

# Usability Test Report of ImageCast<sup>®</sup> Evolution

Version: 5.10-CA::2

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# CHAPTER 1: EXECUTIVE SUMMARY

The purpose of this usability test report is to fulfill the requirements of the usability test of the ImageCast® Evolution 5.0 tabulator was conducted between July 27th and August 25th, 2016 in the Dominion Voting Systems (Dominion) offices and Atlantis Community Center facility. The purpose of this test was to fulfill the requirements of the Voluntary Voting System Guidelines (VVSG1.0).

Testing took place in a simulated polling place with a registration desk, voting booths containing the ImageCast® Evolution (ICE) voting system, external printer, and accessibility peripherals.

This configuration was set up at the DVS office in Denver, CO, and at the Atlantis Community Center in Denver, CO.

The users for the usability test were recruited by Dominion and Lousy LTD. These users were tested in two separate sessions using test ballots provided by Dominion. These test ballots included the following contests:

- United States Senator
- Representative in Congress for the 8th District
- Representative in State Legislature for the 69th District
- State's Prosecuting Attorney
- County's Sheriff
- County's Clerk
- County's Treasurer
- County's Register of Deeds
- County Supervisor for the 11th District
- Judge of the 30th Circuit Court
- Polling Place Closure
- Waterway Joining the Atlantic and Pacific
- Purchase of Louisiana
- Collecting Taxes through state and local agencies
- Presidential election for no more than three terms

This test ballot was used to simulate tasks that voters will be asked to perform during an actual election.

Each user was directed to work on their own with little to no assistance. They were only prompted by the facilitator once they became blocked by the system or asked for help. Once blocked the users were then asked for their input as to why they believed they were blocked. After which they were guided past the block.

Below is a high-level summary of the results:

Successful Completion	86%
Average Voting time	3.11 min for general 22.1 min for blind 8.81 min for low vision 9.21 min for limited dexterity
Voter Accuracy Confidence	92% of the users had high confidence
Voter Satisfaction Score	86% of the users would use this system 56% preferred the ICX system
Minimum Voting time	2 min
Maximum Voting time	60 minutes

Table 1-1: Results Summary

## 1.1 Target Users and Context

The users in this study were recruited to obtain the broadest spectrum of potential voters. One quarter of the users fall into the category of general. These voters do not have any physical impairment that would prevent them from using the voting system. The voting system uses peripheral devices and settings that allow users with a variety of physical disabilities to vote.

The user abilities groups include:

- general without any disabilities
- users with low vision or totally blind users
- users with limited dexterity
- users that have difficulty accessing the device due to the use of a wheelchair or other
- physical impairment that limits their access to the interface

## 1.2 Product Description

### 1.2.1 ImageCast<sup>®</sup> Evolution (ICE) Voting System

The ICE voting system version 5.0 supports manually (or hand completed) ballots, ballots that are entered via a screen based interface, and ballots that are entered via an accessible peripheral interface. The screen based interface and accessible peripheral interface allows for dexterity challenged users to participate in the election.

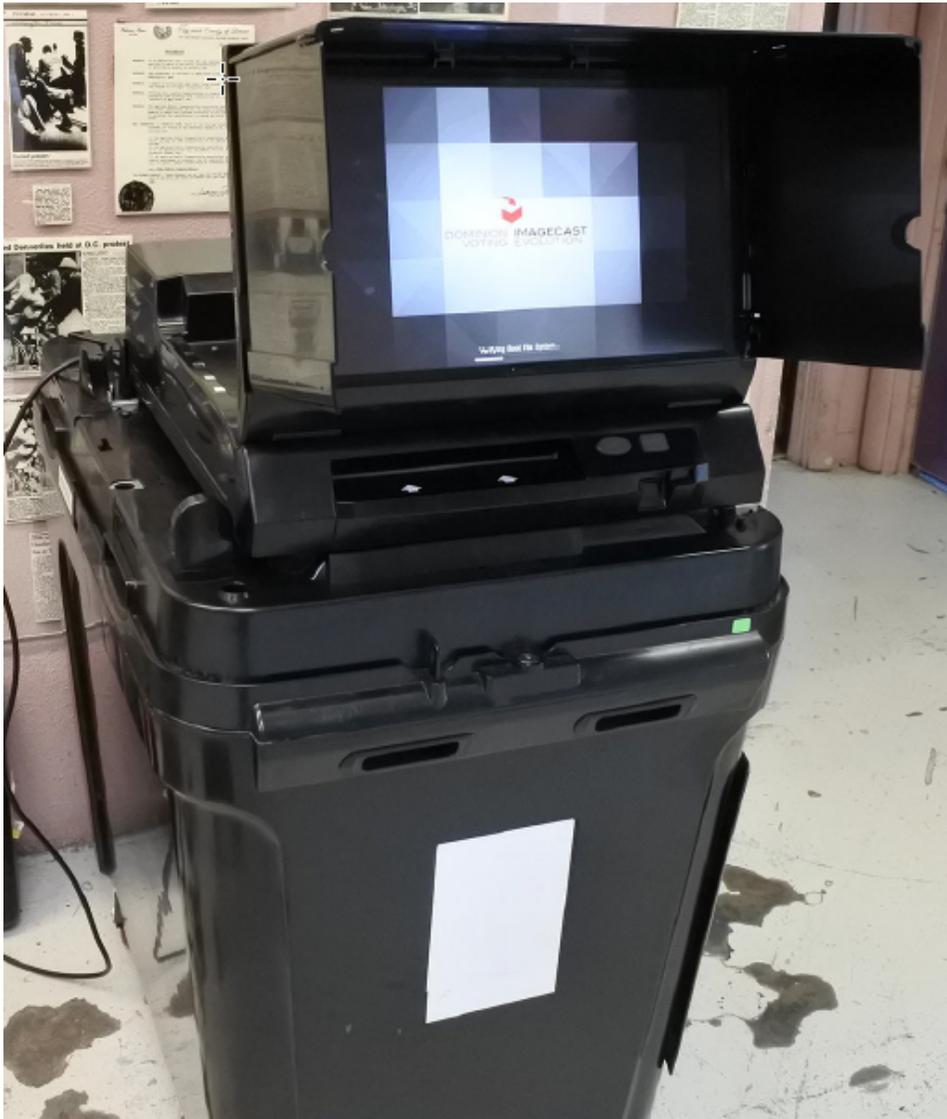


Figure 1-1: Photo of the ICE

## 1.2.2 Audio Tactile Interface (ATI)

The ATI was used as an interface for users who weren't able to use the touch screen interface.

This is a hand held device that consists of volume inputs, rate inputs, direction inputs, a select input, and a help input to navigate through the voting session.



Figure 1-2: Photo of the ATI

### 1.2.3 Headphones

Headphones were used to audibly inform and direct the user through the session. These are used in conjunction with the ATI interface.



Figure 1-3: Photo of the Headphones

## **1.2.4 Environment**

The intended environment for this system is any typical polling location. The system should be positioned to allow the user to view the entire display. It should reside near a voting vestibule or voting station that would afford the voter privacy. The vestibule or voting station should have adequate access to one 120v outlet to power the system.

## **1.2.5 Testing Objectives**

The objective of the testing is to observe and record a variety of users as they interact with the ICE voting system. Some of these users may have a disability that would factor into how they would utilize the system. A test facilitator will conduct a pre and post interview and prompt the user as needed to glean additional information and insight.

This information will be used to provide feedback to the development and design teams for future enhancements. The information may also be used to educate poll workers and revise the system operations manual.

## CHAPTER 2: METHODS

### 2.1 Participants

A total of 36 participants, with a varying mix of backgrounds and demographic characteristics, were selected to participate in the usability test.

The participant users were categorized by ability, gender, age, and voting experience. Users were compensated \$20 each for their participation in the study.

Users were recruited based on:

- General ability users
- Blind users or users with low vision
- Users with limited dexterity

As another consideration, the study was broadened to regard users that had difficulty accessing the device due to the use of a wheelchair or other assistive device.

During testing the users will also be categorized by:

- Gender
- Age
- Voting experience
- Previous voting experience (mail-in ,paper, electronic, or none)
- Technical ability (self identified)

## 2.2 Voting Context

### 2.2.1 Dominion Test Facility

User testing was performed at the Dominion Offices and the Atlantis community center in Denver.

The first session in the Dominion offices was performed on two general users as an initial trial run of the testing process.

### 2.2.2 Atlantis Test Facility

Subsequent testing sessions were conducted at the Atlantis Community Center. It was an ideal location to perform the tests at this location, because of its history of being utilized as a polling location.

The lighting and ambient level of background noise was typical to a standard voting location.



Figure 2-1: Photo of the Atlantis Community test location

A check-in desk was set up adjacent to the voting area where the users were interviewed and informed of the protocol of the study.

## 2.3 Test Design

### 2.3.1 Process

The testing process involves the user and a facilitator acting as a poll worker.

Time slots of one hour are allocated for each user. This time will be used for the pre and post interviews, and testing on the ICE voting platform.

During this time the facilitator will record and direct the user through the “Success Rubric One” (see example in Appendix B).

If the user requires additional time to complete the test it will be the user’s and facilitator’s prerogative to allow the procedure to continue or terminate the procedure before completion of all the tasks.

The user goals for testing this system will involve:

- Ability to successfully complete the voting process with little to no errors, blocks, or states of confusion (asking for help)
- Measure confidence in the system that the ballot will be cast accurately

### 2.3.2 Tasks To Be Completed for Each User

1. User check-in and preinterview.
2. Poll worker explains voting procedures.
3. If the user desires, an assistive voting session can be set up on the system and the assistive peripherals are given to the user.
4. Once the user is ready to begin using the voting system the test procedure can commence. The test procedure involves:
  - User selects ballot choices
  - User reviews ballot selections
  - User submits ballot selections
5. Once the user is finished on the first system, they continue on to the remainder of the voting systems.
6. Post interview and compensation.

## **2.4 Data collected in the test**

### **2.4.1 Success Rubric One**

(See example in Appendix B)

Success rubric one is used to collect the following information:

- Preinterview questionnaire and demographic information
- Initial voting performance and observations
- Post-interview questionnaire

## **2.4.2 Interfaces Used**

### **2.4.2.1 Paper Ballot**

This interface uses a paper ballot. User that do not require an assisted session can mark the ballot and submit it to the ICE system.

(See example in Appendix C)

### **2.4.2.2 Touch Screen Interface**

A user can also interface with the touchscreen to select their ballot. The accessible session will

be set up for them by the facilitator acting as a poll worker, should they desire it. This system will

mark their ballot in a variation of styles and submit it to the collection box.

### **2.4.2.3 ATI and Headphones**

If the user is not able to interact with the screen interface, they will be provided with the ATI

interface and headphones. The accessible session will be set up for them by the facilitator acting as a poll worker.

## **2.4.3 Proficiency Observed**

In the initial voting session the user was not prompted unless they asked for help or displayed an inability to progress without assistance. The facilitator then indicated what the nature of the assistance was on the rubric, and what kind of actions were observed prior to the prompt.

Repeat errors are also indicated in the performance results section.

If the user has an error and then recovers from that error, either initially or repeatedly, we will consider this “wayfinding” and “learning the interface”. These investigations by the user should not be considered failures or errors, and will only be noted if a multiple users display the same behavior.

## **2.4.4 Participant Times**

Each participant will be timed on their initial voting session. General time to completion will vary due to different users concerns, voting styles, reading comprehension levels, and other environmental factors.

## **2.4.5 Satisfaction and Confidence**

After the user has completed testing on the ICE system, a post-session interview was conducted. The facilitator asked the user for insight on:

- What problems they encountered
- How they would fix design issues
- Whether they would use the system if available in the next election
- Which system they preferred
- Were they had confidence in their vote being recorded accurately

## CHAPTER 3: RESULTS

### 3.1 Data Analysis

All the rubric information was captured using pen and paper by the study administrators. A pre-interview from rubric one was performed. The users were tested on three different voting systems (the ICX, ICP, and ICE). The user was then given the post-interview from rubric one.

Their activities were observed and annotated manually. If they had difficulty with a task this was annotated on one of the rubrics and incorporated into the Observed Behavior sections of this report. The user's initial test session was conducted as if it was a real election. Very little instruction was given by the facilitator and assistance was only offered via short, terse prompts.

As noted in the Methods section, if the user needed a prompt and then quickly learned from this prompting then the task marked as a "pass with prompt". If the user needed repeated assistance on the same issue then this was seen as a failure of the system.

#### 3.1.1 Participants

The participant user were categorized by ability, gender, age, and voting experience.

The ability groups consisted of:

- General Ability – 9 Users
- Blind – 10 Users
- Low Vision – 10 Users\*
- Dexterity Impaired – 9 Users\*

**Note:** Some individuals fell into both the low vision and limited dexterity classifications.

The user group genders were broken down as follows:

- Female – 16 Users
- Male – 20 Users

The user group ages consisted of:

- 25-39 years – 7 Users
- 40-59 years – 18 Users
- 60-79 years – 11 Users

Recent voting experience:

- Mail-in (paper) – 9 Users
- Paper – 14 Users
- Electronic – 9 Users
- Never voted – 3 Users

### **3.1.2 Ballot Details**

The ballot consisted of the following contests:

- United States Senator
- Representative in Congress for the 8th District
- Representative in State Legislature for the 69th District
- State Prosecuting Attorney
- County Sheriff
- County Clerk
- County Treasurer
- County Register of Deeds
- County Supervisor for the 11th District
- Judge of the 30th Circuit Court
- Polling Place Closure
- Waterway Joining the Atlantic and Pacific
- Purchase of Louisiana
- Collecting Taxes through state and local agencies
- Presidential election for no more than three terms

### 3.1.3 Scoring

The users were tested on whether they could complete a series of tasks. Testing sessions were scored based on three criteria.

1. Tasks were completed with little or no prompting.
2. Tasks were completed with minimal prompting
3. Tasks failed after repeated prompts, or failed due to their inability complete the task.

The voting session was also timed to the nearest minute, but were not included in the pass/fail criteria.

## 3.2 Presentation of Results

### 3.2.1 Performance Results

Most of the users were able to successfully vote using the system with little to no prompting.

There were a few individuals that failed to get through the session due to specific difficulties on a number of tasks. All of the failing users self-identified as “technically inexperienced”. There were some additional users that weren’t able to complete the testing session because of either fatigue or running out of time.

### 3.2.2 User Task Performance

Each session was broken up into four activities:

1. The user checks in with the “Election Official”
2. The user makes their selections
3. The user reviews their selections
4. The user submits their ballot.

The user checks in with the “Election Official”

All 36 users were successful in carrying this activity out.

The user makes their selections.

Most of the users were able to perform this task without prompting.

- 26/36 users were able to perform this task.
- 2/36 users needed prompting.
  - Of the users who needed prompting:
    - 1 was blind and

- 1 was dexterity impaired.
- 3/36 users failed to learn this task without constant prompting.
  - Of the users who failed:
    - 1 was blind and
    - 2 were dexterity impaired.
- 5/36 users did not finish this task
  - Of the users who did not finish:
    - 3 were dexterity impaired
    - 1 had low vision and
    - 1 was dexterity impaired.

#### The user reviews selections

Most of the users were able to perform this task without prompting.

- 28/36 users were able to perform this task
- 2/36 users needed prompting
  - Of the users who needed prompting:
    - 1 was blind and
    - 1 was dexterity impaired
- 1/36 users failed to learn this task without constant prompting.
  - Of the users who failed:
    - 1 was dexterity impaired.
- 5/36 users did not finish this task
  - Of the users who did not finish:
    - 3 were dexterity impaired and
    - 1 had low vision
    - 1 was dexterity impaired.

#### User casts their ballot

Most of the users were able to perform this task without prompting.

- 29/36 users were able to perform this task
- 2/36 users needed prompting
  - Of the users who needed prompting:
    - 1 was blind and
    - 1 was dexterity impaired

- 5/36 users did not finish this task
  - Of the users who did not finish:
    - 3 were dexterity impaired and
    - 1 had low vision
    - 1 was dexterity impaired.

## **3.3 Satisfaction results**

### **3.3.1 Vote Accuracy Confidence**

The majority of the user had perfect confidence in the accuracy of their votes.

- 27 of the users had high (100%) confidence in the accuracy of their vote.
- 3 user had marginal (75%) confidence in the accuracy of their vote.
- 1 user had low (25%) confidence in the accuracy of their vote.

### 3.3.2 System Preference

27/36 users reported they would use this system, and 2/36 reported that they would not if available during their next election. User Performance

For the user's initial experience with the ICE system they were timed from start to completion.

The following table displays each of their times and averages.

### 3.4 User Performance

For the user's initial experience with the ICE system they were timed from start to completion.

The following table displays the minimum and maximum recorded times.

Minimum Voting time	2 min
Maximum Voting time	60 minutes

Table 3-1: Min/Max User Performance

### 3.5 Observed Behavior Independent Use

The users were directed to vote on the ICP system as if they would in any standard election. A facilitator observed their interaction with the system. The following is an accounting of this effort.

#### 3.5.1 Difficulty Accessing (Touch Screen Interface)

It was observed that some individuals had difficulty in reaching and touching the interface.

Users that were in wheelchairs had even more difficulty reaching the interface. Many users in wheelchairs had to utilize a side approach to the machine and access the touchscreen with one hand.

The screen adjustment was very limited and didn't allow for any adjustment for the user to lower the screen.

#### 3.5.2 Difficulty Selecting and Navigating (Touch Screen Interface)

It was observed that individuals had a difficult time reaching the touch screen and pressing hard enough to navigate and make selections. This issue was more acute for individuals in wheelchairs with limited dexterity.

### **3.5.3 Layout Confusion (ATI Interface)**

Control placement on the interface confused users.

The 'right arrow' button is located on the left side of the ATI panel. This placement confused some users when they were directed to click on the 'right arrow button'. It was observed that their intention was to select either the 'up arrow' or "down arrow" buttons located on the right side of the panel.

This mistake would result in the user in navigating into an unintended workflow, and the process to recover from that mistake.

### **3.5.4 Audio Selection Directions (ATI Interface)**

Users had difficulty navigating to select a contest's options and felt that the audio directions were confusing.

Often they would incorrectly navigate to the "select contest" area above the individual contest without selecting an option in the contest.

Or they would navigate to the user utility bar. One user complained that the nonintuitive flow of the directions were confusing and slowing them down.

### **3.5.5 Braille Confusion (ATI Interface)**

The locations of the braille labels in position to their buttons was observed to cause confusion.

Users would mistake the bottom "help" button for the "right arrow" button due to the placement of this label.

### 3.6 User Comments

The following user comments were collected from the users after they were finished with the ICE voting system.

User #003	<ul style="list-style-type: none"> <li>• Frustrations –             <ul style="list-style-type: none"> <li>• Navigation ambiguous review and print was ambiguous</li> <li>• Would change – choices of audio</li> </ul> </li> </ul>
User #004	<ul style="list-style-type: none"> <li>• Frustrations –             <ul style="list-style-type: none"> <li>• Voices were iffy (2 to 3 voices)</li> <li>• Navigation was confusing at first</li> <li>• Joystick was easier</li> </ul> </li> <li>• Would change –             <ul style="list-style-type: none"> <li>• Would be nice if elegance was used she likes vocalizer better</li> <li>• Would be better if person recorded it versus localizer</li> </ul> </li> </ul>
User #005	<ul style="list-style-type: none"> <li>• Frustrations - None</li> <li>• Would change - Nothing</li> </ul>
User #006	<ul style="list-style-type: none"> <li>• Frustrations –Change to "Got to settings and selected 'Audio Only' and had to restart the session".             <ul style="list-style-type: none"> <li>• Would change – layout of physical ATI could be better (location help button).</li> <li>• Arrangement of arrows while on the keyboard would be better (grouping euros together)</li> </ul> </li> </ul>
User #008	<ul style="list-style-type: none"> <li>• Frustrations             <ul style="list-style-type: none"> <li>• Repeated instructions.</li> <li>• Not clear choices.</li> </ul> </li> <li>• Would change             <ul style="list-style-type: none"> <li>• Tactile interface could be more exaggerated</li> </ul> </li> </ul>

Table 3-2: User Comments

User #009	<ul style="list-style-type: none"> <li>• Would vote on this machine – No</li> </ul> <p><b>Note:</b> User had very limited mobility and could only use the joystick with very limited dexterity. User didn't feel that they could manage the ATI panel. So the user wasn't tested with the ATI because of this.</p>
User #010	<ul style="list-style-type: none"> <li>• Frustrations - None</li> <li>• Would change - Nothing</li> </ul>
User #011	<ul style="list-style-type: none"> <li>• Frustrations <ul style="list-style-type: none"> <li>• Have to press too hard to make selection. The next button was pretty easy.</li> <li>• The user was very frustrated with their experience using the system</li> </ul> </li> </ul>
User #012	<ul style="list-style-type: none"> <li>• Frustrations - None</li> <li>• Would change - Nothing</li> </ul>
User #013	<ul style="list-style-type: none"> <li>• Frustrations - None</li> <li>• Would change - Nothing</li> </ul>
User #014	<ul style="list-style-type: none"> <li>• Frustrations - None</li> <li>• Would change - Nothing</li> </ul>
User #015	<ul style="list-style-type: none"> <li>• Frustrations - None</li> <li>• Would change - Nothing</li> </ul>
User #016	<ul style="list-style-type: none"> <li>• Frustrations – Small Text Size</li> <li>• Would Change – Nothing</li> </ul>
User #017	<ul style="list-style-type: none"> <li>• Frustrations – the Volume was not loud enough but was better than the other two</li> <li>• Would Change – nothing</li> </ul>
User #018	<ul style="list-style-type: none"> <li>• Frustrations – very user-friendly</li> <li>• Would Change – options for touchscreen only on non-audio</li> </ul>
User #019	<ul style="list-style-type: none"> <li>• Frustrations – when inserting the ballot...expected to use the interface</li> <li>• Would Change – needs better directives</li> </ul>

Table 3-2: User Comments

User #020	<ul style="list-style-type: none"> <li>• Frustrations - None</li> <li>• Would change - Nothing</li> </ul>
User #021	<ul style="list-style-type: none"> <li>• Frustrations – didn't know what it did with the ballot didn't hear bell</li> <li>• Would Change – Bell could be louder when finished</li> </ul>
User #022	<ul style="list-style-type: none"> <li>• Frustrations – None</li> <li>• Would Change – design for wheelchair</li> </ul>
User #023	<ul style="list-style-type: none"> <li>• Frustrations – no notification</li> <li>• Would Change – Nothing</li> <li>• Positives – liked the design</li> </ul>
User #024	<ul style="list-style-type: none"> <li>• Frustrations - None</li> <li>• Would change - Nothing</li> </ul>
User #025	<ul style="list-style-type: none"> <li>• Frustrations – Didn't know what to do after or in the review</li> <li>• Would Change – nothing</li> </ul>
User #026	<ul style="list-style-type: none"> <li>• Frustrations – vague instructions</li> <li>• Would Change – The last instruction to complete the process said Mark which was confusing</li> </ul>
User #027	<ul style="list-style-type: none"> <li>• Frustrations – Having to pause and read the contests. English and Spanish text was confusing</li> <li>• Would Change – looked to the form and machine to determine how to insert the ballot</li> </ul>
User #028	<ul style="list-style-type: none"> <li>• Frustrations - None</li> <li>• Would change - Nothing</li> </ul>

Table 3-2: User Comments

User #029	<ul style="list-style-type: none"> <li>• Frustrations <ul style="list-style-type: none"> <li>• Hard to get back to the review after changing vote</li> <li>• Review screen needs to describe error better</li> <li>• Got stuck on language select and didn't have a clear path to cancel</li> <li>• Ambiguous/ Altering directions.</li> <li>• didn't like ATI layout</li> </ul> </li> <li>• Would Change <ul style="list-style-type: none"> <li>• would like to be able to turn screen off</li> <li>• wants a plug-in headphone to activate a accessible session instead of depending on a pole worker.</li> </ul> </li> </ul>
User #030	<ul style="list-style-type: none"> <li>• Frustrations <ul style="list-style-type: none"> <li>• now a little un-intrusive / cumbersome... too many steps are required to move to the next contest.</li> <li>• Down to move into contest would be better</li> <li>• some of the instructions weren't clear</li> </ul> </li> <li>• Would Change – would not group arrow buttons together on ATI</li> <li>• Positives <ul style="list-style-type: none"> <li>• likes voice audio more on ICE</li> <li>• no stutter many different voices (not necessarily a bad thing)</li> </ul> </li> </ul>
User #031	<ul style="list-style-type: none"> <li>• Frustrations - None</li> <li>• Would change - Nothing</li> </ul>
User #032	<ul style="list-style-type: none"> <li>• Frustrations <ul style="list-style-type: none"> <li>• Directions are not clear or are missing</li> <li>• click registering is too slow</li> </ul> </li> <li>• Would Change – would like to destroy the system and start over. Wanted a better sequence. It took too long</li> </ul>

Table 3-2: User Comments

User #033	<ul style="list-style-type: none"><li>• Frustrations - None</li><li>• Would change - Nothing</li></ul>
User #034	<ul style="list-style-type: none"><li>• Frustrations - DNF</li><li>• Would change - DNF</li></ul>
User #035	<ul style="list-style-type: none"><li>• Frustrations - DNF</li><li>• Would change - DNF</li></ul>
User #036	<ul style="list-style-type: none"><li>• Frustrations - None</li><li>• Would change - Nothing</li></ul>

Table 3-2: User Comments

## APPENDIX A: USER PERFORMANCE

For the user's initial experience with the ICE system they were timed from start to completion.

The following table displays each of their times and averages.

	<b>All Users</b>	<b>General</b>	<b>Blind</b>	<b>Low Vision</b>	<b>Limited Dexterity</b>
User #001	3 min	3 min			
User #002	3 min	3 min			
User #003	16 min			16 min	
User #004	12 min		12 min		
User #005	2.5 min	2.5 min			
User #006	55 min		55 min		
User #008	60 min		60 min		
User #010	3 min			3 min	
User #011	5 min				5 min
User #013	6 min				6 min
User #014	6 min	6 min			

Table A-1: Total time to complete voting process

<b>User Task Performance - All Users</b>				
<b>Activity</b>	<b>Pass</b>	<b>Pass with prompt</b>	<b>Fail</b>	<b>Did Not Finish</b>
The Voter checks in with the “Election Official”	36			
Voter selects contests	26	2	3	5
Review	28	2	1	5
Casts/Marks Vote	29	2		5

Table A-2: User Task Performance - All Users

<b>User Task Performance – General</b>				
<b>Activity</b>	<b>Pass</b>	<b>Pass with prompt</b>	<b>Fail</b>	<b>Did Not Finish</b>
The Voter checks in with the “Election Official”	9			
Voter selects contests	9			
Review	9			
Casts/Marks Vote	9			

Table A-3: User Task Performance – General

<b>User Task Performance - Blind</b>				
<b>Activity</b>	<b>Pass</b>	<b>Pass with prompt</b>	<b>Fail</b>	<b>Did Not Finish</b>
The Voter checks in with the "Election Official"	10			
Voter selects contests	5	1	1	3
Review	6	1		3
Casts/Marks Vote	6	1		3

Table A-4: User Task Performance - Blind

<b>User Task Performance - Low Vision</b>				
<b>Activity</b>	<b>Pass</b>	<b>Pass with prompt</b>	<b>Fail</b>	<b>Did Not Finish</b>
The Voter checks in with the "Election Official"	10			
Voter selects contests	8			2
Review	8			2
Casts/Marks Vote	8			2

Table A-5: User Task Performance - Low Vision

<b>User Task Performance - Dexterity Impaired</b>				
<b>Activity</b>	<b>Pass</b>	<b>Pass with prompt</b>	<b>Fail</b>	<b>Did Not Finish</b>
The Voter checks in with the "Election Official"	9			
Voter selects contests	5	1	2	1
Review	6	1	1	1
Casts/Marks Vote	7	1		1

Table A-6: User Task Performance - Dexterity Impaired

<b>Vote Confidence</b>	
25%	1
75%	3
100%	27

Table A-7: Vote Confidence

<b>System Preference</b>	
Would use	27
Would not use	2
Preferred System	7

Table A-8: System Preference

# APPENDIX B: RUBRIC EXAMPLE

TEST SUBJECT NAME: \_\_\_\_\_  
TEST SUBJECT DATE: \_\_\_\_\_

**DOMINION VOTING** **SUCCESS RUBRIC 1**

---

USABILITY STUDY  
SUMMER 2016  
DOCUMENT VERSION 2.0  
JULY 28, 2016

**WARM UP QUESTIONS AND DEMOGRAPHIC INFORMATION**

1. How long have you lived in Colorado?  
\_\_\_\_\_
2. Age Range?  
\_\_\_ 18 - 24 \_\_\_ 25 - 39 \_\_\_ 40 - 59 \_\_\_ 60 - 79 \_\_\_ 80 +
3. Did you vote in the last election? If so what type of ballot? paper: electronic?  
\_\_\_\_\_
4. Who do you ask when you don't understand a technology? Do you do independent research, or rely on your social network?  
\_\_\_\_\_
5. Do you have a smartphone? If so what kind?  
\_\_\_\_\_

 **CONTEXT SETTING**

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Figure B-1: Rubric 1 Example - Page 1

"In our example today we're testing the overall usability and experience of these voting machines. It's crucial that we identify any concerns or issues you may encounter, so please let us know everything you're feeling and thinking. There are no wrong answers here.

We will begin the test as if you are arriving at a polling place normally..."

Start time:

ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_

A. The Voter checks in with the "Election Official": **PASS** **FAIL**

ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_

**PASS WITH PROMPT** \_\_\_\_\_

B. The Voter is issued an Activation Card: **PASS** **FAIL**

ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_

**PASS WITH PROMPT** \_\_\_\_\_

C. Voter activates their card: **PASS** **FAIL**

ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_

**PASS WITH PROMPT** \_\_\_\_\_

D. Voter selects candidate: **PASS** **FAIL**

ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_

**PASS WITH PROMPT** \_\_\_\_\_

E. Review: **PASS** **FAIL**

ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_

**PASS WITH PROMPT** \_\_\_\_\_

F. Print: **PASS** **FAIL**

ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_

**PASS WITH PROMPT** \_\_\_\_\_

End time:

ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_



**WRAP UP AND ADDITIONAL QUESTIONS**

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Figure B-2: Rubric 1 Example - Page 2

"In our example today we're testing the overall usability and experience of these voting machines. It's crucial that we identify any concerns or issues you may encounter, so please let us know everything you're feeling and thinking. There are no wrong answers here.

We will begin the test as if you are arriving at a polling place normally..."

Start time:

ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_

A. The Voter checks in with the "Election Official": **PASS**      **FAIL**

ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_

**PASS WITH PROMPT** \_\_\_\_\_

B. The Voter is issued an Activation Card: **PASS**      **FAIL**

ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_

**PASS WITH PROMPT** \_\_\_\_\_

C. Voter activates their card: **PASS**      **FAIL**

ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_

**PASS WITH PROMPT** \_\_\_\_\_

D. Voter selects candidate: **PASS**      **FAIL**

ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_

**PASS WITH PROMPT** \_\_\_\_\_

E. Review: **PASS**      **FAIL**

ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_

**PASS WITH PROMPT** \_\_\_\_\_

F. Print: **PASS**      **FAIL**

ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_

**PASS WITH PROMPT** \_\_\_\_\_

End time:

ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_



**WRAP UP AND ADDITIONAL QUESTIONS**

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Figure B-3: Rubric 1 Example - Page 3

1. What was the biggest frustration you had?  
ICX: \_\_\_\_\_  
\_\_\_\_\_  
ICP: \_\_\_\_\_  
\_\_\_\_\_  
ICE: \_\_\_\_\_  
\_\_\_\_\_

2. If you were in charge of the design of this machine, what would you change?  
ICX: \_\_\_\_\_  
\_\_\_\_\_  
ICP: \_\_\_\_\_  
\_\_\_\_\_  
ICE: \_\_\_\_\_  
\_\_\_\_\_

3. Which machine did you prefer? Why? (If applicable)  
\_\_\_\_\_

4. How confident were you that your vote was accurately captured?  
ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_

5. If this machine were available where you vote, would you use it?  
ICX: \_\_\_\_\_ ICP: \_\_\_\_\_ ICE: \_\_\_\_\_

6. Do you have any questions for us?  
\_\_\_\_\_

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Figure B-4: Rubric 1 Example – Page 4

# APPENDIX C: BALLOT IMAGE

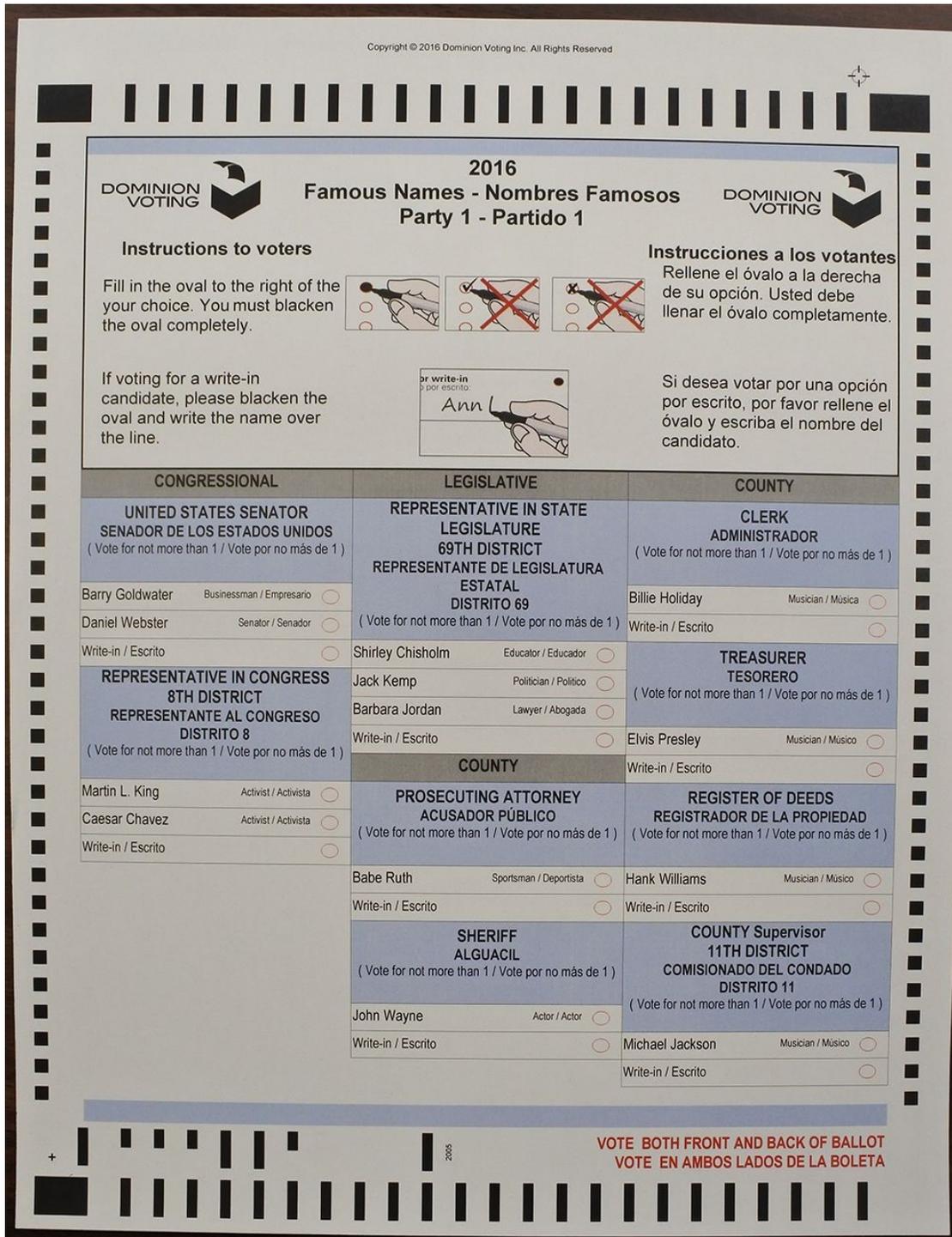


Figure C-1: - Photo of the Ballot Side 1

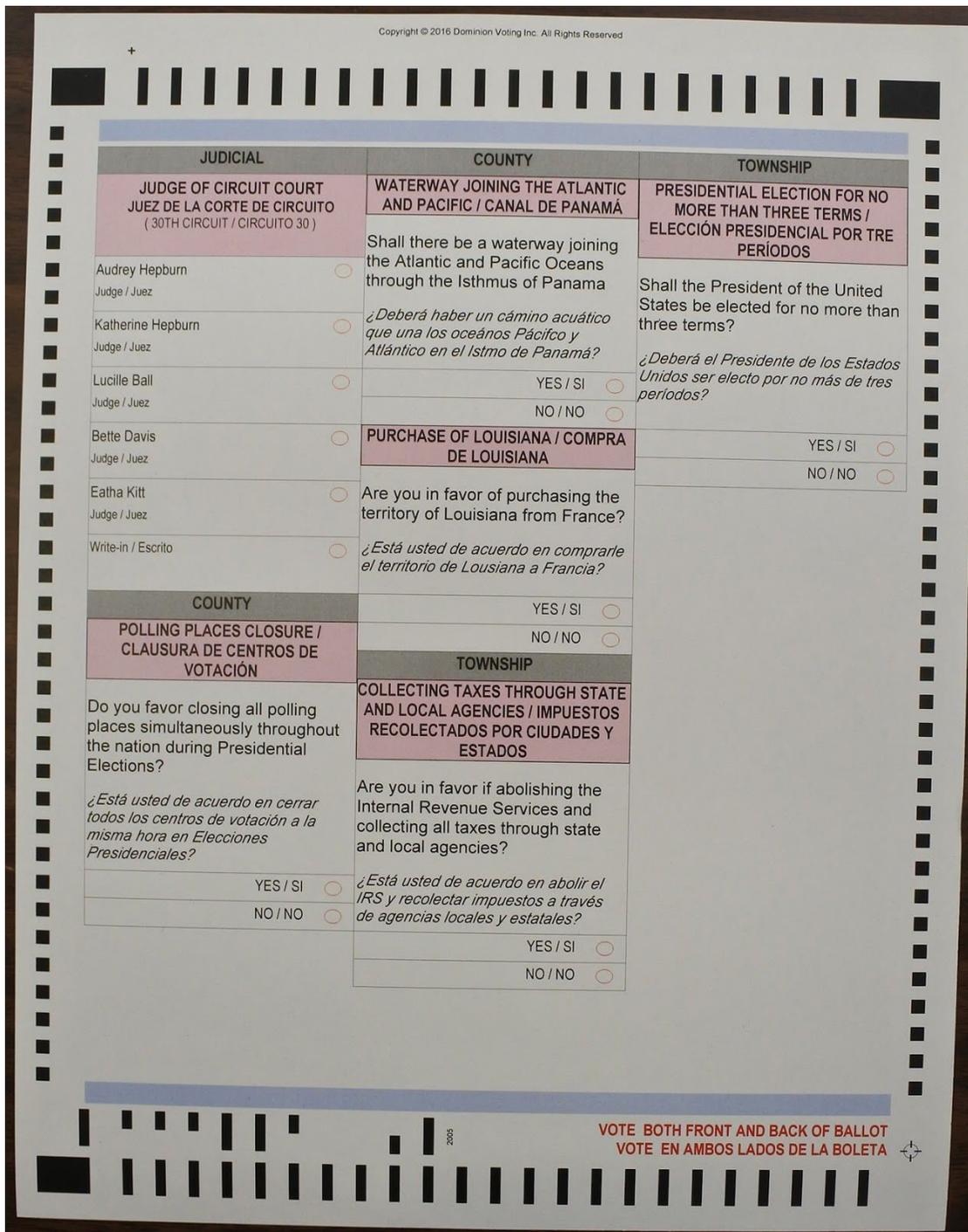


Figure C-2: - Photo of the Ballot Side 2

## REVISION HISTORY

<b>Rev.</b>	<b>Date</b>	<b>Summary</b>
2	06-11-2021	Names redacted
1	03-05-2019	Branched for 5.10

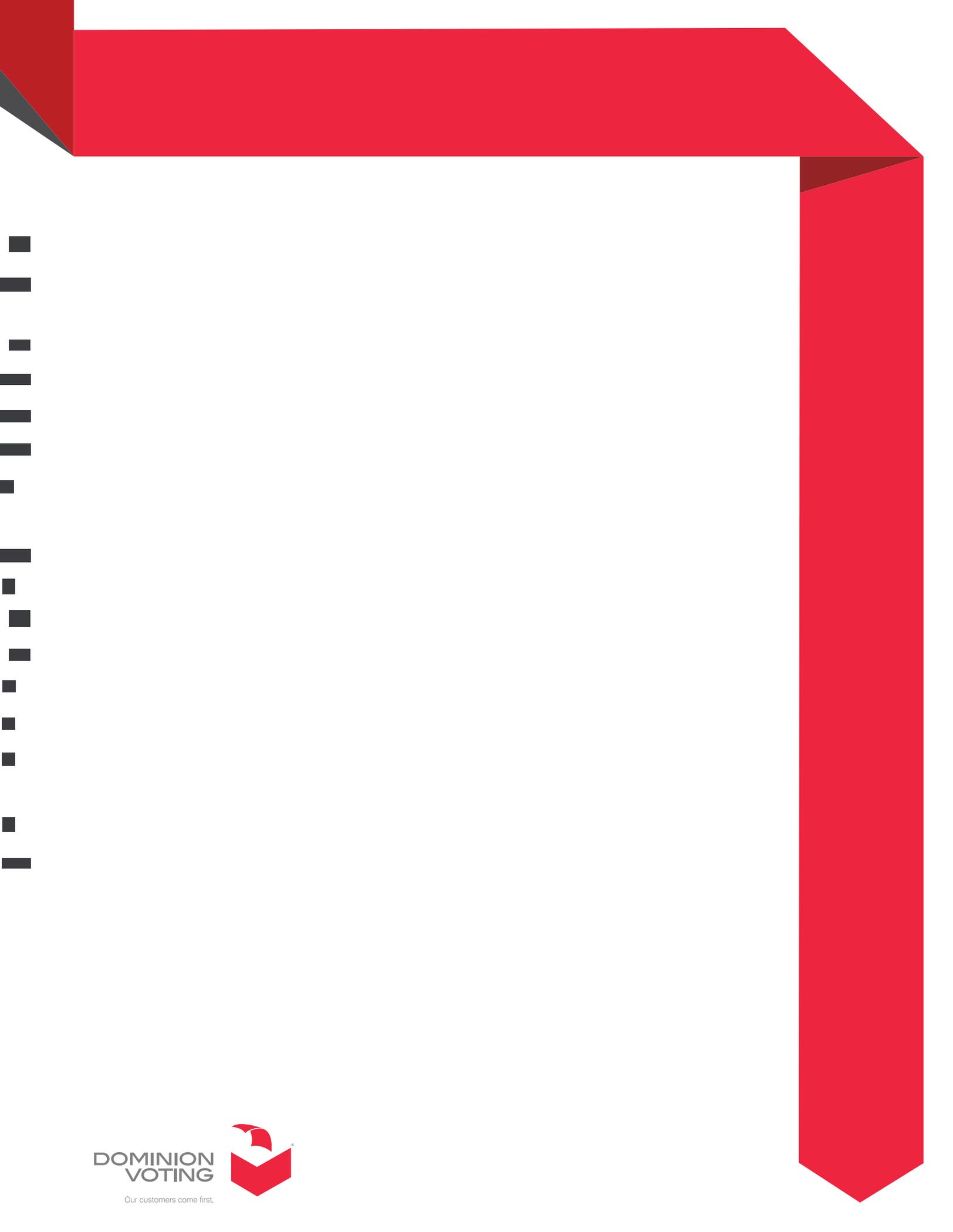
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**DOMINION  
VOTING**

Our customers come first.

