the ballot management software. These changes shall not require re-proofing of the election structure information entered prior to these changes.
- h. Adding contests, ballot measures, and/or candidates to the existing ballots without re-proofing the ballot pages that are not affected by changes.
- b. If software is used for language translation, software will be run against the final proofed version of the ballot. If manual entry is required, only text needing translation will be entered.**

Hart InterCivic Response

All ballot text content is prepared in English and proofed for accuracy. The final proofed version of the English language ballot text is exported for translation.

- c. The proposed system shall provide all necessary reports and/or delimited text files to allow manual and automated proofing of the ballot types generated to ensure that the data is interpreted correctly.**

Hart InterCivic Response

As noted above, once the ballot(s) are finalized, the printed versions must go through a final proofread to ensure grammatical, font and formatting accuracy. These final ballots are sent to the translator as PDF files or sent out as paper ballots for review and approval.

8.2 Proposer's Response

a. Will you meet these requirements?	Yes	X	No
---	------------	----------	-----------

- b. How do you propose to meet these requirements? Address all requirements listed above, making sure to include item(s) listed below:**

- (1) Describe in detail the process necessary to generate non character-based languages (e.g., Spanish) and character-based languages (e.g., Chinese).**

The following process is used to support requirements for multiple languages, including both character-based and non-character-based languages:

- 1. All ballot text content is prepared in English and proofed for accuracy. The final proofed version of the English language ballot text is exported to



BOULDER COUNTY, COLORADO
VOTING TABULATION



an XML document formatted for target languages. (Note: text does not have to be complete or 100% accurate. Missing text and changes to text can be made later if necessary.)

2. These export files are delivered to translators. There is one file per target language and translators are required to use translation software that supports the use of XML file protocol.
3. Translated file(s) are received from translator and imported in to BOSS via XML import functionality. If changes are necessary, only those English language strings that have been changed since the previous translation will be exported for translation.
4. Once the ballot(s) are finalized, the printed versions must go through a final proofread to ensure grammatical, font and formatting accuracy. These final ballots are sent to the translator as PDF files or sent out as paper ballots for review and approval.
5. After final proofing of ALL languages (including English), BOSS is used to export files for audio recording. BOSS audio export creates XML files for each language.
6. After completion of all audio imports, ballots are generated and tested.
7. The text and audio strings should be proofed on the eSlate.

(2) Include a description of any add-on software used in the translation process that resides outside the ABL software.

Hart InterCivic Response

If the translation is performed by software, then the translation software is external to the ABL software. This program would reside with the translation service.

(3) Include a description of how character-based languages are edited and or replaced if corrections are required.

Hart InterCivic Response

All corrections are made through the BOSS application. Character text requiring correction is entered in BOSS and ballot styles are re-generated using the corrected language file.

(4) Use the table below as a basis to describe: 1) how/if your base system supports languages other than English; 2) additional hardware requirements necessary to make the base system support multiple



BOULDER COUNTY, COLORADO
VOTING TABULATION



languages; and 3) additional software requirements to make the base system support multiple languages.

# of Languages	Base System	Additional Hardware Requirements	Additional Software Requirements
1. English	Yes	None	None
2. Spanish	Yes	None	None
3. Tagalog	Yes	None	None
4. Cambodian	Yes	None	None
5. Chinese	Yes	None	None
6. Russian	Yes	None	None
7. Vietnamese	Yes	None	None
8. Japanese	Yes	None	None
9. Korean	Yes	None	None
10. Large Type English	Yes	None	None

Exhibit IV-6: Languages Supported. The table above details the languages supported by Version 3.0 of the eSlate System.

9.0 BALLOT MANAGEMENT (SAMPLE BALLOT PAMPHLET)

The Boulder County Clerk & Recorder mails approximately 92,000 TABOR Notice packets one to each active elector household in any General or Coordinate election held in November. These packets may or may not be generic books (all text in one book). Nevertheless, the process for generating them is complex. Only debt tax or revenue related issues are printed in the TABOR notice packets. They historically are produced in an 8-1/2" x 11" format.

Sequoia Voting Systems have been responsible for the production of the TABOR Notice packets. After receiving our election data (i.e., registration counts, TABOR related text), the printer performed the layout, ballot typing, and booklet assembly, printing, addressing and mailing.

The system Sequoia Voting Systems use is a legacy system. It was designed to accommodate punch card ballots and lays out ballot pages based on punch positions. Text pages are entered into the system on a page-by-page basis.



BOULDER COUNTY, COLORADO
VOTING TABULATION



Pages are coded so they can be assembled into books by ballot type. This could be as simple as creating image files for the voting pages or as complex as creating a complete set of structure, contest, candidate, rotation, vote for, etc., files so the printer can recreate what was developed in the ABL portion of the system.

9.1 Requirements

The vendor will work with our current (or any future) sample ballot printer to create an automated interface to their sample ballot pamphlet production system.

This interface will also produce the necessary proofs to allow the jurisdictions ensure the TABOR Notice packet match the submitted text.

Hart InterCivic Response

Since 1912, Hart InterCivic has provided a wide range of election management products and services to county governments, including ballot formatting and production. Hart is one of the largest national election printers in the industry, producing more than 10 million ballots during a typical election cycle, including sample ballots. Hart routinely works with other national printers to complete jobs. Hart will be pleased to include Boulder County's printer among its network of printing partners and identify the digital printing process and any other critical elements necessary for the successful completion of the County's sample ballot pamphlets.

9.2 Proposer's Response

a. Will you meet these requirements?	Yes	X	No
--------------------------------------	-----	---	----

b. How do you propose to meet these requirements? Describe your approach.

Hart InterCivic Response

Hart InterCivic has included 80 hours of development effort dedicated to the automated interface for sample ballot pamphlet production. Since the BOSS system already generates electronic print ready ballot pages, development will be focused on incorporating the additional information required for sample ballot pamphlet production.

10.0 BALLOT MANAGEMENT (DRE MANAGEMENT)

The Boulder County Clerk & Recorder currently utilizes 227 to 250 polling places at each election. We are estimating, on the average, five devices will be needed at each poll.



BOULDER COUNTY, COLORADO
VOTING TABULATION



10.1 Requirements

- a. The proposed system shall provide a means of transferring the ballot images from the ABL software to appropriate system components (i.e., DREs and/or controller unit) in an expeditious manner.

Hart InterCivic Response

The Mobile Ballot Box is the method used to transfer ballot images from the ABL software to the rest of the system components. BOSS transfers the ballot images from the ABL software to appropriate system components by creating a single data file that is written to the MBB that is used to conduct the election at any polling location, absentee/mail voting, or for Early Voting.

- b. The proposed system shall maintain an automated log and inventory of all devices configured and placed in the inventory for use in the election. At some point after the close of polls and the final certification, an audit trail containing the status of all inventoried devices will be generated. This will include devices that were successfully used for voting, failed during Election Day or were not utilized in the election.

Hart InterCivic Response

The eSlate System maintains an automated log and inventory of all devices configured and software placed in the inventory for use in the election. After the close of polls and the final certification, the System's SERVO application captures an audit trail and equipment log of all inventoried devices. SERVO is also used to manage the process of verifying and archiving Election data. This includes devices that were successfully used for voting or were not utilized in the election.

- c. The proposed system will generate detailed activity logs on each of the system components used in the election process.

Hart InterCivic Response

Activity logs are available for each component of the eSlate System.

This includes each software application (BOSS, Ballot Now, Tally, and SERVO) and the hardware components used in the polling place (the JBC and the eSlate). These logs may be viewed on-screen or printed as hard copies.

- d. The vendor will provide an automated test routine to be run on appropriate system components used to cast ballots (i.e., hardware, firmware, and operating system software). The test routine should contain the same options identified under the Ballot Tabulation (Vote Simulation) section.



BOULDER COUNTY, COLORADO
VOTING TABULATION



Hart InterCivic Response

Hart has developed a vote simulation utility for the eSlate System. The vote simulation utility is used to simulate voting on the eSlate and was designed using the same philosophy to achieve a valid system test. Using an external PC to run the vote simulation utility, keystroke and wheel turn commands are fed into the polling place closed network to exercise the maximum amount of executable code and ballot data.

Voting patterns, number of votes and speed on the process are all controllable parameters from the vote simulation utility. Once a defined vote simulation cycle is complete, additional votes may be cast on the target system.

- e. **The vendor will provide an automated test routine to run a complete logic and accuracy (L&A) test of all contests loaded on appropriate system components, using simulated vote totals that can be verified by both precinct reports and/or an election summary. The test routine should contain the same options identified under the Ballot Tabulation (Vote Simulation) section.**

Hart InterCivic Response

The eSlate System supports a variety of traditional Logic and Accuracy tests to verify the system is programmed correctly. Vote patterns manually entered using a test or election MBB on the eSlate allow the vote information to be returned to Tally for verification of results. This can be performed on a precinct or ballot style basis. The vote simulation utility is available to execute this process without human intervention.

10.2 Requirements

a. Will you meet these requirements?	Yes	X	No
---	------------	----------	-----------

- b. **How do you propose to meet these requirements? Address all requirements listed above, making sure to include item(s) listed below:**

- (1) **Provide a detailed description of how each system component is configured for use at the polls. Include all hardware necessary to program the components. If individual standalone DRE units are proposed, include a detailed description of how audit logs are gathered from each unit and consolidated into a single log displaying information from all DRE units.**



BOULDER COUNTY, COLORADO
VOTING TABULATION



Hart InterCivic Response

The following section describes how the eSlate System is configured at the polls. In order to fully answer the question, the process description begins prior to deployment at the polling place.

We have arranged our discussion of the configuration of each component into three subsections, as follows:

- Election Preparation Prior to Deployment at the Polling Place,
- Components Deployed at the Polling Place, and
- Component Configuration at the Polling Places

Election Preparation Prior to Deployment at the Polling Place

Preparing for an election begins with entering information into BOSS. This can be accomplished by importing data from Integrity or by manual entry (or a combination of both). All formatting is managed through BOSS. No "programming" occurs at the polling place.

Typically, the County uses BOSS to create an administrative database. This database contains data that generally does not change between elections, such as:

- name of the jurisdiction,
- political parties,
- precinct and polling place names,
- precincts in polling places, and
- contest names, options, and instructions.

The Administrative Data Base is carried forward from election to election and serves as the starting point for election preparation.

Once an election cycle begins, election specific information is imported or entered into BOSS, including, for example:

- election name,
- date of the election,
- type of election,
- contests, precincts, or polling places and
- candidate names and proposition text in contests.

Ballot content is proofed using the reports produced by BOSS and, once verified, ballot generation produces the electronic ballot data file that contains all the ballot styles necessary for the election.



BOULDER COUNTY, COLORADO
VOTING TABULATION



The ballot styles are transferred from the ABS to the system components via the MBB. The MBB is a reusable, portable PC card memory device that is used for storing and transporting election information to and from the polling places. The file created by the ballot generation process in BOSS (described below) is written to the MBBs and contains the following:

- all possible ballot styles for the jurisdiction,
- a list of polling places and allowable ballot styles for each,
- ballot format information for display on the eSlate, and
- passwords.

The MBB is installed in the Judge's Booth Controller for each polling place, either at Election Headquarters or at the precinct-polling place. The MBB can have data stored to it many different times and since it utilizes flash memory, the MBB does not require batteries to maintain the information written to it.

Components Deployed at the Polling Place

The following components of the eSlate Electronic Voting System are deployed at the polling place.



- **eSlate 3000.** The eSlate 3000 is the device voters use to cast their ballots at the polling place. The eSlate is approximately 16" tall, 10" wide, and 2.75" deep, weighing approximately 5.2 pounds. Given its compact size and light weight, the device is highly portable.

Information is displayed to the voter through a full SVGA LCD display, illuminated by a backlight. Since the eSlate is not a touch screen, the display is protected from damage in intense usage environments by a durable polycarbonate screen. Backup power can be provided by a "D" cell battery pack.

The eSlate's PrecisionVote design includes an integrated selector, known as the SELECT Wheel. The SELECT Wheel is a Rotary Optical Encoder (ROE) through which the voters select their preferences by turning the SELECT Wheel and pressing the adjacent ENTER button when the preferred choice is highlighted.

The Rotary Optical Encoder is the most precise, durable interface on the market. The eSlate's PrecisionVote design yields advantages over other systems, particularly touch screen systems.

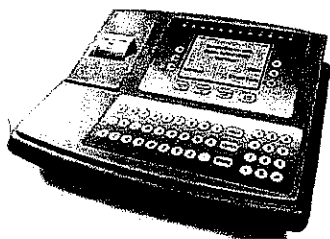
- Unlike touch screen systems, the eSlate requires no calibration, and there are no concerns with imprecise touch areas or errors caused by multiple touches.



BOULDER COUNTY, COLORADO
VOTING TABULATION



- The two-step process, making a selection with the Wheel and then pressing the ENTER button to record the selection, affords a greater level of assurance that the vote has been cast accurately.
- Since the voter addresses the eSlate through the SELECT Wheel, we can protect the display screen with the polycarbonate cover that is durable, inexpensive, and field replaceable. (By comparison, after normal use, touch screens may lose up to 35 percent of clarity due to surface abrasions).
- The SELECT Wheel makes an audible click when rotated, a feature that has been welcomed by visually impaired users. The SELECT Wheel can also be used by voters with significant mobility impairments
- Other buttons, all of which are designed to be highly tactile and intuitive, allow the voter to obtain assistance in using the device, move to the previous or next screen, and cast the ballot
- **Judge's Booth Controller (JBC).** The eSlate System's JBC is located at each polling place and networked to the other eSlates located at the polling place. The JBC supports the Polling Place Officials in controlling and monitoring the election process in the polling place or precinct. Each JBC controls up to 12 eSlates and enables the Polling Place Officials to know which booths are in use at any given time.



The JBC issues an Access Code linked to the voter's precinct. When entered on the eSlate by the voter, the Access Code informs the JBC of the correct ballot to present to the voter. The Access Code is **not** linked to the voter's identity. The JBC also holds the PC card (MBB) on which election information and cast votes are stored, and (if required) manages modem transmission to election central headquarters. The JBC has the following features:

- a display for delivery of instructions and messages to the operator, including information about system power status, number of votes cast during the day, and other information to support efficient polling place management;
- an alphanumeric keypad for entering precinct names, ballot styles, and other data;
- a built-in printer for printing ballot Access Codes, test and election information, and voter receipts, if required;
- a slot to insert a flash memory card (MBB); and
- 12 status lights used to indicate the state of each of the connected eSlate voting units.



BOULDER COUNTY, COLORADO
VOTING TABULATION



Disability Access Unit (DAU) The eSlate System is ADA accessible by design. The DAU is an optional device that can be installed in an eSlate and provides the following additional features:



- audio output for “reading” the ballot to the voter;
- a slot to insert a flash memory card (MBB) containing audio files; and
- remote switch input used for physically challenged voters, supporting a range of alternative input devices including breath control (“sip-and-puff”) devices

When an eSlate is configured with the DAU, it is identical to all other eSlate devices with the exception of the earphones and /or other accessibility devices attached to the input ports. Therefore, voters with disabilities use the same device and interface as all voters to cast their vote.

All disability features can be used interchangeably, in whole or part, with the eSlate’s standard interfaces, allowing the voter to overcome any physical challenges he/she might face in casting his or her ballot. The accessible devices may also be used by voters without disabilities.

Component Configuration at the Polling Places

The eSlates (stored in the voting booths), JBC, MBB, and booths are either delivered beforehand or are brought to the precinct by the Poll Workers. The JBC is the host for a serial-connected network consisting of one JBC and from one to 12 eSlates, depending on the size of the precinct and the anticipated turnout of registered voters. The eSlates in the booths are linked together with booth-to-booth cables and the eSlate in booth one is connected to the JBC with the JBC-to-booth cable.

The Polling Place Official begins by plugging in the system through a single power connection to the JBC. All eSlates attached to the JBC are then instantaneously and simultaneously activated in diagnostic mode. When power is applied to the JBC, a power on self-test is run by the internal software and a check is performed for the presence of the MBB.

The MBB may have been installed at headquarters or can be installed at the polling place. The JBC reads the MBB and verifies that it contains the proper data. The first step in pre-election sequence requires the Polling Place Official to enter the polling location into the Controller and assign booth numbers to the eSlates. Assigning booth numbers is accomplished simply by pressing the Enter button in each connected eSlate.

At this point, a “zero count” tape is printed from the Controller and the polls are ready to open. Only after the zero count tape is produced does the Controller display the option to open the polls. The Polling Place Official selects “Open Polls” and then is prompted for an optional password. The polls open and the



BOULDER COUNTY, COLORADO
VOTING TABULATION



Controller's Booth Status Lights are green, indicating each connected eSlate is "Available."

The process of opening the polls, including setting up booths and connecting all devices, can be completed in a typical polling place (four to five booths) in less than 15 minutes. The time required from the point power is applied to the JBC to the point that the eSlate devices are ready accept votes is measured in seconds.

Throughout the day, as each vote is cast, a Cast Vote Record (CVR) is created and stored in three physically separate locations. One CVR is stored on the eSlate device on which it was cast, another in Flash memory on the JBC, and the third on the MBB. The creation of "triplicate original" Cast Vote Records has several advantages:

- It provides data redundancy and an audit path that can be used in the event of a recount or challenge.
- It assures a high level of data integrity since the system is able to perform constant validation checks to ensure data consistency.
- By storing CVRs on physically separate devices, the danger of losing a vote if a single unit becomes inaccessible disappears.

Once voting is complete, the polls are closed through the JBC in a few simple steps. The polling place official presses the "Close Polls" button on the JBC and each eSlate attached to the JBC is immediately deactivated. Unlike other systems, the polling place official does not need to "harvest" votes from each individual machine, since the "triplicate original" feature has already stored all Cast Vote Records on the JBC and the MBB.

It is also at this point that the polling place official can modem results, if the County has chosen to do so, and can also print a polling place/precinct tabulation.

Each component of the eSlate System creates a complete audit log of all actions that affect it. At the polling place, each individual eSlate unit maintains an audit log, and an audit log for the polling place is maintained on the Judge's Booth Controller.

All eSlate components generate comprehensive audit logs. However, the eSlate's architecture at the polling place eliminates the requirement to gather such logs from stand-alone units. Instead, the Judge's Booth Controller automatically compiles audit logs from devices it controls. The eSlate System's SERVO utility can be used to easily gather audit logs from all eSlate voting devices and JBCs as part of standard post election processes for verification and archiving and resetting equipment.

(2) Describe the post election night process to capture any information not captured during the transfer of votes to the tabulation system. The list



BOULDER COUNTY, COLORADO
VOTING TABULATION



should include ballot images, hardware logs, device activity logs, and operator activity logs.

Hart InterCivic Response

All information is captured and transferred to the tabulation system on Election Night. All Cast Vote Records and audit data is supplied to Tally when the MBB is read. The voting system does produce additional records stored on the precinct equipment through the "triplicate original" process. This data takes a different path, thereby elevating the security and auditability of the system.

Following Election Day, data and equipment management is managed through the SERVO software component of the eSlate System.

SERVO is a software application that tracks the Precinct Voting System equipment maintained by the jurisdiction. The primary purpose of SERVO is to manage the data supplied by the precinct hardware (individual eSlates and JBC), maintain on-going equipment history, and supply election records as required. SERVO is used to back up the triplicate original cast vote records and audit logs from eSlates and JBCs used in an election. The backed-up data can then be used to verify, or recount, the MBB-generated tabulation results and to provide reports on cast vote records, audit logs, and equipment used for the election.

SERVO may also be used to recover data from equipment in the event of a lost or damaged MBB, to reset equipment as needed, and to set the clock on a JBC.

SERVO uses the triple redundancy features of the eSlate Electronic Voting System to their fullest advantage. Election results are initially generated from the direct reading of MBBs into Tally. SERVO generated recount data from the JBC and eSlate memories can be used to compare against the MBB results, creating a distributed, closed-loop process that provides redundant cross verification of election results. This makes the ability to recount election results a seamless option for every election cycle, increasing system reliability and security.

SERVO is intended for use at a jurisdiction's warehouse, or the location at which all of the JBCs and eSlates are stored. It is typically used prior to deployment of JBCs and eSlates and at the conclusion of an election. Equipment management tasks include adding a device's public serial number to the SERVO database and resetting a device.

SERVO creates a database of:

- the public serial numbers of PVS equipment maintained by a jurisdiction
- reconciled records of the duplicate original Cast Vote Records (ballot images) and audit logs from eSlates and JBCs used in an election.



BOULDER COUNTY, COLORADO
VOTING TABULATION



- (3) Give an estimate of the time to set up the system components (i.e., DREs and controller unit) to make them ready for delivery to the polls. This should include a list of the steps necessary to set up each component and the time required for each step. Do not include the time needed for retrieval or storage of the device. List shall include all activities necessary from the point they are removed from storage to the point they are ready to be delivered to the polls (e.g., powering on unit, clearing prior election, hardware test and setup if necessary, loading election data, tagging device, maintenance of printer, etc). Include, in detail, a description of the testing procedures for all components of the system and automated tools available.

Hart InterCivic Response

In *Exhibit IV-7: Component Set Up Time*, we present estimates adapted from Hart InterCivic's guide for warehouse use when preparing for an election.

Tasks	Average Time to Complete
1. Open Booth/Container	15 seconds per unit
2. Visual Inspection	30 seconds per unit
3. Install audio card in Disabled Access Unit (250 units)	15 seconds per unit
4. Power on functional test	2 minutes per polling location
5. Reset equipment	15 seconds per unit
6. Check paper supply in JBC (250 units)	30 seconds per unit
7. Install MBBs in JBC (250 units) and seal unit	15 seconds per unit
8. Clean screen on eSlate/DAU (Includes closing of booth)	10 seconds per unit

Exhibit IV-7: Component Set Up Time. The table above presents estimated time associated with each set up task.

All major subsystems and assemblies (BOSS, Ballot Now, Tally, eSlate units, DAUs, and JBCs) include automatic diagnostic testing. These tests include error checking of function output, input validation, Cyclic Redundancy Checks, and real time error checking. Additional manual functional tests are available for each subsystem, including testing of the input switches and buttons on the eSlate and DAUs. For the Polling Place equipment, these tests are performed automatically upon power up of the system.

The unique design of the eSlate Electronic Voting System allows the "power on functional test" to consist of nothing more than a button test. There is nothing to calibrate or adjust. Upon power up, the "Button Test" screen appears on each unit



BOULDER COUNTY, COLORADO
VOTING TABULATION



and provides a visual confirmation that the test was successful. This greatly simplifies the election preparation process.

11.0 BALLOT MANAGEMENT (INTERFACE TO VOTE TABULATION SYSTEM)

The Boulder County Clerk & Recorder uses Teamwork Tabulation software. The current procedure for setting up the Teamwork Tabulation ballot tabulation system uses information from the ballot layout and from the Integrity Voter Registration System. This data identifies contests, measures and candidates for each ballot type, "vote for" rules, and the base order after applying the state and local candidate and ballot issue positions. The Teamwork ballot counting program is manually configured from this data with all contest and ballot type definitions keyed in to a separate program. Both precinct ballots and absentee/mail/provisional ballots are tabulated using the same program.

11.1 Requirement

The proposed software shall automatically transfer all ballot setup information from the ABL system to the ballot tabulation system for both DRE and absentee/mail/provisional ballot processes.

Hart InterCivic Response

Tally is the eSlate's tabulation and reporting application. Tally reads, stores, and tabulates the Cast Vote Records from Mobile Ballot Boxes and provides a flexible reporting engine. Tally assures Boulder County election officials that tabulation is a simple, straightforward and, most important, accurate process.



At the close of polls on Election Day, all of the MBBs (including those used for absentee/mail or Early Voting) are returned to the central counting location or satellite tabulation centers. (Results also may be electronically transmitted from the polling place or regional collection centers.) The Tally database is initialized by the locked BOSS database that was used to create the election. This initialization prepares Tally for tabulation.

Tally accepts results in the form of Cast Vote Records from MBBs, and tabulates all Election Day, absentee, provisional, and Early Voting votes. The integration of results from these various voting options is seamless, since all Cast Vote Records come from the voting process to Tally on the MBB. Future voting methodologies (for example, Internet Voting) will be handled in the same manner to maintain the highly integrated nature of the system.

11.2 Proposer's Response



BOULDER COUNTY, COLORADO
VOTING TABULATION



a. Will you meet these requirements?	Yes	X	No
--------------------------------------	-----	---	----

b. How do you propose to meet this requirement? Make sure to include item(s) listed below:

(1) Describe the process required to prepare the ballot tabulation portion of your system after the ballot layout has been completed and proofed.

Hart InterCivic Response

All data is automatically transferred to Tally from the Ballot Origination Software System. When the Tally application is launched, a BOSS database must be selected to open a new election to tabulate. When the BOSS database for the Election is selected, the data in BOSS is transferred to Tally automatically.

Tally assures the Election Official that tabulation is a simple, straightforward, and most important, an accurate process. At the close of polls on Election Day, all of the MBBs (including those used for absentee/mail or the Early Voting process) are returned to the central counting location. The Tally database is initialized by the locked BOSS database that was used to create the election. This initialization makes the ballot definition data available to Tally for tabulation.

Tally accepts results from and tabulates all Election Day, absentee/mail, and Early Voting votes and election canvass information. The integration of results from these various voting options is seamless, since all CVRs come from the voting process to Tally on the MBB.

Many procedures that would be handled manually by other systems are automated by using Tally. Write-in candidates from both the DRE (eSlate) and ABS (Ballot Now) options are tabulated by Tally. Prior to tabulation, the names and any acceptable aliases for the certified write-in candidates are entered into the Tally application. During tabulation, Tally reads the CVRs from all MBBs. These MBBs include the write-in candidate names generated at the eSlate, or during absentee/mail ballot resolution. Votes for the write-in candidates are counted and reported, as for all candidates. The names of write-in candidates are displayed in reports with the annotation "(W)."

Under current Colorado law and procedure, provisional voters use paper ballots; the eSlate System meets this requirement through the Ballot Now System. Absentee/mail/provisional ballots, produced through the eSlate System's Ballot Now component are separated from other cast votes and held for scanning, and therefore tabulation, until a determination of eligibility is made.

However, in the event that Colorado permits electronic processing of provisionals, the eSlate includes integrated capability for managing provisional votes.



BOULDER COUNTY, COLORADO
VOTING TABULATION



Tally efficiently handles the processing of provisional ballots. Provisional ballots cast on the eSlate are assigned a random number, or Retrieval Code, used to identify a specific ballot in the Tally application. To process these ballots cast on the eSlate, prior to tabulation, the election official instructs the Tally System to hold provisional votes out of the tally until they are reviewed and resolved. Tally can also accept provisional votes until rejected. This is accomplished through a simple selection box in the application.

Once the provisional ballots have been reviewed and disposition rendered for each, election officials view the list of Retrieval Codes in Tally. The individual Retrieval Code would then be accepted or rejected depending on the disposition. Although the Retrieval Code may be used to identify a specific provisional ballot in the Tally application, there is no access to the actual ballot contents at any time during provisional ballot processing.

Tally produces a variety of standard reports that may be supplemented by customized report templates created by Hart InterCivic using Crystal Reports.

- (2) Describe how you will extract any necessary information from Integrity that is needed for the vote tabulation system, so that the current manual process can be fully automated.**

Hart InterCivic Response

As described previously, data from Integrity will be imported into BOSS through a highly automated import wizard. Data for the Tally tabulation system is then obtained from BOSS.

12.0 BALLOT MANAGEMENT (WEB INTERFACE)

The Boulder County Clerk & Recorder would provide the voters in the county with an automated look-up of their own individual ballot facsimile on the Elections web site. The web look-up routines access Printable Document Format (.PDF) documents that are organized by ballot type and, in primary elections, by party. These .PDF documents are only available in English at this time.

12.1 Requirements

- a. The ABL software shall generate files in a .PDF format that can be printed on standard letter size paper. These documents will match the layout of the absentee ballot for each ballot type; party, when necessary; and for all languages entered into the ABL system for an election.



Boulder County, COLORADO
VOTING TABULATION



Hart InterCivic Response

The eSlate System produces .PDF files for printing or export to the Web. The .PDF files are produced using the same process as that used to create ballots for the absentee ballot application, Ballot Now, ensuring the format is identical. .PDF images can be created for each ballot type in all languages used in the election.

- b. The following naming conventions shall be used, in primary elections. The English language files are named as follows: DEM001.pdf, REP001.pdf, etc. (party: first three characters; ballot type: second three characters). General elections do not require party specific file names. An example of the naming structure used for a general election is as follows: BC-001.pdf.

Hart InterCivic Response

The ballot definition software, BOSS, can directly produce .PDF files and use a file naming convention selected by the County.

12.2 Proposer's Response

a. Will you meet these requirements?	Yes	X	No
--------------------------------------	-----	---	----

- b. How do you propose to meet these requirements? Address all requirements listed above, making sure to include item(s) listed below:

- (1) Provide a sample of .PDF documents used by other customers for this or a similar purpose. Other customers may use similar files for overseas absentee voting before receiving the official printed absentee ballots. These are not a replacement for official absentee ballots.

Hart InterCivic Response

Sample .PDF documents are included as *Attachment 4: Sample Web Interface Ballot*.

With regard to the overseas absentee voters reference, Hart InterCivic's expertise in this area was acknowledged as the exclusive certified election system partner of the team that was awarded the Federal Voting Assistance Project's (FVAP) Secure Electronic Registration and Voting Experiment (SERVE) contract. Through that project, Hart will be part of the team that will develop a standard for absentee voting by U.S. citizens overseas.



BOULDER COUNTY, COLORADO
VOTING TABULATION



13.0 PRECINCT VOTING (PRESENTATION OF BALLOT)

13.1 Requirements

- a. Present the ballot so it is easy to read, intuitive and follows a logical progression.

Hart InterCivic Response

Each ballot on an eSlate unit and the hard copy ballot produced by the Ballot Now is presented in a format that is easy to read, follows a logical progression, is appealing to the eye, and includes easy to follow instructions.

Flexible ballot design capability enhances the options for ballot presentation for the voter. The eSlate ballot is presented in a color bitmap image, the clarity of which makes it easy for voters to navigate. The polycarbonate cover on the display protects the display from damage that might harm clarity; touch screens, for example, have been shown to lose as much as w35% of their clarity due to surface abrasions. As a result, the eSlate System has received widespread and enthusiastic support from voters.

Exhibit IV-8 presents an example of how the ballot is presented on the eSlate screen.



BOULDER COUNTY, COLORADO
VOTING TABULATION



General Election		Precinct 101
November 05, 2002		Page 1 of 2
Instruction Note: VOTING FOR CANDIDATES AND PROPOSITIONS To vote for the candidate of your choice, or vote "For" or "Against" a proposition on the ballot, rotate the SELECT wheel until your choice is highlighted in blue. Press the ENTER button to mark your choice. Press the HELP button for assistance.		
President and Vice President		Mayor
☐ George W. Bush / Dick Cheney REP		☐ George Washington Carver
☐ Al Gore / Joe Lieberman DEM		☐ Betsy Ross
☐ Ralph Nader / Winona LaDuke GRN		☐ Charles Dickens
☒ Harry Browne / Art Oliver LIB		County Judge
United States Senator		☐ Martha Washington
☐ Abraham Lincoln		☐ James Madison
☐ John Adams		☐ Alex Haley
☐ Molly Pitcher		
☐ Booker T. Washington		
Governor		
☒ Harriet Tubman		
☐ Fredrick Douglass		
☐ Walt Whitman		
☐ Write In		
Attorney General		
☒ Susan B. Anthony		
☐ Mark Twain		
☐ Cesar Chavez		

Exhibit IV-8: Example eSlate DRE Screen. The eSlate presents the ballot to the voter in a form that is logical and easy-to-read.

- b. Allow the voter to change his/her selection as often as necessary.

Hart InterCivic Response

Throughout the voting process, the voter has multiple opportunities to change a vote on the eSlate System. In fact, the voter may change selections at will until the ballot is cast. Complete audio instructions for reviewing the ballot and making changes is provided to visually impaired voters using the audio ballot instructions.

- c. Alert the voter to undervote and prohibit overvotes before final vote is cast.

Hart InterCivic Response

The Ballot Summary that appears prior to the ballot being cast clearly identifies any undervoted contest by marking it "No Selection" in red type. For voters using the audio ballot, each contest name is read and any undervotes are identified as "No Selection." The voter is free to select a contest in which he or she wishes to change a selection. The eSlate System does not permit overvotes.



BOULDER COUNTY, COLORADO
VOTING TABULATION



Exhibit IV-9 presents a sample of the eSlate's Ballot Summary.

Contest	Selected
President	George Bush
Vice-President	Ross Perot
Secretary	Bing Crosby
Clerk	John Lennon
Board Member	Dolly Part
Council Member	John Elway
Commissioner	Bill Romanowski
Treasurer	Bill Tyler
Assessor	Big Spender
Surveyor	Not Sufficient
	No selections
	Always Late

To change a vote, select the contest and press enter.
Press NEXT for next page.
Press PREV for previous page.

Exhibit IV-9: eSlate's Ballot Summary Screen. The Ballot Summary Screen clearly indicates undervoted contests, and provides the voter an opportunity to return to any contest to change a vote, if desired.

d. Allow the voter to cast a write-in vote.

Hart InterCivic Response

The eSlate System accommodates write-in voting as an integral part of the electronic voting process. Unlike many other systems, the eSlate in-person voting method electronically records and stores write-in votes.

Exhibit IV-10 displays the eSlate's write-in entry screen.



BOULDER COUNTY, COLORADO
VOTING TABULATION



Enter Write-In Candidate

Candidate Name

A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
P	Q	R	S	T
U	V	W	X	Y
Z	Back	Space	Accept	Cancel

Press HELP for instructions.

Exhibit IV-10: The eSlate's Write-in Screen. The voter uses the SELECT Wheel and ENTER button to clearly enter the name of any write-in candidate.

e. Allow the voter to cast a provisional vote.

Hart InterCivic Response

Under current Colorado law and practice, provisional votes are cast using paper ballots. The eSlate System's Ballot Now application provides this capability.

Paper ballots are printed and marked "Provisional." Ballot Now ballots include a bar code/serial number to identify the voters precinct in order to facilitate reporting.

Provisional paper ballots are distributed as required in polling places on Election Day. The ballots are separated from other ballots, following the same procedures currently in place, and returned to the elections office for adjudication. As determinations are made, the ballots are released for scanning. As Ballot Now



BOULDER COUNTY, COLORADO
VOTING TABULATION



scans each ballot, a Cast Vote Record is created. When all provisional votes have been adjudicated, the MBB holding the provisional cast vote records is read and the results are included in the final tabulation.

In the event electronic processing of provisional voters is approved, the eSlate System enables elections officials to process provisional and challenged ballots efficiently by following these simple steps.

As soon as the voter completes the appropriate administrative procedures authorizing to vote a provisional ballot, the Polling Place Official will initiate the normal process using the Judge's Booth Controller (JBC) to "Add Voter." The poll worker then will select the voter's precinct number. Next, the election official will select "Provisional" on the JBC screen. This action will assign a Retrieval Code (a five-digit number) to the voter's ballot.

Once a Retrieval Code is assigned, the official then selects "Print" on the JBC to generate the Access Code and a Voter Provisional Stub. This stub contains the Retrieval Code, instructions to the voter, and designated spaces for the voter's name and signature.

After the voter has signed the stub with the retrieval code and returned it to the Polling Place Official, the voter may take the Access code and proceed to the booth to vote by the normal process.

- f. Provide a summary screen showing what the voter has chosen and what the voter has abstained from voting prior to final vote being cast.**

Hart InterCivic Response

The voter must view the Ballot Summary before he or she is able to cast a final ballot. The eSlate does not accept a CAST BALLOT command until the voter has viewed the Ballot Summary. The voter may view the Summary by voting the last contest on the last page of the ballot, by pressing NEXT after viewing the last page of the ballot, or by pressing CAST BALLOT the first time before having completed either of the above. An example of the eSlate's Summary Screen is provided in *Exhibit IV-11*.

- g. Device shall be capable of supporting multiple languages, including, but not limited to, English, Spanish and character-based languages.**

Hart InterCivic Response

The eSlate System Version 2.1, as certified in Colorado, supports English and Spanish. eSlate System version 3.0 supports up to 10 languages, including character-based languages. English and additional languages are entered directly into BOSS, which then formats the data for the MBB. Primary and secondary audio is recorded directly by the BOSS application. Import and export functions move the ballot data in and out of BOSS and support use of commercially



BOULDER COUNTY, COLORADO
VOTING TABULATION



available translation software. *Locally recorded audio enhances understandability by taking into account local pronunciations and dialects, a consideration in the Justice Department implementation of language minority requirements.*

h. The system will protect the privacy and identity of the voter.

Hart InterCivic Response

There is no voter identification information in the eSlate System database. Furthermore, when votes are cast and Cast Vote Records created, the Cast Vote Records are stored in a randomized order rather than the order in which they were cast. This prevents someone from attempting to identify an individual's vote by comparing it to the voting order in a roster book. Privacy is also guaranteed by the fact that eSlate Access Codes are not linked in any way to information that could be used to identify a voter.

13.2 Proposer's Response

a. Will you meet these requirements?	Yes	X	No
---	------------	----------	-----------

b. How do you propose to meet these requirements?

Hart InterCivic Response

Each requirement was addressed directly in the above discussion.



BOULDER COUNTY, COLORADO
VOTING TABULATION



14.0 PRECINCT VOTING (MULTIPLE BALLOT STYLES AND MULTIPLE BALLOT DISTRICTS)

14.1 Requirement

The system shall provide for the voting of multiple ballot styles and multiple ballot districts at a single election precinct.

Hart InterCivic Response

The ballot generation feature of BOSS is capable of presenting multiple ballot styles and multiple ballot districts at a single precinct.

14.2 Proposer's Response

a. Will you meet these requirements?	Yes	X	No
--------------------------------------	-----	---	----

b. How do you propose to meet this requirement?

Hart InterCivic Response

Jurisdictional and election specific information is stored in BOSS. Ballot generation creates a single data file that is used to conduct the election across the County. The data, including ballot styles and districts, is stored on the MBB. MBBs are loaded in each Judge's Booth Controller. Judge's Booth Controllers are placed at the precincts.

When the JBC is activated, the polling place officials control which ballot styles are presented at each precinct by entering a precinct identification code. This can include presentation of all ballot styles if the polling place is being used for countywide early voting.

15.0 PRECINCT VOTING (ACCESSIBILITY FOR VOTERS WITH SPECIFIC NEEDS)

15.1 Requirements

- a. The proposed system shall provide audio instructions for the ballot and a mechanism for the visually impaired voter to cast a ballot, either on the voting unit, itself, or on a separate device designed for this purpose. The process shall imitate the process used by sighted voters, with the exception of the audio interface.

Hart InterCivic Response

When an eSlate voting device is outfitted with the Disability Access Unit, visually impaired voters may use the System's integrated audio ballot reader. Through



BOULDER COUNTY, COLORADO
VOTING TABULATION



headphones supplied with the system, eSlate's audio ballot reader allows visually impaired voters to hear the ballot read in a human voice – not a synthesized electronic voice – including audible instructions and confirmation of each vote.

Audio is locally recorded, so local pronunciations are correct, and the system supports multilingual audio. Voters with literacy challenges can also use the audio ballot reader.

In addition, eSlate's controls are large and clearly shaped, providing a highly tactile interface. The SELECT Wheel provides both audio and tactile support to visually impaired voters, as well as an appropriate interface for individuals with limited dexterity who cannot master a touch screen target zone. The lightweight eSlate can be placed on a wheelchair tray or taken curbside, and eSlate DAU unit voting booths are designed to accommodate wheelchairs.

- b. It would be desirable for the system to support an enlarged ballot for the visually impaired.**

Hart InterCivic Response

The eSlate's System 3.0 affords the voter the option to select a larger font display of English ballots at each individual voting unit. In this manner, the voter makes the choice of the large type ballot privately.

The eSlate System Version 2.1 uses a standard 18-point font ballot text displayed on the eSlate. The font size can be increased, if Election Officials wish to provide a standard font that is larger than 18-point. In addition, since the eSlate is not a touch screen system, it easily accommodates standard screen magnifiers.

- c. The devices shall meet all requirements of Federal and State law that address accessibility to voting.**

Hart InterCivic Response

The eSlate Precinct Voting System complies with Section 504 of the Federal Rehabilitation Act of 1973 and its subsequent amendments, and Title II of the Federal Americans with Disabilities Act and its subsequent amendments.

- d. The devices shall be lightweight and portable enough for use on a voter's lap and at the curbside for voters unable to access the voting room or voting booth, or provide for an alternative solution.**

Hart InterCivic Response

The highly portable eSlate readily accommodates voters who cannot enter the polling place or who require that the voting device be placed on a wheelchair tray or lap. Each eSlate weighs just 7.7 lbs. with the battery pack installed. Without



BOULDER COUNTY, COLORADO
VOTING TABULATION



the battery pack, the eSlate weighs just 5.2 pounds, the lightest weight DRE on the market. Procedures used for curbside voters follow those for other voters.

- e. The devices shall provide a means for voters with limited dexterity to vote.

Hart InterCivic Response

Because of the SELECT Wheel design, the eSlate is the most accessible system for voters with mobility impairments. Whereas voters with limited dexterity may find touching a precise target zone on a touch screen difficult or impossible, voters with limited dexterity or even severe mobility challenges are able to navigate the eSlate's ballot independently using the SELECT Wheel. For example, mobility impaired voters have cast independent votes on the eSlate System using mouth straws (pointing devices), feet, and even with partial limbs.

The eSlate DAU also allows multiple means of auxiliary input by persons with physical disabilities. These include optional, externally mounted controls ("jelly switches") that permit operation of the unit by people lacking fine motor skills or digital dexterity. The DAU also may be operated by any standard dual medical accessibility switch (a "sip-and-puff" device often used by disabled persons to operate their wheelchairs).

We are proud that the eSlate is rated as the highest ranked voting system in terms of accessibility in the November issue of *AccessWorld Magazine*. This is based on a review of voting systems by the American Foundation for the Blind Technology and Employment Center.

- f. If the devices are contained in a voting booth, the booth legs should provide sufficient width to allow wheelchair access, or provide for an alternative solution.

Hart InterCivic Response

The eSlate System includes a booth especially designed for wheelchair access, including wide legs, a steeper angle of view, and lower height to provide comfort for wheelchair voters. Voters without disabilities may also use the booth.

15.2 Proposer's Response

a. Will you meet these requirements?	Yes	X	No
--------------------------------------	-----	---	----

- b. How do you propose to meet these requirements? Address all requirements listed above, making sure to include item(s) listed below:

- (1) What is the procedure for constructing the audio ballot (i.e. text-to-speech and voice recording)?



BOULDER COUNTY, COLORADO
VOTING TABULATION



Hart InterCivic Response

Audio files (.wav files) are created in BOSS through an integrated recording process or may be imported to the system if recorded externally by a translator. During the ballot definition process, election officials (or language specialists) use a standard PC headset to record ballot information. The audio files are written to a PC card, which is inserted into a slot in the Disability Access Unit.

(2) Describe the equipment and procedure required for a visually impaired voter to cast a ballot? Is an additional or unique voting unit required?

Hart InterCivic Response

Voters with disabilities vote on units that are virtually indistinguishable from those used by voters with full physical capabilities. This is possible because regular eSlate units convert to accessible units simply by adding a special module (DAU) that is virtually undetectable. The DAU provides a slot for the PC Card containing audio files and two ports, one for headphones and one for alternative mobility devices.

Visually impaired voters use the same eSlate voting device and controls as all voters. No additional voting unit is required. The DAU presents a complete recording of all ballot instructions and ballot text, and gives users verbal confirmation of every selection as it is made.

The disability access unit module enables the eSlate to accommodate voters with even the most profound disabilities by supporting any standard dual switch accessibility device, such as a "sip-and-puff."

When confirmed as a qualified voter, the visually impaired voter is assigned an Access Code and escorted to a voting booth by a Polling Place Official or other authorized individual. The escort provides a brief overview of the eSlate System operation, helps the voter understand how to operate the control buttons, and assists him or her in positioning the headphones and adjusting the volume for the audio ballot reader. Then, the escort either reads the four-digit Access Code to the voter for him or her to enter or provides assistance in entering the number. From this point, the voter may cast an independent, secret ballot.

Once the Access Code is entered, ballot navigation is accomplished with the SELECT Wheel. The ENTER button is used to record voter choices. As the voter rotates the SELECT Wheel, the text of highlighted boxes is "read" to the voter through the headphones. The noticeable click of the wheel as it rotates further helps the voter feel his or her way through the ballot (providing audible and tactile clues for ballot navigation).

Each time the ENTER button is pressed, the audio reader confirms the choice recorded by the voter and the system automatically advances to the next contest.



BOULDER COUNTY, COLORADO
VOTING TABULATION



As with the standard operation of the eSlate, the system prevents the visually impaired voter from overvoting any race. The visually impaired voter has the opportunity to review his or her choices as the audio reader confirms them on the Ballot Summary. He or she may return to the ballot and make or change choices as many times as desired.

(3) How will the devices support an enlarged ballot?

Hart InterCivic Response

The eSlate's System 3.0 affords the voter the option to select a larger font display of English ballots at each individual voting unit. In this manner, the voter makes the choice of the large type ballot privately.

The eSlate System Version 2.1 currently uses a standard 18-point font ballot text. The font size can be increased, if Election Officials wish to provide a standard font that is larger than 18-point. Since the eSlate is not a touch screen, it also accommodates standard sheet magnifiers.

(4) Describe the procedure for a poll worker to remove a voting unit for laptop or curbside voting.

Hart InterCivic Response

The highly portable eSlate readily accommodates voters who cannot enter the polling place. Poll Workers, regardless of age or physical strength, are able to assist curbside voters, as the eSlate weighs less than eight pounds when fully equipped with the special access features for the disabled and the battery pack. It fits comfortably in the voter's lap.

Procedures used for curbside voters follow those for other voters. Once a curbside voter's qualification to vote has been established, the voter is assigned an Access Code in the normal manner. Next, an election official enters that Code into the last eSlate unit in the string; one that has a battery pack installed and is usually set up as a DAU. The official then detaches the network cable and takes the eSlate to the voter, instructs him or her on the operation of the unit, and allows the voter to complete the voting process in the privacy of the vehicle.

When the voter has cast his or her ballot, the official returns the voting unit to the polling place and re-connects the network cable. At that time, the voter's Cast Vote Record is recorded in the JBC and MBB as with all the other ballots cast in the polling place.

(5) Describe the equipment that would allow voters with specific needs to vote and cast their ballot (i.e. dexterity or hand mobility impaired voter).



BOULDER COUNTY, COLORADO
VOTING TABULATION



Hart InterCivic Response

The eSlate System provides additional accessibility features that allow voters with other physical disabilities to cast a secret ballot.

The DAU allows multiple means of auxiliary input by persons with physical disabilities. These include optional, externally mounted controls ("jelly switches") that permit operation of the unit by people lacking fine motor skills or digital dexterity.

The DAU also may be operated by any standard dual medical accessibility switch (a "sip-and-puff" device often used by disabled persons to operate their wheelchairs). Once the disabled voter is qualified for voting, the sip-and-puff switch may be disconnected from the wheelchair and plugged into the DAU. The voter then may vote independently, using only his or her breath (and not his or her hands) to navigate through the ballot.

All ADA access features may be used interchangeably, in whole or in part, with the eSlate's standard interfaces, thus allowing the voter to overcome a wide range of physical challenges he or she might face in casting a ballot.

(6) Describe how a voter who uses a wheelchair would access the voting device?

Hart InterCivic Response

At the option of the customer, Hart includes with each DAU a specially designed eSlate Voting Booth positioned at a special angle, lower in height, and with widely spaced legs to permit easy wheelchair access. The design of the booth presents the ballot to all voters at a comfortable, easy-to-view angle, while allowing poll workers and clerks to easily monitor activity at each booth. Individuals in wheelchairs or who require or prefer a lower voting surface are able to cast their votes in comfort and privacy by using the specially designed eSlate voting booth.

Although similar in appearance to the standard voting booth, this booth places the voting terminal at a height and angle ideally suited for voters in wheelchairs or those who need a shorter voting platform.

(7) Have you received any awards or any endorsements from groups that represent voters with specific needs? Please provide the awards or the endorsements, if you have.

Hart InterCivic Response

Harris County, Texas, was recently honored with a joint award from the National Association of Counties and the National Organization on Disabilities for its



BOULDER COUNTY, COLORADO
VOTING TABULATION



efforts to expand the voting process and enable disabled voters to exercise their rights at the polling place independently. The award included the accessibility features of the eSlate Electronic Voting System, currently being implemented in Harris County. Harris County Clerk Beverly Kaufman invited representatives of Hart InterCivic to join her at the award presentation.

Hart InterCivic has worked with organizations such as the National Federation of the Blind, the National Organization on Disabilities, and the American Association of People with Disabilities to obtain input and guidance regarding the accessibility features of the eSlate System. Letters from representatives of the National Federation of the Blind and the National Organization on Disabilities are attached as *Attachment 5: Awards and Endorsements*.

We are proud that the eSlate was rated as the highest ranked voting system in terms of accessibility in a recent issue of AccessWorld Magazine, based on a review of voting systems by the American Foundation for the Blind Technology and Employment Center. The Center provided us with the following statement:

"(The Center has) just completed a project in which we evaluated 4 electronic voting machines, including the eSlate by Hart InterCivic, the AVC Edge from Sequoia Voting Systems, the iVotronic from Election Systems and Software, and the Vote-Trakker from Avante International Technologies. (Note: Diebold's system was not made available for review). We evaluated them for usability and accessibility to people who are blind or visually impaired.

Although all the machines are usable and they are a huge step forward over the way blind and visually impaired people currently vote with assistance from poll workers or relatives, we do rate the eSlate as the best machine we looked at. It scored highest in overall usability and our testers liked the easy to use linear ballot and the fact that audio and visual voting can be used simultaneously. We also found the eSlate to have the highest level of cross-disability access, with accessibility features to accommodate people with non-visual disabilities. We will be publishing our results in the November issue of our AccessWorld magazine."

16.0 PRECINCT VOTING (MULTIPLE LANGUAGES)

16.1 Requirement

- a. The proposed system shall provide a method by which voters can choose the language of the ballot.



BOULDER COUNTY, COLORADO
VOTING TABULATION



Hart InterCivic Response

Voters choose their preferred language without the assistance of poll workers, in the same manner that they cast votes.

16.2 Proposer's Response

a. Will you meet these requirements?	Yes	X	No
---	------------	----------	-----------

b. How do you propose to meet this requirement? Make sure to include item(s) listed below:

- (1) Describe the process for choosing the ballot language for the voter. Include all responsibilities of the poll worker and voter, and at which point in the process the language is selected.**

Hart InterCivic Response

At the polling location, the first screen the voter is a language selection screen that displays all available languages for the election. Once the voter selects a language, all further text and audio information is delivered in the selected language. There is no requirement for Polling Place Officials to assist in selecting a language other than English.

17.0 PRECINCT VOTING (HARDWARE CONFIGURATION)

17.1 Requirements

- a. The proposed system shall contain, at a minimum, the hardware components necessary to process voters and deliver totals for closing the polls, i.e., voting devices, controller unit (if required for system), printer for zero tapes, overall results and voter receipt.**

Hart InterCivic Response

The eSlate Precinct Voting System includes all hardware necessary to operate a polling place, including voting device (eSlate), controller (JBC) and printer for zero tapes, voter receipts, and other reports (built in to the JBC).

- b. The components shall be as small and weigh as little as possible.**

Hart InterCivic Response

The eSlate is the lightest weight DRE on the market, and has a compact, efficient design. Weights and dimensions are detailed in *Exhibit IV-13* below.

- c. The components shall be durable.**



BOULDER COUNTY, COLORADO
VOTING TABULATION



Hart InterCivic Response

eSlate customers have a rugged, durable voting system that ensures them of many years of accurate, reliable operation. The eSlate is engineered to meet military specification for durability (MIL-STD-810). As an added benefit of eSlate's environmental tolerances, there is no need to store the units in an expensive, climate-controlled warehouse.

- d. The proposed system shall produce, at the time the voter votes his or her ballot or at the time the polls are closed, a paper version or representation of the voted ballot or of all the ballots cast on a unit of the voting system. The paper version shall not be provided to the voter but shall be retained by the Boulder County Clerk & Recorder for use during any recount or contest, as required by Colorado Revised Statutes.**

Each vote that is cast on the eSlate DRE or through a paper ballot produced by Ballot Now creates a Cast Vote Record. The Cast Vote Record is an alphanumeric representation of each ballot face. The eSlate System can produce paper copies of all Cast Vote Records recorded during an election. This process is managed efficiently after polls close and when the equipment is returned to the warehouse. The eSlate's SERVO utility serves as a tool for data archiving, and SERVO can facilitate the export of CVRs for subsequent printing.

An example of the paper representation of the Cast Vote Record is included below in *Exhibit IV-12 , Paper Version Representation of the Voted Ballot*.



BOULDER COUNTY, COLORADO
VOTING TABULATION



Device Cast Vote Records
Harris County 2000 General Election

C00001 JBC

8/20/02

CVR: 1	Precinct 0001-A	Polling Place	SRD 0001			
PRESIDENT AND VICE PRESIDENT	PAT BUCHANAN AND EZOLA POSTER		☒	STATE REPRESENTATIVE, DISTRICT 139	SYLVESTER TURNER	☒
UNITED STATES SENATOR	MARY J. RUWALT		☒	STATE REPRESENTATIVE, DISTRICT 143	JOE R. MORENO	☒
UNITED STATES REPRESENTATIVE, DISTRICT 7	JEFF SELL		☒	STATE REPRESENTATIVE, DISTRICT 145	RICHARD (RICK) NORIEGA	☒
UNITED STATES REPRESENTATIVE, DISTRICT 9	NICK LAMPSON		☒	JUSTICE, 1ST COURT OF APPEALS DISTRICT, PLACE 1	M. B.	☒
UNITED STATES REPRESENTATIVE, DISTRICT 22	KENT PROBST		☒	JUSTICE, 1ST COURT OF APPEALS DISTRICT, PLACE 2	MARY C. THOMPSON	☒
UNITED STATES REPRESENTATIVE, DISTRICT 25	CLIFFORD LEE MESSINA		☒	JUSTICE, 1ST COURT OF APPEALS DISTRICT, PLACE 3	ADELE HEDGES	☒
RAILROAD COMMISSIONER	CAROLYN FIELDS		☒	JUSTICE, 1ST COURT OF APPEALS DISTRICT, PLACE 4	BRIGANDELL	☒
RAILROAD COMMISSIONER	GARY DUGGER		☒	JUSTICE, 14TH COURT OF APPEALS DISTRICT, PLACE 1	TIM TAFT	☒
RAILROAD COMMISSIONER (UNEXPIRED TERM)	JOHN DOE		☒	JUSTICE, 14TH COURT OF APPEALS DISTRICT, PLACE 2	CHARLES WESLEY SEYMORE	☒
JUSTICE, SUPREME COURT, PLACE 1	MICHAEL L. WILLIAMS		☒	JUSTICE, 14TH COURT OF APPEALS DISTRICT, PLACE 3	JOHN S. ANDERSON	☒
JUSTICE, SUPREME COURT, PLACE 2	NATHAN HECET		☒	JUSTICE, 14TH COURT OF APPEALS DISTRICT, PLACE 4	HARVEY HUDSON	☒
JUSTICE, SUPREME COURT, PLACE 3	PRISCILLA OWEN		☒	JUSTICE, 14TH COURT OF APPEALS DISTRICT, PLACE 5	WANDA FOWLER	☒
PRESIDING JUDGE, COURT OF CRIMINAL APPEALS	AL GONZALES		☒	JUSTICE, 14TH COURT OF APPEALS DISTRICT, PLACE 6 (UNEXPIRED TERM)	RICHARD EDELMAN	☒
JUDGE, COURT OF CRIMINAL APPEALS, PLACE 1	SHARON KELLER		☒	DISTRICT JUDGE, 11TH JUDICIAL DISTRICT	KEM THOMPSON FROST	☒
JUDGE, COURT OF CRIMINAL APPEALS, PLACE 2	CHARLES HOLOMB		☒	DISTRICT JUDGE, 35TH JUDICIAL DISTRICT	MARK DAVIDSON	☒
MEMBER, STATE BOARD OF EDUCATION, DISTRICT 4	BARBARA PARKER HERVEY		☒	DISTRICT ATTORNEY	MARK KENT ELLIS	☒
STATE SENATOR, DISTRICT 7	ALMA A. ALLEN		☒	JUDGE, COUNTY COURT AT LAW NO. 1 (UNEXPIRED TERM)	JAMES S. BRUCE MORIER	☒
STATE REPRESENTATIVE, DISTRICT 132	ION LINDSAY		☒	COUNTY ATTORNEY	MICHAEL P. FLEMING	☒
STATE REPRESENTATIVE, DISTRICT 135	SCOTT HOCHBERG		☒	SHERIFF	TOMMY THOMAS	☒
STATE REPRESENTATIVE, DISTRICT 138	GARY ELKINS		☒	COUNTY TAX ASSESSOR-COLLECTOR	JOHN T. WEBB	☒
	KEN YARBROUGE		☒			

Page 1 of 589

Exhibit 12. Paper Version Representation of the Voted Ballot: Each time a vote is cast on the eSlate System, a Cast Vote Record is created. The Cast Vote Record can be printed in paper version to create a complete paper trail for all ballots.



BOULDER COUNTY, COLORADO
VOTING TABULATION



- e. **The proposed system shall be capable of printing a receipt (not ballot facsimile) for the voter at the polls, should the County ever be required or choose to do so.**

Hart InterCivic Response

The eSlate System can print a receipt at the polling place for each voter. As each vote is cast, a record of the access code is reported to the JBC. The receipt indicates the voter's access code, time and date of voting and other information, but does not reveal the voter's choices. The same feature allows the polling place official to determine the current status of any issued Access Code through the JBC ("check code" feature).

Hart InterCivic has also developed a voter verifiable paper ballot solution in the event Federal or Colorado standards require such an approach. The system has not yet been submitted for certification. We are awaiting the clarification of standards and requirements for such an approach. However, our proposed approach minimize the complexity and delays that may accompany voter verifiable ballot systems through the use of a ballot review station. Additional detail on this system are available at Boulder County's request.

- f. **The proposed system shall have the capability of operating on back-up power should the need arise.**

Hart InterCivic Response

Each eSlate polling place component will accommodate a battery pack that can power the unit for more than 18 hours (double or triple that of other electronic voting systems on the market today).

17.2 Proposer's Response

a. Will you meet these requirements?	Yes	X	No
--------------------------------------	-----	---	----

- b. **How do you propose to meet these requirements? Address all requirements listed above, making sure to include item(s) listed below:**

(1) Describe which components are used at the polls on Election Day.

Hart InterCivic Response

The following components of the eSlate Electronic Voting System are deployed at the polling place.



Boulder County, COLORADO
VOTING TABULATION



eSlate

The eSlate is the device voters use to cast their ballots at the polling place. The eSlate is approximately 16" tall, 10" wide, and 2.75" deep, weighing approximately 5.2 pounds. *Given its compact size and light weight, the device is highly portable.* Information is displayed to the voter through a full SVGA LCD display, illuminated by a backlight, with a durable polycarbonate screen that protects the display from damage in intense usage environments. Backup power is provided by a "D" cell battery pack.

The eSlate includes an integrated selector, known as the Precision Ballot Navigation System. The selector is a type of Rotary Optical Encoder (ROE) technology through which the voters select their preferences by turning the SELECT Wheel, and pressing the adjacent ENTER button when the preferred choice is highlighted. Other buttons, all of which are designed to be highly tactile and intuitive, allow the voter to obtain assistance in using the device, move to the previous or next screen, and cast the ballot.

Judge's Booth Controller

The eSlate System's JBC is located at each polling place and networked within the polling place to the eSlates. The JBC supports the Polling Place Official in controlling and monitoring the election process in the polling place or precinct. Each JBC controls up to 12 eSlates and enables the Polling Place Official to know which booths are in use at any given time. The JBC includes a built-in printer for printing ballot Access Codes, test and election information, and voter receipts. The JBC issues an Access Code linked to the voter's precinct. When entered on the eSlate by the voter, the Access Code informs the JBC of the correct ballot to present to the voter. The Access Code does not link to the voter's identity. The JBC also holds the PCMCIA flash memory card (MBB) on which election information and cast votes are stored and manages modem transmission to election central headquarters.

Disability Access Unit (DAU)

The eSlate System is ADA accessible by design. The eSlate can be upgraded to a DAU to accommodate various devices that support voting by the disabled. The DAU is an optional device that can be installed in an eSlate and provides the following additional features:

- audio output for "reading" the ballot to the voter,
- a slot to insert a flash memory card (MBB) containing audio data, and
- remote switch input used for physically challenged voters, supporting a range of alternative input devices including breath control ("sip-and-puff") devices.



BOULDER COUNTY, COLORADO
VOTING TABULATION



- (2) Describe the dimensions and weight of each component, and if that component has the capability for operating on back-up power (battery), and if so, for how long. Please include all screen dimensions available.

Hart InterCivic Response

Details regarding the dimensions and weight of the eSlate System Components are presented in *Exhibit IV-13: eSlate System Components*.

eSlate Specifications			
Height	2.75 inches	Weight	5.2 pounds
Width	10.40 inches	Weight with DAU	5.5 pounds
Length	15.75 inches	Weight with battery pack	7.7 pounds
Display	600 x 800 SVGA LCD	Screen size	12"
JBC Specifications			
Height	5.30 inches	Weight	6.4 pounds
Width	13.75 inches	Display	320 X 240 LCD
Length	16.00 inches		

Exhibit IV-13: eSlate System Components. The eSlate System components are lightweight and compact.

Each eSlate polling place component will accommodate a battery pack that can power the unit for more than 18 hours (double or triple that of other electronic voting systems on the market today). If a power outage occurs, units with battery packs installed (which must include the JBC) can continue to operate without interruption or degradation of performance, as backup power will be activated immediately and automatically. No cast vote records will be lost.

- (3) Describe the durability of the components.

Hart InterCivic Response

eSlate System components have been designed for a long product life. All electronic components that dissipate power were selected with more than twice the power handling capacity required for the particular circuit element. The other components were selected with at least double the current and the voltage required for the application. Utilizing MIL SPEC type "Part Count Method" analysis for calculating the reliability of electronic systems, a conservative calculation of the predicted Mean Time Between Failure (MTBF) for the system's electronic circuits is approximately 24 years and has been verified by independent tests of the eSlate equipment.

Mechanical components of the eSlate System were selected, designed, and constructed to remain serviceable at least throughout the life of the electronic