



November 12, 2015

To the members of the Pilot Election Review Committee:

Clear Ballot Group, Inc. respectfully submits for your review the accompanying narrative for our November 13, 2015 presentation, as requested by Dwight Shellman in his letter of November 5, 2015.

Our experience working with Adams and Gilpin Counties during the October pilot was exhilarating and successful. Our on-site team has already incorporated several of the county staff suggestions to the Clear Ballot engineering team for development. Product release to the VSTL has occurred, and will be available for State of Colorado review according to their published schedule in January. We enjoy being responsive to the needs of the counties that use our products.

It was just a little over two years ago that we received the RFP for a uniform voting system for Colorado. In the months before that, we listened to the audio broadcasts of the meetings of the evaluation teams. We heard themes that are now playing out in states across the country:

- The need for innovation in a time of severe budget pressures,
- A concern over the effort needed to transition to a new voting system, and
- Premature obsolescence in a period of rapid innovation both in technology and in voting methods (like vote-by-mail).

But above all, we heard the desire to find a system that would enable counties to help each other and to easily share equipment.

In our presentation, we will show how the investments we have made in the last two years enable us to respond to each of these concerns.

Thank you for the opportunity to appear before you on November 13; we hope that Clear Ballot will be chosen to provide ongoing improvements to the voting experience for Colorado citizens.

Best regards,

Larry Moore, CEO

State of Colorado

Department of State



Pilot Election Review Committee

Cost Proposal Workbook

COST PROPOSAL WORKBOOK INSTRUCTIONS

1.0 Recommended System Configurations for County Tiers

Recommend a system configuration for the average county in each of the six county tiers, as explained in the cover letter. The recommended system should enable county users to process the projected highest daily volume of mail and in-person ballots for each tier in 12 hours. For central count operations, the configuration should be predicated on the time required to scan 8.5 x 18" double-sided ballots. For Voter Service and Polling Centers, please recommend a system configuration for a single VSPC capable of processing the projected highest daily volume of in-person voters per required VSPC. We will multiply the cost of equipping a single VSPC by the average number of required VSPCs for each separate tier when we compile the information received from all providers. For all operations (back office, central count and VSPCs, please indicate any voting system components that are optional, in the event a county desires to acquire less than the complete solution. Please provide this information separately for each county tier in Tabs 1.1, 1.2, 1.3, 1.4, 2.0, and 3.0 of this workbook.

4.0 Hardware Cost Table

List the description, make, model and unit purchase cost and, if offered, lease cost, of each piece of hardware proposed in any of your recommended system configurations. The hardware cost table also requests you to specify ongoing annual firmware license fees, to the extent applicable for each piece of hardware.

5.0 Software Cost Table

List the description, version and unit purchase cost and, if offered, lease cost, of each software component proposed in your recommended system configurations. The software cost table also requests you to specify ongoing annual software licence fees, to the extent applicable, for each software application or component.

6.0 Project Labor Cost Table

List the description and total cost of each category provided for labor required to deploy and implement your voting system for the average county in each county tier.

7.0 Vendor Hourly Rate Cost Table

List position descriptions for your billable personnel and the hourly rates you charge for their services during the warranty period and the projected rates for the following three years of support.

8.0 Miscellaneous Cost Table

Itemize any miscellaneous costs associated with the acquisition or deployment of your voting system in the average county for each tier.

9.0 Hourly Rate Table

List position descriptions for your billable personnel and the hourly rates you charge for their services during the warranty period and the projected rates for the following three (3) years of support.

| | Price | Tier 1.1 | | Tier 1.2 | | Tier 1.3 | | Tier 1.4 | | Tier 2 | | Tier 3 | |
|---|--------------|----------|-------------------|----------|-------------------|----------|-------------------|----------|-------------------|--------|-------------------|--------|-------------------|
| | | Qty | | Qty | | Qty | | Qty | | Qty | | Qty | |
| ClearDesign Software (Optional) | | Unltd | \$ 125,750 | Unltd | \$ 80,500 | Unltd | \$ 51,934 | Unltd | \$ 30,360 | Unltd | \$ 24,150 | Unltd | \$ 10,700 |
| ClearDesign System (Optional) | | | \$ 4,750 | | \$ 4,750 | | \$ 4,750 | | \$ 4,750 | | \$ 4,750 | | \$ 4,750 |
| Clear Ballot Ballot Layout and Design Services (Optional) | Per Election | | \$ 15,000 | | \$ 13,000 | | \$ 10,000 | | \$ 7,000 | | \$ 4,500 | | \$ 2,500 |
| ClearCount Software | | Unltd | \$ 424,250 | Unltd | \$ 269,500 | Unltd | \$ 173,866 | Unltd | \$ 101,640 | Unltd | \$ 70,850 | Unltd | \$ 57,930 |
| ClearCount Election in a Box | \$ 18,150 | | | | | | | | | 1.5 | \$ 27,225 | 1 | \$ 18,150 |
| ClearCount Medium Volume System | \$ 24,715 | | | | | | | 2 | \$ 49,430 | | | | |
| ClearCounty High Volume System | \$ 46,225 | 4 | \$ 184,900 | 3 | \$ 138,675 | 2 | \$ 92,450 | | | | | | |
| ClearAccess AVU | \$ 4,500 | 23 | \$ 103,500 | 14 | \$ 63,000 | 11 | \$ 49,500 | 4 | \$ 18,000 | 3 | \$ 13,500 | 1 | \$ 4,500 |
| ClearCast P1000 | \$ 6,000 | | | | | | | | | | | | |
| Project Management | | | \$ 43,300 | | \$ 26,500 | | \$ 24,500 | | \$ 22,500 | | \$ 14,000 | | \$ 9,000 |
| Regional Training | | | \$ 5,285 | | \$ 5,285 | | \$ 5,285 | | \$ 5,285 | | \$ 5,285 | | \$ 4,535 |
| Training Travel | | | \$ 4,650 | | \$ 4,650 | | \$ 4,650 | | \$ 4,650 | | \$ 4,650 | | \$ 4,650 |
| Implementation | | | \$ 21,200 | | \$ 19,700 | | \$ 16,100 | | \$ 14,100 | | \$ 9,500 | | \$ 7,500 |
| Total All In Cost (Including EMS) | | | \$ 932,585 | | \$ 625,560 | | \$ 433,035 | | \$ 257,715 | | \$ 178,410 | | \$ 124,215 |
| Total All In Cost (Excluding EMS) | | | \$ 787,085 | | \$ 527,310 | | \$ 366,351 | | \$ 215,605 | | \$ 145,010 | | \$ 106,265 |

* Unltd = Unlimited Use License

Financing Options Provided by Advantage Financial Services

| | | | | | | |
|--|---------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Five Year Term | Monthly Payment \$ 16,668.88 | Monthly Payment \$ 11,044.76 | Monthly Payment \$ 7,747.17 | Monthly Payment \$ 4,626.90 | Monthly Payment \$ 3,230.10 | Monthly Payment \$ 2,257.94 |
| Clear Ballot offers financing for 2-5 year terms and will work with each county to tailor a financing option that works best for them. | Annual Payment \$ 197,048.53 | Annual Payment \$130,563.90 | Annual Payment \$ 91,395.98 | Annual Payment \$ 54,585.08 | Annual Payment \$ 38,106.63 | Annual Payment \$ 26,637.72 |

Tier 1.1-Recommended System Configuration

A. Election Management Solution (including election definition, election data management, ballot layout, editing & generation, tabulation, and results reporting)

1. EMS Hardware

a. EMS servers

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------------|-------|----------|
| 1 | 1 | ClearDesign System | | Yes |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

b. EMS workstations/clients

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------------------------|-------|----------|
| 1 | 2 | Included in ClearDesign System | | Yes |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

c. EMS miscellaneous/peripherals

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

d. EMS backup hardware (if any)

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

e. Other EMS hardware

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

| Tier 1.1 Recap: | |
|--|---------|
| Average active voters-2012G | 349,888 |
| No. of counties in tier | 4 |
| Avg min number of Election Day VSPCs required | 23 |
| Projected total mail ballots-2016P | 301,766 |
| Projected highest daily volume of mail ballots-2016P | 63,813 |
| Projected total of in-person ballots cast-2016P | 15,547 |
| Projected highest daily volume of in-person ballots per VSPC-2016P | 501 |

Tier 1.1-Recommended System Configuration

2. EMS Software

a. Election management, election definition, data management, and ballot layout/editing/artwork generation applications

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | ClearDesign | 1.1 | Yes |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

c. Tabulation and results reporting

| Item No. | Application Name | Version | Optional |
|----------|--|---------|----------|
| 1 | See Central Count Software: ClearCount | | No |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

d. Other EMS software

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | Not Applicable | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

3. Election Programming Services

Preface: Historically, over half of Colorado's 64 counties have opted to acquire less than the complete EMS solution for their legacy voting systems, and instead engaged their voting system vendor to provide election definition and device programming services. In the cell below, please describe the election and device programming services that your organization can offer with respect to the temporarily approved voting system, and describe the manner in which you charge for these services in sufficient detail to enable us to calculate the cost for this service for an average county in this tier. Please be sure to include in your response whether these service charges are based on the number of registered voters, the number of ballot styles, or other factors. Please also indicate all EMS hardware and software components that counties opting for this service will not need to acquire.

Response: Clear Ballot's system requires no device programming for an election. Our Client Services Team is available to provide assistance or staff augmentation for any election and can be contracted specifically on a per election basis using the optional rates listed in Tab 6, starting at Row 156. Clear Ballot has provided an all inclusive price, per tier, for our Ballot Layout and Design Services per election. This price would include unlimited ballot styles, langauges, full design services by our expert staff, and coordination with each counties unique ballot printing vendor.

Tier 1.1-Recommended System Configuration

B. Central Count Solution

1. Central count hardware

a. Central count servers

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------|--------------------|---|
| 1 | 4 | Clear Ballot | High Volume System | No, although configuration adjustments can be made. |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

b. Central count workstations/clients

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--|-------|---|
| 1 | 7 | See Tab 4 for full list of system components | | No, although configuration adjustments can be made. |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

c. Central count scanners

| Item No. | Quantity | Manufacturer | Model | Throughput |
|----------|----------|--|-------|------------------------|
| 1 | 4 | See Tab 4 for full list of system components | | 3,348/hour at 8.5"x18" |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

d. Miscellaneous/peripheral/other central count hardware

| Item No. | Quantity | Manufacture | Model | Optional |
|----------|----------|--|-------|----------|
| 1 | | See Tab 4 for full list of system components | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |

Tier 1.1-Recommended System Configuration

2. Central count software

a. Central count software

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | ClearCount | 1.1 | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

b. Digital ballot resolution and adjudication applications

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | Included | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

c. Other/miscellaneous central count software

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | Not Applicable | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

Tier 1.1-Recommended System Configuration

C. Polling Location Solution

1. Polling location hardware and software

a. Polling location servers

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

b. Ballot marking devices (tablets/workstations/clients)

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------|-------|---|
| 1 | 23 | Clear Ballot | AVU | No, although configuration adjustments can be made. |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

c. Polling location tabulators

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------|-------|----------|
| 1 | 23 | Clear Ballot | P1000 | Yes |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

d. Polling location miscellaneous/peripheral/other hardware

| Item No. | Quantity | Manufacture | Model | Optional |
|----------|----------|--|-------|----------|
| 1 | | See Tab 4 for full list of system components | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |

Tier 1.2-Recommended System Configuration

A. Election Management Solution (including election definition, election data management, ballot layout, editing & generation, tabulation, and results reporting)

1. EMS Hardware

a. EMS servers

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------------|-------|----------|
| 1 | 1 | ClearDesign System | | Yes |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

b. EMS workstations/clients

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--|-------|----------|
| 1 | 2 | See Tab 4 for full list of system components | | Yes |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

c. EMS miscellaneous/peripherals

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

d. EMS backup hardware (if any)

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

e. Other EMS hardware

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

| Tier 1.2 Recap: | |
|--|---------|
| Average active voters-2012G | 208,576 |
| No. of counties in tier | 2 |
| Avg min number of Election Day VSPCs required | 14 |
| Projected total mail ballots-2016P | 175,157 |
| Projected highest daily volume of mail ballots-2016P | 37,652 |
| Projected total of in-person ballots cast-2016P | 11,624 |
| Projected highest daily volume of in-person ballots per VSPC-2016P | 623 |

Tier 1.2-Recommended System Configuration

2. EMS Software

a. Election management, election definition, data management, and ballot layout/editing/artwork generation applications

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | ClearDesign | 1.1 | Yes |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

c. Tabulation and results reporting

| Item No. | Application Name | Version | Optional |
|----------|---|---------|----------|
| 1 | See Central Count Software: ClearCount | | No |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

d. Other EMS software

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | Not Applicable | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

3. Election Programming Services

Preface: Historically, over half of Colorado's 64 counties have opted to acquire less than the complete EMS solution for their legacy voting systems, and instead engaged their voting system vendor to provide election definition and device programming services. In the cell below, please describe the election and device programming services that your organization can offer with respect to the temporarily approved voting system, and describe the manner in which you charge for these services in sufficient detail to enable us to calculate the cost for this service for an average county in this tier. Please be sure to include in your response whether these service charges are based on the number of registered voters, the number of ballot styles, or other factors. Please also indicate all EMS hardware and software components that counties opting for this service will not need to acquire.

Response: Clear Ballot's system requires no device programming for an election. Our Client Services Team is available to provide assistance or staff augmentation for any election and can be contracted specifically on a per election basis using the optional rates listed in Tab 6, starting at Row 156. Clear Ballot has provided an all inclusive price, per tier, for our Ballot Layout and Design Services per election. This price would include unlimited ballot styles, langauges, full design services by our expert staff, and coordination with each counties unique ballot printing vendor.

Tier 1.2-Recommended System Configuration

B. Central Count Solution

1. Central count hardware

a. Central count servers

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------|--------------------|---|
| 1 | 3 | Clear Ballot | High Volume System | No, although configuration adjustments can be made. |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

b. Central count workstations/clients

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--|-------|---|
| 1 | 5 | See Tab 4 for full list of system components | | No, although configuration adjustments can be made. |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

c. Central count scanners

| Item No. | Quantity | Manufacturer | Model | Throughput |
|----------|----------|--|-------|------------------------|
| 1 | 4 | See Tab 4 for full list of system components | | 3,348/hour at 8.5"x18" |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

d. Miscellaneous/peripheral/other central count hardware

| Item No. | Quantity | Manufacture | Model | Optional |
|----------|----------|--|-------|----------|
| 1 | | See Tab 4 for full list of system components | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |

| Tier 1.2-Recommended System Configuration | | | |
|---|------------------|---------|----------|
| 2. Central count software | | | |
| a. Central count software | | | |
| Item No. | Application Name | Version | Optional |
| 1 | ClearCount | 1.1 | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| b. Digital ballot resolution and adjudication applications | | | |
| Item No. | Application Name | Version | Optional |
| 1 | Included | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| c. Other/miscellaneous central count software | | | |
| Item No. | Application Name | Version | Optional |
| 1 | Not Applicable | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

Tier 1.2-Recommended System Configuration

C. Polling Location Solution

1. Polling location hardware and software

a. Polling location servers

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|-----------------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

b. Ballot marking devices (tablets/workstations/clients)

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------|-------|---|
| 1 | 14 | Clear Ballot | AVU | No, although configuration adjustments can be made. |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

c. Polling location tabulators

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------|-------|----------|
| 1 | 14 | Clear Ballot | P1000 | Yes |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

d. Polling location miscellaneous/peripheral/other hardware

| Item No. | Quantity | Manufacture | Model | Optional |
|----------|----------|--|-------|----------|
| 1 | | See Tab 4 for full list of system components | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |

Tier 1.3-Recommended System Configuration

A. Election Management Solution (including election definition, election data management, ballot layout, editing & generation, tabulation, and results reporting)

1. EMS Hardware

a. EMS servers

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------------|-------|----------|
| 1 | 1 | ClearDesign System | | Yes |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

b. EMS workstations/clients

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--|-------|----------|
| 1 | 2 | See Tab 4 for full list of system components | | Yes |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

c. EMS miscellaneous/peripherals

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

d. EMS backup hardware (if any)

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

e. Other EMS hardware

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

| Tier 1.3 Recap: | |
|--|---------|
| Average active voters-2012G | 173,533 |
| No. of counties in tier | 3 |
| Avg min number of Election Day VSPCs required | 11 |
| Projected total mail ballots-2016P | 158,209 |
| Projected highest daily volume of mail ballots-2016P | 33,330 |
| Projected total of in-person ballots cast-2016P | 8,572 |
| Projected highest daily volume of in-person ballots per VSPC-2016P | 567 |

Tier 1.3-Recommended System Configuration

2. EMS Software

a. Election management, election definition, data management, and ballot layout/editing/artwork generation applications

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | ClearDesign | 1.1 | Yes |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

c. Tabulation and results reporting

| Item No. | Application Name | Version | Optional |
|----------|---|---------|----------|
| 1 | See Central Count Software: ClearCount | | No |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

d. Other EMS software

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | Not Applicable | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

3. Election Programming Services

Preface: Historically, over half of Colorado's 64 counties have opted to acquire less than the complete EMS solution for their legacy voting systems, and instead engaged their voting system vendor to provide election definition and device programming services. In the cell below, please describe the election and device programming services that your organization can offer with respect to the temporarily approved voting system, and describe the manner in which you charge for these services in sufficient detail to enable us to calculate the cost for this service for an average county in this tier. Please be sure to include in your response whether these service charges are based on the number of registered voters, the number of ballot styles, or other factors. Please also indicate all EMS hardware and software components that counties opting for this service will not need to acquire.

Response: Clear Ballot's system requires no device programming for an election. Our Client Services Team is available to provide assistance or staff augmentation for any election and can be contracted specifically on a per election basis using the optional rates listed in Tab 6, starting at Row 156. Clear Ballot has provided an all inclusive price, per tier, for our Ballot Layout and Design Services per election. This price would include unlimited ballot styles, languages, full design services by our expert staff, and coordination with each county's unique ballot printing vendor.

| Tier 1.3-Recommended System Configuration | | | | |
|---|------------------|--|--------------------|---|
| B. Central Count Solution | | | | |
| 1. Central count hardware | | | | |
| a. Central count servers | | | | |
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | 2 | Clear Ballot | High Volume System | No, although configuration adjustments can be made. |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| b. Central count workstations/clients | | | | |
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | 3 | See Tab 4 for full list of system components | | No, although configuration adjustments can be made. |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| c. Central count scanners | | | | |
| Item No. | Quantity | Manufacturer | Model | Throughput |
| 1 | 2 | See Tab 4 for full list of system components | | 3,348/hour at 8.5"x18" |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| d. Miscellaneous/peripheral/other central count hardware | | | | |
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | | See Tab 4 for full list of system components | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 2. Central count software | | | | |
| a. Central count software | | | | |
| Item No. | Application Name | Version | Optional | |
| 1 | ClearCount | 1.1 | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| b. Digital ballot resolution and adjudication applications | | | | |
| Item No. | Application Name | Version | Optional | |
| 1 | Included | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| c. Other/miscellaneous central count software | | | | |
| Item No. | Application Name | Version | Optional | |
| 1 | Not Applicable | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

| Tier 1.3-Recommended System Configuration | | | | |
|--|----------|--|-------|---|
| C. Polling Location Solution | | | | |
| 1. Polling location hardware and software | | | | |
| a. Polling location servers | | | | |
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| b. Ballot marking devices (tablets/workstations/clients) | | | | |
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | 11 | Clear Ballot | AVU | No, although configuration adjustments can be made. |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| c. Polling location tabulators | | | | |
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | 11 | Clear Ballot | P1000 | Yes |
| 2 | | | | X |
| 3 | | | | X |
| 4 | | | | X |
| 5 | | | | X |
| d. Polling location miscellaneous/peripheral/other hardware | | | | |
| Item No. | Quantity | Manufacture | Model | Optional |
| 1 | | See Tab 4 for full list of system components | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |

Tier 1.4-Recommended System Configuration

A. Election Management Solution (including election definition, election data management, ballot layout, editing & generation, tabulation, and results reporting)

1. EMS Hardware

| a. EMS servers | | | | |
|----------------|----------|--------------------|-------|----------|
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | 1 | ClearDesign System | | Yes |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

| b. EMS workstations/clients | | | | |
|-----------------------------|----------|--|-------|----------|
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | 2 | See Tab 4 for full list of system components | | Yes |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

| c. EMS miscellaneous/peripherals | | | | |
|----------------------------------|----------|----------------|-------|----------|
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

| d. EMS backup hardware (if any) | | | | |
|---------------------------------|----------|----------------|-------|----------|
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

| e. Other EMS hardware | | | | |
|-----------------------|----------|----------------|-------|----------|
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

| Tier 1.4 Recap: | |
|---|--------|
| Average active voters-2012G | 50,463 |
| No. of counties in tier | 6 |
| Avg min number of Election Day VSPCs required | 4 |
| Projected total mail ballots-2016P | 44,306 |
| Projected highest daily volume of mail ballots-2016P | 8,875 |
| Projected total in-person ballots cast-2016P | 1,774 |
| Projected highest daily volume in-person ballots per VSPC-2016P | 336 |

Tier 1.4-Recommended System Configuration

2. EMS Software

a. Election management, election definition, data management, and ballot layout/editing/artwork generation applications

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | ClearDesign | 1.1 | Yes |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

c. Tabulation and results reporting

| Item No. | Application Name | Version | Optional |
|----------|--|---------|----------|
| 1 | See Central Count Software: ClearCount | | No |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

d. Other EMS software

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | Not Applicable | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

3. Election Programming Services

Preface: Historically, over half of Colorado's 64 counties have opted to acquire less than the complete EMS solution for their legacy voting systems, and instead engaged their voting system vendor to provide election definition and device programming services. In the cell below, please describe the election and device programming services that your organization can offer with respect to the temporarily approved voting system, and describe the manner in which you charge for these services in sufficient detail to enable us to calculate the cost for this service for an average county in this tier. Please be sure to include in your response whether these service charges are based on the number of registered voters, the number of ballot styles, or other factors. Please also indicate all EMS hardware and software components that counties opting for this service will not need to acquire.

Response: Clear Ballot's system requires no device programming for an election. Our Client Services Team is available to provide assistance or staff augmentation for any election and can be contracted specifically on a per election basis using the optional rates listed in Tab 6, starting at Row 156. Clear Ballot has provided an all inclusive price, per tier, for our Ballot Layout and Design Services per election. This price would include unlimited ballot styles, languages, full design services by our expert staff, and coordination with each county's unique ballot printing vendor.

Tier 1.4-Recommended System Configuration

B. Central Count Solution

1. Central count hardware

a. Central count servers

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------|----------------------|---|
| 1 | 2 | Clear Ballot | Medium Volume System | No, although configuration adjustments can be made. |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

b. Central count workstations/clients

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--|-------|---|
| 1 | 3 | See Tab 4 for full list of system components | | No, although configuration adjustments can be made. |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

c. Central count scanners

| Item No. | Quantity | Manufacturer | Model | Throughput |
|----------|----------|--|-------|------------------------|
| 1 | 2 | See Tab 4 for full list of system components | | 2,400/hour at 8.5"x18" |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

d. Miscellaneous/peripheral/other central count hardware

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--|-------|----------|
| 1 | | See Tab 4 for full list of system components | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |

2. Central count software

a. Central count software

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | ClearCount | 1.1 | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

b. Digital ballot resolution and adjudication applications

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | Included | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

c. Other/miscellaneous central count software

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | Not Applicable | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

| Tier 1.4-Recommended System Configuration | | | | |
|--|----------|--|-------|---|
| C. Polling Location Solution | | | | |
| 1. Polling location hardware and software | | | | |
| a. Polling location servers | | | | |
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| b. Ballot marking devices (tablets/workstations/clients) | | | | |
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | 4 | Clear Ballot | AVU | No, although configuration adjustments can be made. |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| c. Polling location tabulators | | | | |
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | 4 | Clear Ballot | P1000 | Yes |
| 2 | | | | X |
| 3 | | | | X |
| 4 | | | | X |
| 5 | | | | X |
| d. Polling location miscellaneous/peripheral/other hardware | | | | |
| Item No. | Quantity | Manufacture | Model | Optional |
| 1 | | See Tab 4 for full list of system components | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |

Tier 2-Recommended System Configuration

A. Election Management Solution (including election definition, election data management, ballot layout, editing & generation, tabulation, and results reporting)

1. EMS Hardware

a. EMS servers

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------------|-------|----------|
| 1 | 1 | ClearDesign System | | Yes |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

b. EMS workstations/clients

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--|-------|----------|
| 1 | 2 | See Tab 4 for full list of system components | | Yes |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

c. EMS miscellaneous/peripherals

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

d. EMS backup hardware (if any)

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

e. Other EMS hardware

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

| Tier 2 Recap: | |
|---|--------|
| Average active voters-2012G | 15,427 |
| No. of counties in tier | 14 |
| Avg min number of Election Day VSPCs required | 3 |
| Projected total mail ballots-2016P | 13,947 |
| Projected highest daily volume of mail ballots-2016P | 2,534 |
| Projected total in-person ballots cast-2016P | 622 |
| Projected highest daily volume in-person ballots per VSPC-2016P | 149 |

Tier 2-Recommended System Configuration

2. EMS Software

a. Election management, election definition, data management, and ballot layout/editing/artwork generation applications

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | ClearDesign | 1.1 | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

c. Tabulation and results reporting

| Item No. | Application Name | Version | Optional |
|----------|---|---------|----------|
| 1 | See Central Count Software: ClearCount | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

d. Other EMS software

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | Not Applicable | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

3. Election Programming Services

Preface: Historically, over half of Colorado's 64 counties have opted to acquire less than the complete EMS solution for their legacy voting systems, and instead engaged their voting system vendor to provide election definition and device programming services. In the cell below, please describe the election and device programming services that your organization can offer with respect to the temporarily approved voting system, and describe the manner in which you charge for these services in sufficient detail to enable us to calculate the cost for this service for an average county in this tier. Please be sure to include in your response whether these service charges are based on the number of registered voters, the number of ballot styles, or other factors. Please also indicate all EMS hardware and software components that counties opting for this service will not need to acquire.

Response: Clear Ballot's system requires no device programming for an election. Our Client Services Team is available to provide assistance or staff augmentation for any election and can be contracted specifically on a per election basis using the optional rates listed in Tab 6, starting at Row 156. Clear Ballot has provided an all inclusive price, per tier, for our Ballot Layout and Design Services per election. This price would include unlimited ballot styles, langauges, full design services by our expert staff, and coordination with each counties unique ballot printing vendor.

Tier 2-Recommended System Configuration

B. Central Count Solution

1. Central count hardware

a. Central count servers

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------|-------------------|---|
| 1 | 1 | Clear Ballot | Election in a Box | No, although configuration adjustments can be made. |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

b. Central count workstations/clients

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|---|-------|---|
| 1 | 2 | Included in Election in a Box: See Tab 4 for full list of system components | | No, although configuration adjustments can be made. |
| 2 | 1 | Additional Work Station | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

c. Central count scanners

| Item No. | Quantity | Manufacturer | Model | Throughput |
|----------|----------|---|-------|----------------------|
| 1 | 2 | Included in Election in a Box: See Tab 4 for full list of system components | | 1,356/hr at 8.5"x18" |
| 2 | 1 | Additional Scanner | | 1,356/hr at 8.5"x18" |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

d. Miscellaneous/peripheral/other central count hardware

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--|-------|----------|
| 1 | | See Tab 4 for full list of system components | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |

Tier 2-Recommended System Configuration

2. Central count software

a. Central count software

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | ClearCount | 1.1 | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

b. Digital ballot resolution and adjudication applications

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | Included | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

c. Other/miscellaneous central count software

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | Not Applicable | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

Tier 2-Recommended System Configuration

C. Polling Location Solution

1. Polling location hardware and software

a. Polling location servers

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

b. Ballot marking devices (tablets/workstations/clients)

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------|-------|---|
| 1 | 3 | Clear Ballot | AVU | No, although configuration adjustments can be made. |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

c. Polling location tabulators

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------|-------|----------|
| 1 | 3 | Clear Ballot | P1000 | Yes |
| 2 | | | | X |
| 3 | | | | X |
| 4 | | | | X |
| 5 | | | | X |

d. Polling location miscellaneous/peripheral/other hardware

| Item No. | Quantity | Manufacture | Model | Optional |
|----------|----------|--|-------|----------|
| 1 | | See Tab 4 for full list of system components | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |

Tier 3-Recommended System Configuration

A. Election Management Solution (including election definition, election data management, ballot layout, editing & generation, tabulation, and results reporting)

1. EMS Hardware

a. EMS servers

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------------|-------|----------|
| 1 | 1 | ClearDesign System | | Yes |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

b. EMS workstations/clients

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--|-------|----------|
| 1 | 2 | See Tab 4 for full list of system components | | Yes |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

c. EMS miscellaneous/peripherals

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

d. EMS backup hardware (if any)

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

e. Other EMS hardware

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|----------------|-------|----------|
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

| Tier 3 Recap: | |
|---|-------|
| Average active voters-2012G | 4,072 |
| No. of counties in tier | 35 |
| Avg min number of Election Day VSPCs required | 1 |
| Projected total mail ballots-2016P | 3,776 |
| Projected highest daily volume of mail ballots-2016P | 683 |
| Projected total in-person ballots cast-2016P | 112 |
| Projected highest daily volume in-person ballots per VSPC-2016P | 71 |

Tier 3-Recommended System Configuration

2. EMS Software

a. Election management, election definition, data management, and ballot layout/editing/artwork generation applications

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | ClearDesign | 1.1 | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

c. Tabulation and results reporting

| Item No. | Application Name | Version | Optional |
|----------|---|---------|----------|
| | See Central Count Software: ClearCount | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

d. Other EMS software

| Item No. | Application Name | Version | Optional |
|----------|------------------|---------|----------|
| 1 | Not Applicable | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

3. Election Programming Services

Preface: Historically, over half of Colorado's 64 counties have opted to acquire less than the complete EMS solution for their legacy voting systems, and instead engaged their voting system vendor to provide election definition and device programming services. In the cell below, please describe the election and device programming services that your organization can offer with respect to the temporarily approved voting system, and describe the manner in which you charge for these services in sufficient detail to enable us to calculate the cost for this service for an average county in this tier. Please be sure to include in your response whether these service charges are based on the number of registered voters, the number of ballot styles, or other factors. Please also indicate all EMS hardware and software components that counties opting for this service will not need to acquire.

Response: Clear Ballot's system requires no device programming for an election. Our Client Services Team is available to provide assistance or staff augmentation for any election and can be contracted specifically on a per election basis using the optional rates listed in Tab 6, starting at Row 156. Clear Ballot has provided an all inclusive price, per tier, for our Ballot Layout and Design Services per election. This price would include unlimited ballot styles, langauges, full design services by our expert staff, and coordination with each counties unique ballot printing vendor.

Tier 3-Recommended System Configuration

B. Central Count Solution

1. Central count hardware

a. Central count servers

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--------------|-------------------|---|
| | 1 | Clear Ballot | Election in a Box | No, although configuration adjustments can be made. |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

b. Central count workstations/clients

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|---|-------|---|
| | 2 | Included in Election in a Box: See Tab 4 for full list of system components | | No, although configuration adjustments can be made. |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

c. Central count scanners

| Item No. | Quantity | Manufacturer | Model | Throughput |
|----------|----------|---|-------|----------------------|
| | 2 | Included in Election in a Box: See Tab 4 for full list of system components | | 1,356/hr at 8.5"x18" |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

d. Miscellaneous/peripheral/other central count hardware

| Item No. | Quantity | Manufacturer | Model | Optional |
|----------|----------|--|-------|----------|
| | | See Tab 4 for full list of system components | | |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |

| Tier 3-Recommended System Configuration | | | |
|---|------------------|---------|----------|
| 2. Central count software | | | |
| a. Central count software | | | |
| Item No. | Application Name | Version | Optional |
| 1 | ClearCount | 1.1 | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| b. Digital ballot resolution and adjudication applications | | | |
| Item No. | Application Name | Version | Optional |
| 1 | Included | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| c. Other/miscellaneous central count software | | | |
| Item No. | Application Name | Version | Optional |
| 1 | Not Applicable | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

Tier 3-Recommended System Configuration

C. Polling Location Solution

1. Polling location hardware and software

| a. Polling location servers | | | | |
|-----------------------------|----------|----------------|-------|----------|
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | | Not Applicable | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

| b. Ballot marking devices (tablets/workstations/clients) | | | | |
|--|----------|--------------|-------|---|
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | 1 | Clear Ballot | AVU | No, although configuration adjustments can be made. |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

| c. Polling location tabulators | | | | |
|--------------------------------|----------|--------------|-------|----------|
| Item No. | Quantity | Manufacturer | Model | Optional |
| 1 | 1 | Clear Ballot | P1000 | Yes |
| 2 | | | | X |
| 3 | | | | X |
| 4 | | | | X |
| 5 | | | | X |

| d. Polling location miscellaneous/peripheral/other hardware | | | | |
|---|----------|--|-------|----------|
| Item No. | Quantity | Manufacture | Model | Optional |
| 1 | | See Tab 4 for full list of system components | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |

| 4.0 Hardware Cost Table | | | | | |
|---|--------------|-------------|--------------------|--|--|
| Description | Make | Model | Purchase Cost/Unit | Monthly Lease Cost / Unit | Annual Firmware License Fees/ Unit |
| ClearCount High Volume System, including: | Clear Ballot | 6800 | \$ 46,225 | 5 year Municipal Lease Purchase: \$870.74 / Month | \$9,245 Per Unit |
| High Volume Fujitsu Scanner | | | | | |
| Tower or laptop server | | | | | |
| Scanning workstation | | | | | |
| Router | | | | | |
| Laser printer | | | | | |
| Wiring and cabling | | | | | |
| Scanstation laptop stand | | | | | |
| Transition analysis | | | | | |
| Implementation | | | | | |
| ScanCare Kit annually for 4 years | | | | | |
| 1 Year Fujitsu ScanCare Support | | | | | |
| 1 Year Dell Support | | | | | |
| ClearCount Medium Volume System, including: | Clear Ballot | 6670 | \$ 24,715 | 5 year Municipal Lease Purchase: \$465.56 / Month | \$4,943 Per Unit |
| Medium Volume Fujitsu Scanner | | | | | |
| Tower or laptop server | | | | | |
| Scanning workstation | | | | | |
| Router | | | | | |
| Laser printer | | | | | |
| Wiring and cabling | | | | | |
| Transition analysis | | | | | |
| Implementation | | | | | |
| ScanCare Kit annually for 4 years | | | | | |
| 1 Year Fujitsu ScanCare Support | | | | | |
| 1 Year Dell Support | | | | | |
| ClearCount "Election in a Box", including: | Clear Ballot | 7180 | \$ 18,150.00 | 5 year Municipal Lease Purchase: \$341.89 / Month | \$3,630 Per Unit |
| 2-Low volume high speed scanners | | | | | |
| 1-Laptop server | | | | | |
| 2-Scanstation workstations | | | | | |
| Router | | | | | |
| Laser printer | | | | | |
| Wiring and cabling | | | | | |
| Transition analysis | | | | | |
| Implementation | | | | | |
| ScanCare Kit annually for 4 years | | | | | |
| 1 Year Fujitsu ScanCare Support | | | | | |
| 1 Year Dell Support | | | | | |
| Big Blue Box | | | | | |
| ClearAccess accessible voting station | Clear Ballot | ClearAccess | \$ 4,500.00 | 5 year Municipal Lease Purchase: \$84.77 / Month | \$500 Per Unit |
| ClearAccess software license | | | | | |
| 19" touch screen monitor | | | | | |
| lockable port cover | | | | | |
| Laser printer | | | | | |
| uninterruptable power source | | | | | |
| keypad | | | | | |
| Accessible sip-n-puff Breeze with Headset | | | | | |
| Over-the-ear stereo headphones | | | | | |
| monochrome laser printer | | | | | |
| USB 2.0 cabling | | | | | |
| High yield black toner cartridge | | | | | |
| One year post-warranty hardware, firmware, and software maintenance and support | | | | | |
| Shipping | | | | | |
| ClearDesign System, including: | | | \$ 4,750.00 | 5 year Municipal Lease Purchase: \$89.48 / Month | \$900 Per Unit |
| ClearDesign Server | | | | | |
| 2-ClearDesign Workstations | | | | | |
| Laser printer | | | | | |
| Router and cabling | | | | | |
| Clear Ballot Precinct Scanner | Clear Ballot | P1000 | \$ 6,000.00 | 5 year Municipal Lease Purchase: \$113.02 / Month | \$400 Per Unit |
| | | | | Please specify material terms of hardware lease arrangements, including minimum and maximum lease terms, and applicable capitalization rate(s): Clear Ballot has provided Monthly payment terms on a 5 Year Municipal Lease Purchase. Please refer to our Financing terms on the All In Pricing Tab for more information on our financing options. Clear Ballot is happy to work with each county to find the most beneficial financing scenario to meet each counties needs. | Please state whether the first year's firmware license fees are included in the purchase cost or first year lease cost: Yes, The cost of all support and maintenance for one year is included in the up front cost of the individual systems. |

Tab 5.0: Software Cost Table

| 5.0 Software Cost Table | | | | |
|--------------------------------|----------------|-----------------------------|---|---|
| Description | Version | Purchase Cost / Unit | Lease Cost / Unit | Annual License Fees/ Unit |
| ClearVote Software Pricing | | | | |
| | | | | |
| | | | 4 year Municipal Lease Purchase | |
| Tier 1.1 | | | | |
| ClearDesign | 1.1 | \$ 125,750 | \$ 2,854.53 | \$ 35,150 |
| ClearCount | 1.1 | \$ 424,250 | \$ 9,630.48 | \$ 99,850 |
| ClearAccess | 1.1 | Included | \$ - | \$ - |
| | | | | |
| Tier 1.2 | | | | |
| ClearDesign | 1.1 | \$ 80,500 | \$ 1,827.11 | \$ 21,100 |
| ClearCount | 1.1 | \$ 269,500 | \$ 6,117.65 | \$ 63,900 |
| ClearAccess | 1.1 | Included | \$ - | \$ - |
| | | | | |
| Tier 1.3 | | | | |
| ClearDesign | 1.1 | \$ 51,934 | \$ 1,178.75 | \$ 15,385 |
| ClearCount | 1.1 | \$ 173,866 | \$ 3,946.76 | \$ 46,775 |
| ClearAccess | 1.1 | Included | \$ - | \$ - |
| | | | | |
| Tier 1.4 | | | | |
| ClearDesign | 1.1 | \$ 30,360 | \$ 700.28 | \$ 8,250 |
| ClearCount | 1.1 | \$ 101,640 | \$ 2,307.23 | \$ 24,350 |
| ClearAccess | 1.1 | Included | \$ - | \$ - |
| | | | | |
| Tier 2 | | | | |
| ClearDesign | 1.1 | \$ 24,150 | \$ 557.04 | \$ 4,830 |
| ClearCount | 1.1 | \$ 70,850 | \$ 1,835.05 | \$ 14,170 |
| ClearAccess | 1.1 | Included | \$ - | \$ - |
| | | | | |
| Tier 3 | | | | |
| ClearDesign | 1.1 | \$ 10,700 | \$ 477.47 | \$ 2,250 |
| ClearCount | 1.1 | \$ 57,930 | \$ 1,995.75 | \$ 10,500 |
| ClearAccess | 1.1 | Included | \$ - | \$ - |
| | | | | |
| | | | Please specify material terms of software lease arrangements, including minimum and maximum lease terms, and applicable capitalization rate(s): | Please state whether the first year's software license fees are included in the purchase cost or first year lease cost: Yes, The cost of all support and maintenance for one year is included in the up front cost of the individual systems. |

| 6.0 Project Labor Cost Table | |
|---|--------------|
| Description | Total Cost |
| Project Management Fees (if any) before Deploying Recommended System for Average County in each County Tier Price includes travel | |
| Tier 1.1 (Please itemize separate billable components) | |
| On-site support (meetings, site surveys, planning) | \$ 27,000.00 |
| Off-site work (administrative, project plan updates, project follow up) | \$ 16,300.00 |
| Clear Ballot will start EMS training (SandBox), mock election testing, | \$ - |
| acceptance testing classes, site surveys, election reporting testing and | \$ - |
| assistance with community outreach among others prior to HW deliveries | \$ - |
| Total - Tier 1.1 County | \$ 43,300.00 |
| Tier 1.2 (Please itemize separate billable components) | |
| On-site support (meetings, site surveys, planning) | \$ 14,400.00 |
| Off-site work (administrative, project plan updates, project follow up) | \$ 12,100.00 |
| Clear Ballot will start EMS training (SandBox), mock election testing, | \$ - |
| acceptance testing classes, site surveys, election reporting testing and | \$ - |
| assistance with community outreach among others prior to HW deliveries | \$ - |
| Total - Tier 1.2 County | \$ 26,500.00 |
| Tier 1.3 (Please itemize separate billable components) | |
| On-site support (meetings, site surveys, planning) | \$ 13,500.00 |
| Off-site work (administrative, project plan updates, project follow up) | \$ 11,000.00 |
| Clear Ballot will start EMS training (SandBox), mock election testing, | \$ - |
| acceptance testing classes, site surveys, election reporting testing and | \$ - |
| assistance with community outreach among others prior to HW deliveries | \$ - |
| Total - Tier 1.3 County | \$ 24,500.00 |
| Tier 1.4 (Please itemize separate billable components) | |
| On-site support (meetings, site surveys, planning) | \$ 12,600.00 |
| Off-site work (administrative, project plan updates, project follow up) | \$ 9,900.00 |
| Clear Ballot will start EMS training (SandBox), mock election testing, | \$ - |
| acceptance testing classes, site surveys, election reporting testing and | \$ - |
| assistance with community outreach among others prior to HW deliveries | \$ - |
| Total - Tier 1.4 County | \$ 22,500.00 |
| Tier 2 (Please itemize separate billable components) | |
| On-site support (meetings, site surveys, planning) | \$ 9,500.00 |
| Off-site work (administrative, project plan updates, project follow up) | \$ 4,500.00 |
| Clear Ballot will start EMS training (SandBox), mock election testing, | \$ - |
| acceptance testing classes, site surveys, election reporting testing and | \$ - |
| assistance with community outreach among others prior to HW deliveries | \$ - |
| Total - Tier 2 County | \$ 14,000.00 |
| Tier 3 (Please itemize separate billable components) | |
| On-site support (meetings, site surveys, planning) | \$ 5,500.00 |
| Off-site work (administrative, project plan updates, project follow up) | \$ 3,500.00 |
| Clear Ballot will start EMS training (SandBox), mock election testing, | \$ - |
| acceptance testing classes, site surveys, election reporting testing and | \$ - |
| assistance with community outreach among others prior to HW deliveries | \$ - |
| Total - Tier 3 County | \$ 9,000.00 |
| Onsite Training for Average County in each County Tier (List each training class or course, its duration, and specify max. number of trainees) (Any travel should be in Travel spreadsheet) - Price provided below is based on proposed Regional Training Scope- This section details price per county | |
| Tier 1.1 | |
| Clear Design Training - 4 days - 2 trainers | \$ 1,535 |
| Clear Count Course - 2 days - 2 trainers | \$ 900 |
| Clear Access Course - 2 days - 2 trainers | \$ 900 |
| ClearVote Acceptance Testing - 1 day - 2 trainers | \$ 525 |
| ClearVote L&A Training - 1 day - 2 trainers | \$ 525 |
| Pollworker Train-The-Trainer - 2 days - 2 trainers | \$ 900 |
| Total - Tier 1.1 County | \$ 5,285 |
| Note: Revised pricing can be provided if the counties wish to include more than two participants in course curricula | |
| Tier 1.2 (Please itemize separate billable components) | |
| Clear Design Training - 4 days - 2 trainers | \$ 1,535 |
| Clear Count Course - 2 days - 2 trainers | \$ 900 |
| Clear Access Course - 2 days - 2 trainers | \$ 900 |
| ClearVote Acceptance Testing - 1 day - 2 trainers | \$ 525 |
| ClearVote L&A Training - 1 day - 2 trainers | \$ 525 |
| Pollworker Train-The-Trainer - 2 days - 2 trainers | \$ 900 |
| Total - Tier 1.2 County | \$ 5,285.00 |
| Note: Revised pricing can be provided if the counties wish to include more than two participants in course curricula | |
| Tier 1.3 (Please itemize separate billable components) | |
| Clear Design Training - 4 days - 2 trainers | \$ 1,535 |
| Clear Count Course - 2 days - 2 trainers | \$ 900 |
| Clear Access Course - 2 days - 2 trainers | \$ 900 |
| ClearVote Acceptance Testing - 1 day - 2 trainers | \$ 525 |
| ClearVote L&A Training - 1 day - 2 trainers | \$ 525 |
| Pollworker Train-The-Trainer - 2 days - 2 trainers | \$ 900 |
| Total - Tier 1.3 County | \$ 5,285.00 |
| Note: Revised pricing can be provided if the counties wish to include more than two participants in course curricula | |
| Tier 1.4 (Please itemize separate billable components) | |
| Clear Design Training - 4 days - 2 trainers | \$ 1,535 |
| Clear Count Course - 2 days - 2 trainers | \$ 900 |
| Clear Access Course - 2 days - 2 trainers | \$ 900 |
| ClearVote Acceptance Testing - 1 day - 2 trainers | \$ 525 |
| ClearVote L&A Training - 1 day - 2 trainers | \$ 525 |
| Pollworker Train-The-Trainer - 2 days - 2 trainers | \$ 900 |
| Total - Tier 1.4 County | \$ 5,285.00 |
| Note: Revised pricing can be provided if the counties wish to include more than two participants in course curricula | |
| Tier 2 (Please itemize separate billable components) | |
| Clear Design Training - 4 days - 2 trainers | \$ 1,535 |
| Clear Count Course - 2 days - 2 trainers | \$ 900 |
| Clear Access Course - 2 days - 2 trainers | \$ 900 |
| ClearVote Acceptance Testing - 1 day - 2 trainers | \$ 525 |
| ClearVote L&A Training - 1 day - 2 trainers | \$ 525 |
| Pollworker Train-The-Trainer - 2 days - 2 trainers | \$ 900 |
| Total - Tier 2 County | \$ 5,285.00 |
| Note: Revised pricing can be provided if the counties wish to include more than two participants in course curricula | |
| Tier 3 (Please itemize separate billable components) | |
| Clear Design Training - 4 days - 2 trainers | \$ 1,535 |
| Clear Count Course - 2 days - 2 trainers | \$ 900 |
| Clear Access Course - 1 days - 2 trainers | \$ 525 |
| ClearVote Acceptance Testing - 1 day - 2 trainers | \$ 525 |
| ClearVote L&A Training - 1 day - 2 trainers | \$ 525 |
| Pollworker Train-The-Trainer - 1 days - 2 trainers | \$ 525 |
| Total - Tier 3 County | \$ 4,535.00 |
| Note: Revised pricing can be provided if the counties wish to include more than two participants in course curricula | |

| 6.0 Project Labor Cost Table | |
|---|--------------|
| Description | Total Cost |
| Implementation / Installation / Configuration / Acceptance Testing for Average County in each County Tier <i>Price includes travel</i> | |
| Tier 1.1 (Please itemize separate billable components) | |
| Implementation, Configuration and Acceptance | \$ 16,000.00 |
| Equipment installation onsite - 4 days | \$ 5,200.00 |
| | \$ - |
| | \$ - |
| | \$ - |
| Total - Tier 1.1 County | \$ 21,200.00 |
| Tier 1.2 (Please itemize separate billable components) | |
| Implementation, Configuration and Acceptance | \$ 14,500.00 |
| Equipment installation onsite - 4 days | \$ 5,200.00 |
| | \$ - |
| | \$ - |
| | \$ - |
| Total - Tier 1.2 County | \$ 19,700.00 |
| Tier 1.3 (Please itemize separate billable components) | |
| Implementation, Configuration and Acceptance | \$ 13,500.00 |
| Equipment installation onsite - 2 days | \$ 2,600.00 |
| | \$ - |
| | \$ - |
| | \$ - |
| Total - Tier 1.3 County | \$ 16,100.00 |
| Tier 1.4 (Please itemize separate billable components) | |
| Implementation, Configuration and Acceptance | \$ 11,500.00 |
| Equipment installation onsite - 2 days | \$ 2,600.00 |
| | \$ - |
| | \$ - |
| | \$ - |
| Total - Tier 1.4 County | \$ 14,100.00 |
| Tier 2 (Please itemize separate billable components) | |
| Implementation, Configuration and Acceptance | \$ 8,000.00 |
| Equipment installation onsite - 1 day | \$ 1,500.00 |
| | \$ - |
| | \$ - |
| | \$ - |
| Total - Tier 2 County | \$ 9,500.00 |
| Tier 3 (Please itemize separate billable components) | |
| Implementation, Configuration and Acceptance | \$ 6,000.00 |
| Equipment installation onsite - 1 day | \$ 1,500.00 |
| | \$ - |
| | \$ - |
| | \$ - |
| Total - Tier 3 County | \$ 7,500.00 |
| Additional Optional Services <i>Price includes travel</i> | |
| Tier 1.1 (Please itemize separate billable components) | |
| Assistance with ballot programming - 1 specialist/3 days onsite | \$ 4,200.00 |
| Early Voting support - 1 specialist/3 days onsite | \$ 3,600.00 |
| Election night reporting assistance- 1 specialist /3 days onsite | \$ 4,200.00 |
| Help Desk support staff - price per tech / 2 days onsite | \$ 2,600.00 |
| Election day rovers - price per tech /2 days onsite | \$ 2,600.00 |
| Optional Total - Tier 1.1 County | \$ 17,200.00 |
| Tier 1.2 (Please itemize separate billable components) | |
| Assistance with ballot programming - 1 specialist/3 days onsite | \$ 4,200.00 |
| Early Voting support - 1 specialist/3 days onsite | \$ 3,600.00 |
| Election night reporting assistance- 1 specialist /3 days onsite | \$ 4,200.00 |
| Help Desk support staff - price per tech / 2 days onsite | \$ 2,600.00 |
| Election day rovers - price per tech /2 days onsite | \$ 2,600.00 |
| Optional Total - Tier 1.2 County | \$ 17,200.00 |
| Tier 1.3 (Please itemize separate billable components) | |
| Assistance with ballot programming - 1 specialist/3 days onsite | \$ 4,200.00 |
| Early Voting support - 1 specialist/3 days onsite | \$ 3,600.00 |
| Election night reporting assistance- 1 specialist /3 days onsite | \$ 4,200.00 |
| Help Desk support staff - price per tech / 2 days onsite | \$ 2,600.00 |
| Election day rovers - price per tech /2 days onsite | \$ 2,600.00 |
| Optional Total - Tier 1.3 County | \$ 17,200.00 |
| Tier 1.4 (Please itemize separate billable components) | |
| Assistance with ballot programming - 1 specialist/3 days onsite | \$ 4,200.00 |
| Early Voting support - 1 specialist/3 days onsite | \$ 3,600.00 |
| Election night reporting assistance- 1 specialist /3 days onsite | \$ 4,200.00 |
| Help Desk support staff - price per tech / 2 days onsite | \$ 2,600.00 |
| Election day rovers - price per tech /2 days onsite | \$ 2,600.00 |
| Optional Total - Tier 1.4 County | \$ 17,200.00 |
| Tier 2 (Please itemize separate billable components) | |
| Assistance with ballot programming - 1 specialist/3 days onsite | \$ 4,200.00 |
| Early Voting support - 1 specialist/3 days onsite | \$ 3,600.00 |
| Election night reporting assistance- 1 specialist /3 days onsite | \$ 4,200.00 |
| Help Desk support staff - price per tech / 2 days onsite | \$ 2,600.00 |
| Election day rovers - price per tech /2 days onsite | \$ 2,600.00 |
| Optional Total - Tier 2 County | \$ 17,200.00 |
| Tier 3 (Please itemize separate billable components) | |
| Assistance with ballot programming - 1 specialist/3 days onsite | \$ 4,200.00 |
| Early Voting support - 1 specialist/3 days onsite | \$ 3,600.00 |
| Election night reporting assistance- 1 specialist /3 days onsite | \$ 4,200.00 |
| Help Desk support staff - price per tech / 2 days onsite | \$ 2,600.00 |
| Election day rovers - price per tech /2 days onsite | \$ 2,600.00 |
| Optional Total - Tier 3 County | \$ 17,200.00 |
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| Other Total | \$ - |

These Services are not required and not included in our All In Price for the first year.

These Services are not required and not included in our All In Price for the first year.

These Services are not required and not included in our All In Price for the first year.

These Services are not required and not included in our All In Price for the first year.

These Services are not required and not included in our All In Price for the first year.

These Services are not required and not included in our All In Price for the first year.

Tab 7.0: Post-Implementation Support Table

| 7.0 Post-Implementation Support Cost Table | | | | | |
|---|------------------------|-----------------------------|-----------------------------|-----------------------------|----------------------|
| Support Category for Tier 1.1 County | Warranty Period | Post-Warranty Year 1 | Post-Warranty Year 2 | Post-Warranty Year 3 | Total |
| Warranty | Included | | | | Included |
| Comprehensive Annual Fee | | \$ 135,000.00 | \$ 141,750.00 | \$ 148,840.00 | \$ 425,590.00 |
| | | \$ - | \$ - | \$ - | \$ - |
| | | \$ - | \$ - | \$ - | \$ - |
| SUPPORT SUB-TOTAL - Tier 1.1 | Included | \$ 135,000.00 | \$ 141,750.00 | \$ 148,840.00 | \$ 425,590.00 |
| Support Category for Tier 1.2 County | Warranty Period | Post-Warranty Year 1 | Post-Warranty Year 2 | Post-Warranty Year 3 | Total |
| Warranty | Included | | | | Included |
| Comprehensive Annual Fee | | \$ 85,000.00 | \$ 89,250.00 | \$ 93,715.00 | \$ 267,965.00 |
| | | \$ - | \$ - | \$ - | \$ - |
| | | \$ - | \$ - | \$ - | \$ - |
| SUPPORT SUB-TOTAL - Tier 1.2 | Included | \$ 85,000.00 | \$ 89,250.00 | \$ 93,715.00 | \$ 267,965.00 |
| Support Category for Tier 1.3 County | Warranty Period | Post-Warranty Year 1 | Post-Warranty Year 2 | Post-Warranty Year 3 | Total |
| Warranty | Included | | | | Included |
| Comprehensive Annual Fee | | \$ 62,160.00 | \$ 65,275.00 | \$ 68,550.00 | \$ 195,985.00 |
| | | \$ - | \$ - | \$ - | \$ - |
| | | \$ - | \$ - | \$ - | \$ - |
| SUPPORT SUB-TOTAL - Tier 1.3 | Included | \$ 62,160.00 | \$ 65,275.00 | \$ 68,550.00 | \$ 195,985.00 |
| Support Category for Tier 1.4 County | Warranty Period | Post-Warranty Year 1 | Post-Warranty Year 2 | Post-Warranty Year 3 | Total |
| Warranty | Included | | | | Included |
| Comprehensive Annual Fee | | \$ 32,600.00 | \$ 34,230.00 | \$ 35,950.00 | \$ 102,780.00 |
| | | \$ - | \$ - | \$ - | \$ - |
| | | \$ - | \$ - | \$ - | \$ - |
| SUPPORT SUB-TOTAL - Tier 1.4 | Included | \$ 32,600.00 | \$ 34,230.00 | \$ 35,950.00 | \$ 102,780.00 |
| Support Category for Tier 2 County | Warranty Period | Post-Warranty Year 1 | Post-Warranty Year 2 | Post-Warranty Year 3 | Total |
| Warranty | Included | | | | Included |
| Comprehensive Annual Fee | | \$ 21,000.00 | \$ 22,050.00 | \$ 23,150.00 | \$ 66,200.00 |
| | | \$ - | \$ - | \$ - | \$ - |
| | | \$ - | \$ - | \$ - | \$ - |
| SUPPORT SUB-TOTAL - Tier 2 | Included | \$ 21,000.00 | \$ 22,050.00 | \$ 23,150.00 | \$ 66,200.00 |
| Support Category for Tier 3 County | Warranty Period | Post-Warranty Year 1 | Post-Warranty Year 2 | Post-Warranty Year 3 | Total |
| Warranty | Included | | | | Included |
| Comprehensive Annual Fee | | \$ 16,800.00 | \$ 17,640.00 | \$ 18,525.00 | \$ 52,965.00 |
| | | \$ - | \$ - | \$ - | \$ - |
| | | \$ - | \$ - | \$ - | \$ - |
| SUPPORT SUB-TOTAL - Tier 3 | Included | \$ 16,800.00 | \$ 17,640.00 | \$ 18,525.00 | \$ 52,965.00 |

Note: CDOS requests a warranty period for one-year from the date of acquisition. Please feel free to explain the terms and conditions of warranties, operations support, maintenance support and application support in an attachment to your final submission.

Tab 8.0: Miscellaneous Cost Table

| 8.0 Miscellaneous Cost Table for Average County in each County Tier | | |
|--|--|--------------------|
| Item | Description | Total Cost |
| Tier 1.1 Counties | | |
| Documentation | Included | \$ - |
| Non-Training Travel | Included | \$ - |
| Training Travel | Price calculated based on proposed regional training scope | \$ 4,650.00 |
| Escrow Agent (Source Code) | Included | \$ - |
| Other: | | \$ - |
| Other: | | \$ - |
| Other: | | \$ - |
| Total Miscellaneous Costs - Tier 1.1 | | \$ 4,650.00 |
| Tier 1.2 Counties | | |
| Documentation | Included | \$ - |
| Non-Training Travel | Included | \$ - |
| Training Travel | Price calculated based on proposed regional training scope | \$ 4,650.00 |
| Escrow Agent (Source Code) | Included | \$ - |
| Other: | | \$ - |
| Other: | | \$ - |
| Other: | | \$ - |
| Total Miscellaneous Costs - Tier 1.2 | | \$ 4,650.00 |
| Tier 1.3 Counties | | |
| Documentation | Included | \$ - |
| Non-Training Travel | Included | \$ - |
| Training Travel | Price calculated based on proposed regional training scope | \$ 4,650.00 |
| Escrow Agent (Source Code) | Included | \$ - |
| Other: | | \$ - |
| Other: | | \$ - |
| Other: | | \$ - |
| Total Miscellaneous Costs - Tier 1.3 | | \$ 4,650.00 |
| Tier 1.4 Counties | | |
| Documentation | Included | \$ - |
| Non-Training Travel | Included | \$ - |
| Training Travel | Price calculated based on proposed regional training scope | \$ 4,650.00 |
| Escrow Agent (Source Code) | Included | \$ - |
| Other: | | \$ - |
| Other: | | \$ - |
| Other: | | \$ - |
| Total Miscellaneous Costs - Tier 1.4 | | \$ 4,650.00 |
| Tier 2 Counties | | |
| Documentation | Included | \$ - |
| Non-Training Travel | Included | \$ - |
| Training Travel | Price calculated based on proposed regional training scope | \$ 4,650.00 |
| Escrow Agent (Source Code) | Included | \$ - |
| Other: | | \$ - |
| Other: | | \$ - |
| Other: | | \$ - |
| Total Miscellaneous Costs - Tier 2 | | \$ 4,650.00 |
| Tier 3 Counties | | |
| Documentation | Included | \$ - |
| Non-Training Travel | Included | \$ - |
| Training Travel | Price calculated based on proposed regional training scope | \$ 4,650.00 |
| Escrow Agent (Source Code) | Included | \$ - |
| Other: | | \$ - |
| Other: | | \$ - |
| Other: | | \$ - |
| Total Miscellaneous Costs - Tier 3 | | \$ 4,650.00 |

Tab 9.0: Hourly Rate Table

| 9.0 Vendor Hourly Rate Cost Table | | | | |
|--|---|---|---|---|
| Position Description | Rate / Hour thru Warranty Period | Rate / Hour Post-Warranty Year 1 | Rate / Hour Post-Warranty Year 2 | Rate / Hour Post-Warranty Year 3 |
| Staff Training | \$160.00 | \$160.00 | \$160.00 | \$160.00 |
| Senior Project Manager | \$210.00 | \$210.00 | \$210.00 | \$210.00 |
| Regional Project Manager | \$160.00 | \$160.00 | \$160.00 | \$160.00 |
| Training Coordinator | \$170.00 | \$170.00 | \$170.00 | \$170.00 |
| EMS Support Tier 3 | \$290.00 | \$290.00 | \$290.00 | \$290.00 |
| EMS Support Tier 2 | \$210.00 | \$210.00 | \$210.00 | \$210.00 |
| EMS Support Tier 1 | \$160.00 | \$160.00 | \$160.00 | \$160.00 |
| Election Onsite Support | \$210.00 | \$210.00 | \$210.00 | \$210.00 |
| | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| | \$0.00 | \$0.00 | \$0.00 | \$0.00 |

CLEAR BALLOT GROUP

COLORADO UNIFORM VOTING SYSTEM

Section V.A Product Information & Near-Term Product Roadmap

November 13, 2015





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Summary of competitive features

What follows is the list of features that have been developed or improved upon since version 1.0 was submitted for conditional certification by the state of Colorado.

- User experience – browser based
 - Familiar, easy-to-learn, easy-to-remember user interface
 - Browser-supplied functionality—hyperlinks, bookmarks, tear-off tabs
 - Accessibility features—Anywhere Ballot design, screen-reader support
- Training and support – quick-start training / real-time support
 - Real-time software support delivered without a physical connection to the secure system via web-hosted product “sandboxes.”
 - Real-time, video-enabled, interactive hardware support, delivered via smartphones or tablets.
- Hardware scalability / low-cost redundancy – networkable for added performance
 - Low-end scanners capable of speeds up to 1,000 ballots/hour; cost < \$2,000 each
 - High-end scanners capable of speeds up to 6,000 ballots/hour; cost < \$20,000 each
- Confidence-building features
 - Visualization of Voter Intent / image-to-ballot traceability convinces activists.
 - Scan-to-retention eliminates physical outstacking, reducing ballot handling and human error.
 - Integrated real-time results reporting; no extra step needed to transfer data to EMS.
 - Interactive ballot proofing catches errors before PDF files are sent to printer.
 - Real-time central-count reporting updates results as each ballot is scanned.
 - High-performance reports simplify and speed election-night reporting and regulatory filing.
- Certification speed
 - COTS software (for example, browser and scanning software) reduces code review.
 - COTS hardware (for example, scanners, laptops, accessible devices, desktops) eliminates most hardware certification requirements.
 - Small code base and COTS hardware mean faster, more frequent certifications.
- Life expectancy is substantially longer due to modular architecture and upgradable COTS hardware and software
- Built to be audited. All necessary artifacts are provided for an independent audit.



Near-term product roadmap and schedule

Note: Version 1.1 of ClearVote entered certification with ProV&V on Oct. 26, 2015. Since the Pilot versions were submitted, numerous performance and usability improvements have been made.

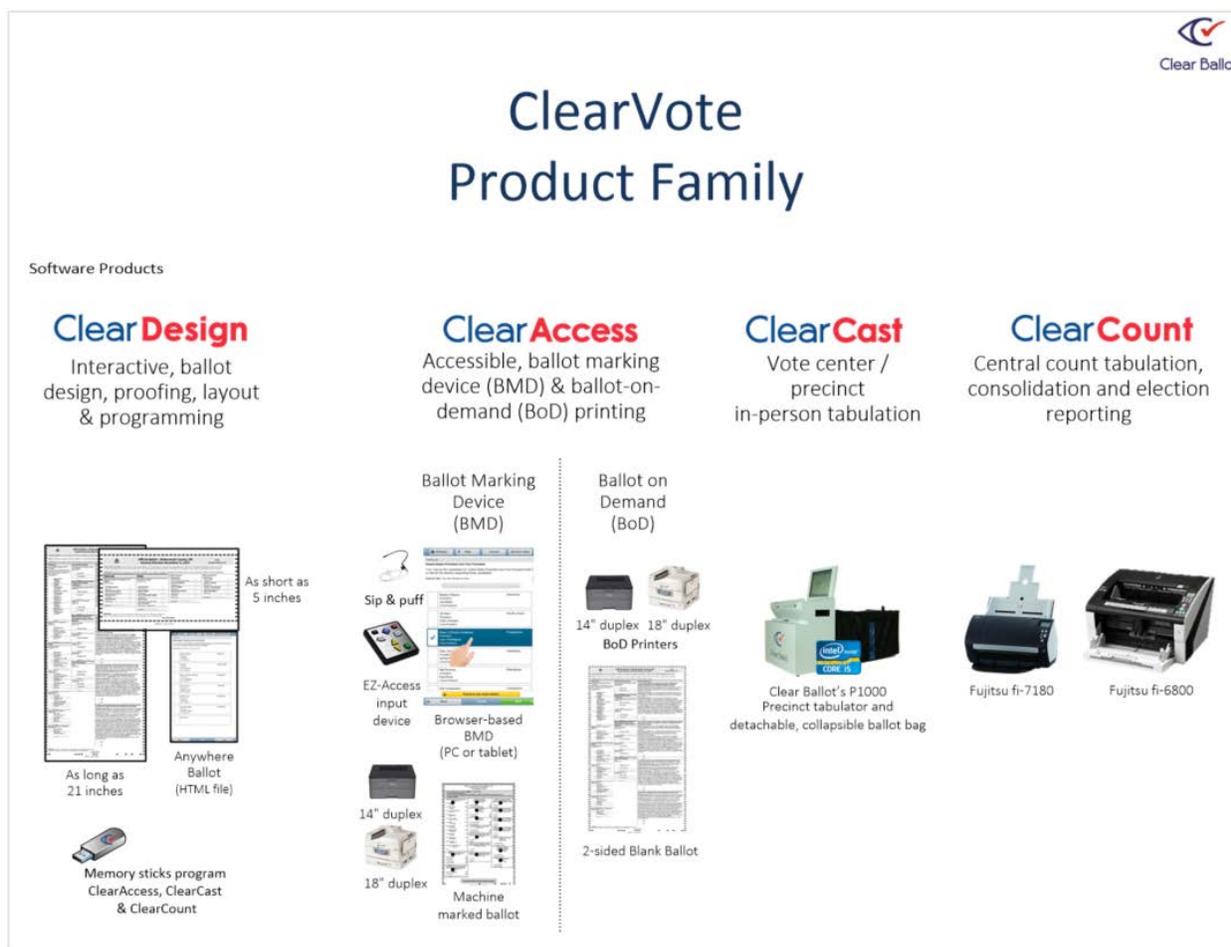
| Component / Feature | Feature completion | Certification Start | Certification End (est.) |
|--|--------------------|---------------------|--------------------------|
| ClearDesign – ballot design, proofing, and programming | | | |
| <i>New since Pilot version (V1.0.0)</i> | | | |
| Improved integration with all other ClearVote components | 10/19/15 | 10/26/15 | 2/5/16 |
| <i>Next release (version number TBD)</i> | | | |
| Recorded audio | 4/15/16 | 5/15/16 | 8/15/16 |
| Enhanced support for certain foreign language fonts | | | |
| Code ballots by style (simplification) (Adams) | | | |
| ClearAccess – accessible, in-person voting | | | |
| <i>New since Pilot version (V1.0.0)</i> | | | |
| Fine-tune selection of voter’s ballot style (Adams) | 10/19/15 | 10/26/15 | 2/5/16 |
| <i>Next release (version number TBD)</i> | | | |
| Bring up to published Anywhere Ballot specs | 4/15/16 | 5/15/16 | 8/15/16 |
| Add support for binary GPIO input devices (e.g., foot paddles) | | | |
| Ballot-on-demand printing is fully integrated with ClearDesign | | | |
| ClearCount – central count tabulation and reporting | | | |
| <i>New since Pilot version (V1.0.7)</i> | | | |
| New PDF reporting subsystem installed (enables district level reporting and voter turnout) | 10/19/15 | 10/26/15 | 2/5/16 |
| Reports taking longer than ~1 minute are now generated as server background jobs | 10/19/15 | | |
| Added XML results reporting (follows IEEE 1622 standard; enables XSL-based custom reporting) | 9/15/15 | | |
| Single-ballot cast vote record | 9/15/15 | | |
| Display of all blank ballots added to Dashboard | 10/19/15 | | |
| Faster adjudication of overvoted contests | 9/15/15 | | |
| Suppress results prior to polls closing and for candidate withdrawals | 9/15/15 | | |
| Incremental backup speeds nightly backups | 9/15/15 | | |
| <i>Next release (version number TBD)</i> | | | |
| Integrated batch accounting for manual adjudication (Adams) | 4/15/16 | 5/15/16 | 8/15/16 |
| Improved target card options (better VSPC ballot control) (Gilpin) | | | |
| Enhanced recordkeeping for write-ins | | | |
| Ballot-on-Demand Print - NEW PRODUCT | 3/15/16 | NA | NA |



ClearVote

ClearVote is the umbrella name for Clear Ballot’s modular voting system. In ClearVote, Clear Ballot’s engineering team has harnessed modern software tools and state-of-the-art hardware to create a comprehensive voting system that brings greater speed, accuracy, and transparency to elections. ClearVote is the first U.S. voting system built from the ground up in a decade.

The diagram below itemizes the hardware and software of the four major software components of ClearVote.

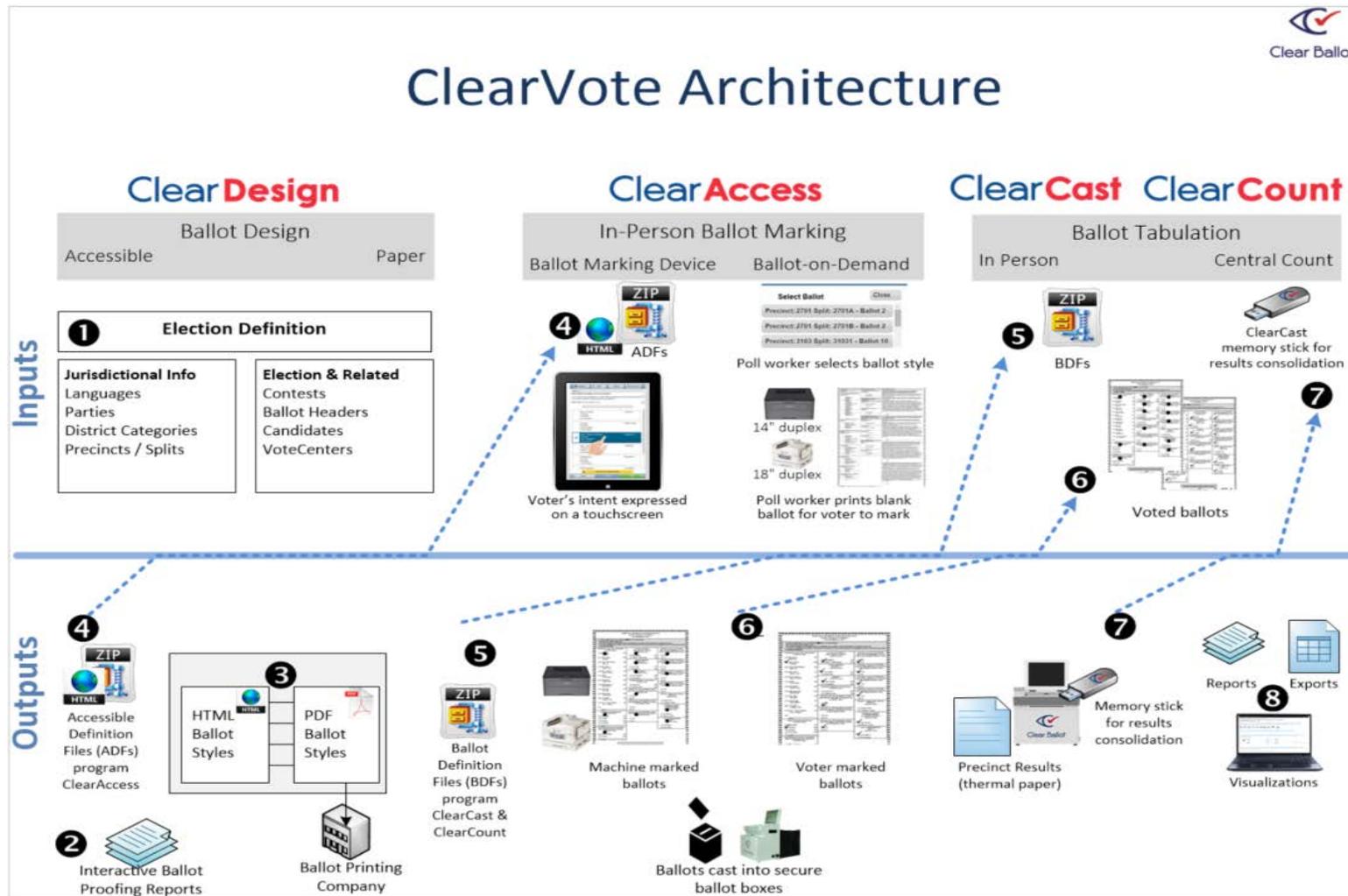


Note that ClearCast, while generally not applicable to central count states, is shown here for completeness.



Architecture – Inputs and Outputs

The diagram below illustrates the ClearVote modular architecture and details the inputs to and outputs of each software component. ClearCast, while generally not applicable to central count states, is shown here for completeness.





Notes to ClearVote Architecture

| | |
|--|--|
| ClearDesign Inputs | ClearDesign Outputs |
| 1. The election definition, consisting of jurisdictional and election information | 2. Ballot proofing reports 3. PDF and HTML files 4. Accessible definition files (input to ClearAccess) 5. Ballot definition files (input to ClearCast and ClearCount) |
| ClearAccess Inputs | ClearAccess Outputs |
| 4. Accessible definition files and voter intent expressed on a touchscreen | 6. Machine-marked or voter-marked ballots (outputs to ClearCast and ClearCount) |
| ClearCast Inputs | ClearCast Outputs |
| 5. Ballot definition files (from ClearDesign) 6. Voted ballots | 7. Results memory stick (input to ClearCount) |
| ClearCount Inputs | ClearCount Outputs |
| 5. Ballot definition files (from ClearDesign) 6. Voted ballots 7. Results memory sticks from P1000 tabulator for consolidation | 8. Reports, exports, and visualizations |



ClearDesign

ClearDesign is the browser-based software component that enables election department staff to design ballots independently and interactively, proof their design (including the accessible ballots), lay out and review one or all ballot styles (including the HTML-based accessible ballots), generate PDFs for ballot printing companies and ballot-on-demand printers, and program the other components.

Major functions

Election definition

The ballot design team can create the election definition (geographic and election-specific data) by importing data from an external file or via manual input using a highly capable rich-text editor that features support for fonts, background color, tables, bullets, numbering, and images. Election definitions can be templated for easy re-use.

Ballot proofing

Seventy-nine ballot-proofing reports help the staff responsible for ballot proofing ensure that mistakes are caught before ballot files are sent to the printer. The types of proofing reports and number of each are listed here:

- Ballots: Ballot listing (5), Ballot Groups (8), Ballot Sets (2), Ballot Styles (5), Layout Styles (2), Headers (5)
- Cards: Card listing (4), Card Styles (5)
- Geographic: Districts (6), Precincts (9), Splits (9)
- Election specific: Contests (9), Candidates (2), Voter Groups/Party affiliation (5)
- Jurisdiction: Languages (2)

Each of these reports can be produced in HTML (to view on screen), PDF (to print on paper), or CSV (for analytical purposes). The HTML and PDF formats can be rendered in portrait or landscape mode for letter size, legal size, A4, and A3 paper and at varying screen widths.

Ballot layout

A rich set of ballot layout tools enables the ballot design team to use preset ballot layout styles (including one that follows the guidelines of the Center for Civic Design) or to create custom ballot styles. Macros can be included on the ballot layout that allow, for example, variable data such as precinct names to be placed on the ballot style PDF file.

Programming

The ClearDesign system produces two types of programming files: ballot definition files (BDFs) and accessible definition files (ADFs).



BDFs are produced in plain text CSV files that are encapsulated into a digitally signed ZIP file that programs the P1000 optical scan precinct tabulator and the central count tabulators that connect to the Fujitsu scanners. Examples of the CSV files include the list of contests, their short name, and their vote rule; the list of candidates and their party affiliation; the list of parties and their abbreviations; the list of counter groups (for example, Early Voting, Election Day, Vote-By-Mail); the list of precincts; the list of districts and their associated precincts; and the mapping table that associates candidates with the X,Y coordinates of their respective vote ovals across every ballot style.

ADFs are produced as a digitally signed ZIP file that encapsulates two files:

- An HTML file that contains the instructions to render the ballot styles in a browser interface and includes navigational logic and error handling according to the principles set forth in the Anywhere Ballot reference design.
- A JSON file that contains the election-specific information for every precinct and ballot style as well as the instructional text (including language translations) that appear to the voter on a ClearAccess tablet or touchscreen computer.

Unique features

The unique features of the ClearDesign system are apparent in the level of support offered, ballot-design functions, and error prevention features.

Real-time, interactive support

Designed for real-time remote support while preserving security. To obtain real-time support during the ballot design phase, county staff can upload a backup copy of its secure ClearDesign election database to the ClearDesign “sandbox” Then, as the Clear Ballot support technician makes changes, the ballot designers can make the same changes on their own secure copy.

Ballot design

- *Customizable text strings*, which allow jurisdictions to use their own lexicon—for example, referring to *precincts* as *wards* or *VSPCs*—and to change the instruction messages presented to voters in the ClearAccess and ClearCast systems.
- *Familiar browser-based user interface* allows the positioning of adjacent browser tabs—for example, the left tab can show entry of text to define a contest; the right tab shows the effect of a change in a contest on the layout of a ballot style, side by side.
- *Flexible ballot lengths* as short as 5 inches can, for some elections, provide a more pleasing voter experience and save on printing costs.
- *Dynamic contest formatting* allows the ballot designer to relocate a contest using a familiar drag-and-drop technique and to reduce the vertical dimensions of a contest, for example, to avoid a two-card ballot.
- *Ballot sets* are the versions of each ballot style required for the election, such as the 18-inch ballots sent to a printing company and two-card 14-inch files that are produced by a



low-cost ballot-on-demand system. Ballot sets allow Clear Ballot customers to substitute printers that cost less than \$150 for printers costing over \$3,000.

Error prevention

Software locks prevent common errors. For example, PDF files cannot be produced until all ballot styles have been successfully generated. Likewise, ballot programming of the ClearAccess, ClearCast, and ClearCount systems cannot be done until all ballot styles have been successfully generated.

Interactive proofing reports formatted in HTML, PDF, or CSV files provide multiple ways for county staff to visualize ballot design quickly and efficiently across even hundreds of ballot styles.

Performance metrics

Nonquantifiable performance

Clear Ballot focuses on how to make a knowledgeable ballot designer productive quickly. Results from recent training bear this out.

In Multnomah County (Portland), Oregon, the time required to comprehend the basic structure of ClearDesign was very short. The length of the training program was budgeted for 10 days and completed in 4 days. Evaluation comments confirmed that "... this couldn't have been easier."

In Adams County, Colorado, an error in specifying the vote rule for a contest was discovered during a public L&A test. A county staff member was able to diagnose the issue, fix it, and re-load a corrected BDF ZIP file in less than 3 minutes—in front of an audience of outside observers.



Quantifiable performance

This performance is measured in time to set up the election, proof the ballots, and generate the ballot sets.

Test Setup

- Election environment: Multnomah County, Oregon, 2012 General Election
- Districts (30), Precincts (132), Splits (226), Contests (90), Ballot styles (160)
- Two ballot sets: Vote-by-Mail (8.5"x18") and Accessible Anywhere Ballot (8.5"x11")
- Computing environment: the following tests were performed on an Intel Core i7 server with 4 cores (8 hyper-threaded cores), 16GB of memory and 1TB of storage.
- Reporting format: PDF files rendered on letter-size paper in landscape mode

Timed Tests

- Backup time / file size (00:04 / 242 KB)
- Proofing report generation (representative listing)

| Proofing report | No. of PDF pages generated | Elapsed time (mm:ss) |
|--|----------------------------|----------------------|
| Districts with Precincts | 93 | 00:07 |
| Districts with Splits | 224 | 00:07 |
| Precincts with Splits | 13 | 00:02 |
| Ballot Styles with Candidates | 761 | 00:28 |
| Splits with Districts (Tabular) | 134 | 00:06 |
| Precincts with Districts (Columnar) | 132 | 00:04 |
| Contests with Ballot Text | 21 | 00:02 |

- Lay out ballots (required to print PDFs and to program tabulators: 160 styles in 07:24)
- BDF ZIP file creation time / file size (00:13 / 127KB)
- ADF ZIP file creation time / file size (00:22 / 462KB)
- PDF file production (ZIP file)

| PDF production type | No. of PDF files produced (file size) | Elapsed time |
|------------------------------|---------------------------------------|--------------|
| Precinct / Split | 1095 (55 MB) | 09:00 |
| Split | 250 (8.7 MB) | 02:50 |
| Cards (proofing only) | 149 (9.1 MB) | 04:35 |



ClearAccess

ClearAccess is Clear Ballot's accessible voting solution and ballot-on-demand system. It runs on any Windows 8.1 Pro touchscreen computer. Available options include an all-in-one (AIO) desktop computer, and a tablet, the newest class of 2-in-1 touchscreen laptops that fold back to create a large-screen tablet. AIO computers combine a processor and storage into a single, large touchscreen monitor.

ClearAccess is based on the Anywhere Ballot. The Anywhere Ballot was developed in 2013 under a sub-grant to the Center for Civic Design from an Election Assistance Commission grant to the Information Technology Innovation Foundation (ITIF) for a project called the Accessible Voting Technology Initiative.

In 2014, the Clear Ballot Group contracted with Oxide Design, the design firm that produced the reference design for the Anywhere Ballot. Our goal was to extend ClearDesign to produce both the PDF files for ballot printing, which every election management system does, and also a set of HTML files that have a one-to-one correspondence with their respective PDF files. With a single proofing step, ballots can be produced for conventional printing and for display in a modern browser interface. Once voted, a displayed ballot can be printed on a COTS printer that satisfies the performance and budget requirements of every election jurisdiction.

With this advancement, Clear Ballot eliminates multiple, error-prone proofing steps across potentially hundreds of ballot styles. For example, a mail ballot can be printed on a single 8.5"x18" card and a disabled voter can vote the Anywhere Ballot, which is rendered in ClearAccess and printed on two 8.5"x11" ballot cards. Clear Ballot tabulators—the P1000 precinct tabulator and the central count tabulators—can process both ballot cards for the same election.

Major functions

The ClearAccess system has two modes of operation: as an accessible ballot-marking system and as a ballot-on-demand printer.

When operating as an in-person ballot-marking system, ClearAccess allows a poll worker to select the correct ballot style for the voter. The voter can privately and independently indicate the choices on a COTS tablet or touchscreen laptop, review the selections, make corrections as necessary, print a machine-marked ballot, and cast it into a ballot box. The printer must be capable of producing a two-sided letter-size or longer ballot card. Marked ballots are transported to a central tabulation facility or tabulated by Clear Ballot's optical scan precinct tabulator—the P1000 (see *ClearCast* on page 18.)

When operating as a ballot-on-demand printer, the ClearAccess system allows a poll worker to select the correct ballot style and print a blank ballot on a duplexing COTS printer. The voter marks the ballot, reviews it, and casts it into a ballot box for central tabulation or into Clear Ballot's P1000 precinct tabulator.



Hardware components

The ClearAccess system consists of one or more ballot-marking stations that include the following physical components. All of these components are standalone, unconnected, and unmodified commercial, off-the-shelf (COTS) hardware.



The ballot-marking station pictured here is an AIO touchscreen. (The CPU is packaged inside the monitor.) It features locking port covers and can be physically secured with a cable.

Ballot-marking station. A computer running the software in a Chrome browser. On the ballot-marking station is a web server that serves up HTML pages for both voting and administration. The ballot-marking device runs in kiosk mode under the Windows 8.1 Pro operating system.

Personal assistive-technology devices. Each ballot-marking station provides the following assistive input devices:

- Mouse
- Headphones
- Sip-and-puff (SNP)
- EZ Access keypad

Laser printer. A COTS laser printer, attached to the ballot-marking device with a USB 2.0 or USB 3.0 cable, is capable of printing two-sided ballots with a minimum size of 8.5"x11" on 65 lb. or 80 lb. index paper.



Ballot-style transfer stick. A COTS USB 2.0 or 3.0 memory stick having at least 1GB of memory is used to transfer the ballot styles from the ClearDesign environment to the ballot-marking device.

Privacy screen. A folding screen ensures privacy for the voter during ballot marking.

Uninterruptible power supply. Ensures graceful shutdown in the event of power outages and supports ballot printing inside accessible vans.

Software functions

The ClearAccess software performs the following functions, which are presented as a series of HTML pages in a browser interface:

- Ballot-marking device configuration. The ClearAccess software allows a credentialed user to configure the ballot-marking station. Configuration involves these tasks:
 - Selecting the ballot styles eligible to be displayed at this polling location, or in the event the ballot-marking station resides in a voting center, all ballot styles.
 - Opening the polls
 - Closing the polls
- Ballot marking. For each ballot style in the election, the ClearDesign software produces an HTML file that instructs a Chrome browser to perform these operations:
 - Configure the ballot
 - Select the ballot style appropriate to the voter's jurisdiction
 - Select a language
 - Specify whether to invoke audio
 - Select a contrast mode
- Begin voting
 - Read the instructions
 - View a contest
 - Select candidates and measures and, if necessary, scroll to see all choices
 - Write-in a candidate for a contest
 - Navigate to the next or previous contest and, if requested, to skip a contest
- Prevent errors by warning on overvoted contests or blank ballots
- Verify, print, and cast the ballot
 - Review all votes and return to a particular contest
 - Print a machine-marked ballot that can be immediately tabulated in the precinct or vote center by the P1000 precinct tabulator or, in a central count operation, by the ClearCount tabulation system
 - Cast the printed ballot into a ballot box for tabulation
- Log all transactions without compromising voter privacy



Unique features

Ballot-marking device

- *Use of low-cost COTS printers.* The ClearDesign ballot set feature can reformat a long ballot (18 inches) as two 11-inch two-sided ballots to be printed on low-cost, commercially available laser printers. With this capability, election departments can save thousands of dollars per installation. Counties that have acquired more expensive printers can still use them for vote centers; for precinct use, they can shift to easy-to-use printers that only cost 3% of the initial cost of traditional ballot-on-demand printers, realizing with a much lower cost of ownership.
- *Wide selection of devices.* The tablet and laptop market continues to innovate rapidly. Jurisdictions that lock themselves into a proprietary design will find, in very short order, that their equipment is obsolete and have no opportunity to recycle it (for example, into the local school system). In contrast, ClearAccess hardware can be repurposed. Because ClearAccess runs on a COTS tablet or laptop, a wide variety of commercially available devices are available at the beginning of their innovation cycle.
- *Anywhere Ballot design.* Adhering to the design requirements of an EAC-funded grant, the Anywhere Ballot has gone through substantial field testing under the supervision of Kathryn Summers at the University of Baltimore.
(<http://civicdesign.org/projects/anywhere-ballot>)
- *Immediate tabulation.* Today, many voting systems require the ballots marked on a ballot-marking device to be manually transcribed for tabulation with certified voting systems. In contrast, ClearAccess runs as a single HTML file in a Chrome browser under Windows 8.1 Pro on a closed, isolated network. Being able to run on today's Windows tablets and laptops sets the stage for Clear Ballot to deliver votable ballots—by email or a download—to UOCAVA voters, who may be able to print ballots only on a simplex printer, and to allow jurisdictions to accept secure ballots returned by email.

Ballot-on-demand printer

With the exception of the Anywhere Ballot design, all features of the ClearAccess ballot-marking device carry over to its operation as a ballot-on-demand printer, using an OkiData printer without the need for expensive custom feeder trays.



Performance metrics

Times are the same for both the ballot-marking and ballot-printing operational modes.

Equipment configuration

Ballot-marking devices

- All-in-one with Core i3 processor with 4GB memory and 500GB disk
- 2-in-1 with Core i3 processor; 4GB memory; 500GB disk

Printers

- Brother 2340DW black and white laser printer (an updated version of the 2270W) capable of two-sided (duplex) ballot printing on 8.5"x11" or 8.5"x14" 70-lb. index ballot stock.
- Okidata 9670CN color laser printer capable of two-sided (duplex) printing of 8.5"x11", 8.5"x14", or 8.5"x18" ballots on 70-lb. to 90-lb. index ballot stock.

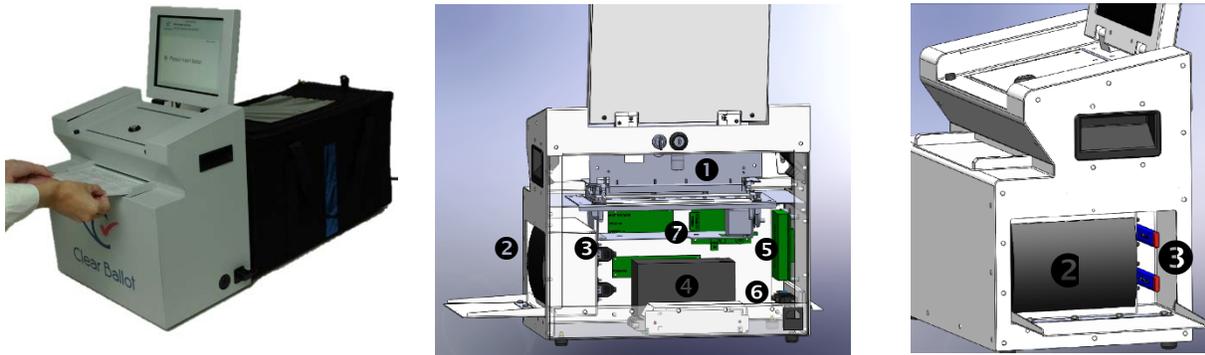
Timed tests

| | Brother 2270DW (black and white) | Okidata 9650HDN (color) |
|----------------------------------|-------------------------------------|----------------------------|
| 8.5" wide | Print time (in seconds) | |
| 11" long | 6 | 6 |
| 14" long | 7 | 7 |
| 17" long | NA | 8 |
| Time to print first page | <8.5 seconds | 9 seconds |
| Specifications | | |
| Retail price (Amazon) | \$149 | \$3,800 |
| Toner cost / cartridges / sheets | \$49 / 1 / 2, 600 | \$146 / 4 / 18, 500 |
| Ballot capacity (70 lb. index) | 200 (approx.) | 300 (approx.) |
| Maximum page duplex length | 14" | 18" |
| Weight (lbs.) | 15.4 | 167 |



ClearCast

ClearCast is the software component of the ClearVote system that operates on the P1000 optical scan tabulator. The P1000 scanner, which tabulates paper ballots that have been designed by the ClearDesign software, can be used in a precinct or vote center.



Major functions

Pre-election configuration, programming, and testing

- *Configuration* is typically performed by credentialed warehouse personnel. Configuration activities include archiving a past election and clearing the solid-state drive, setting the time zone, date/time, external print destination, and calibrating the scanner.
- *Programming and testing* are typically performed by election department staff who are authorized to perform election-related tasks. These tasks may include loading the ballot definition file (from ClearDesign), personalizing the scanner to accept ballots coded for the specific precinct where the scanner will operate, and testing the scanner in preparation for the public L&A test.
- *Public logic and accuracy test* procedures vary across jurisdictions, but test ballots are typically marked with a known result, scanned, and compared against the results tape that is printed on the thermal printer.
- *Preparation for transport* to the polling locations involves deleting all test data (including ballot images) except the log files (a one-button operation); packing the P1000 scanner with two memory sticks installed, and a spare roll of thermal paper, if desired, along with a ballot box and emergency ballot bag into a foam-lined case.



Election Day administrative tasks

- *Physical setup* consists of removing the scanner from its storage box, positioning the P1000 for voters, affixing the ballot box, turning on the unit, and completing any required paperwork. This operation should take less than 5 minutes.
- *Opening the polls* involves printing the zero tape and affixing seals to the ballot box. This operation should take less than 3 minutes.
- *Overseeing voting* does not require interaction with the P1000 scanner other than to change out the ballot box should it become full.
- *Closing the polls*, which typically involves printing copies of the results tape on the thermal printer. The final step is to transport or transmit one of the two memory sticks back to the central count facility for consolidation with other precinct memory sticks (see *ClearCount* on page 22).

Post-election tasks

- *Consolidation of results* involves transferring the contents of the memory sticks—results and high-resolution images—into ClearCount. As precinct and vote center memory sticks are uploaded, real-time reports can be generated and made publicly available.
- *Archiving the election* is performed to create a record of each precinct's and vote center's election data as it appeared at the official close of polls.

Unique features

ClearCast software features

- *Tabulation speed.* The P1000 scanner can perform all the standard-ballot processing functions for in-person voting, including warning the voter of an overvoted contest or an all-blank ballot and returning the ballot at the voter's request. Double-sided 18-inch ballots can be processed in less than 4 seconds. Voters wait in shorter lines for a better voting experience, and election departments need fewer additional scanners to move voters through the polling place efficiently in high-turnout elections.
- *Tabulates slightly misprinted ballots.* Other Ballot-on-demand printers are known to have difficulty in duplexing ballots—especially ballots longer than 14 inches. Slight skewing or imperfect back-to-front registration can render a ballot unreadable. Clear Ballot has prioritized handling these printed ballots to ensure that they can be tabulated without error even when slightly misprinted.
- *Flexible ballot sizes.* For elections having only a few contests (for example, a single ballot initiative, a recall election, or a special election), jurisdictions can save on printing and mailing costs by selecting a smaller ballot card. Ballot cards must be 8.5 inches wide but can extend, in one-inch increments, from 5 to 21 inches (with the exception of 8-inch or 9-inch long ballots).



P1000 hardware features

- *Future proof.* Because no commercial off-the-shelf scanner can meet the HAVA-mandated certification requirements for precinct scan, the P1000 scanner is the only hardware component manufactured by Clear Ballot. With the exception of the custom enclosure itself, every component inside the unit conforms to the federal definition of a commercial, off-the-shelf product. With respect to the central processing unit, Clear Ballot has selected the Intel Next Unit of Computing (NUC), which is a complete computer in a 4"x4"x1" form factor.
- *Intel™ Inside.* The P1000 scanner is the first component of any voting system to feature the latest generation of Intel processor—the Core i5 Broadwell central processor that is packaged on the NUC. This is the same processor found in modern laptops and desktop computers. Other processors are available to respond to the budget and performance needs of every jurisdiction.
- *Small, unique form-factor.* Unlike every other precinct or vote center optical scan tabulator, the P1000 scanner sits on a table—not on an expensive, custom ballot box. Ballots enter in the front and stack neatly into the canvas ballot box attached to the back of the scanner. The P1000 unit weighs only 30 pounds. It can fit in a car or be stacked in a truck for distribution to polling locations. The storage footprint is one-third the square footage of legacy precinct systems.
- *Detachable, collapsible ballot boxes.* Up to 1,000 ballots stack neatly inside a sealed box, virtually eliminating the need for poll workers to handle ballots. Both the regular ballot box and the emergency ballot box collapse to fit into any county-desired kit for polling place goods.
- *High-performance solid-state drive and triple redundant results storage.* A 120GB bus-mounted solid-state drive is the fastest storage device on the market. Results are simultaneously written to this drive and onto two 32GB USB 3.0 drives, creating three separate copies of results for each unit on nonrotating media.
- *Seamless recovery in case of a machine malfunction.* If a machine fails for any reason, either of the USB 3.0 memory sticks can be used to bring up a backup machine. By simply plugging in a memory stick, which contains all of the results as well as digitally signed high-resolution ballot images, the replacement unit is automatically brought online with all data backed up from the memory stick to the storage drive of the replacement unit.
- *External HDMI port.* For added transparency, a large-screen monitor can be attached to the P1000 system to show the public the operational steps involved in getting ready for an election (for example, during an L&A test or at an educational event).



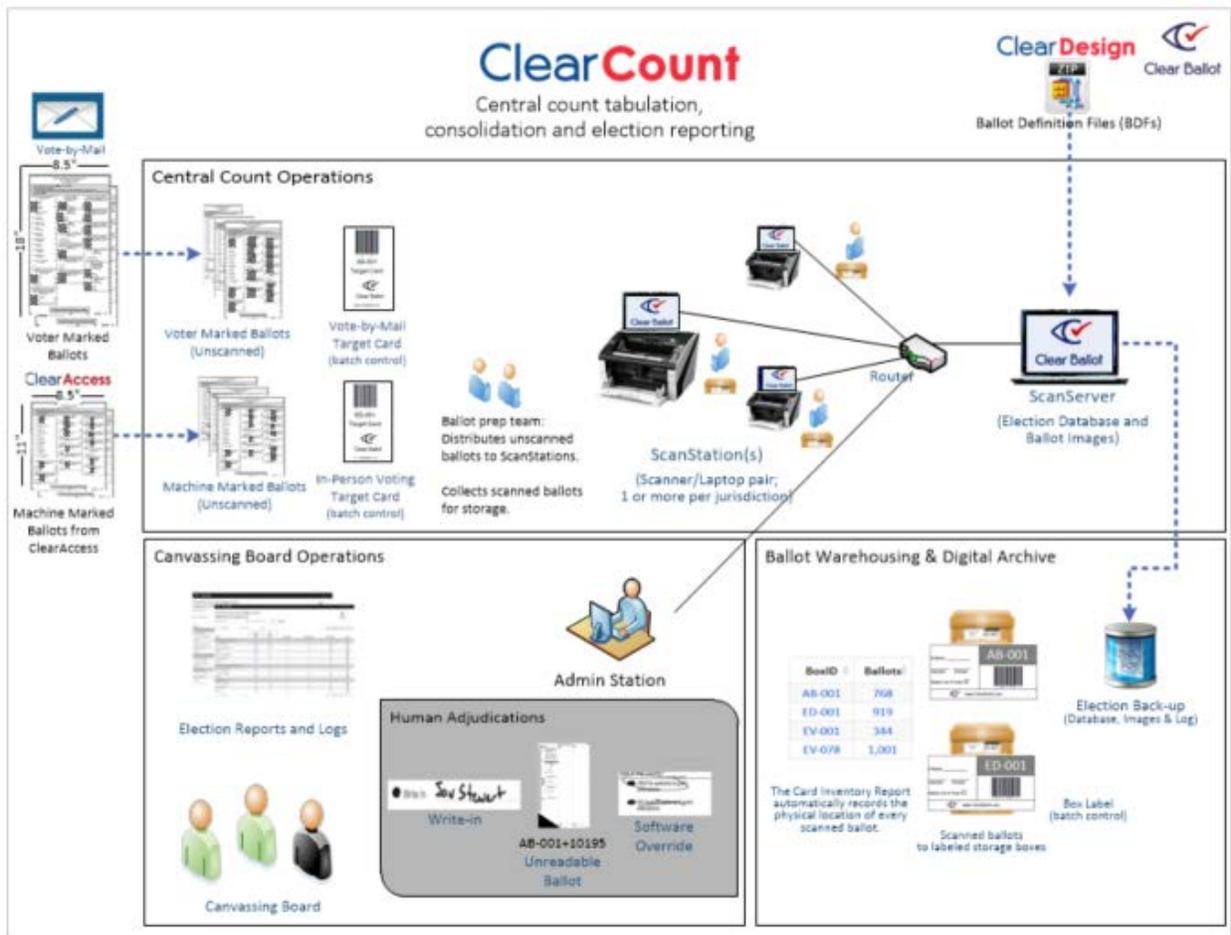
Performance metrics

| Performance metrics | |
|--|--|
| Ballot tabulation speed on the P1000 scanner <i>(scanned, tabulated, and stored in triplicate)</i> | |
| One 18-inch two-sided ballot | < 4 seconds |
| One 5-inch two-sided ballot | < 2 seconds |
| Time to set up at the polling site | < 10 minutes |
| Time to print a results tape | Varies with number of offices and precincts but the thermal paper tape prints at 1 inch per second |



ClearCount

ClearCount is the software component of the ClearVote system that performs central count tabulation, consolidation of results imported from ClearCast memory sticks, real-time results reporting, and preparation for independent audits. As shown in the diagram below, ClearCount runs on a Linux server (called a ScanServer) that is connected through a router to a closed, isolated network. Also connected to the network are one or more ScanStations (scanner + laptop) and one or more Administrative Stations. The ScanServer performs as an appliance and requires no maintenance.



Key points:

- Multiple length ballots can be scanned in the same election without re-programming the tabulator.
- Ballot control is achieved through target cards and matching labels.
- Scalability and redundancy is achieved by networking ScanStations.



Major functions

Election setup

To set up the election, the ballot definition files (BDFs) that originated from the ClearDesign system are loaded onto the ScanServer and become the *active election*. All ballots scanned by ScanStations are tabulated into the database of the active election.

ScanStation setup

Before scanning begins, the scanning profiles of the scanner model used in each ScanStation are re-loaded to ensure that all scanner settings are uniform for the election.

Central count ballot scanning

Ballot preparation. For ballots that are coded by precinct, county staff print target cards and box labels, which are downloaded from the Clear Ballot website at <http://clearballot.com/Support/TargetsAndLabels>. The prep team places one target card on top of a batch of ballots and affixes the corresponding box label to the physical storage box. Target cards are used to associate a batch of ballots to a physical ballot box so that, if needed, the ballot's image ID can be used to retrieve the physical ballot. This is *image-to-ballot traceability*.

Ballot scanning. The prep team delivers a batch of unscanned ballots to a ScanStation operator, who scans the ballots. The Fujitsu scanners can detect double feeds, which will stop the scanner. A simple procedure clears the scanner, and scanning resumes. After the batch is scanned, the prep team removes the batch.



Canvassing support

Even while ballots are being scanned and results cannot be viewed, it is possible to process the ballots that require human judgment. Clear Ballot supplies electronic adjudication tools that indelibly record the decisions made to resolve the issues common to marked ballots:

- Overriding a software adjudication
- Adjudicating unreadable ballots
- Adjudicating write-ins

Election reporting

Transparency is one of the primary objectives of Clear Ballot's reporting suite. The reports produced in HTML format feature extensive "drill-down" capabilities; the objective is to be able to tie every total to the set of ballot images that went into the computation of that number. Every HTML report can be exported as a CSV file for independent analysis.

Independent audit preparation

The ClearVote system was built to be independently audited. The following audit artifacts can be produced in a few minutes.

- Dashboard report that shows the reconciliation of cards scanned to ballots processed and the resolution of unreadable ballots.
- Statement of Votes Cast, which commits the vote total for the purposes of the audit.
- The Ballot Inventory Report, which details the physical location of every ballot cast in the election.
- The Election Log, which records all transactions pertaining to the current election.
- The System Log, which shows all transactions that occurred outside of the election. For example, failed login attempts show up in this log.
- The Cast Vote Record (CVR) is a spreadsheet that shows the adjudication of every choice on every ballot cast in the election. The data in the spreadsheet is recorded as a 1 for a vote, as 0 for not a vote, and as blank when the contest does not appear on the ballot. The columns can be summed to compare totals in the CVR table to the Statement of Votes Cast or to any set of randomly selected ballots (for example, to conduct a Risk-Limiting Audit).



Unique features

Dashboard

The Dashboard is the ClearCount control center. It is a clickable page displayed in a browser window that summarizes the operational aspects of an election. Every hyperlinked number links to the set of ballot images that contribute to that total.

Clear Ballot Reports for 2014g larry

General Election, Nov 4, 2014, Dashboard

Election Data

| | |
|--------------------------------|--------------|
| Election Phase | closed |
| Ballot type | |
| Approx ballot image dimensions | 8.5" x 14.0" |
| # Card styles | 132 |
| # Contests | 23 |
| # Choices | 53 |
| # Parties | 5 |
| # Counter groups | 5 |
| # Precincts | 132 |
| # Precincts and card styles | 132 |

Ballot Scanning Operations

| | |
|---|--------------------------|
| Scan date | 2014-10-21 |
| Tabulation date | 2014-11-14 |
| Tabulator software version | Version 1.0.3 2014-07-01 |
| | 20:09:24 |
| # Scanners | 3 |
| # Boxes scanned | 193 |
| # Precincts scanned | 132 out of 132 |
| # Cards automatically tabulated | 109,255 |
| # Pages judged to be non-ballots | 193 |
| # Unreadable cards (0.03% rate) | 31 |
| # Pages scanned (ballots and non-ballots) | 109,479 |
| # Cards that are fully blank | 3 |

Visual Resolution of Unreadable Cards

| | |
|---|----|
| Unreadable card images needing resolution | 0 |
| Unreadable cards resolved & tabulated | 31 |
| Unvotable unreadable cards (could be resolved by rescanning 0 boxes): | |
| Occluded or incomplete unreadable images | 0 |
| Scanned unreadable images with multiple overlapping cards | 0 |
| Unreadable resolved as a non-ballot | 0 |
| Unreadable cards | 31 |

Card Reconciliation

| | |
|--|----------------|
| Cards automatically tabulated | 109,255 |
| Adjustments to card count for Unreadables & Modifications | |
| Unreadable cards | +31 |
| Resolved as a non-ballot | 0 |
| Estimated additional cards in multiple overlapping cards | 0 |
| Adjustment to card count from visual resolution | +31 |
| Final Total Card Count | 109,286 |

ELECTION REPORTS

- Statement of Votes Cast
- Statement of Cards Cast
- Dashboard
- Contests Report
- Statement of Votes Cast with Precincts
- Generate PDF Report...

OTHER ITEMS

- Card Inventory
- Election Activity Log
- Card Resolutions
- Causes of Unreadable Cards
- Card Locator
- Generate XML Results File

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Key points:

- Every blue number is clickable and generally resolves to a set of ballot images.
- Reports are accessed through the dropdown menu in the green oval and shown in the green inset at the bottom right of the above figure; audit logs are at the red oval.
- Unreadable cards are resolved into several categories in the Visual Resolution of Unreadable Cards shown at the top right; they are reconciled into the card count in the Card Reconciliation section at the lower right.



Adjudication of unreadable cards

ClearCount is generally forgiving when ballot-on-demand printers produce less than perfect ballots, yet some card images can be unreadable when timing marks are torn or where voters have made marks in the timing marks or code channel area. While the P1000 precinct tabulator can detect damaged cards and return them to the voter, cards cast by mail are the issue. The figure below shows the Card Resolutions tool and an unreadable card.

The screenshot displays the Clear Ballot software interface. The main window shows a ballot card for El Paso County, Colorado, dated Tuesday, November 5, 2013. The card includes the name of the County Clerk and Recorder, Wayne W. Williams, and instructions to voters. The ballot is divided into sections for Candidates (Colorado Springs School District 11 Director), State Referred Statutory Propositions (Proposition AA), and State Initiated Constitutional Amendments (Amendment 66). The configuration panel on the right allows the reviewer to adjust the card's orientation (rotated 90 degrees counter-clockwise), select the logical side (Front Side), enter the precinct ID (120.FCG), and declare the card's status (Votable). The 'Vote' button is highlighted in green, indicating that the card is ready for adjudication.

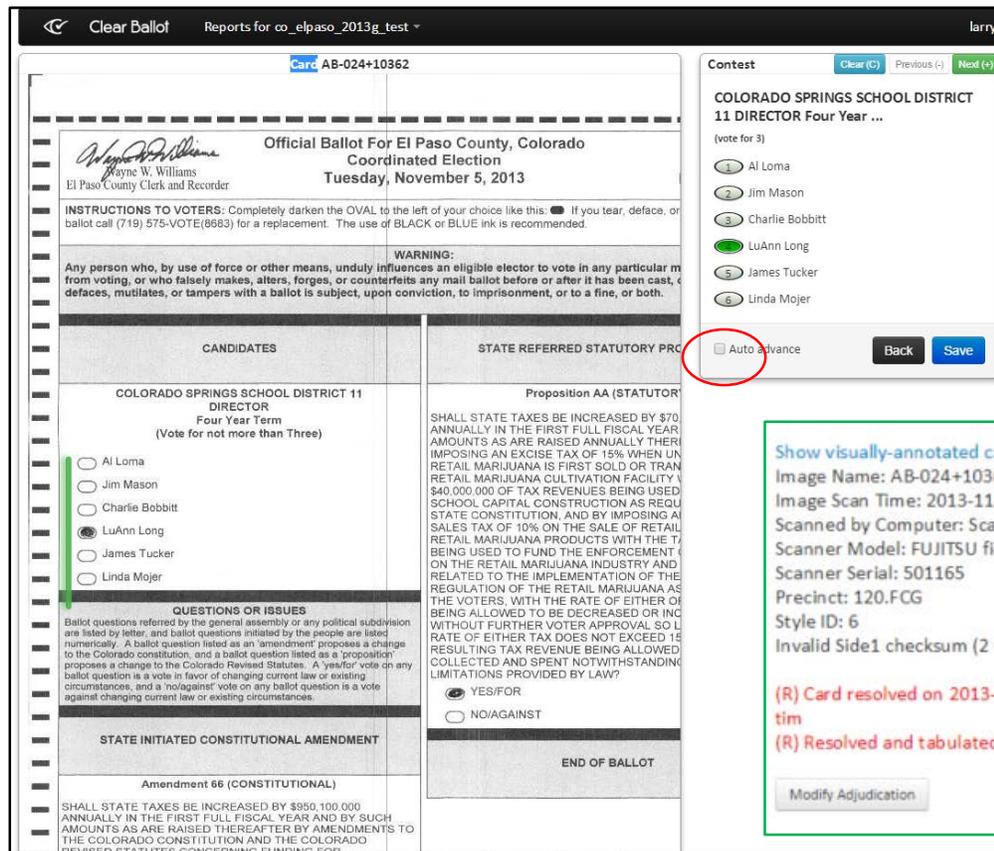
To adjudicate the unreadable card, the reviewers performs four initial tasks:

- Rotate the card to its readable orientation (red circle).
- Declare which side is logical side 1 (blue rectangle).
- Enter the precinct ID which selects the right ballot style (red oval).
- Declare the card “votable” (green circle).

When all four tasks are complete, the **Vote** button lights up, allowing the reviewer to proceed to the next step—to vote the card.



This figure shows the unreadable card in the process of adjudication.



The adjudication process is very fast. The green bar on the left directs the reviewer's attention to the contest that is being voted on the right side. The experienced reviewer places the Ballot Resolver into Auto advance mode (red oval). Then, by simply entering the ordinal number of the voter's mark on the left (4 in this case), the Ballot Resolver marks the oval on the right, brings up the next contest ("Amendment 66 (Constitutional)" in this example) and advances the green bar to that contest. A few additional points:

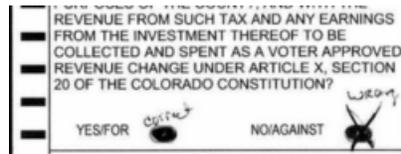
- The Card Resolutions tool automatically flips the card to the next side when the last contest on the first side has been voted.
- If the reviewers make a mistake, pressing the minus key (-) returns the display to the previous contest.
- If the vote rule is "Vote for 2" or higher, auto-advance takes effect when the vote rule has been reached.
- When the last contest has been voted, the reviewers can press the minus key repeatedly to check their results.

When the adjudication has been saved, the ballot provenance is updated with the reviewers name and timestamp of the adjudication (see red text in lower right inset of the image above).

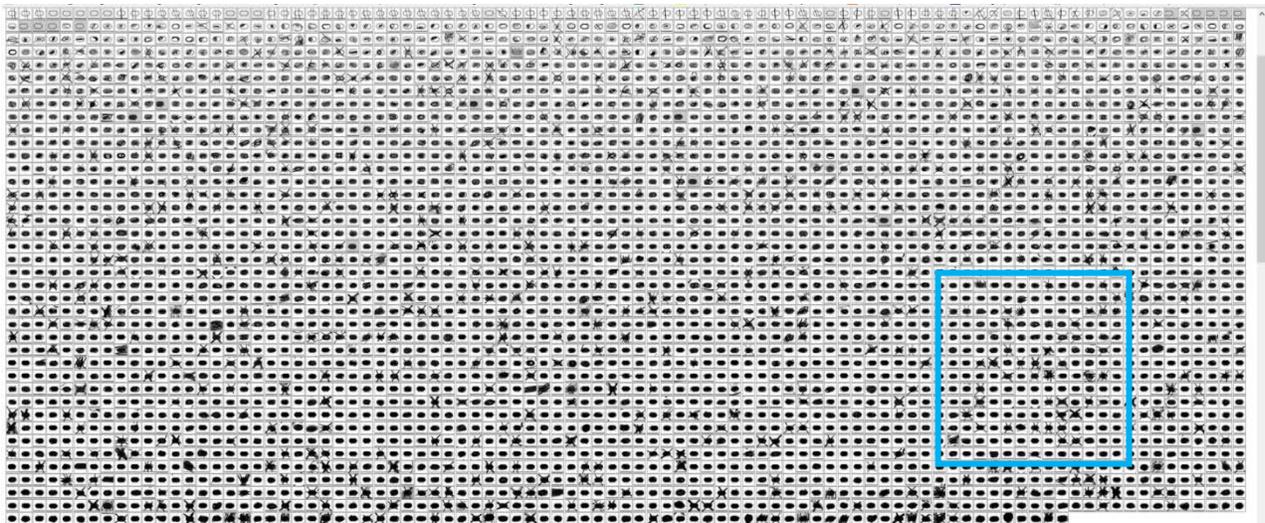


Finding uncaptured voter intent

Increasingly, election jurisdictions are recognizing the need to find and adjudicate uncaptured voter intent. This intent is often found on ballots that have overvoted contests because the voter attempts to correct a mark made in error, as shown here:

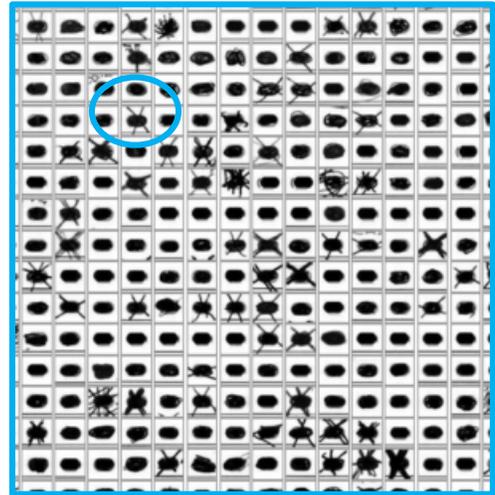


The rise in uncaptured intent is a direct consequence of the national trend to voters' casting their ballots by mail. The magnitude of this problem is large. Clear Ballot has developed the only tool that allows a jurisdiction to analyze these ballots to resolve voter intent. This operation can be done while ballots are being scanned or after the election, as the jurisdiction chooses. The image below shows the nearly 4,000 darkened vote ovals for every overvoted contest in the November 2014 election conducted in Adams County, Colorado.

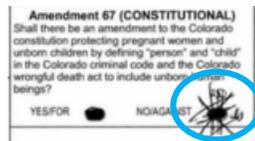




The image to the right shows a small portion of the overvoted contests. Each oval that has an X through it should be examined for uncaptured intent and adjudicated by judges in accordance with state law.



The small image shows the voter's attempt to correct an overvote where the intent was likely meant for the YES/FOR choice.

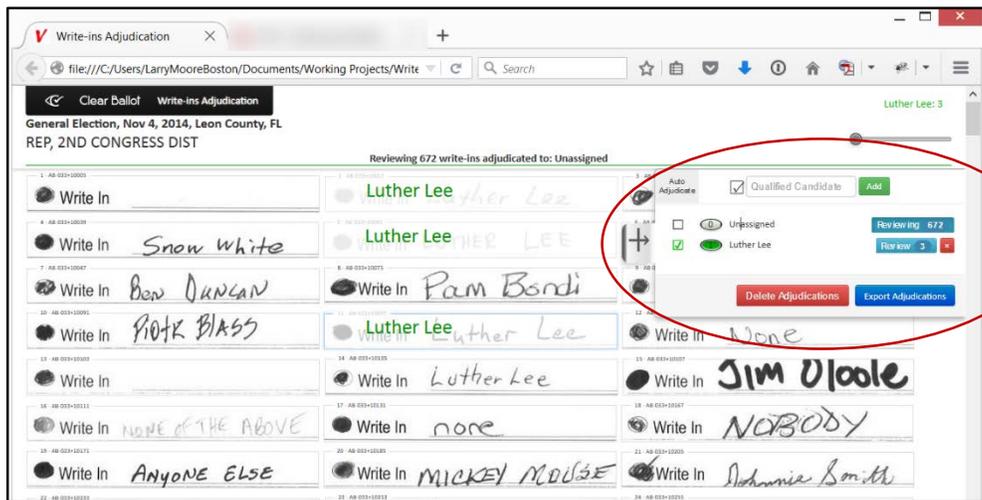




Clear Ballot has developed powerful tools that can quickly find uncaptured intent and bring just those ballots requiring adjudication to the attention of a review board. These tools extend the usefulness of paper ballots as voting methods change in response to budgetary constraints and the need to provide more convenience to voters.

Adjudication of write-ins

One of the most time-consuming election tasks is the adjudication of write-in votes. Clear Ballot has created a highly visual tool that dramatically speeds up the process of counting votes for qualified write-in candidates. Below is a brief explanation and a partial screen shot that shows its properties.



Key points:

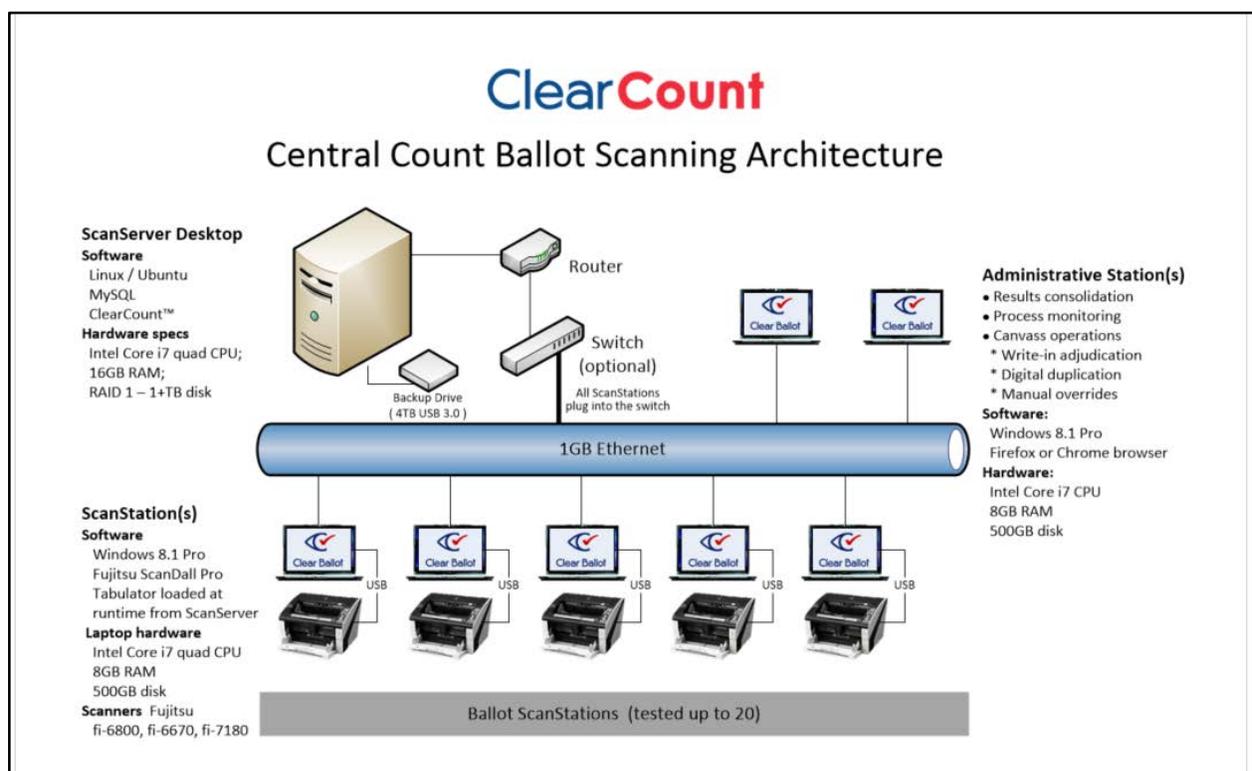
- Write-ins are displayed in a browser window, which can be zoomed out to show more write-ins on the page by the standard browser control (Ctrl+-). On a 24-inch monitor with maximum zoom, over 400 write-ins are clearly legible. Write-ins for which the oval was not checked are shown below all the write-ins for which the oval was checked.
- The collapsible control in the red oval is used to enter qualified names (Luther Lee, in this example) and to review adjudications for mistakes.
- By clicking on write-ins that show Luther Lee, the Unassigned count is decreased and the vote count for Luther Lee is increased. As names are clicked, the write-in image is dimmed and an overlay appears in green text.
- Once all write-ins are adjudicated for each qualified candidate, the reviewer exports the results to an Excel spreadsheet. On the first tab is a table of the count of votes by precinct for all qualified write-ins. Each subsequent tab shows for each qualified write-in candidate, the BallotID, the precinct where the vote was cast, and the image of the name as the voter wrote it. Clicking the BallotID displays the full ballot image. Write-ins classified as Unassigned, can be included in this spreadsheet.



Tabulation features

Performance. Competitive performance is measured not just by scanning speed but also in the total time and effort involved in processing every cast ballot. Therefore the factors that affect performance, in addition to scanning speed (3,800 14-inch ballots/hour per scanner), are the number of simultaneous scanners that can be operational (see next item), the number of ballots that require human adjudication (in two head-to-head tests, our “unreadable” rate was one-tenth that of a competitor) and whether human adjudication can be performed while ballots are being scanned (in our case, yes).

Scalability and low-cost redundancy. Clear Ballot measures central count scalability in the number of active ScanStations that can scan ballots and feed results and images to the server without affecting server performance. Clear Ballot has tested up to 20 concurrently running ScanStations with test software capable of injecting ballot images at a rate of 6,000 14-inch ballots per hour per ScanStation. This rate is nearly twice as fast as the scanners themselves can operate. Shown below is the ClearCount ballot-scanning architecture.





Error recovery. Mistakes happen. When they do, Clear Ballot’s Delete Box feature allows a staff member with elevated credentials to back out the results and the ballot count of an entire batch of ballots (which is identified by a unique target card). The Delete Box operation is recorded in the Election Activity log.

Low rates of unreadable ballots. ClearCount software can accurately tabulate ballots with printing that is less than perfect, as is sometimes the case when office printers are used in ballot printing. To further reduce errors, speed the process, and lower costs, ClearCount outstacks ballots digitally rather than physically. In contrast, competitors that feature mechanical outstacking have significantly higher unreadable rates. Other competitors force their customers to manually adjudicate marginal marks. Both methods introduce an unpredictable and unfunded burden on election departments.

Plug-and-play COTS scanners. Fujitsu offers a wide range of competitively priced scanners to meet the performance and budget needs of each county. Jurisdictions can freely mix these scanners in the same election. The small size and ease of interchange allows counties with excess capacity to loan ScanStations to counties with unexpectedly high turnout.

Reporting features

Real-time reporting with “drill-down.” Real-time reporting means that results are up to date as each ballot is scanned. To see the results at any moment, simply refresh the browser page. “Drill-down” refers to the use of hyperlinks—a familiar browser feature—that allows the user to see the images that contribute to that number.

Digital adjudication refers to the process of applying human judgment to resolve unreadable ballots, to correctly reflect voter intent in, say, overvoted contests, or to tabulate write-ins. In ClearCount, digital adjudication is a highly visual and interactive process, yet one that records every decision made by humans.

Built for audit. ClearVote was made to be independently audited. Every conceivable audit artifact—including a single ballot cast vote record that can be used to check the reported results—can be exported to support independent audits of any type, including precinct-based audits, tabulator-based audits, or Risk-Limiting Audits.

Ballot control features

Real-time ballot inventory. Clear Ballot has borrowed from the best practices of the scanning industry to implement a rigorous system of ballot control. Ballot batches are identified by a target card, which contains a barcode that is the first card scanned in the batch. By combining the value of the barcode with a sequence number assigned by Fujitsu’s scanning software, each ballot is assigned a unique identifier when it is scanned. The Card Inventory Report summarizes every batch scanned in the election and, when users drill down, can display the image of every ballot in every box in the order it appears in the physical box.



Image-to-ballot traceability. In certain types of audits, it is necessary to be able to find a ballot based on its BallotID. To our knowledge, no other voting system has this capability.

Digital outstacking

Clear Ballot has taken a modern approach to identifying ballots that require human judgment, an approach that does not perpetuate the unnecessary handling of ballots. ClearCount logs every ballot that requires human judgment and relates it to the physical location of the ballot. With high-quality digital images, there is seldom a need to handle a ballot physically. In contrast, legacy systems that outstack require extra ballot handling, which lowers throughput and increases the opportunity for human error. The ClearCount significantly reduces ballot handling, which further reduces human error, and lower overall election costs (including recounts).

The visualization of voter intent

One of the most important capabilities of any voting system is its ability to interpret voter intent. Until now, jurisdictions have had only two methods of assessing voter intent: using machines to analyze marks found inside well-defined vote targets or counting ballots by hand. Legacy voting systems can determine whether an oval has a mark in it; they cannot assess voter intent that is expressed outside a vote target.

This limitation and the inability of the legacy voting system manufacturers to deliver an alternative have resulted in well-publicized efforts by at least two counties to develop their own voting system—Los Angeles County, California and Travis County, Texas.

Clear Ballot has introduced a third method of assessing and tabulating voter intent. This method, called the *Visualization of Voter Intent*, is unique to Clear Ballot. Without resorting to a manual hand count, close elections can be settled quickly and transparently by showing the stakeholders a visual representation of voter intent in the context of a tabulation. To understand how this works requires an explanation of what we call the *classification of voter intent*.



The classification of voter intent

To enable the visualization of voter intent, Clear Ballot’s mark recognition software classifies voter intent into four categories. Consider the case where there are two candidates for an office, John Doe and Sally Smith, and we are examining the ovals for John Doe on every ballot having his contest. Each oval for John Doe can be classified in one of four mutually exclusive ways:

| John Doe’s oval <u>contains</u> an expression of affirmative voter intent, which is then classified as one of the following: | | | | | | | |
|--|---|-----------------------------|--|---|----------|---|-------------|
| 1. <i>Vote</i> for John Doe, where the number of marks in the contest is less than or equal to the vote rule. | <table border="1"> <thead> <tr> <th colspan="2">Contest A (Vote for One)</th> </tr> </thead> <tbody> <tr> <td>●</td> <td>John Doe</td> </tr> <tr> <td></td> <td>Sally Smith</td> </tr> </tbody> </table> <p>Ballot 1</p> | Contest A (Vote for One) | | ● | John Doe | | Sally Smith |
| Contest A (Vote for One) | | | | | | | |
| ● | John Doe | | | | | | |
| | Sally Smith | | | | | | |
| 2. <i>Participating overvote</i> , where John Doe’s oval is marked and elsewhere in the contest are additional marks that express affirmative voter intent that exceed the vote rule, i.e., Sally Smith’s oval was also marked. John Doe is said to “participate in the overvote.” | <table border="1"> <thead> <tr> <th colspan="2">Contest A (Vote for One)</th> </tr> </thead> <tbody> <tr> <td>●</td> <td>John Doe</td> </tr> <tr> <td>●</td> <td>Sally Smith</td> </tr> </tbody> </table> <p>Ballot 2</p> | Contest A (Vote for One) | | ● | John Doe | ● | Sally Smith |
| Contest A (Vote for One) | | | | | | | |
| ● | John Doe | | | | | | |
| ● | Sally Smith | | | | | | |
| John Doe’s oval <u>does not contain</u> an expression of affirmative voter intent, which is then classified as one of the following: | | | | | | | |
| 3. <i>Participating undervote</i> , where John Doe’s oval is not marked and the total number of marks elsewhere in the contest is strictly less than the vote rule, i.e., Sally Smith’s oval was also judged to be empty. John Doe is said to “participate in the undervote.” | <table border="1"> <thead> <tr> <th colspan="2">Contest A (Vote for One)</th> </tr> </thead> <tbody> <tr> <td></td> <td>John Doe</td> </tr> <tr> <td></td> <td>Sally Smith</td> </tr> </tbody> </table> <p>Ballot 3</p> | Contest A (Vote for One) | | | John Doe | | Sally Smith |
| Contest A (Vote for One) | | | | | | | |
| | John Doe | | | | | | |
| | Sally Smith | | | | | | |
| 4. <i>Vote for others</i> (in the same contest), where John Doe’s oval was judged to be empty, but the number of marks elsewhere in the contest is exactly equal to the vote rule, i.e., Sally Smith’s oval was judged to be a vote. | <table border="1"> <thead> <tr> <th colspan="2">Contest A (Vote for One)</th> </tr> </thead> <tbody> <tr> <td></td> <td>John Doe</td> </tr> <tr> <td>●</td> <td>Sally Smith</td> </tr> </tbody> </table> <p>Ballot 4</p> | Contest A (Vote for One) | | | John Doe | ● | Sally Smith |
| Contest A (Vote for One) | | | | | | | |
| | John Doe | | | | | | |
| ● | Sally Smith | | | | | | |

In the process of classifying voter intent, Clear Ballot’s mark recognition software computes two values that are used in the Visualization of Voter Intent: the density of the mark inside the vote oval and the density of the “candidate zone,” the rectangle that encompasses the vote oval and the candidate name. Clear Ballot software can electronically “scissor out” the vote ovals next to John Doe’s name on every ballot cast that includes his contest and arrange them visually into the four categories described above and sorted from most dense (a proxy for most confident) to least



dense (a proxy for least confident). The result is the Visualization of Voter Intent, and is shown on the next page.



Performance metrics

Unreadable ballot rate

Ballot duplication refers to the manual re-marking of ballots that could not be processed and tabulated automatically. Clear Ballot has twice gone head-to-head with a legacy system that physically outstacks ballots to compare unreadable ballot rates. Both times, Clear Ballot had one-tenth the number of unreadable ballots.

Ballot scanning rate

Clear Ballot has prepared a planning guide to estimate the number and type of central count scanners needed to process absentee ballots. That tool is available here: <http://clearballot.com/media/1101>

Voting system manufacturers usually provide a "burst speed," which is based on one minute of flawless scanning of paper ballots. This speed does not mirror the realities of ballot scanning in an election. In contrast, the data available from ClearVote reports accounts for the real time spent feeding the scanner for an entire batch. Clear Ballot has thoroughly analyzed results from previous elections to establish the sustained speed of the Fujitsu fi-6800 scanner and our system operating in a true election environment.

The table below presents the average number of folded and unfolded ballots that the Fujitsu fi-6800 can scan per hour, by size of card. These numbers reflect the expected speed with experienced operators. The scanners may achieve greater speeds, but Clear Ballot advises jurisdictions not to assume scanning rates that are significantly higher than the numbers provided here.

| Sustained scanning speeds Fujitsu fi-6800 high-speed scanner | | |
|---|----------|--------|
| Card size (in inches) | Unfolded | Folded |
| 8.5 x 5 | 7,872 | 7,085 |
| 8.5 x 11 (Landscape) | 5,508 | 4,957 |
| 8.5 x 11 (Portrait) | 4,716 | 4,244 |
| 8.5 x 14 | 4,144 | 3,730 |
| 8.5 x 17 | 3,352 | 3,016 |
| 8.5 x 21 | 2,640 | 2,376 |



Results reporting speed

The ClearCount system produces two types of reports: interactive and batch.

Interactive reports are rendered as an HTML page on a browser. The table below shows the representative times to load the report into a Firefox browser. After a report is generated the first time, the response time is virtually instantaneous because the report is cached in the server's memory.

The times shown below are from an election that had approximately 248,000 cards cast on a two-card ballot. There were 65 precincts.

| Report name | Time to process | Time to load | Scale of work |
|--------------------------------------|-----------------|--------------|---------------|
| Dashboard display | <2 seconds | negligible | NA |
| Contests report | <2 seconds | negligible | 40 contests |
| Statement of Votes Cast | <2 seconds | negligible | 96 choices |
| Statement of Cards Cast | <2 seconds | negligible | 65 precincts |
| Ballot Inventory Report | 3 seconds | 2 seconds | 545 boxes |
| Visualization of Voter Intent | 1:58 | 1:00 | 66,155 votes |

Representative batch reports from other elections, run as background jobs

| Report | Report format | Duration (h:mm:ss) | No. of pages |
|---|-----------------------|--------------------|-----------------|
| Statement of Votes Cast (SOVC) by Precincts | PDF | 0:00:04 | 15 |
| SOVC by Districts | PDF | 0:00:02 | 9 |
| SOVC by Contests, Geography, by Choice | PDF | 0:00:45 | 900 |
| SOVC by Precincts, Counter Groups, | PDF | 0:02:40 | 1,530 |
| XML results (approximately IEEE 1622) | XML | 0:03:27 | 189,018 lines |
| CVR Single ballot cast vote record | ZIP | 0:24:40 | 127,060 ballots |
| Election backup Note, in practice, elections are backed up incrementally (only the ballots scanned since the previous backup). Incremental backups normally complete in less than 30 minutes. | ZIP & Image Directory | 4:52:05 | 947,730 cards |



Summary

In our response to Colorado's UVS RFP in 2013, we stated that Clear Ballot was bringing a new class of technology to the voting systems market. The enhancements we have developed since then and described here continue to demonstrate a capacity to innovate that distinguishes our company, our products, and our services.

We understand the level of effort required to install and support an implementation of the magnitude that Colorado seeks, and we value working in partnership. In developing our products, we listened to what respected election officials told us about what they needed to serve the public with greater efficiency and transparency. The relentless focus that Clear Ballot has maintained on reduction of effort and ease of use in every aspect of our products can assure Colorado and its counties of a smooth transition.

Technology changes faster than election law. A partnership with Clear Ballot will prepare Colorado and its counties for new imperatives from either sector.

The value we have provided in just 5 years is being recognized in jurisdictions across the country. We are excited about what we can build with Colorado.