STATE OF MINNESOTA   IN DISTRICT COURT

COUNTY OF RICE   THIRD JUDICIAL DISTRICT
                                                  Case Type: Other Civil

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Benda for Common-sense, a Minnesota   Court File No. _____
Non-Profit Corporation, and Kathleen   Assigned to: _____
Hagen,

                              Plaintiffs,

vs.   **COMPLAINT AND PETITION**
                                             FOR CORRECTION OF ERRORS AND
                                             OMISSIONS UNDER Minn. Stat.
Denise Anderson, Director of Rice County   **204B.44**
Property and Tax Elections,

                              Defendant.

Plaintiff, Benda for Common-sense, a Minnesota Non-Profit Corporation, and Kathleen

Hagen ("Plaintiffs" or "Plaintiff"), for their Complaint against Defendant, Denise Anderson

("Defendant" or "Anderson"), states and alleges as follows:

PARTIES

1.   Plaintiffs, Benda for Common-sense, is a Minnesota non-profit corporation, with

its principal place of business at 1811 Broadway Avenue SE, Albert Lea, Minnesota 56007.

2.   Plaintiff, Kathleen Hagen, is a resident of Rice County, Minnesota, with an

address of 10120 Gonvick Avenue, Lonsdale, Minnesota 55046.

3.   Defendant, Anderson, is the Director of Rice County Property Tax and Elections,

with her place of business at 320 Third Street, Faribault, MN 55021.

4.   Defendant, Anderson, is designated by the Minnesota Secretary of State as

register of voters and chief custodian of official voter registration records. Anderson is

responsible for training election judges and officials, printing ballots, registering voters, filing

certain candidates, providing ballots and election supplies to all of the voting precincts in Rice

County, receiving and tabulating election ballots, and reporting the results to secretary of state.

JURISDICTION AND VENUE

5.   This Court has jurisdiction over this matter pursuant to Minn. Stat. § 13.08, Subd. 4, Minn. Stat. § 484.01 and Minn. Stat. §204B.44.

6.   Venue is proper in this Court pursuant to Minn. Stat. § 13.08, Subd. 3 and Minn. Stat. §204B.44.

Minnesota Government Data Practices Act "Benda Request"

7.   Leading up to the May 24, 2022, Special Election Primary for Minnesota's 1st Congressional District, Plaintiff, Benda for Common-sense, served a request for data (the "*Benda Request*") under the Minnesota Government Data Practices Act ("MGDPA") dated April 18, 2022. A true and correct copy of this Request is attached hereto as Exhibit A and incorporated herein by reference.

8.   The *Benda Request* was related to the election procedures and election voting system ("Electronic Voting System" or "EVS") utilized by Rice County in their election process starting January 1, 2019.

9.   The **Benda Request** included the following specific request: "Any documentation, emails or letters related to any audit, certification, incident logs, inspections, reports, and upgrade logs of Rice County's election computer network and all election equipment…" Upon information and belief, Rice County intends to destroy paper and electronic information from previous elections that are subject to the **Benda Request** under cover of Minn. Stat. §204B.40.

10.   On May 23, 2022, Anderson, through the Rice County Data Practices Compliance Official, briefly, vaguely and incompletely responded to the *Benda Request*. A true and correct copy of the May 23rd, 2022 Response is attached hereto as Exhibit B and incorporated herein by reference.

11.   On July 29, 2022, Anderson conducted a public accuracy test of the Electronic Voting System in Rice County (The "Public Accuracy Test").

12.   At the Public Accuracy Test, Anderson confirmed that the Rice County ES&S DS200 EVS machines have modems installed in them.

13.   Anderson further confirmed that these modems are utilized to transmit election data to a central system at Rice County.

14.   At the Public Accuracy Test, Anderson did not turn on the DS200 Modems or perform any public testing on the modems.

15.   On August 8th, Plaintiff, Benda for Common-sense sent a follow-up request to attempt to obtain the information contained in the ***Benda Request***. A true and correct copy of this follow-up to the ***Benda Request*** is attached hereto as Exhibit C and incorporated herein by reference.

16.   To date, Anderson has not fully or completely responded to the ***Benda Request***.

Minnesota Government Data Practices Act "Hagen Hardware and Software Request"

17.   On October 23, 2021, Plaintiff Hagen submitted a request for data (the "***Hagen Hardware and Software Request***") requesting in part, "all public records including, but not limited to those that pertain to the selection, authorization, purchase and maintenance of electronic poll books, scanning and tabulation machines, modems, hotspots and routers; including but not limited to systems, hardware, software, manuals, maintenance records, event logs, communications, problem resolution messages and reports involved with the recording, management, handling, counting and adjudicating of all forms of voters and election ballots in the 2020 general election." A true and correct copy of the ***Hagen Hardware and Software Request*** is attached hereto as Exhibit D and incorporated herein by reference.

18.   On November 23, 2021, Anderson, through the Rice County Data Practices Compliance Official, briefly, vaguely and incompletely responded to the ***Hagen Hardware and Software Request*** as shown in the Attached Exhibit E and incorporated herein by reference

19.   On June 22, 2022, Plaintiff Hagen submitted a follow-up request to the ***Hagen Hardware and Software Request.*** A true and correct copy of this addition to the ***Hagen Hardware and Software Request*** is attached hereto as Exhibit F and incorporated herein by reference.

20.   To date, Anderson has not fully or completely responded to the ***Hagen Hardware and Software Request.***

21.   The ***Hagen Hardware and Software Request*** included the following specific request for data: "…including but not limited to systems, hardware, software, manuals, maintenance records, event logs, communications, problem resolution messages and reports involved with the recording, management, handling, counting and adjudicating of all forms of voters and election ballots in the 2020 general election."

22.   Also included in the ***Hagen Hardware and Software Request*** was a specific request for data, "…All of Rice County, Minnesota precints' incident event log books."

23.   Upon information and belief, Rice County intends to destroy paper and electronic information from previous elections that are subject to the ***Hagen Hardware and Software Request*** under cover of Minn. Stat. §204B.40.

Minnesota Government Data Practices Act "Hagen CVR Request"

24.   On January 11, 2022, Plaintiff Hagen submitted a request for data (the "***Hagen CVR Request***") under the Minnesota Government Data Practices Act ("MGDPA") requesting, "all public records including, but not limited to those pertaining to the Cast Vote Record (CVR) from all electronic equipment used in the 2020 general election. I am requesting the full CVR

report for the November 2020 election in Rice County. For the ES&S equipment, this is a standard report and should include batch and tabulator information." A true and correct copy of the *Hagen CVR Request* is attached hereto as Exhibit G and incorporated herein by reference.

25.   On March 25, 2022, Anderson, through the Rice County Data Practices Compliance Official, responded partially as follows: "… Rice County does not maintain any data pertaining to a Cast Vote Record or a full CVR report." A true and correct copy of the response to the *Hagen CVR Request* is attached hereto as Exhibit H and incorporated herein by reference.

26.   On April 3, 2022, Plaintiff Hagen followed up to her *Hagen CVR Request* and further provided a copy of a publication describing minimum standard guidelines for a Cast Vote Record report. A true and correct copy of this follow-up to the *Hagen CVR Request* is attached hereto as Exhibit I and incorporated herein by reference.

27.   On April 5, 2022, Anderson, through the Rice County Data Practices Compliance Office responded in part as follows: "Nor does any of the voting equipment used by Rice County produce a report known as a Cast Vote Record or a "full CVR report. In order to more comprehensively respond to your inquiry, Rice County contacted Election Systems & Software (ES&S), the company which manufactures the election equipment used by Rice County during the 2020 general election. ES&S indicated that the software that would be able to produce a Cast Vote Record and a "full CVR report" is a version of the Electionware Software that was not used by Rice County in the 2020 general election." A true and correct copy of this response to *the Hagen CVR Request* is attached hereto as Exhibit J and incorporated herein by reference.

28.   Between May 1, 2022 and July 25, 2022, Plaintiff Hagen made additional attempts to obtain information responsive to the *Hagen CVR Request*.

29.   To date, Defendant has not fully or completely responded to the *Hagen CVR Request.*

30.   The ***Hagen CVR Request*** included a specific request for "an interoperable, non-proprietary data exchange format…" from previous elections.

31.   Upon information and belief, Rice County intends to destroy paper and electronic information from previous elections that are subject to the ***Hagen CVR Request*** the under cover of Minn. Stat. §204B.40.

32.   Plaintiffs therefore bring this action seeking the production of data responsive to the ***Benda Request***, the ***Hagen Hardware and Software Request*** and the ***Hagen CVR Request***, declaratory and injunctive relief, and attorney fees and costs against Defendant under Minn. Stat. § 13.08, subd. 4.

CAUSES OF ACTION
COUNT I
(Action to Compel Disclosure Pursuant to Minn. Stat. § 13.08)

33.   Plaintiffs reallege and incorporate by reference the allegations above.

34.   The MGDPA "establishes a presumption that all government data are public and are accessible by the public for both inspection and copying unless there is federal law, a state statute, or a temporary classification of data that provides that certain data are not public." Minn. Stat. § 13.01, Subd. 3.

35.   Under the MGDPA, "upon request to a responsible authority or designee, a person shall be permitted to inspect and copy public government data at reasonable times and places, and, upon request, shall be informed of the data's meaning." Minn. Stat. §13.03, Subd. 3.

36.   In addition, the rules corresponding to the MGDPA require that "the responsible authority shall provide for a response to a request for access within a reasonable time." Minn. R. 1205.0300.

37.   Anderson has failed to produce the data requested under the ***Benda Request***, the ***Hagen Hardware and Software Request*** and the ***Hagen CVR Request*** within a reasonable time, in violation of the MGDPA and its implementing rules.

38.   Plaintiffs are entitled to immediate disclosure of the requested data pursuant to Minn. Stat. §§ 13.03, Subd. 1, and 13.08, Subd. 4.

39.   Should Plaintiffs prevail in this matter, Plaintiffs are entitled to costs and disbursements incurred in this matter.

40.   Should Plaintiffs prevail in this matter, the Court should award attorney fees to Plaintiffs and against Defendant pursuant to an appropriate post-judgment motion for the same.

COUNT II

(Declaratory and Injunctive Relief Pursuant to Minn. Stat. §§ 13.08 and 555.01, *et seq.*)

41.   Plaintiffs reallege and incorporate by reference the allegations above.

42.   Pursuant to Minn. Stat. § 555.01, the Court has the authority to declare the parties' rights and other legal relations in this matter. The Court may issue an injunction to ensure compliance with its declaration. Minn. Stat. § 555.08.

43.   Pursuant to Minn. Stat. § 13.08, Subd. 2, the Court may enjoin a responsible authority or government entity from violation of the MGDPA.

44.   As alleged above, Defendant has violated Plaintiffs' rights under the MGDPA.

45.   Based on Defendant's unreasonable response to the ***Benda Request***, the ***Hagen Hardware and Software Request*** and the ***Hagen CVR Request***, upon information and belief, Defendant does not have procedures and resources in place sufficient to ensure prompt and appropriate responses to citizens' data requests under the MGDPA. Minn. Stat. §§ 13.025, subd. 2 and 13.03, subd. 2.

46.   Plaintiff thus prays for a declaration that Defendant has violated the MGDPA in response to the ***Benda Request***, the ***Hagen Hardware and Software Request*** and the ***Hagen CVR Request*** and that Defendant's procedures for responding to data requests do violate and continue to violate the MGDPA.

47.   Plaintiffs also pray for an injunction against Defendant's ongoing violations of the MGDPA, and for any injunctive or equitable relief available to ensure Defendant reforms its procedures and has the resources available to comply with the MGDPA.

48.   Should Plaintiffs prevail in this matter, Plaintiffs are entitled to costs and disbursements incurred in this matter.

49.   Should Plaintiffs prevail in this matter, the Court should award attorney fees to Plaintiffs and against Defendant pursuant to an appropriate post-judgment motion for the same.

COUNT III

(Petition to Correct Errors and Omissions under Minn. Stat. 204B.44)

50.   Minnesota Statute §204B.44 (a) states "Any individual may file a petition in the manner provided in this section for the correction of any of the following errors, omissions, or wrongful acts which have occurred or are about to occur…" Subdivision 4 includes: "any wrongful act, omission, or error of any election judge, municipal clerk, county auditor, canvassing board or any of its members, the secretary of state, or any other individual charged with any duty concerning an election."

51.   Plaintiff, Hagen, is an "individual" under §204B.44 and therefore has standing to submit this claim.

52.   Minnesota Statute § 204B.44 further provides that "[a]ny individual may file a petition in the manner provided in this section for the correction of any of the following errors, omissions, or wrongful acts which have occurred or are about to occur."

53. Upon information and belief, Defendant intends to utilize an Electronic Voting System that has hardware, software or features that are not properly approved, certified or secure.

54. Such use of an Electronic Voting System in the November 8, 2022 election that has hardware, software or features that are not property approved, certified or secure constitutes a "wrongful act, omission or error" pursuant to Minnesota Statute § 204B.44 (4).

PRAYER FOR RELIEF

WHEREFORE, Plaintiff respectfully prays that this Court:

a) Compel Defendant's immediate production of the data requested under the *Benda Request*, the *Hagen Hardware and Software Request* and the *Hagen CVR Request* as alleged herein.

b) Declare that Defendant has not produced the data requested in the the *Benda Request*, the *Hagen Hardware and Software Request* and the *Hagen CVR Request* within a reasonable time, in violation of the MGDPA.

c) Declare that Defendant's procedures and resources for processing data requests and producing public data in response to them violate Plaintiff(s) rights under the MGDPA because they are insufficient to ensure appropriate and prompt access to public data.

d) Permanently enjoin Defendant from using improper procedures in response to data requests by Plaintiff(s) and other parties.

e) Order Defendant to reform its procedures to comply with the MGDPA.

f) Assess a civil penalty against Defendant as authorized in Minn. Stat. § 13.08, Subd. 4;

g) Award Plaintiff reasonable attorney fees, costs, and disbursements, as authorized in Minn. Stat. § 13.08, Subd. 4 and pursuant to a proper post-judgment request for the same.

h)   For an order requiring Defendant to take all steps necessary to generate a Cast Voter Report from the Rice County Electronic Voting System.

i)   For an order restraining Rice County from using any Electronic Voting System that has hardware, software or features that are not properly approved, certified or secure.

j)   For an order prohibiting Defendant from destroying any electronic or paper data subject to the requests in this action, including but not limited to all data and documents scheduled to be destroyed on or after September 1, 2022 pursuant to Minn. Stat. 204B.40. and

k)   Order such additional relief as the Court may deem just and proper.

PETERSON, KOLKER, HAEDT & BENDA, LTD.

Date: August 22, 2022   By: _____

Matthew L. Benda (#026376X)
Attorney for Plaintiff
1811 Broadway Avenue S.E.
Albert Lea, MN 56007
(507) 373-6491
Fax: (507) 373-7863
Email: mbenda@albertlealaw.com

ACKNOWLEDGEMENT

The undersigned hereby acknowledges that costs, disbursements, and reasonable attorney and witness fees may be awarded pursuant to Minn. Stat. § 549.211, subd. 2, to the party against whom the allegations in this pleading are asserted.

Dated: August 22, 2022   By: _____

Matthew L. Benda

EXHIBIT A

PETERSON, KOLKER, HAEDT & BENDA, LTD.
FINDING SOLUTIONS . . . ONE CLIENT AT A TIME
www.albertlealaw.com

Matthew L. Benda
Daniel L. Kolker
Stephanie A. Haedt
Eythan G. Frandle

John R. Peterson (1928-2022)
Richard N. Davies (of counsel)
Douglas R. Peterson (of counsel)

April 18, 2022

VIA ELECTRONIC & U.S. MAIL
Denise Anderson
Rice County Property Tax & Elections
320 Third Street N.W.
Faribault, MN 55021
Email: danderson@co.rice.mn.us

Re: Minnesota Data Practices Act
Our File No.: 13184.001

Dear Ms. Anderson,

Matt Benda hereby requests from Rice County, including without limitation, its predecessor and successor agencies, employees, agents, officials, consultants, contractors, and staff (collectively "Rice County"), at the earliest possible opportunity to review and provide in digital format the data Under the Minnesota Data Practices Act § 13.01 et seq. the following:

- A list and inventory of Rice County's voting or election equipment, to include the following: Location, Make, Model, Serial Number, Operating System and Patch Level, Election Software System Version and patch level, during Jan, 1, 2019 through March 31, 2022.

- Any documentation, emails or letters requesting or referencing any list or inventory of the County's election equipment, it must include the following: Location, Make, Model, Serial Number, Operating System and Patch Level, Election Software System Version and patch level, during Jan, 1, 2019 through March 31, 2022.

- Any documentation, emails or letters related to any audit, certification, incident logs, inspections, reports, and upgrade logs of Rice County's election computer network and all election equipment, during Jan, 1, 2019 through March 31, 2022.

Exhibit **A**

April 18, 2022
Page 2

- Any documentation identifying the individual(s), vendors, or others responsible for the repair, maintenance or replacement of any voting or election equipment during June 1, 2017 through March 31, 2022.

Matt Benda requests that Rice County produce the responsive data separated or organized by the corresponding request number. Matt Benda also requests that the responsive data be produced in its entirety, including all attachments, enclosures, and exhibits. If Rice County determines that data contains material or information which falls within a statutory exemption to mandatory disclosure, then Matt Benda requests that such material or such information be reviewed for discretionary disclosure.

If any portion of this request is deemed denied, then please provide a detailed statement of the reasons for the withholding, and an index or similar statement of the nature of the documents withheld.

Please make Rice County's determination within the applicable time limits. Peterson, Kolker, Haedt & Benda, Ltd.'s is willing to pay reasonable fees for this request up to a maximum of $250. If Rice County estimates that the fees will exceed this limit, please inform me first.

I appreciate your prompt processing of, and compliance with these requests.

Very truly yours,

/s/ Matt Benda

Matthew L. Benda
mbenda@albertlealaw.com

EXHIBIT B

CHIEF ASSISTANT
Adam E. Johnson

SUPERVISING ATTORNEY
Thao N. Trinh

ASSISTANT ATTORNEYS
Aimee R. Fink
Sean R. McCarthy
Catherine M. Miller
Brian M. Mortenson
Jennifer J. Nelson
Jacqueline M. Primeau
Victoria K. Serreno

COUNTY ATTORNEY
JOHN L. FOSSUM
MSBA Certified Criminal Law Specialist

RICE COUNTY
MINNESOTA

OFFICE MANAGER
Carla A. Molva

CIVIL PARALEGAL
Laurel A. Peterson

VICTIM COORDINATOR
Melissa J. Evans

218 Third Street NW
Faribault, MN 55021
T: 507.332.6103 • F: 507.332.6175
Email: rcattorney@co.rice.mn.us

May 23, 2022

Matthew L. Benda
1811 SE Broadway Ave
Albert Lea, MN 56007

RE: Data Practices Request
         Election Equipment

Dear Mr. Benda:

We are in receipt of your check for copy fees. Enclosed please find the requested data. For your
reference, a copy of your request is also enclosed.

Thank you.

Sincerely,

Laurel A. Peterson, MnCP
Civil Paralegal
Rice County Responsible Authority Designee

Enc

Exhibit **B**

CHIEF ASSISTANT
Adam E. Johnson

SUPERVISING ATTORNEY
Thao N. Trinh

ASSISTANT ATTORNEYS
Aimee R. Fink
Sean R. McCarthy
Catherine M. Miller
Brian M. Mortenson
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Melissa J. Evans

218 Third Street NW
Faribault, MN 55021
T: 507.332.6103 • F: 507.332.6175
Email: rcattorney@co.rice.mn.us

May 4, 2022

Matthew L. Benda
1811 Broadway Ave SE
Albert Lea, MN 56007

RE: Data Practices Request – Election Equipment

Dear Mr. Benda:

We are in receipt of your data practices request to Rice County Property Tax & Elections. For your reference, a copy of your request is enclosed.

Your request has been reviewed and the documents are now available. The data you are requesting is contained in *Rice County's Electronic Voting System Plan*, which is submitted annually to the Secretary of State pursuant to Minn. Stat. §206.82. The plans from 2020, 2021 and 2022 are responsive to your request. Rice County does not possess additional data which is responsive to your request.

Upon receipt of $3.75 (15 pages x .25 per page), the data will be forwarded to you. You may remit a check payable to Rice County or provide cash in the exact amount. Our office does not have change. Our office is also unable to accept credit card payments.

Alternatively, pursuant to Minn. Stat. §13.03, subd. 3, you may inspect the data at no charge. Please contact my office to arrange a mutually convenient time.

Thank you.

Sincerely,

Sean R. McCarthy
Assistant Rice County Attorney
Data Practices Compliance Official

Enc

c: Rice County Property Tax & Elections

PETERSON, KOLKER, HAEDT & BENDA, LTD.

FINDING SOLUTIONS . . . ONE CLIENT AT A TIME
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Matthew L. Benda
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Douglas R. Peterson (of counsel)

April 18, 2022

VIA ELECTRONIC & U.S. MAIL
Denise Anderson
Rice County Property Tax & Elections
320 Third Street N.W.
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Re: Minnesota Data Practices Act
        Our File No.: 13184.001

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- A list and inventory of Rice County's voting or election equipment, to include the following: Location, Make, Model, Serial Number, Operating System and Patch Level, Election Software System Version and patch level, during Jan, 1, 2019 through March 31, 2022.

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- Any documentation, emails or letters related to any audit, certification, incident logs, inspections, reports, and upgrade logs of Rice County's election computer network and all election equipment, during Jan, 1, 2019 through March 31, 2022.

April 18, 2022
Page 2

- Any documentation identifying the individual(s), vendors, or others responsible for the repair, maintenance or replacement of any voting or election equipment during June 1, 2017 through March 31, 2022.

Matt Benda requests that Rice County produce the responsive data separated or organized by the corresponding request number. Matt Benda also requests that the responsive data be produced in its entirety, including all attachments, enclosures, and exhibits. If Rice County determines that data contains material or information which falls within a statutory exemption to mandatory disclosure, then Matt Benda requests that such material or such information be reviewed for discretionary disclosure.

If any portion of this request is deemed denied, then please provide a detailed statement of the reasons for the withholding, and an index or similar statement of the nature of the documents withheld.

Please make Rice County's determination within the applicable time limits. Peterson, Kolker, Haedt & Benda, Ltd.'s is willing to pay reasonable fees for this request up to a maximum of $250. If Rice County estimates that the fees will exceed this limit, please inform me first.

I appreciate your prompt processing of, and compliance with these requests.

Very truly yours,

/s/ Matt Benda

Matthew L. Benda
mbenda@albertlealaw.com

Office of the Minnesota Secretary of State

Rice County's Electronic Voting System Plan (Revised for 2020)

I. Basis of Plan

Minn. Stat. § 206.82, subdivision 2, provides that the municipal clerk in a municipality where an electronic voting system is used and the county auditor of a county in which an electronic voting system is used in more than one municipality and the county auditor of a county in which a counting center serving more than one municipality is located shall prepare a plan which indicates acquisition of sufficient facilities, computer time, and professional services and which describes the proposed manner of complying with section 206.80. The plan must be signed, notarized, and submitted to the secretary of state more than 60 days before the first election at which the municipality uses an electronic voting system. Prior to July 1 of each subsequent general election year, the clerk or auditor shall submit to the secretary of state notification of any changes to the plan on file with the secretary of state. The secretary of state shall review each plan for its sufficiency and may request technical assistance from the Department of Administration or other agency which may be operating as the central computer authority. The secretary of state shall notify each reporting authority of the sufficiency or insufficiency of its plan within 20 days of receipt of the plan. The attorney general, upon request of the secretary of state, may seek a district court order requiring an election official to fulfill duties imposed by this subdivision or by rules promulgated pursuant to this section. This requirement is waived in calendar year 2006 for municipalities with fewer than 10,000 residents.

Minnesota Laws 2006, chapter 242, sec. 31, amends Minn. Stat. §206.80 to read:

> (b) An electronic voting system purchased on or after June
> 4, 2005, may not be employed unless it:
>
> > (1) Accepts and tabulates, in the polling place or at a counting center, a marked optical scan ballot;
> >
> > (2) Creates a marked optical scan ballot that can be tabulated in the polling place or at a counting center by automatic tabulating equipment certified for use in this state.

II. The County of Rice certifies that it will use electronic voting systems including ballot marking and tabulating machines and electronic rosters certified for use in Minnesota and meeting the requirements of Minnesota Statutes §206.80, as listed on the table attached as Appendix A.

III. The County of Rice plans to meet the additional requirements of M.S. §206.82, subd. 1 in the following manner:

1. Acquire sufficient facilities for implementation of the electronic voting system as follows: Rice County will provide for the storage of all electronic voting equipment (ES&S AutoMarks, ES&S DS200s, Democracy Live OmniBallots, and KNOWiNK Electronic Poll Pads) to be used in Rice County at a secure site. A DS200 Precinct Ballot Tabulator will be used at the Rice County Government Services Building to tabulate accepted absentee ballots. A DS200 will be used in the Rice County Government Services Building and at the Northfield City Hall Absentee Ballot Location for Direct Balloting seven days prior to the Presidential Primary, Primary and General Elections. Each jurisdiction will be responsible for the storage of their DS200 ballot boxes and the tables for their AutoMark machines. Each jurisdiction will be responsible for securing their electronic voting equipment from the County and for transport and set-up of their respective polling places for Elections.

Office of the Minnesota Secretary of State
180 State Office Building, 100 Rev. Dr. Martin Luther King Blvd.
St. Paul, MN 55155

Municipal Equipment Plan Template

Office of the Minnesota
Secretary of State

2. Acquire sufficient computer time for implementation of the electronic voting system as follows: Rice County contracts with SeaChange and Election Systems and Software (ES&S) for ballots, programming, and maintenance of the electronic equipment. Rice County contracts with KNOWiNK for programming of the electronic poll pads. Rice County IT staff is available to assist with technical problems that may arise. Rice County owns all of its elections equipment and has immediate, unlimited access of same for implementation.

3. Acquire sufficient professional services for implementation of the electronic voting system as follows: Sea Change and ES&S are responsible for ballot printing and programming. ES&S will maintain the voting equipment. ES&S will provide special training on all voting equipment to county staff and city, township, and school election officials as needed. KNOWiNK is responsible for the programming of the electronic poll pads and will provide training to staff. Rice County Property Tax & Elections staff, with KNOWiNK's assistance, is responsible for poll pad set-up and configuration. Rice County Property Tax & Elections staff will provide training to other election administrators and judges. On-call software and hardware support is secured through the contracts.

4. Have a test deck prepared by a competent person for use to independently verify the program as follows: Rice County Property Tax & Elections staff will be responsible for all preliminary testing for the precincts in Rice County. Rice County Property Tax & Elections staff and/or our vendor will create the Predetermined Results Charts and mark all test ballots for all jurisdictions and all ballot styles in Rice County. Both the original and duplicate back-up programs will be tested for each precinct in Rice County using a checklist developed by the Elections Director. These test decks will also be used for the Public Accuracy Test that will be held at the Rice County Government Services Building in Faribault, MN. Rice County will follow the guidelines provided by the Secretary of State's Office and by ES&S to ensure all programs and ballots are tested as required by statute. All programs and test data will be sealed as required by statute.

5. Prepare a test deck using the electronic ballot marker program as follows: Rice County Property Tax & Elections staff and/or our vendor will use the Predetermined Results Chart to include ballots marked using the AutoMarks and OmniBallots for all precincts and ballot styles in the County. The test ballots will be tabulated by running them through their respective precinct ballot optical scan tabulator and checked for accuracy. All test materials will be secured as required by statute. The Public Accuracy Test for all jurisdictions in Rice County will be held at the Rice County Government Services Building in Faribault, MN.

6. Verify that all valid votes counted by the precinct ballot tabulator may be selected using the electronic ballot marker as follows: Rice County Property Tax & Elections staff and/or our vendor will create Predetermined Results Charts using the guidelines provided by the Secretary of State's Office and by ES&S to guarantee thorough testing of all ballot styles, original and duplicate back-up programs and each electronic device to be used in the Election. Rice County Property Tax & Elections staff will conduct a pre-test prior to the first election at which the equipment will be used to test and verify accurate test results when modeming from the precinct to the county using the predetermined results testing data.

7. Certify that the electronic poll pads meet the technology and statutory requirements as set by M.S. 201.225 Subd. 2. and meet or exceed the certification checklists for Pre-Registered Voters and Election Day Registration contained in the Minnesota Secretary of State's Electronic Roster Guide. There will also be on-site testing of the electronic poll pads to verify they meet the state and county's requirements prior to the first election in which they will be used.

Municipal Equipment Plan Template

COMPLAINT_0010

Office of the Minnesota
Secretary of State

IV. Rice County's Plan Table

The County's Plan Table attached as Appendix A sets out the details about the electronic voting system including the assistive voting technology, optical scan tabulators, and electronic poll pads used at each polling place.

This Electronic Voting System Plan is proposed by Denise M Anderson, the Property Tax & Elections Director for Rice County in fulfillment of the requirements of Minnesota Statutes §206.82.

_____
Property Tax & Elections Director

STATE OF MINNESOTA
COUNTY OF RICE

This instrument was acknowledged before me on Dec 27 '19 by

Denise M Anderson as the Property Tax & Elections Director for Rice County.

_____
Notary Public

SEAL

_____
Title

My Commission Expires ___1-31-2022___

Anne Engen
NOTARY PUBLIC
MINNESOTA
My Commission Expires January 31, 2022

Municipal Equipment Plan Template

Appendix A

Revised for 2020

County Name:	Rice
County Auditor Name	Denise M Anderson
County Auditor Address	320 3rd Street NW, Faribault, MN 55021
County Auditor Telephone	(507) 332-6104
County Auditor email	danderson@co.rice.mn.us
Number of Cities in County	7
Number of Townships in County	14
Number of School Districts in County	8
Number of Locations in County designated for Absentee Balloting	2

List Each Polling Place including Absentee Balloting and Mail Balloting locations	List All Precincts in Each Polling Place	List State Assistive Voting Equipment used in the precinct	List Precinct Counting Method (hand, precinct optical scan, central count optical scan)	List Optical Scan Tabulator Model (if applicable)	Electronic Roster Guide	Number of Poll Pads
Bridgewater Town Hall	Bridgewater Twp	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	3
Cannon City Town Hall	Cannon City Twp	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
Rejoice Lutheran Church	Dundas	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
Erin Town Hall	Erin Twp	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
4H Building	Faribault P1	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	4
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Buckham Community Center	Faribault P3	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	5
Our Savior's Lutheran Church	Faribault P4	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	5
Forest Town Hall	Forest Twp	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
IC Church Civic Center	Lonsdale	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	5
Morristown Community Center	Morristown City & Twp	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	4
Nerstrand City Hall	Nerstrand	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	1
First United Church of Christ	Northfield W1 P1	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	3
St. Peter's Lutheran Church	Northfield W1 P2	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	5
United Methodist Church	Northfield W2 P1	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	3
Northfield Community Resource Center	Northfield W2 P2	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	4
Northfield Retirement Community	Northfield W3 P1	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	4
St. John's Lutheran Church	Northfield W4 P1	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	3
St. Olaf College Buntrock Commons	Northfield W4 P2	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	4
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Richland Town Hall	Richland Twp	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	1
Shieldsville Town Hall	Shieldsville Twp	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
Walcott Town Hall	Walcott Twp	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2

List Each Polling Place including Absentee Balloting and Mail Balloting locations	List All Precincts in Each Polling Place	List State Assistive Voting Equipment used in the precinct	List Precinct Counting Method (hand, precinct optical scan, central count optical scan)	List Optical Scan Tabulator Model (if applicable)	Electronic Roster Guide	Number of Poll Pads
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Wells Town Hall	Wellls Twp	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
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Wheeling Town Hall	Wheeling Twp	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
Rice County PTE	Dennison MB & ED	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200		
Rice County PTE	Rice County AB	Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	1
Rice County PTE	Rice County DB	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	1
Northfield City Hall	Rice County DB	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200		
Rice County PTE	Rice County Back Up	ES&S AutoMARK				
Rice County PTE	Rice County Back Up	ES&S AutoMARK				
Rice County PTE	Rice County Back Up	ES&S AutoMARK				
Rice County PTE	Rice County Back Up	ES&S AutoMARK				
Rice County PTE	Rice County Back Up	ES&S AutoMARK				
Rice County PTE	Rice County Back Up	ES&S AutoMARK				
		TOTAL: 1 DEM & 37 AVM		TOTAL: 32	TOTAL:	87

Office of the Minnesota Secretary of State

Rice County's Electronic Voting System Plan (Revised for 2021)

I. Basis of Plan

Minn. Stat. § 206.82, subdivision 2, provides that the municipal clerk in a municipality where an electronic voting system is used and the county auditor of a county in which an electronic voting system is used in more than one municipality and the county auditor of a county in which a counting center serving more than one municipality is located shall prepare a plan which indicates acquisition of sufficient facilities, computer time, and professional services and which describes the proposed manner of complying with section 206.80. The plan must be signed, notarized, and submitted to the secretary of state more than 60 days before the first election at which the municipality uses an electronic voting system. Prior to July 1 of each subsequent general election year, the clerk or auditor shall submit to the secretary of state notification of any changes to the plan on file with the secretary of state. The secretary of state shall review each plan for its sufficiency and may request technical assistance from the Department of Administration or other agency which may be operating as the central computer authority. The secretary of state shall notify each reporting authority of the sufficiency or insufficiency of its plan within 20 days of receipt of the plan. The attorney general, upon request of the secretary of state, may seek a district court order requiring an election official to fulfill duties imposed by this subdivision or by rules promulgated pursuant to this section. This requirement is waived in calendar year 2006 for municipalities with fewer than 10,000 residents.

Minnesota Laws 2006, chapter 242, sec. 31, amends Minn. Stat. §206.80 to read:

> (b) An electronic voting system purchased on or after June 4, 2005, may not be employed unless it:
>
> > (1) Accepts and tabulates, in the polling place or at a counting center, a marked optical scan ballot;
> >
> > (2) Creates a marked optical scan ballot that can be tabulated in the polling place or at a counting center by automatic tabulating equipment certified for use in this state.

II. The County of Rice certifies that it will use electronic voting systems including ballot marking and tabulating machines and electronic rosters certified for use in Minnesota and meeting the requirements of Minnesota Statutes §206.80, as listed on the table attached as Appendix A.

III. The County of Rice plans to meet the additional requirements of M.S. §206.82, subd. 1 in the following manner:

1. Acquire sufficient facilities for implementation of the electronic voting system as follows: Rice County will provide for the storage of all electronic voting equipment (ES&S AutoMarks, ES&S DS200s, Democracy Live OmniBallots, ES&S DS450 and KNOWiNK Electronic Poll Pads) to be used in Rice County at a secure site. A DS450 Central Count Tabulator will be used at the Rice County Government Services Building to tabulate accepted absentee ballots. A DS200 will be used in the Rice County Government Services Building and at the Northfield City Hall Absentee Ballot Location for Direct Balloting seven days prior to the Presidential Primary, Primary and General Elections. Each jurisdiction will be responsible for the storage of their DS200 ballot boxes and the tables for their AutoMark machines. Each jurisdiction will be responsible for securing their electronic voting equipment from the County and for transport and set-up of their respective polling places for Elections.

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180 State Office Building, 100 Rev. Dr. Martin Luther King Blvd.
St. Paul, MN 55155

Municipal Equipment Plan Template

Office of the Minnesota
Secretary of State

2. Acquire sufficient computer time for implementation of the electronic voting system as follows: Rice County contracts with SeaChange and Election Systems and Software (ES&S) for ballots, programming, and maintenance of the electronic equipment. Rice County contracts with KNOWiNK for programming of the electronic poll pads. Rice County IT staff is available to assist with technical problems that may arise. Rice County owns all of its elections equipment and has immediate, unlimited access of same for implementation.

3. Acquire sufficient professional services for implementation of the electronic voting system as follows: Sea Change and ES&S are responsible for ballot printing and programming. ES&S will maintain the voting equipment. ES&S will provide special training on all voting equipment to county staff and city, township, and school election officials as needed. KNOWiNK is responsible for the programming of the electronic poll pads and will provide training to staff. Rice County Property Tax & Elections staff, with KNOWiNK's assistance, is responsible for poll pad set-up and configuration. Rice County Property Tax & Elections staff will provide training to other election administrators and judges. On-call software and hardware support is secured through the contracts.

4. Have a test deck prepared by a competent person for use to independently verify the program as follows: Rice County Property Tax & Elections staff will be responsible for all preliminary testing for the precincts in Rice County. Rice County Property Tax & Elections staff and/or our vendor will create the Predetermined Results Charts and mark all test ballots for all jurisdictions and all ballot styles in Rice County. Both the original and duplicate back-up programs will be tested for each precinct in Rice County using a checklist developed by the Elections Director. These test decks will also be used for the Public Accuracy Test that will be held at the Rice County Government Services Building in Faribault, MN. Rice County will follow the guidelines provided by the Secretary of State's Office and by ES&S to ensure all programs and ballots are tested as required by statute. All programs and test data will be sealed as required by statute.

5. Prepare a test deck using the electronic ballot marker program as follows: Rice County Property Tax & Elections staff and/or our vendor will use the Predetermined Results Chart to include ballots marked using the AutoMarks and OmniBallots for all precincts and ballot styles in the County. The test ballots will be tabulated by running them through their respective precinct ballot optical scan tabulator and checked for accuracy. All test materials will be secured as required by statute. The Public Accuracy Test for all jurisdictions in Rice County will be held at the Rice County Government Services Building in Faribault, MN.

6. Verify that all valid votes counted by the precinct ballot tabulator may be selected using the electronic ballot marker as follows: Rice County Property Tax & Elections staff and/or our vendor will create Predetermined Results Charts using the guidelines provided by the Secretary of State's Office and by ES&S to guarantee thorough testing of all ballot styles, original and duplicate back-up programs and each electronic device to be used in the Election. Rice County Property Tax & Elections staff will conduct a pre-test prior to the first election at which the equipment will be used to test and verify accurate test results when modeming from the precinct to the county using the predetermined results testing data.

7. Certify that the electronic poll pads meet the technology and statutory requirements as set by M.S. 201.225 Subd. 2. and meet or exceed the certification checklists for Pre-Registered Voters and Election Day Registration contained in the Minnesota Secretary of State's Electronic Roster Guide. There will also be on-site testing of the electronic poll pads to verify they meet the state and county's requirements prior to the first election in which they will be used.

Municipal Equipment Plan Template

COMPLAINT_0015

Office of the Minnesota
Secretary of State

IV. Rice County's Plan Table

The County's Plan Table attached as Appendix A sets out the details about the electronic voting system including the assistive voting technology, optical scan tabulators, and electronic poll pads used at each polling place.

This Electronic Voting System Plan is proposed by Denise M Anderson, the Property Tax & Elections Director for Rice County in fulfillment of the requirements of Minnesota Statutes §206.82.

_____
Property Tax & Elections Director

STATE OF MINNESOTA
COUNTY OF RICE

This instrument was acknowledged before me on ___2/2/2021___, by

Denise M Anderson as the Property Tax & Elections Director for Rice County.

_____
Notary Public

SEAL

_____
NOTARY
Title

Anne Engen
NOTARY PUBLIC
MINNESOTA
My Commission Expires January 31, 2022

My Commission Expires ___1-31-2022___

Office of the Minnesota Secretary of State
180 State Office Building, 100 Rev. Dr. Martin Luther King Blvd.
St. Paul, MN 55155

Municipal Equipment Plan Template

Appendix A

2021

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County Auditor Name	Denise M Anderson
County Auditor Address	320 3rd Street NW, Faribault, MN 55021
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County Auditor email	danderson@co.rice.mn.us
Number of Cities in County	7
Number of Townships in County	14
Number of School Districts in County	8
Number of Locations in County designated for Absentee Balloting	2

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Dundas City Hall	Dundas	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
Erin Town Hall	Erin Twp	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
4H Building	Faribault P1	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	5
Washington Center	Faribault P2	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	5
Buckham Community Center	Faribault P3	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	5
Our Savior's Lutheran Church	Faribault P4	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	5
Forest Town Hall	Forest Twp	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
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Morristown Community Center	Morristown City & Twp	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	4
Nerstrand City Hall	Nerstrand	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	1
First United Church of Christ	Northfield W1 P1	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	4
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Walcott Town Hall	Walcott Twp	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
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Northfield City Hall	Rice County DB	ES&S AutoMARK	Precinct Optical Scan	ES&S DS200		
Rice County PTE	Rice County Back Up	ES&S AutoMARK				
Rice County PTE	Rice County Back Up	ES&S AutoMARK				
Rice County PTE	Rice County AB&DB counting		Centeral Count Machine	ES&S DS450		
		TOTAL: 1 DEM & 33 AVM		TOTAL: 32 DS200 & 1 DS450	TOTAL:	89

Office of the Minnesota Secretary of State

Rice County's Electronic Voting System Plan (Revised for 2022)

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>> (1) Accepts and tabulates, in the polling place or at a counting center, a marked optical scan ballot;
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Municipal Equipment Plan Template

COMPLAINT_0019

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Secretary of State

2. Acquire sufficient computer time for implementation of the electronic voting system as follows: Rice County contracts with SeaChange and Election Systems and Software (ES&S) for ballots, programming, and maintenance of the electronic equipment. Rice County contracts with KNOWiNK for programming of the electronic poll pads. Rice County IT staff is available to assist with technical problems that may arise. Rice County owns all of its elections equipment and has immediate, unlimited access of same for implementation.

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7. Certify that the electronic poll pads meet the technology and statutory requirements as set by M.S. 201.225 Subd. 2. and meet or exceed the certification checklists for Pre-Registered Voters and Election Day Registration contained in the Minnesota Secretary of State's Electronic Roster Guide. There will also be on-site testing of the electronic poll pads to verify they meet the state and county's requirements prior to the first election in which they will be used.

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180 State Office Building, 100 Rev. Dr. Martin Luther King Blvd.
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· Municipal Equipment Plan Template

COMPLAINT_0020

Office of the Minnesota
Secretary of State

IV. Rice County's Plan Table

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This Electronic Voting System Plan is proposed by Denise M Anderson, the Property Tax & Elections Director for Rice County in fulfillment of the requirements of Minnesota Statutes §206.82.

_____
Property Tax & Elections Director

STATE OF MINNESOTA
COUNTY OF RICE

This instrument was acknowledged before me on __4-26-22__ by

Denise M Anderson as the Property Tax & Elections Director for Rice County.

_____
Notary Public

_____
Title   Clerk II

SEAL

Anne Engen
NOTARY PUBLIC
MINNESOTA
My Commission Expires   Jan. 31 2027

My Commission Expires __01-31-2027__

Office of the Minnesota Secretary of State
180 State Office Building, 100 Rev. Dr. Martin Luther King Blvd.
St. Paul, MN 55155

Municipal Equipment Plan Template

Appendix A

2022

County Name:	Rice
County Auditor Name	Denise M Anderson
County Auditor Address	320 3rd Street NW, Faribault, MN 55021
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Erin Town Hall	Erin Twp	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
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United Methodist Church	Northfield W2 P1	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	3
Northfield Community Resource Center	Northfield W2 P2	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	4

List Each Polling Place including Absentee Balloting and Mail Balloting locations	List All Precincts in Each Polling Place	List State Assistive Voting Equipment used in the precinct	List Precinct Counting Method (hand, precinct optical scan, central count optical scan)	List Optical Scan Tabulator Model (if applicable)	Electronic Roster Guide	Number of Poll Pads
Emmaus Baptist Church	Northfield W3 P1	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	4
St. John's Lutheran Church	Northfield W4 P1	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	3
St. Olaf College Buntrock Commons	Northfield W4 P2	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	5
Northfield Town Hall	Northfield Twp P-1 & P-2	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	4
Richland Town Hall	Richland Twp	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	1
Shieldsville Town Hall	Shieldsville Twp	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
Walcott Town Hall	Walcott Twp	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
Warsaw Town Hall	Warsaw Twp	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
Webster Town Hall	Webster P-1 & P-2	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	4
Wells Town Hall	Wellls Twp	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
Wheatland Town Hall	Wheatland Twp	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
Wheeling Town Hall	Wheeling Twp	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200	KNOWiNK Poll Pad	2
Rice County PTE	Northfield Township P-3 & Dennison MB & ED	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200		
Rice County PTE	Rice County AB	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200		
Rice County PTE	Rice County DB	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200		
Northfield City Hall	Rice County DB	ES&S AutoMARK & Democracy Live OmniBallot	Precinct Optical Scan	ES&S DS200		
Rice County PTE	Rice County Back Up	ES&S AutoMARK & Democracy Live OmniBallot				
Rice County PTE	Rice County Back Up	Democracy Live OmniBallot				
Rice County PTE	Rice County AB & DB Counting		Central Count Optical Scan	ES&S DS450		
		TOTAL: 34 DEM & 33 AVM		TOTAL: 32 DS200 & 1 DS450	TOTAL:	89

EXHIBIT C

PETERSON, KOLKER, HAEDT & BENDA, LTD.
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Matthew L. Benda	John R. Peterson (1928-2022)
Daniel L. Kolker	Richard N. Davies (of counsel)
Stephanie A. Haedt	Douglas R. Peterson (of counsel)
Eythan G. Frandle	

August 8, 2022

Exhibit ___C___

VIA ELECTRONIC & U.S. MAIL

Rice County Property Tax & Elections
C/O Sean R. McCarthy
Assistant Rice County Attorney
Data Practices Compliance Officer
320 Third Street N.W.
Faribault, MN 55021
Email: rcattorney@co.rice.mn.us

Re: Minnesota Data Practices Act – Request to Supplement Initial Response
         Our File No.: 13184.002

Dear Mr. McCarthy,

I have now had the opportunity to review your response to my April 18, 2022, Minnesota Data Practices Act request. From this review, it is clear that your reply is incomplete and contains only the items that have a strikethrough below. I hereby request that you supplement your May 23, 2022 response. Please note that I have also expanded the time frame of these requests:

- A list and inventory of Rice County's voting or election equipment, to include ~~the following: Location, Make, Model, Serial Number,~~ Operating System and Patch Level, Election Software System Version and patch level, during Jan, 1, 2019 through July 31, 2022 ~~March 31, 2022.~~

  - For purpose of clarification:
    - "Election Software System" is expected to refer to the following software: 1. Electionware (Election Management Software); 2 Election Reporting Manager; 3. Event Log Service; 4. Removal Media Service; and 5. VAT Previewer. Which version of this software did Rice County utilize during the time period in question and when were any updates installed.

August 8, 2022
Page 2

- ▪ "Patch Level" refers to any and all software updates or security patches that occurred either to the election equipment, operating system or software.
- ▪ In addition, the Rice County's Election Voting System Plan that you disclosed does not contain any reference to the Rice County participating in any optional election night reporting feature. Please provide all documentation that discusses, contracts or agrees that Rice County is participating in this program.
- ▪ Further, at the most recent presentation, Denise Anderson confirmed that most, if not all, of the DS200 Machines used by Rice County contain modems. Please supplement your inventory to identify which machines contain modems (and provide description of the same) and include all DS&S manuals, marketing materials, letters and security updates relating to all DS&S machines that contain modems or other wireless connectivity.

- Any documentation, emails or letters requesting or referencing any list or inventory of the County's election equipment, it must include the following: Location, Make, Model, Serial Number, Operating System and Patch Level, Election Software System Version and patch level, during Jan, 1, 2019 through July 31, 2022 ~~March 31, 2022.~~

  o To clarify, this request is intended to include all other Minnesota Data Practices Act Requests and all communications with any vendors, consultants or employees of the Minnesota Secretary of State's Office.

- Any documentation, emails or letters related to any audit, certification, incident logs, inspections, reports, and upgrade logs of Rice County's election computer network and all election equipment, during Jan, 1, 2019 through July 31, 2022 ~~March 31, 2022~~.

  o To clarify, this request includes all incident logs that are generated by any election machine in Rice County. This request also requires a general explanation or documentation of how Rice County tracks "inspections, reports, and upgrades" of Rice County election computer network and all election equipment.

  o To further clarify, this request also includes all documents that Rice County claims support the certification of the Rice County Election equipment that includes optional election night reporting and any modems or other wireless connectivity.

  o To clarify, this request also includes any emails or communication with any representative of Election Systems & Software ("ES&S") representative from January 1, 2019 through July 31, 2022 regarding the County's election equipment, including but not limited to the topics of optional election night reporting, modems or wireless connections and any Cast Vote Record reporting capabilities.

- Any documentation identifying the individual(s), vendors, or others responsible for the repair, maintenance or replacement of any voting or election equipment during June 1, 2017 through July 31, 2022 ~~March 31, 2022.~~

August 8, 2022
Page 3

    o   To Clarify, this request includes any Rice County Employees, vendors or ES&S employees (or representatives or vendors) that in any way perform "repair, maintenance or replacement" of any voting or election equipment (and software).

I hereby request that Rice County supplement its responsive data separated or organized by the corresponding request number. I also request that the responsive data be produced in its entirety, including all attachments, enclosures, and exhibits. If Rice County determines that data contains material or information which falls within a statutory exemption to mandatory disclosure, then Matt Benda requests that such material or such information be reviewed for discretionary disclosure.

If any portion of this request is deemed denied, then please provide a detailed statement of the reasons for the withholding, and an index or similar statement of the nature of the documents withheld.

Please make Rice County's determination within the applicable time limits.

I appreciate your prompt processing of, and compliance with these requests in the hope of avoiding a petition for court intervention.

Very truly yours,

/s/ Matt Benda

Matthew L. Benda
mbenda@albertlealaw.com
Attorney for Benda For Commonsense, Inc.

EXHIBIT D

Kathleen Hagen
10120 Gonvick Avenue
Lonsdale, MN 55046

23 October 2021

John Fossum
Rice County Attorney
218 Third Street NW
Faribault, MN 55021

Dear **Rice Country Attorney, John Fossum**:

I was referred to you by the Administrator of Tax and Elections in Rice County, Minnesota, Denise Anderson.

Under the **Minnesota Data Practices Act § 13.01 et seq.**, I am requesting an opportunity to inspect and obtain copies of all public records including, but not limited to those that pertain to the selection, authorization, purchase and maintenance of electronic poll books, scanning and tabulation machines, modems, hotspots and routers; including but not limited to systems, hardware, software, manuals, maintenance records, event logs, communications, problem resolution messages and reports involved with the recording, management, handling, counting and adjudicating of all forms of voters and election ballots in the 2020 general election. Examples of election-ware or other electronic device event logs include, but are not limited to:

- Contracts between electronic device hardware and software companies and Rice County for the 2020 General Election including all early and late vote dates
- Contracts between internet service providers and Rice County for the 2020 General Election including all early and late vote dates
- All electronic devices and software applications provided by the hardware, software and internet providers
- A list of all applications run by device for all devices used throughout the 2020 General Election
- A detailed report on functions of all hardware and software provided by the device, software and internet companies including but not limited to software update version for the system software and for all applications run on all devices
- A detailed report on certifications of all hardware and software provided by the device, software and internet companies
- System messages including but not limited to information, events and messages (e.g., information, warning and error messages) for all devices
- Application events and messages (e.g., information, warning and error messages) for all devices
- Security logins and rejections for all devices
- Network access events for all devices
- SQL database actions for all devices
- Virus and malware actions for all devices
- Location range capabilities of wireless internet contracted through the internet provider and Rice County
- Names chosen by Rice County for the wireless internet(s) used during the election within location range of polling places
- Passwords of all wireless internet services provided by internet providers to Rice County at the County and at all polling places
- If handheld electronic devices were used for any function of voting, please provide model of all electronic devices, systems and applications information

Exhibit ___D___

- Names and positions of all persons authorized to use electronic devices
- Chain of custody for all electronic devices used to record votes during voting, including early and late voting days and since the election
- Chain of custody for data recorded during voting, including early and late voting days and since the election

If there are any fees for searching or copying these records, please inform me if the cost will exceed $20.00. However, I would also like to request a waiver of all fees in that the disclosure of the requested information is in the public interest and will contribute significantly to the public's understanding of compliance with election laws in the State of Minnesota. This information is not being sought for commercial purposes.

I would request a prompt response to this request. If you expect a significant delay in responding to or in fulfilling this request, please contact me with information about when I might expect copies or the ability to inspect the requested records.

If you deny any or all of this request, please cite each specific exemption you feel justifies the refusal to release the information and notify me of the appeal procedures available to me under the law.

Thank you for considering my request.

Finally, I strongly encourage you to capture and secure a Forensic Image of every electronic device that was used during the 2020 election. Forensic images of the devices are much more important and useful than a simple backup of the 2020 election data. Several Rice County citizens have called the county and urged the administrative staff members to secure forensic images of our election equipment, but we have not gotten any favorable response or confirmation that the action has been taken. It is also important that the county staff does not allow the election equipment and software vendors to perform "updates" on the equipment or its software. When election machine vendor updates have been done in other counties across the country, election records have been deleted. We have also provided this information to county staff, but have not been given assurance that our election systems are being secured from vendor access. Please note, electronic device system updates can be and often are performed remotely by many system and software vendors.

Thank you for your assistance in following through on these concerns and recommendations. Thank you for helping us all to work together to restore transparency, integrity and trust in our election procedures and systems.

Sincerely,

Kathleen Hagen
kmhagen11@gmail.com
763-568-0754

EXHIBIT E

CHIEF ASSISTANT
Adam E. Johnson

SUPERVISING ATTORNEY
Thao N. Trinh

ASSISTANT ATTORNEYS
Sean R. McCarthy
Catherine M. Miller
Brian M. Mortenson
Jennifer J. Nelson
Elizabeth W. Peterson
Victoria K. Serreno
Natalie B. Staeheli

COUNTY ATTORNEY
JOHN L. FOSSUM
MSBA Certified Criminal Law Specialist

RICE COUNTY MINNESOTA

OFFICE MANAGER
Carla A. Molva

CIVIL PARALEGAL
Laurel A. Peterson

VICTIM COORDINATOR
Melissa J. Evans

218 Third Street NW
Faribault, MN 55021
T: 507.332.6103 • F: 507.332.6175
Email: rcattorney@co.rice.mn.us

November 23, 2021

RE: Data Practices Request
      Election Equipment

We are in receipt of your data practices request for information relating to election equipment. Your request has been reviewed and processed. Answers to your questions are outlined below and responsive documents are enclosed. For your reference, a copy of your request is enclosed.

- *Contracts between electronic device hardware and software companies and Rice County for the 2020 General Election including all early and late vote dates*

  There is no new contract for 2020.

- *Contracts between internet service providers and Rice County for the 2020 General Election including all early and late vote dates*

  Rice County does not contract with an internet service provider

- *All electronic devices and software applications provided by the hardware, software and internet providers*

  DS200, DS450, Poll Pads, SVRS Application, ERS Application, AUMS, Verizon Mifi

- *A list of all applications run by device for all devices used throughout the 2020 General Election*

  Rice County does not possess any documents related to this request

- *A detailed report on functions of all hardware and software provided by the device, software and internet companies including but not limited to software update version for the system software and for all applications run on all devices*

  Exhibit **E**

  Rice County does not possess any documents related to this request

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COMPLAINT_0032

- *A detailed report on certifications of all hardware and software provided by the device, software and internet companies*

  Rice County does not possess any documents related to this request

- *System messages including but not limited to information, events and messages (e.g. information, warning and error messages) for all devices*

  Rice County does not possess any documents related to this request

- *Application events and messages (e.g. information, warning and error messages) for all devices*

  Rice County does not possess any documents related to this request

- *Security logins and rejections for all devices*

  The data you are requesting are nonpublic security data pursuant to Minn. Stat. §13.37 and therefore cannot be released.

- *Network access events for all devices*

  The data you are requesting are nonpublic security data pursuant to Minn. Stat. §13.37 and therefore cannot be released.

- *SQL database actions for all devices*

  The data you are requesting are nonpublic security data pursuant to Minn. Stat. §13.37 and therefore cannot be released.

- *Virus and malware actions for all devices*

  The data you are requesting are nonpublic security data pursuant to Minn. Stat. §13.37 and therefore cannot be released.

- *Location range capabilities of wireless internet contracted through the internet provider and Rice County*

  Rice County does not contract with an internet service provider

- *Names chosen by Rice County for the wireless internet(s) used during the election within location range of polling places*

  The data you are requesting are nonpublic security data pursuant to Minn. Stat. §13.37 and therefore cannot be released.

- *Passwords of all wireless internet services provided by internet providers to Rice County at the County and at all polling places*

  The data you are requesting are nonpublic security data pursuant to Minn. Stat. §13.37 and therefore cannot be released.

- *If handheld electronic devices were used for any function of voting, please provide model of all electronic devices, systems and applications information*

  No handheld electronic devices were used.

- *Names and positions of all persons authorized to use electronic devices*

Denise Anderson	Property Tax Elections Director
Donna Morelan	Auditor/Treasurer Coordinator
Elissa Jones	Elections Specialist
Jody Wagner	Property Tax & Elections Assistant Director
Karie Svien	Office Support/Elections Specialist
Leah Towler	Property Tax & Elections Sr. Customer Service Specialist
Leslie Bianchi	Property Tax Specialist
Suzanne Kalow	Auditor/Treasurer Coordinator

- *Chain of custody for all electronic devices used to record votes during voting, including early and late voting days and since the election*

  Documents enclosed. Security data has been redacted pursuant to Minn. Stat. §13.37.

- *Chain of custody for data recorded during voting, including early and late voting days and since the election*

  Rice County is unclear what you are requesting.

  Sincerely,

  Catherine M. Miller
  Assistant Rice County Attorney
  Data Practices Compliance Official

Enclosed

cc: Rice County Property Tax and Elections

GENERAL ELECTION: NOVEMBER 3, 2020

Pick up the following items: Blue Supply Box - DS200 - AutoMARK - Poll Pads - Ballots in White Transfer Cases
Note: Updates to "AB" notations will be made via WiFi on election day.

Precinct	Official Seal # Ballots	Ballot Seal #(s)	DS200 Thumb Drive Seal #	AutoMARK Flash Card Seal #	POLL PADS			The following items were received from the Rice County Property Tax & Elections Dept. for the General Election to be held on November 3, 2020. SIGNATURE of person picking up the ballots, supplies and equipment for this precinct.	Phone Number at the Poll
					Quantity	Number	Seal #		
BRIDGEWATER TOWNSHIP					3	6		Date: 10/30/20 _Frances Boehning_	
						7			
						8			
CANNON CITY TOWNSHIP					2	9		Date: 11-2-2020 _Clayton Mech_	
						10			
DENNISON								MAIL BALLOT	
CITY OF DUNDAS					2	11		Date: _Denm_	
						12			
ERIN TOWNSHIP					2	13		Date: 10-29-20 _Sharon Kauenrdot_	
						14			
FARIBAULT P1					5	5		Date:	
						15			
						16		_Nplechta_	
						17			
						18			
FARIBAULT P2					5	19		Date:	
						20			
						21			
						22		_Nplechta_	
						23			
FARIBAULT P3					5	24		Date:	
						25			
						26		_Nplechta_	
						27			
						28			

FARIBAULT P4		5	29	Date:
			30	
			31	
			32	
			33	*Hplechta*
FOREST TOWNSHIP		2	34	Date: 10/30/2020
			35	*Tyler Anderson*
CITY OF LONSDALE		4	1	Date: 10/29/20
			2	
			3	
			4	
CITY OF MORRISTOWN		2	36	Date: 10-29-2020
			37	*Virginia Schmidtke*
MORRISTOWN TOWNSHIP		2	38	Date: 10-30-2020
			39	*Dawn Neetzma*
CITY OF NERSTRAND		1	40	Date: 10/30/20
NORTHFIELD W1 P1	*WS*	3	41	Date:
			42 ✓	
			43	
NORTHFIELD W1 P2		4	45 ✓	Date:
			46	
			47	
			48	
NORTHFIELD W2 P1		3	49	Date:
			50	
			51 ✓	
NORTHFIELD W2 P2		4	52	Date:
			53	
			54	
			55 ✓	

			4	56		Date:	
NORTHFIELD W3 P1				57			
				58			
				59 ✓			
NORTHFIELD W4 P1			3	60		Date:	
				61			
				62 ✓			
NORTHFIELD W4 P2			5	63 ✓		Date:	
				64			
				65			
				66			
				44			
NORTHFIELD TOWNSHIP			2	67 ✓		Date: 10-29-2020 *Diane M Lyman*	
				68			
RICHLAND TOWNSHIP						MAIL BALLOT	
SHIELDSVILLE TOWNSHIP			2	70		Date: 10-29-2020	
				71		*Sue Cordecki-Nord*	
WALCOTT TOWNSHIP			2	72		Date: 11-2-2020	
				73		*Benet R. Ground*	
WARSAW TOWNSHIP			2	74		Date:	
+40				75			
WEBSTER P1			2	76		Date: 10-30-2020	
				77			
WEBSTER P2			2	78		*R, & W Veldly*	
				79			
WELLS TOWNSHIP			2	80		Date: 11/2/2020	
				81			
WHEATLAND TOWNSHIP			2	82		Date:	10-20-2020
				83		*Jen D. Oube*	
WHEELING TOWNSHIP			2	84		Date: 10-30-2020	
				85		*Kim M. Muelan*	
NORTHFIELD AB							

EXHIBIT F

Kathleen Hagen
10120 Gonvick Avenue
Lonsdale, MN 55046

22 June 2022

John Fossum
Rice County Attorney
218 Third Street NW
Faribault, MN 55021

Dear **Rice Country Attorney, John Fossum**:

This is a follow up request from the MN Data Practices request that I submitted on Rice County Election Hardware and Software on 23 October, 2021. Please review that data request and your responses. Then, please provide any updates that you may have from subsequent elections, communications, and collaborations that you've had with the Secretary of State's office and your election service, hardware and software vendors.

Under the **Minnesota Data Practices Act § 13.01 et seq.**, I am requesting an opportunity to inspect and obtain copies of all public records from the 2020 election and all subsequent elections including, but not limited to those that pertain to:
1. Communications with the Secretary of State's Office
2. Communications with all of the election related
    a. Service vendors
    b. Hardware vendors
    c. Software vendors
3. All of the Rice County, Minnesota precincts' incident event log books
4. All information related to the investigation and resolution of each of the issues listed in the precincts' incident event log books.

During his presentation to the County Commissioners, Secretary of State Representative David Maeda (Director of Elections) said, "As federally mandated, each ballot-counting machine is vigorously and thoroughly reviewed by verifying there are no vulnerabilities within the system's source code. Once the Election Assistance Commission has accredited the systems, they must be double-checked by the state."

Please provide copies of:
1. The Election Assistance Commission (EAC) accreditations for each Rice County ballot-counting machine and source code, including the modems within each unit
2. All evidence that the election equipment was double-checked by the state to ensure that there are no vulnerabilities within the systems' source code

Finally, I again strongly encourage you to capture and secure a Forensic Image of every electronic device that is used during elections before and after every vendor system software update. Forensic images of the devices are much more important and useful than a simple backup of the election data. Several Rice County citizens have called the county and urged the administrative staff members to secure forensic images of our election equipment, but we have not gotten any favorable response or confirmation that the action has been taken. It is also important that the county staff does not allow the election equipment and software vendors to perform "updates" on the equipment or its software. When election machine vendor updates have been done in other counties across the country, election records have been deleted or altered. We have also provided this information to county staff, but have not been given assurance that our election systems are being secured from vendor access. Please note, electronic device system updates can be and often are performed remotely by some system and software vendors, without County Election Administrator awareness.

Exhibit __F__

If there are any fees for searching or copying these records, please inform me if the cost will exceed $20.00. However, I would also like to request a waiver of all fees in that the disclosure of the requested information is in the public interest and will contribute significantly to the public's understanding of compliance with election laws in the State of Minnesota. This information is not being sought for commercial purposes.

I would request a prompt response to this request. If you expect a significant delay in responding to or in fulfilling this request, please contact me with information about when I might expect copies or the ability to inspect the requested records.

If you deny any or all of this request, please cite each specific exemption you feel justifies the refusal to release the information and notify me of the appeal procedures available to me under the law.

Thank you for your assistance in following through on these concerns and recommendations. Thank you for helping us all to work together to restore transparency, integrity and trust in our election procedures and systems.

Sincerely,

Kathleen Hagen
kmhagen11@gmail.com
763-568-0754

EXHIBIT G

Kathleen Hagen
10120 Gonvick Avenue
Lonsdale, MN 55046

11 January 2022

John Fossum
Rice County Attorney
218 Third Street NW
Faribault, MN 55021

Under the **Minnesota Data Practices Act § 13.01 et seq.**, I am requesting an opportunity to inspect and obtain copies of all public records including, but not limited to those pertaining to the Cast Vote Record (CVR) from all electronic equipment used in the 2020 general election. I am requesting the full CVR report for the November 2020 election in Rice County. For the ES&S equipment, this is a standard report and should include batch and tabulator information.

If there are any fees for searching or copying these records, please inform me if the cost will exceed $20.00. However, I would also like to request a waiver of all fees in that the disclosure of the requested information is in the public interest and will contribute significantly to the public's understanding of compliance with Minnesota Election Laws. This information is not being sought for commercial purposes.

I would request a prompt response to this request. If you expect a significant delay in responding to or in fulfilling this request, please contact me with information about when I might expect copies or the ability to inspect the requested records.

If you deny any or all of this request, please cite each specific exemption you feel justifies the refusal to release the information and notify me of the appeal procedures available to me under the law.

Thank you for considering my request.

Sincerely,

Kathleen Hagen
kmhagen11@gmail.com
763-568-0754

Exhibit _G_

EXHIBIT H

CHIEF ASSISTANT
Adam E. Johnson

SUPERVISING ATTORNEY
Thao N. Trinh

ASSISTANT ATTORNEYS
Aimee R. Fink
Sean R. McCarthy
Catherine M. Miller
Brian M. Mortenson
Jennifer J. Nelson
Jacqueline M. Primeau
Victoria K. Serreno

COUNTY ATTORNEY
JOHN L. FOSSUM
MSBA Certified Criminal Law Specialist

RICE COUNTY
MINNESOTA

OFFICE MANAGER
Carla A. Molva

CIVIL PARALEGAL
Laurel A. Peterson

VICTIM COORDINATOR
Melissa J. Evans

218 Third Street NW
Faribault, MN 55021
T: 507.332.6103 • F: 507.332.6175
Email: rcattorney@co.rice.mn.us

March 25, 2022

Kathleen Hagen
10120 Gonvick Avenue
Lonsdale, MN 55046

RE: Data Practices Request – Cast Vote Record

Dear Ms. Hagen:

You have contacted the Rice County Attorney's Office and requested :

> *...all public records including, but not limited to those pertaining to the Cast Vote Record (CVR) from all electronic equipment used in the 2020 general election. I am requesting the full CVR report for the November 2020 election in Rice County.*

Please be advised that Minnesota Law does not define the term Cast Vote Record. Nor does any of the equipment used by Rice County produce a report known as a "full CVR report." Accordingly, Rice County does not maintain any data pertaining to a Cast Vote Record or a full CVR report.

Your request further states that, "*For the ES&S equipment, this is a standard report and should include batch and tabulator equipment.*" Based upon that that description, enclosed is the public data you requested, which is a standard report produced by Rice County voting equipment of the precinct votes and tabulations for the 2020 general election.

You also asked for the appeal procedures available to you under the law. Please be advised that Minnesota Statutes, Chapter 13 includes various provisions for additional review of data practices questions.

Sincerely,

Sean R. McCarthy
Assistant Rice County Attorney

Exhibit **H**

c: Denise Anderson, Property Tax & Elections Department

Enclosures

Kathleen Hagen
10120 Gonvick Avenue
Lonsdale, MN 55046

11 January 2022

John Fossum
Rice County Attorney
218 Third Street NW
Faribault, MN 55021

Under the **Minnesota Data Practices Act § 13.01 et seq.**, I am requesting an opportunity to inspect and obtain copies of all public records including, but not limited to those pertaining to the Cast Vote Record (CVR) from all electronic equipment used in the 2020 general election. I am requesting the full CVR report for the November 2020 election in Rice County. For the ES&S equipment, this is a standard report and should include batch and tabulator information.

If there are any fees for searching or copying these records, please inform me if the cost will exceed $20.00. However, I would also like to request a waiver of all fees in that the disclosure of the requested information is in the public interest and will contribute significantly to the public's understanding of compliance with Minnesota Election Laws. This information is not being sought for commercial purposes.

I would request a prompt response to this request. If you expect a significant delay in responding to or in fulfilling this request, please contact me with information about when I might expect copies or the ability to inspect the requested records.

If you deny any or all of this request, please cite each specific exemption you feel justifies the refusal to release the information and notify me of the appeal procedures available to me under the law.

Thank you for considering my request.

Sincerely,

Kathleen Hagen

Kathleen Hagen
kmhagen11@gmail.com
763-568-0754

RECEIVED

JAN 1 1 2022

RICE COUNTY
ATTORNEY

Abstract of Votes Cast For

In the County of RICE, State of Minnesota
at the State General Election held in townships and cities of this county
on Tuesday, November 3, 2020

as compiled from the official returns.

Abstract print version 30188, generated 11/10/2020 1:05:41 PM

Summary of RICE County Totals
Tuesday, November 3, 2020 State General Election

Number of persons registered as of 7 a.m.	39513
Number of persons registered on Election Day	3587
Number of accepted regular, military, and overseas absentee ballots and mail ballots	17006
Number of federal office only absentee ballots	96
Number of presidential absentee ballots	2
Total number of persons voting	35832

Abstract print version 30188, generated 11/10/2020 1:05:41 PM

Summary of RICE County Totals
Tuesday, November 3, 2020 State General Election

KEY TO PARTY ABBREVIATIONS

NP - Nonpartisan

County Commissioner District 1

NP	NP	WI
Jacob (Jake) Gillen	Jim Purfeerst	WRITE-IN
2311	4140	28

County Commissioner District 2

NP	WI
Galen Malecha	WRITE-IN
6035	65

County Commissioner District 5

NP	NP	WI
Jeff Docken	Kim Halvorson	WRITE-IN
5120	2308	29

Soil and Water Supervisor District 1

NP	WI
Tim Little	WRITE-IN
26427	251

Soil and Water Supervisor District 2

NP	WI
Richard Cook	WRITE-IN
26360	217

Soil and Water Supervisor District 4

NP	WI
Michael Ludwig	WRITE-IN
25938	198

COMPLAINT_0048

Detail of RICE County Election Results
Tuesday, November 3, 2020 State General Election

County: Rice

Precinct	Persons Registered as of 7 A.M.	Persons Registered on Election Day	Total Number of Persons Voting
0005 : BRIDGEWATER TWP.	1343	75	1285
0010 : CANNON CITY TWP.	843	66	805
0012 : DENNISON CITY	7	0	6
0015 : DUNDAS	1046	84	995
0020 : ERIN TWP.	607	52	583
0025 : FARIBAULT P-1	2399	246	2161
0030 : FARIBAULT P-2	2634	274	2250
0035 : FARIBAULT P-3	3354	321	3023
0040 : FARIBAULT P-4	3218	328	2843
0055 : FOREST TWP.	937	78	900
0060 : LONSDALE CITY	2587	236	2436
0065 : MORRISTOWN	563	67	538
0070 : MORRISTOWN TWP.	434	34	425
0075 : NERSTRAND	180	11	169
0080 : NORTHFIELD W-1 P-1	1628	254	1074
0085 : NORTHFIELD W-1 P-2	2451	92	2325
0090 : NORTHFIELD W-2 P-1	1717	104	1621
0095 : NORTHFIELD W-2 P-2	1791	139	1669
0105 : NORTHFIELD W-3 P-1	2001	160	1758
0113 : NORTHFIELD W-4 P-1	1631	128	1448
0114 : NORTHFIELD W-4 P-2	1216	342	863
0115 : NORTHFIELD TWP.	616	43	598
0120 : RICHLAND TWP.	245	9	231
0125 : SHIELDSVILLE TWP.	795	71	783
0130 : WALCOTT TWP.	700	47	647
0135 : WARSAW TWP.	924	65	892

Detail of RICE County Election Results
Tuesday, November 3, 2020 State General Election

County: Rice

Precinct	Persons Registered as of 7 A.M.	Persons Registered on Election Day	Total Number of Persons Voting
0140 : WEBSTER TWP. P-1	602	41	565
0142 : WEBSTER TWP. P-2	699	44	686
0145 : WELLS TWP.	1075	85	1024
0150 : WHEATLAND TWP.	892	60	856
0155 : WHEELING TWP.	378	31	373
Total:	39513	3587	35832

Detail of RICE County Election Results
Tuesday, November 3, 2020 State General Election

Office Title: County Commissioner District 1

County: Rice

Precinct	NP Jacob (Jake) Gillen	NP Jim Purfeerst	WI WRITE-IN
0005 : BRIDGEWATER TWP.	372	715	5
0010 : CANNON CITY TWP.	240	500	0
0012 : DENNISON CITY	2	3	0
0015 : DUNDAS	353	468	3
0075 : NERSTRAND	41	105	1
0090 : NORTHFIELD W-2 P-1	583	750	5
0114 : NORTHFIELD W-4 P-2	227	394	8
0115 : NORTHFIELD TWP.	170	366	1
0120 : RICHLAND TWP.	58	160	3
0130 : WALCOTT TWP.	182	422	1
0155 : WHEELING TWP.	83	257	1
Total:	2311	4140	28

Office Title: County Commissioner District 2

County: Rice

Precinct	NP Galen Malecha	WI WRITE-IN
0080 : NORTHFIELD W-1 P-1	720	8
0085 : NORTHFIELD W-1 P-2	1759	12
0095 : NORTHFIELD W-2 P-2	1298	12
0105 : NORTHFIELD W-3 P-1	1300	18
0113 : NORTHFIELD W-4 P-1	958	15
Total:	6035	65

COMPLAINT_0051

Detail of RICE County Election Results
Tuesday, November 3, 2020 State General Election

Office Title: County Commissioner District 5

County: Rice

Precinct	NP Jeff Docken	NP Kim Halvorson	WI WRITE-IN
0020 : ERIN TWP.	330	156	0
0055 : FOREST TWP.	516	245	2
0060 : LONSDALE CITY	1395	657	14
0065 : MORRISTOWN	330	138	1
0070 : MORRISTOWN TWP.	296	97	2
0125 : SHIELDSVILLE TWP.	455	212	2
0135 : WARSAW TWP.	484	293	6
0140 : WEBSTER TWP. P-1	355	131	0
0142 : WEBSTER TWP. P-2	464	130	1
0150 : WHEATLAND TWP.	495	249	1
Total:	5120	2308	29

Office Title: Soil and Water Supervisor District 1

County: Rice

Precinct	NP Tim Little	WI WRITE-IN
0005 : BRIDGEWATER TWP.	983	7
0010 : CANNON CITY TWP.	628	3
0012 : DENNISON CITY	2	0
0015 : DUNDAS	778	5
0020 : ERIN TWP.	418	2
0025 : FARIBAULT P-1	1603	25
0030 : FARIBAULT P-2	1581	13
0035 : FARIBAULT P-3	2193	29
0040 : FARIBAULT P-4	2031	25
0055 : FOREST TWP.	667	7

Detail of RICE County Election Results
Tuesday, November 3, 2020 State General Election

Office Title: Soil and Water Supervisor District 1

County: Rice

Precinct	NP Tim Little	WI WRITE-IN
0060 : LONSDALE CITY	1831	27
0065 : MORRISTOWN	431	4
0070 : MORRISTOWN TWP.	351	0
0075 : NERSTRAND	127	0
0080 : NORTHFIELD W-1 P-1	713	8
0085 : NORTHFIELD W-1 P-2	1716	9
0090 : NORTHFIELD W-2 P-1	1204	9
0095 : NORTHFIELD W-2 P-2	1274	9
0105 : NORTHFIELD W-3 P-1	1286	19
0113 : NORTHFIELD W-4 P-1	924	8
0114 : NORTHFIELD W-4 P-2	656	5
0115 : NORTHFIELD TWP.	492	1
0120 : RICHLAND TWP.	169	1
0125 : SHIELDSVILLE TWP.	611	4
0130 : WALCOTT TWP.	492	3
0135 : WARSAW TWP.	677	5
0140 : WEBSTER TWP. P-1	405	1
0142 : WEBSTER TWP. P-2	479	10
0145 : WELLS TWP.	763	7
0150 : WHEATLAND TWP.	650	5
0155 : WHEELING TWP.	292	0
Total:	26427	251

Detail of RICE County Election Results
Tuesday, November 3, 2020 State General Election

Office Title: Soil and Water Supervisor District 2

County: Rice

Precinct	NP Richard Cook	WI WRITE-IN
0005 : BRIDGEWATER TWP.	955	4
0010 : CANNON CITY TWP.	626	5
0012 : DENNISON CITY	2	0
0015 : DUNDAS	763	4
0020 : ERIN TWP.	411	2
0025 : FARIBAULT P-1	1622	18
0030 : FARIBAULT P-2	1614	14
0035 : FARIBAULT P-3	2224	27
0040 : FARIBAULT P-4	2047	17
0055 : FOREST TWP.	641	4
0060 : LONSDALE CITY	1831	23
0065 : MORRISTOWN	438	3
0070 : MORRISTOWN TWP.	357	3
0075 : NERSTRAND	126	0
0080 : NORTHFIELD W-1 P-1	704	6
0085 : NORTHFIELD W-1 P-2	1687	8
0090 : NORTHFIELD W-2 P-1	1202	6
0095 : NORTHFIELD W-2 P-2	1259	7
0105 : NORTHFIELD W-3 P-1	1252	11
0113 : NORTHFIELD W-4 P-1	915	8
0114 : NORTHFIELD W-4 P-2	652	5
0115 : NORTHFIELD TWP.	489	0
0120 : RICHLAND TWP.	168	1
0125 : SHIELDSVILLE TWP.	608	9
0130 : WALCOTT TWP.	489	3
0135 : WARSAW TWP.	690	5
0140 : WEBSTER TWP. P-1	392	2
0142 : WEBSTER TWP. P-2	470	8

Detail of RICE County Election Results
Tuesday, November 3, 2020 State General Election

Office Title: Soil and Water Supervisor District 2

County: Rice

Precinct	NP Richard Cook	WI WRITE-IN
0145 : WELLS TWP.	797	11
0150 : WHEATLAND TWP.	645	2
0155 : WHEELING TWP.	284	1
Total:	26360	217

Office Title: Soil and Water Supervisor District 4

County: Rice

Precinct	NP Michael Ludwig	WI WRITE-IN
0005 : BRIDGEWATER TWP.	968	6
0010 : CANNON CITY TWP.	615	1
0012 : DENNISON CITY	2	0
0015 : DUNDAS	766	5
0020 : ERIN TWP.	408	2
0025 : FARIBAULT P-1	1560	17
0030 : FARIBAULT P-2	1536	12
0035 : FARIBAULT P-3	2134	23
0040 : FARIBAULT P-4	1957	13
0055 : FOREST TWP.	648	6
0060 : LONSDALE CITY	1818	23
0065 : MORRISTOWN	421	4
0070 : MORRISTOWN TWP.	348	0
0075 : NERSTRAND	124	0
0080 : NORTHFIELD W-1 P-1	701	10
0085 : NORTHFIELD W-1 P-2	1694	7
0090 : NORTHFIELD W-2 P-1	1205	4

Page 9 of 12

COMPLAINT_0055

Detail of RICE County Election Results
Tuesday, November 3, 2020 State General Election

Office Title: Soil and Water Supervisor District 4

County: Rice

Precinct	NP Michael Ludwig	WI WRITE-IN
0095 : NORTHFIELD W-2 P-2	1252	11
0105 : NORTHFIELD W-3 P-1	1256	15
0113 : NORTHFIELD W-4 P-1	922	5
0114 : NORTHFIELD W-4 P-2	653	5
0115 : NORTHFIELD TWP.	492	0
0120 : RICHLAND TWP.	167	1
0125 : SHIELDSVILLE TWP.	601	4
0130 : WALCOTT TWP.	480	2
0135 : WARSAW TWP.	658	6
0140 : WEBSTER TWP. P-1	390	3
0142 : WEBSTER TWP. P-2	477	6
0145 : WELLS TWP.	761	5
0150 : WHEATLAND TWP.	641	2
0155 : WHEELING TWP.	283	0
Total:	25938	198

We, the legally constituted county canvassing board certify that we have herein specified the names of the persons receiving votes and the number of votes received by each within the county at the State General Election held on Tuesday, November 3, 2020.

As appears by the returns of said election in the several precincts in RICE County, duly returned to, filed, opened, and canvassed, and now remaining on file in the office of the county auditor. Witness our official signature at _____ in RICE County this _____ day of _____, 2020.

_____
Member of County Board

_____
Member of County Board

_____
County Auditor

_____
District Court Administrator

_____
Mayor,
City of _____

_____
Qualified voter (appointed to fill vacancy pursuant to law)

COMPLAINT_0057

State of Minnesota
County of RICE

I, _____, county auditor within and for this county do hereby certify the within and foregoing _____ pages to be a full and correct copy of the original abstract and return of the votes cast for in the State General Election held in this county on Tuesday, November 3, 2020.

Witness my hand and official seal of office at the county seat in said county this _____ day of _____, 2020.

_____

EXHIBIT I

---------- Forwarded message --------
From: **Kathleen** <kmhagen11@gmail.com>
Date: Sun, Apr 3, 2022 at 10:25 AM
Subject: Rice County Cast Vote Records Request
To: John Fossum <jfossum@co.rice.mn.us>, Laurel Peterson <lpeterson@co.rice.mn.us>, Sean McCarthy <smccarthy@co.rice.mn.us>

Thank you very much for providing the Rice County Abstract of Votes Cast for all of the races from the 2020 Election. While this information does not align with the request that I made in my January 11th FOIA request, the report that you've provided is helpful.

I am re-sending my original request to clarify that I am asking for the "Cast Vote Records", not the "Abstract of Votes Cast". I'm also attaching the National Institute of Standards and Technology (NIST) Special Publication 1500-103 Cast Vote Records Common Data Format Specification. As you can see, this is a Federal Standard for Election Management Systems used in the United States of America. "The purpose of this specification is to provide an interoperable, non-proprietary data exchange format in JavaScript Object Notation (JSON) and eXtensible Markup Language (XML) for CVRs so as to promote greater transparency to voting records produced by vote-capture devices, and to facilitate the exchange of CVRs with other devices that operate upon CVRs regardless of device manufacturer." And, the intended audience for the Cast Vote Record (CVR) includes "the public".

If the Rice County Election Administrators and Staff do not know how to access this standard report from the DS200 computers and Election Management System (EMS), we will be happy to provide assistance. We greatly appreciate all that you have done in collaboration with Rice County Citizens to help restore faith and confidence in our election processes, systems and results.

Best Regards,

Kathleen Hagen

Exhibit _I_

NIST Special Publication 1500-103

Cast Vote Records Common Data Format Specification

Version 1.0

John Wack
Sam Dana
Herb Deutsch
John Dziurlaj
Ian Piper

NIST

**National Institute of
Standards and Technology**
U.S. Department of Commerce

NIST Special Publication 1500-103

Cast Vote Records Common Data Format Specification

Version 1.0

John Wack
Software and Systems Division
Information Technology Laboratory, NIST

Sam Dana
Prometheus Computing

Herb Deutsch
Election System Software

John Dziurlaj
Democracy Fund

Ian Piper
Dominion Voting

U. S. Department of Commerce
Wilbur Ross, Secretary

National Institute of Standards and Technology
Walter G. Copan, Under Secretary of Commerce for Standards and Technology and Director

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

National Institute of Standards and Technology (NIST) Special Publication 1500-103, Version 1.0
94 pages (November 2019)

NIST Special Publication series 1500 is intended to capture external perspectives related to NIST standards, measurement, and testing-related efforts. These external perspectives can come from industry, academia, government, and others. These reports are intended to document external perspectives and do not necessarily represent official NIST positions.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Reports on Computer Systems Technology

The Information Technology Laboratory (ITL) at the National Institute of Standards and Technology (NIST) promotes the U.S. economy and public welfare by providing technical leadership for the Nation's measurement and standards infrastructure. ITL develops tests, test methods, reference data, proof of concept implementations, and technical analyses to advance the development and productive use of information technology. This document reports on ITL's research, guidance, and outreach efforts in Information Technology and its collaborative activities with industry, government, and academic organizations.

Abstract

This document is a specification for a common data format for cast vote records (CVR) produced by vote-capture devices such as ballot scanners. It supports the interoperable export of CVRs from these devices and the interoperable import and export of CVRs to/from election management systems, adjudication systems, and audit systems. The specification includes examples of JavaScript Object Notation (JSON), unified markup language (UML), and eXtensible Markup Language (XML).

Keywords

Common data format (CDF); cast vote record (CVR); JavaScript Object Notation (JSON); unified markup language (UML); eXtensible Markup Language (XML).

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Acknowledgements

The authors wish to thank their colleagues of the National Institute of Standards and Technology Voluntary Voting System Guidelines (VVSG) Interoperability Public Working Group, who reviewed drafts of this document and contributed to its technical content. The authors gratefully acknowledge and appreciate the following contributors for their keen and insightful assistance with developing this specification:

Kenneth Bennett
*Office of Registrar-Recorder
/County Clerk, Los Angeles*

Kim Brace
Election Data Services

George Gilbert
*Ranked Choice Voting
Resource Center*

Katy Owens Hubler
Democracy Research

Jared Marcotte
The Turnout

Lauren Massa-Lochridge
llochridge & associates

Neal McBurnnett
ElectionAudits

John McCarthy
Verified Voting

Jennifer Morrell
Democracy Fund

Sarah Whitt
*Electronic Registration
Information Center*

In addition to the above acknowledgments, the authors also gratefully acknowledge and appreciate the National Institute of Standards and Technology's Mary Brady and Benjamin Long for their exceptional contributions in helping to improve the content of the publication. And finally, the authors also gratefully acknowledge and appreciate the significant contributions from individuals and organizations in the public and private sectors, whose thoughtful and constructive comments improved the overall quality, thoroughness, and usefulness of this publication.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Executive Summary

This document presents an interoperable, common data format specification for cast vote records (CVR), which are produced by vote-capture devices such as ballot scanners. A CVR is an electronic record of a voter's selections, with usually one CVR created per sheet (page) of a ballot. Election results are produced by tabulating the collection of CVRs, and audits can be done by comparisons of the paper ballots or paper records of voter selections against the CVRs.

This specification supports three general use cases for CVRs:

1. Interoperable exports of CVRs from devices such as scanners for import into tabulators, election management systems (EMS), or auditing systems.
2. Interoperable exports of aggregated collections of CVRs from aggregating devices such as election management systems.
3. Update of CVRs after adjudication.

The purpose of this specification is to provide an interoperable, non-proprietary data exchange format in JavaScript Object Notation (JSON) and eXtensible Markup Language (XML) for CVRs so as to promote greater transparency to voting records produced by vote-capture devices, and to facilitate the exchange of CVRs with other devices that operate upon CVRs regardless of device manufacturer.

The specification includes a UML (Unified Markup Language) model and references XML (eXtensible Markup Language) and JSON (JavaScript Object Notation) schemas that were created from the UML model.

There are many complex operations performed by voting devices when voters submit their paper ballots to be scanned. These operations are mostly invisible to voters but are necessary to determine whether contest selections have been marked adequately and whether voter intent is reflected by what is marked on the ballot. This specification includes the necessary detail to capture these operations so that CVRs can be better audited and adjudicated as necessary to include write-in candidates or other issues.

This specification is geared towards the following audiences:

- Election officials
- Voting equipment manufacturers
- Election analysts and auditors
- Election-affiliated organizations
- The public

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Table of Contents

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

1   Introduction

This document is a specification for a common data format (CDF) for cast vote records (CVR) produced by vote-capture devices such as ballot scanners and subsequently tabulated, adjudicated, and audited by other voting devices such as election management systems (EMS). The specification describes a CVR UML (Unified Modeling Language) [1] model and XML (eXtensible Markup Language) [2] and JSON (JavaScript Object Notation) [3] schemas that were generated from the model.

The primary features of this specification include:

- The capability to export raw CVRs representing contest selections and other information such as changes made to the CVRs by the vote-capturing device because of election or contest rules and changes made to the CVRs as a result of adjudication.
- The capability, for a single election, to contain collections of CVRs produced by multiple devices from multiple locations, such as voting centers or precincts.
- A data model in UML that itemizes and defines the data involved in CVRs and that is used to derive the XML and JSON schemas.

1.1   Why this specification is needed

The purpose of this specification is to provide interoperable data interchange formats in XML and JSON for CVRs to assist election officials, auditors, and other election analysts in collecting, aggregating, tabulating, and auditing CVRs from multiple types of vote-capture devices. An additional purpose is to provide greater transparency to CVRs and operations performed on them. Advantages of using this specification include:

- Interoperable data interchange formats for CVRs to remove reliance on proprietary data formats.
- Capability to use the same interoperable format for CVR creation, analysis and update, tabulation, adjudication, and audit.
- Greater freedom to use devices from different manufacturers for operations involving CVRs.
- Consistent handling of voting variations such as Ranked Choice Voting.
- A UML model that is easily extensible to additional use cases.

1.2   Intended Audience

The intended audience of this specification includes election officials, voting system designers and developers, and others in the election community, including the general public. Some background in election administration and voting equipment is useful in understanding the material in this specification.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

1.3   Document Structure

This specification is laid out as follows:

- Section 2, Background: Cast Vote Record Creation, Contents, and Handling, contains background information about how CVRs get created, their contents, and how they are handled in the election process.
- Section 3, Cast Vote Record UML Model Overview, contains an overview of the UML model structure and how it can be used for CVR exports and reports.
- Section 4, Cast Vote Record UML Model Documentation, describes the classes and enumerations in greater detail.
- Section 5, Usage Examples, contains examples of CVR structure using XML.

Appendices contain acronyms, definitions, references, and URLs for downloading the associated JSON and XML schemas.

1.4   Motivation and Methodology

This document was written primarily to assist election officials, developers, and auditors in handling CVRs as they are created and used. At the time of writing, voting systems and the data produced do not interoperate unless they are from the same manufacturer, but even within a manufacturer's line of products there is often a lack of interoperability. This adds more complexity when attempting to integrate COTS (commercial off-the-shelf) or other manufacturer equipment for tabulations, adjudications, and audits.

NIST and a community of U.S. election officials, analysts, manufacturers, and election system technologists analyzed how CVRs are used within the election process and produced this interoperable CVR format that can be used regardless of manufacturer. This specification addresses the following use cases:

1. Interoperable exports of CVRs from devices such as scanners for import into tabulators, EMS, or auditing systems.
2. Interoperable exports of aggregated collections of CVRs from aggregating devices such as election management systems.
3. Update of CVRs because of adjudication.

JSON and XML schemas were generated from the UML model, so scanners and other devices can export CVRs in JSON or XML and validate usage against the schema.

2

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

2   Background: Cast Vote Record Creation, Contents, and Handling

This section contains a general overview of how CVRs are created, their contents, and how they are subsequently handled in the election process.

2.1   Overview of Cast Vote Records and their Generation

Simply put, a cast vote record (CVR) is an electronic record of a voter's ballot selections, and its primary purpose is to provide a record of voter selections that can be counted in an efficient manner to produce election results. A CVR is created by equipment such as a voter facing scanner in a polling place into which a voter inserts a paper ballot. CVRs also get created by batch fed scanners used to scan absentee or other types of ballots that are collected before the election or that cannot be scanned by polling place scanners for various reasons. After the polls are closed, the CVRs are collected by election officials on memory devices and subsequently copied to an election management system that aggregates and tabulates the votes.

Three primary types of voting devices that create CVRs are:

- All-electronic voting devices that a voter uses to make ballot selections and that create and store a CVR for each ballot.
- Ballot marking devices (BMDs) that function like all-electronic devices but that produce a paper record of the voter's choices that must be subsequently scanned.
- Voter-facing optical scanners used in polling places and batch-fed optical scanners used in central offices to scan paper ballots.

The scanning devices above are sometimes referred to collectively as "tabulators" because they generally have a tabulation capability, but this is not always the case.

CVRs may include other information besides voter choices, including:

- Information on all contests and contest options on the ballot in addition to those marked
- The ballot style associated with the CVR
- The precinct or location associated with the CVR
- The equipment that produced the CVR
- The political party associated with the ballot for partisan primaries
- Images of the entire ballot and images of write-in areas on the ballot
- An identifier that is also printed on the ballot as it is scanned
- Indications of how the scanner has interpreted various marks.

This specification includes support for the above items.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

2.2   Counting Cast Vote Records

To produce a CVR that is countable, the scanner must interpret the voter's selections according to the rules of each contest to determine which selections can be counted. This is true primarily of hand-marked paper ballot scanners in which voters may write in candidates whose names were not on the ballot or they may make mistakes that invalidate their choices such as overvoting in a contest. All-electronic devices and BMDs guide the voter how to make selections according to the contest rules, thus the CVRs they create require much less interpretation, except for write-ins.

When creating a cast vote record, ballot scanners must first interpret the ballot and detect where voters have made marks and whether those marks meet manufacturer-specific criteria for validity, that is, whether a mark is placed in the right location and is sufficiently formed so it constitutes an intentional ballot selection made by the voter. Each device in the jurisdiction must also be programmed with election specific information for the polling place that it will be used in, so the scanners can apply that polling place's election rules to the detected marks. Scanners may perform interpretation based on a number of different factors, including:

- A scanner may flag marks as being marginal, that is not meeting the criteria for validity, and therefore not counting those marks.
- Voters may vote for more than the allowable number of options (overvote) and the scanner must know not to count *any* of the selections made by the voter for that particular contest.
- Likewise, voters may undervote a contest, and the scanner must record that the contest was undervoted. The marked selections are still counted.
- The scanner must be programmed to tabulate the voter marks according to the voting method in place for a particular contest.
- A scanner may create indirect selections in the case of straight party voting where a voter can decide to vote for all candidates of a particular party by making a single straight-party selection at the top of the ballot.
- A scanner may invalidate voter marks in the case of straight party voting where a voter selects the straight party choice but votes for the other party in various contests. Depending on local election rules, the votes in those contests or the entire ballot could be invalidated.

Typically, CVR-generating equipment will export a collection of CVRs that may also include a tabulated report. This CVR collection may be copied to a memory device or otherwise transferred to a central location, where it can be combined with other CVR exports to produce election results.

2.3   Adjudication of Cast Vote Records

After a CVR collection has been exported, a number of the CVRs may require additional inspection and adjustment as part of a process known as adjudication, which may be done on an EMS by election officials. Write-ins are the most common reason:

4

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

1. On ballots produced by BMDs the write-in names could still be spelled differently or incorrectly, and
2. For scanned paper ballots, either the ballots themselves or the images of the write-in areas of the ballot that were made by the scanner must be inspected.

There are a number of other reasons why ballots may require adjudication, such as:

- The ballot was unreadable by the scanner.
- The voter may have marked the ballot in ways that are difficult to interpret, for example, the voter may have circled the ovals instead of filling them in.
- The scanner detected one or more overvotes.
- The scanner detected that the entire ballot was blank.

This specification provides the capability to update the CVR with multiple annotations made by adjudicators, recording the following items:

- The adjudicator name(s).
- Time stamp of when the adjudication(s) was made.
- The adjudication, i.e., the action taken by the adjudicator(s).

This is discussed in more detail in Section 4.1, Class Annotation.

2.4 Auditing Cast Vote Records

CVRs need to be audited against their paper counterparts so that election results can be verified to be accurate. This specification supports auditing by providing the following as options:

- Support for ballot-level comparison auditing, that is, there is an identifier in the CVR that can be linked to an ID printed on the corresponding paper ballot.
- Support to include adjustments to contest selections made by adjudicators.
- Different snapshots of the CVR can be created, one for the original scan, one for after election rules have been applied, and others as needed for adjudications.
- Indications of marginal marks, mark quality/density can be associated with contest selections.
- A CVR can include signed/hashed references to an associated image of the ballot or images of write-ins made by the voter.
- Capability to include batch information such as batch IDs and sequence within the batch.

COMPLAINT_0074

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

3	Cast Vote Record UML Model Overview

This section presents an overview of the CVR UML model, showing how it is structured and how it can be used for various voting methods. Section 4, Cast Vote Record UML Model Documentation, contains information on specific classes and enumerations, and Section 5, Usage Examples, discusses several CVR examples using XML. In general, the JSON and XML formats closely follow the structure of the UML model. Thus, the examples of CVR structure in this section apply also to JSON and XML.

The UML class and enumeration names are shown in a different font to distinguish them from surrounding text. For example, the name of the root class in the UML model is
`CastVoteRecordReport`.

3.1 CVR Report General Structure

The UML model implements a report of cast vote records exported by a device that

- Creates CVRs, such as a scanner or BMD, and/or
- Processes and generates a report of CVRs such as an EMS.

In the case of an EMS, the report could consist of aggregations of CVRs from multiple creating devices and, if desired, multiple creating locations, i.e., polling places. In an election conducted in a large county, for example, there could be many CVR reports exported from creating devices (i.e., scanners), and the county could import these reports into a central EMS and issue potentially one single aggregated report.

The CVRs in the report can each be associated with the following:

- The election,
- Precinct or split-precinct geography that corresponds to the ballot style, or
- Creating device.

As well, the report itself can identify the election(s), where the CVRs were created and the creating device(s).

Figures 1 and 2 show the classes in the UML model and the enumerations used in a number of class attributes.

3.2 Interoperability Considerations

A major impediment to interoperability of CVRs across different manufacturers is that typically, the contest selections in a manufacturer's CVR consist of codes and the CVR thus appears as a structured series of codes and contest votes. To understand the CVR, one must know what the codes mean and their structure, and this information is usually opaque and unavailable to others

6

Primary Classes

Figure 1 - CVR UML Model - Classes

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

7

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Enumerations

Secondary Classes

Figure 2 - CVR UML Model - Enumerations and Other Classes

(including auditors)[1]. An important feature of the UML model is that it allows for expanded information in the CVR to be included, in a space-saving manner, to identify contests and contest selections and the associated indications of marks. While a manufacturer's codes can still be included, one can also include interoperable codes and descriptions so that others can understand the CVR and CVRs can be exchanged across devices and manufacturers. The UML model also allows for all contests and contest options, whether selected or not, to be included in the CVR if desired.

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[1] There were space-savings benefits to using structured codes with older devices that had less memory than today's devices.

8

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

However, it would be inefficient and wasteful of space to repeat static and identical contest or candidate information in each CVR, and it would be better to define this static information only once and then point to it as needed. To effect this, the model treats the static information about contests, contest options, devices, and political geography as static *objects* that, once defined, can be linked and connected with the dynamic contest selection information. A static object in concrete terms means a definition in XML/JSON for the item consisting solely of static attributes related to the item, i.e., a contest code ID used in the election or a contest or candidate name, neither of which will change within the context of the CVR report.

- Date/Time of report generation
- Definitions for
    - Device generating the report and its location (e.g., precinct, county office, etc.)
    - Election associated with the collection of CVRs
    - CVR creating device(s) in the report
    - Location of creating device(s) in the report (e.g., vote center)
    - Identification of the ballot style area(s) associated with CVRs in the report (e.g., the precincts/splits served by the vote center)
    - Contest option object definitions referenced as needed by the CVRs
        - **CVR 1:**
            - Corresponding ballot style and other audit-related details
            - CVRSnapshot
                - Type – original or interpreted or modified
                - Is this the snapshot to be tabulated? Yes/No
                - Links to contest option and contest selection objects defined previously
                - Indications associated with the contest selections
            - CVRSnapshot (if there are more)
        - **CVR 2 (**and subsequent CVRs)

Figure 3 - CVR report structure

As shown in Figure 3, the CVR report structure consists of objects created for the election, the devices, political geography, contests, and contest options, followed by instances of CVR classes. As stated, each CVR can optionally include a link to the creating device, the corresponding ballot-style area, or the election.

3.3   Cast Vote Record Snapshots

Figure 3 shows a CVR optionally including one or more instances of CVRSnapshot. A CVRSnapshot is a record of the voter's selections at a particular point in time. There are three types of snapshots, which are listed in the CVRType enumeration:

9

COMPLAINT_0078

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

- `original` — the version created when a marked paper ballot is scanned and *before* interpretation of the voter's selections according to contest/election rules.
- `interpreted` — the version created after interpretation of the voter's selections recorded in the `original` version, or the version created by a DRE (Direct Record Electronic) device or from a BMD's encoded voter selections.
- `modified` — the version created after modifications have been made to the `interpreted` version as a result of adjudication, e.g., because of write-ins on the ballot.

Each instance of the snapshot includes only the contest options and contest selections that were voted and that are valid for that snapshot. One of the snapshots must be identified as the snapshot to include in tabulations. Figure 4 below shows the structure in more detail.

- **CVRSnapshot**
  - Status of the snapshot — needs adjudication, other
  - ID of an associated batch and sequence number within a batch
  - Snapshot type — original, interpreted, modified (required)
  - Annotation information (if needed)
  - **CVRContest** — link to a voted contest in this snapshot
    - **CVRContestSelection** — identifies a selection in the contest
      - **SelectionPosition** — position of the selection and other facts
      - **SelectionPosition** (if there are more in the contest)
  - **CVRContest** (if there are more in this snapshot)
- **CVRSnapshot** (if there are more)

Figure 4 - CVRSnapshot Structure

Depending on how this specification may be implemented, all three types of snapshots could be used in a CVR, or two, or one. For CVRs created by devices such as a DRE or a BMD that encodes voter selections, there is no `original` snapshot, thus using `interpreted` makes more sense. For hand-marked paper ballots, use of the `original` and `interpreted` snapshots allows for traceability of all marks detected on the ballot and how the scanner interpreted them according to mark density values and contest rules. Generally, the `modified` snapshot would be created by adjudication applications so as to provide traceability for adjudications of voter-made marks or adjudication of write-ins.

3.4   Representing Contest Selections and Selection Positions

As shown in Figure 3 and Figure 4, `CVRSnapshot` includes `CVRContest` for linking contest objects to those contests that were selected by the voter. `CVRContest` then includes `CVRContestSelection` for each contest selection made by the voter. `CVRContestSelection` then links contest object definitions with the voted contest selections, e.g., for linking a candidate code within a candidate object to the voted selection for that candidate, thereby associating the code with the voted selection.

10

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

`CVRContestSelection` also includes an important class, `SelectionPosition`, shown in Figure 5, for recording information about each selected position within a contest selection such as, does the position represent a vote? The name of this class is important, because contest options on the ballot each have a position, thus each contest selection included in the CVR must be associated with that position. In practical terms, each position can be thought of as a bubble on the ballot that can be filled in by the voter. For example, each contest selection for a candidate in the Presidential contest will be associated with one position, that being the bubble next to the candidate. Accordingly, `SelectionPosition` will indicate position 1 for the candidate selected in the contest.

Figure 5 - SelectionPosition Class

Other types of contest selections may have multiple positions, such as for Ranked Choice Voting (RCV) in which each candidate could be considered as a row on a ballot, with associated rankings for each candidate, each represented as a bubble on the ballot. In this case, it is important to know the position of the selected bubble so as to know its associated ranking.   Figure 6 shows an example RCV contest in which there are 3 candidates and each candidate can be ranked from 1 to 3, thus there are 3 bubbles for each candidate and three possible positions. In this example, `SelectionPosition` will indicate position 1 for Shapiro, 3 for Walsh, and 2 for Kurt:

Member of County Council at Large

Contest Option	1st	2nd	3rd
Ileen Shapiro	[x]	[ ]	[ ]
Debbie Walsh	[ ]	[ ]	[x]
Sandra Kurt	[ ]	[x]	[ ]

Figure 6 - RCV Contest with 3 Positions per Selection

11

COMPLAINT_0080

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

3.4.1 Representing the Facts About a Contest Selection

`SelectionPosition` is also used to state facts concerning the position(s) associated with contest selections, such as whether, at a position, there is an indication of a voter selection in a contest and whether it is potentially countable. For scanned paper ballots, scanner-resident software that has been programmed with the appropriate contest rules typically interprets the voter selections and makes those decisions as to

- Whether a voter mark is of sufficient quality to be considered as a contest selection, and
- Whether the contest selection obeys the rules of the contest and can be consequently counted as a vote.

However, CVRs also could be simply recorded by a scanner but then exported to another device where the interpretation takes place.

Thus, in the interests of transparency, the facts that are recorded in `SelectionPosition` must be just that: only facts and not reflective of decisions as to validity of marks and countability of votes. Where software has made a decision as to the countability of a contest selection, it is indicated clearly. Using the facts, however, one can more accurately adjudicate or override the decisions made by software.

Therefore, this specification uses terminology very carefully in its class, attribute names, and descriptions. Before further consideration of `SelectionPosition`, the following glossary terms must be understood.

3.4.1.1 Use of *Mark*

The word *Mark* is used in this specification *only* to mean a scanner-detectable mark on a paper ballot that requires some associated measurement of quality to determine whether the mark represents a tabulatable contest selection. While the mark would presumably have been made by the voter, a flaw on the ballot could be detected by the scanner and considered as a mark[2], albeit an ambiguous one.

A *mark* is important to differentiate from a machine-made representation of a contest selection that was made via the voter using a BMD or DRE. The machine-made representation does not require an associated measurement of quality; it is either present or not.

The thresholds for mark quality may be set in state or local election law and thus can vary by jurisdiction. Scanners can include the measurements in the CVR by first indicating the name or type of the quality measurement in `ReportingDevice.MarkMetricType`, and then using, for each mark, `SelectionPosition.MarkMetricValue` to indicate the mark measurement.

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[2] For example, a crease in a paper ballot or a smudge that runs through a contest option's oval or checkbox could be detected as a human-made mark.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

3.4.1.2 Use of Selection Indication

The term *Selection Indication* or *Indication* is used as a broader term to mean either (a) a mark presumably made by a human or (b) a machine-made representation of a mark. Selection indications can come from the following sources:

- A flaw on the paper ballot detected as a mark made by the voter.
- A mark made by the voter on the paper ballot; the mark could be ambiguous or could meet scanner thresholds for quality.
- A mark made by a ballot marking device onto a full-face paper ballot.
- An indication made by the voter using a DRE or by a ballot marking device using a bar code to represent voter selections.
- An indication made by the scanner in certain cases as a result of applying contest rules to the voter's indication[3].
- An indication made by an adjudicator.

3.4.1.3 Use of Allocable

Allocable is used, then, to indicate whether the selection indication is potentially countable, that is, whether it can be given over or *allocated* to a later tabulation process that may count it as a vote if it meets all tabulation criteria. In most cases, allocable means countable, but here, *countable* is avoided, as it implies a decision has been made to count the selection indication.

3.4.2 HasIndication and IsAllocable

`SelectionPosition` uses two attributes that act as booleans to show decisions made by software as to whether selection indications are allocable. The first, `HasIndication`, indicates whether software has decided that there is, indeed, a selection indication that can be potentially counted. The following table shows the mapping of selection indications to `HasIndication` values:

Selection Indication	HasIndication
machine-readable mark from a paper ballot	yes
machine-generated mark from a DRE or BMD	yes
marginally machine-readable mark	unknown
no mark or no mark undetected	no

Table 1 - Selection Indication to `HasIndication` Mapping

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[3] For example, a voter may choose a straight party option, and the scanner may, in the CVR, create selection indications for each contest according to the straight party contest rules.

13

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

When there is no indication of a selection indication, most likely the contest selection was not voted but is being included in the CVR.

The second boolean-like attribute, `IsAllocable`, is used for indicating a decision made by software as to whether a selection indication is allocable to the tabulator process for counting as a vote. In effect, this indicates if there is a vote in a contest selection that could be counted. When `HasIndication` has a value of unknown, `IsAllocable` need not be included.

3.4.3 Ranked Choice Voting Example

Figure 7 shows an example RCV (ranked choice voting) contest for President, in which up to 4 candidates can be selected, each with an associated rank. In this example, Smith was ranked as 1, Front was ranked as 3, Hillberry was ranked as 2, but the voter did not rank James.

Presidential Contest

Contest Option	1st	2nd	3rd	4th
Jack Smith/Steven Ritz	[x]	[ ]	[ ]	[ ]
Layla Front/Robert Brak	[ ]	[ ]	[x]	[ ]
James Hillberry/Mark Jafrate	[ ]	[x]	[ ]	[ ]
Anna James/Mary Kalman	[ ]	[ ]	[ ]	[ ]

Figure 7 - RCV contest with multiple contest selections; one voter mark per selection

`CVRContest` will include a `CVRContestSelection` instance for each of the three contest selections that were selected. Each `CVRContestSelection` will include a `SelectionPosition` instance for the bubble filled in by the voter (in this case, only one bubble for each contest selection was filled in; depending on the RCV contest rules, more than one bubble filled in for a given contest selection may be an overvote).

A partial example of the structure representing the contest in Figure 7 is as follows:

- CVRContest:
  - Link to the Presidential contest object
  - CVRContestSelection:
    - Link to candidate object for Jack Smith/Steven Ritz
    - Total number of votes represented by the contest selection = 1
    - SelectionPosition:
      - Position = 1 (or Rank = 1)
      - HasIndication = yes
      - IsAllocable = yes

14

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

- Number of votes = 1
  - o CVRContestSelection:
    - Link to candidate object for Layla Front/Robert Brak
    - Total number of votes represented by the contest selection = 1
    - SelectionPosition:
      - Position = 3 (or Rank = 3)
      - HasIndication = yes
      - IsAllocable = yes
      - Number of votes = 1
  - o CVRContestSelection:
    - Link to candidate object for James Hillberry/Mark Jafrate
    - Total number of votes represented by the contest selection = 1
    - SelectionPosition:
      - Position = 2 (or Rank = 2)
      - HasIndication = yes
      - IsAllocable = yes
      - Number of votes = 1

3.4.4 Cumulative Voting Example

Figure 8 shows an example for cumulative voting in which multiple voter marks are allowable for each contest selection, with a total number of votes (or score) included for each candidate.

Three votes can be allocated across the five candidates, however only two candidates received votes, Ford and Hill. Thus, CVRContest will include two instances of CVRContestSelection, one for Ford and one for Hill. Each CVRContestSelection includes SelectionPosition for each bubble filled into the left of each candidate's name, for a maximum of three. In this case, there will be two SelectionPosition instances for Henry Ford and one for Mary Hill.

Figure 8 - Cumulative Voting contest in which multiple voter marks per selection are allowed

15

COMPLAINT_0084

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

A partial example of the structure representing the contest in Figure 8 is as follows:

- CVRContest:
  - Link to contest object for this contest
  - CVRContestSelection1:
    - Link to candidate object for Henry Ford
    - Total number of votes represented by the contest selection = 2
    - SelectionPosition:
      - Position = 1
      - HasIndication = yes
      - IsAllocable = yes
      - Number of votes = 1
    - SelectionPosition:
      - Position = 2
      - HasIndication = yes
      - IsAllocable = yes
      - Number of votes = 1
  - CVRContestSelection2:
    - Link to candidate object for Mary Hill
    - Total number of votes represented by the contest selection = 2
    - SelectionPosition:
      - Position = 3
      - HasIndication = yes
      - IsAllocable = yes
      - Number of votes = 1

3.4.5 Range Voting Example

Lastly, Figure 9 shows an example of a contest using range voting, in which each candidate receives a score, which is analogous to number of votes. In this example, one bubble can be filled in for each contest selection, and each candidate will have an associated score or number of votes, with the maximum score of 9. The position of the bubble is highly meaningful, as the bubble in position 1 represents no votes and the bubble in position 10 represents 9 votes.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Range Voting Contest

Score each candidate by filling a number (0 is worst; 9 is best)		
Candidate A	●(1)(2)(3)(4)(5)(6)(7)(8)(9)	
Candidate B	(0)(1)(2)(3)(4)(5)(6)(7)(8)●	
Candidate C	(0)(1)(2)(3)(4)(5)(6)●(8)(9)	

Figure 9 - Range Voting contest with multiple contest selections; one voter mark per selection

A partial example of the structure representing the contest in Figure 9 is as follows:

- CVRContest:
    - Link to contest object for this contest
    - CVRContestSelection:
        - Link to candidate object for Candidate A
        - Total number of votes represented by the contest selection = 0
        - SelectionPosition:
            - Position = 1
            - HasIndication = yes
            - IsAllocable = yes
            - Number of votes = 0
    - CVRContestSelection:
        - Link to candidate object for Candidate B
        - Total number of votes represented by the contest selection = 9
        - SelectionPosition:
            - Position = 10
            - HasIndication = yes
            - IsAllocable = yes
            - Number of votes = 9
    - CVRContestSelection:
        - Link to candidate object for Candidate C
        - Total number of votes represented by the contest selection = 7
        - SelectionPosition:
            - Position = 8
            - HasIndication = yes
            - IsAllocable = yes
            - Number of votes = 7

17

COMPLAINT_0086

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

3.5 Identifiers Within the CVR

The CVR can contain potentially up to ten different identifiers whose purpose in general is to make CVRs easier to use in tabulation and more useful in auditing. In particular, the CVR can contain an ID that is common to its corresponding paper ballot so as to support ballot-level comparison audits in which paper ballots are compared against their corresponding CVRs.

Seven of the IDs are attributes of the CVR class because the information they represent will be different for each CVR. There are three additional ID-related classes that are linked from the CVR as the result of associations with `BallotStyleUnit`, `Creating Device`, and `Election`; these classes contain static information that will be the same for each CVR. The different types of IDs can grow confusing; thus this section describes how they are used.

3.5.1 A Unique ID for Each CVR

First, every CVR, as it is created by a device such as a scanner or BMD, is assigned a unique ID so that it can be individually referenced. This ID, `CVR::UniqueId`, applies to the entire CVR.

3.5.2 An ID for Each Sheet of a Multi-sheet Paper Ballot

Generally, if a ballot contains multiple sheets, a CVR will be created for each sheet; for a 3-page ballot, three CVRs will be created. If each sheet of the ballot contains an indication of the sheet number, e.g., sheet 2 contains an indication that it is sheet 2, the creating device can include this indication within the CVR, using `CVR::BallotSheetId`.

If the paper ballot is two-sided, a scanner may still consider the ballot as consisting of one sheet and create just one CVR instead of a CVR for each side. In this case, `CVR::BallotSheetId` would apply to both sides of the ballot.

3.5.3 An ID for Ballots Pre-Printed with a Unique Identifier

In some cases, paper ballots may be pre-printed with a unique identifier such as a sequence number. In this case, the scanner can include the pre-printed identifier in the CVR using `CVR::BallotPrePrintedId`.

3.5.4 An ID to Link the CVR to its Corresponding Paper Ballot

For ballot-level comparison audits, there must be a means for pairing a CVR to its corresponding paper ballot. Scanners may print an ID on a ballot as it is scanned and then include that ID in `CVR::BallotAuditId`.

3.5.4.1 An ID to Link the CVR to its Corresponding Ballot Style ID

The CVR can be linked to the ballot style ID that was used in creating the paper ballot. This ID is contained in `CVR::BallotStyleId`.

3.5.5 IDs to Support Batching

There are two identifiers both related to batching, that is, grouping paper ballots as they are scanned into separate batches for the purposes of auditing by batch. The first identifier, `CVRSnapshot::BatchId`, is used to identify the batch. The second identifier, `CVRSnapshot::BatchSequenceId`, is used to identify the position or sequence of the ballot within the batch.

3.5.6 IDs via Associations with Other Classes

Lastly, the `CVR` class can be associated with 3 other classes, each class containing static information related to tabulation and auditing. These classes are referenced (linked) from each CVR because the information within each class is entirely static and thus need not be repeated in each CVR. These classes are:

1. `BallotStyleUnit` – contains static information about the political geography corresponding to the ballot's ballot style. Most likely the political geography will correspond to a precinct or a precinct split.

2. `CreatingDevice` – contains static information about the device that created the CVR, including the manufacture, model, serial number, and the type of mark metric measure used by the device.

3. `Election` – contains identifying information about the election, including the name and any associated codes.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4   Cast Vote Record UML Model Documentation

This section contains documentation and discussion of the features included in the CVR UML model. As noted previously, this model was used in deriving the XML and JSON schemas, and the schema usage closely follows that of the UML model.

The UML classes are described first, followed by the enumerations. Each description contains an image of the class (from the UML model) and a table containing details about each of the class's attributes. To denote that certain class attributes derive from the class's associations with other classes, curly braces are used around those attribute names, e.g., if ClassA has an association with ClassB that is named "Automobile", then the table of attributes for ClassA would include "{Automobile}" as one of the attributes.

Class attributes and enumeration values are alphabetically ordered with some exceptions, e.g., "OtherStatus" comes after "Status" in some classes, and "other" is last in enumeration values.

4.1   Class Annotation

Annotation is used to record annotations made by one or more adjudicators. CVRSnapshot includes Annotation.

Annotation
–AdjudicatorName : String [0..*]
–Message : String [0..*]
–TimeStamp : dateTime [0..1]

Figure 10 - Class Annotation

Attribute	Multiplicity	Type	Attribute Description
AdjudicatorName	0..*	String	The name(s) of the adjudicator(s).
Message	0..*	String	A message created by the adjudicator(s).
TimeStamp	0..1	dateTime	The date and time of the annotation.

20

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.2   Class BallotMeasureContest

BallotMeasureContest is a subclass of Contest and is used to identify the type of contest as involving one or more ballot measures. It inherits attributes from Contest.

BallotMeasureContest

Figure 11 – Class BallotMeasureContest

21

COMPLAINT_0090

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.3 Class BallotMeasureSelection

`BallotMeasureSelection` is a subclass of <u>ContestSelection</u> and is used for ballot measures. The voter's selected response to the contest selection (e.g., "yes" or "no") may be in English or other languages as utilized on the voter's ballot.

BallotMeasureSelection
-Selection : String [1]

Figure 12 - BallotMeasureSelection

Attribute	Multiplicity	Type	Attribute Description
Selection	1	String	The voter's selection, i.e., 'yes' or 'no', in English or in other languages as utilized on the voter's ballot.

COMPLAINT_0091

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.4   Class Candidate

Candidate identifies a candidate in a contest on the voter's ballot. Election includes instances of Candidate for each candidate in a contest; typically, only those candidates who received votes would be included.

Figure 13 - Class Candidate

Attribute	Multiplicity	Type	Attribute Description
Code	0..*	Code	A code or identifier associated with the candidate.
Name	0..1	String	Candidate's name as listed on the ballot.
{Party}	0..1	Party	The party associated with the candidate.

23

COMPLAINT_0092

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.5   Class CandidateContest

CandidateContest is a subclass of <u>Contest</u> and is used to identify the type of contest as involving one or more candidates. It inherits attributes from <u>Contest</u>.

Figure 14 - Class CandidateContest

Attribute	Multiplicity	Type	Attribute Description
NumberElected	0..1	Integer	The number of candidates to be elected in the contest.
{PrimaryParty}	0..1	<u>Party</u>	The party associated with the contest, if a partisan primary.
VotesAllowed	0..1	Integer	The number of votes allowed in the contest, e.g., 3 for a 'choose 3 of 5 candidates' contest.

24

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.6 Class CandidateSelection

CandidateSelection is a subclass of ContestSelection and is used for candidates, including for write-in candidates.

Figure 15 - Class CandidateSelection

Attribute	Multiplicity	Type	Attribute Description
{Candidate}	0..*	Candidate	The candidate associated with the contest selection. For contests involving a ticket of multiple candidates, an ordered list of candidates as they appeared on the ballot would be created.
IsWriteIn	0..1	Boolean	A flag to indicate if the candidate selection is associated with a write-in.

25

COMPLAINT_0094

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.7 Class CastVoteRecordReport

The root class/element; attributes pertain to the status and format of the report and when created.

CastVoteRecordReport includes multiple instances of CVR, one per CVR or sheet of a multi-page cast vote record. CastVoteRecordReport also includes multiple instances of Contest, typically only for those contests that were voted so as to reduce file size. The Contest instances are later referenced by other classes to link them to contest options that were voted and the indication(s)/mark(s) made.

```
               «Root»
        CastVoteRecordReport
-GeneratedDate : dateTime [1]
-Notes : String [0..1]
-ReportType : ReportType [0..*]
-OtherReportType : String [0..1]
-Version : CastVoteRecordVersion [1] = 1.0.0
```

Figure 16 - Class CastVoteRecordReport

Attribute	Multiplicity	Type	Attribute Description
{CVR}	0..*	CVR	Used to include instances of CVR classes, one per cast vote record in the report.
{Election}	1..*	Election	Used to include the election(s) associated with the CVRs.
GeneratedDate	1	dateTime	Identifies the time that the election report was created.
{GpUnit}	1..*	GpUnit	Used to include the political geography, i.e., location, for where the cast vote record report was created and for linking cast vote records to their corresponding precinct or split (or otherwise smallest unit).
Notes	0..1	String	Notes that can be added as appropriate, presumably by an adjudicator.
{Party}	0..*	Party	The party associated with the ballot sheet for a partisan primary.
{ReportGeneratingDevice}	1..*	ReportingDevice	Identifies the device used to create the CVR report.

26

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Attribute	Multiplicity	Type	Attribute Description
{ReportingDevice}	1..*	ReportingDevice	The device creating the report. The reporting device need not necessarily be the creating device, i.e., for an aggregated report, the reporting device could be an EMS used to aggregate and tabulate cast vote records.
ReportType	0..*	ReportType	The type of report, using the ReportType enumeration.
OtherReportType	0..1	String	If ReportType is 'other', this contains the report type.
Version	1	CastVoteRecordVersion	The version of the CVR specification being used (1.0).

27

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.8   Class Code

Code is used in <u>Election</u>, <u>GpUnit</u>, <u>Contest</u>, <u>Candidate</u>, and <u>Party</u> to identify an associated code and the type of code.

Figure 17 - Class Code

Attribute	Multiplicity	Type	Attribute Description
Label	0..1	String	A label associated with the code, used as needed.
Type	1	IdentifierType	Used to indicate the type of code, from the IdentifierType enumeration.
OtherType	0..1	String	If Type is 'other', the type of code.
Value	1	String	The value of the code, i.e., the identifier.

28

COMPLAINT_0097

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.9 Class Contest

Contest represents a contest on the ballot. CastVoteRecordReport initially includes an instance of Contest for each contest on the ballot. Other classes can subsequently reference the instances as necessary to link together items on the cast vote record, such as a contest, its voted contest selection(s), and the mark(s) associated with the selection(s).

Contest has three subclasses, each used for a specific type of contest: These subclasses inherit Contest's attributes.

1. PartyContest - used for straight party contests,

2. BallotMeasureContest - used for contests, and

3. CandidateContest - used for candidate contests.


```
                    Contest
–Abbreviation : String [0..1]
–Code : Code [0..*]
–Name : String [0..1]
–VoteVariation : VoteVariation [0..1]
–OtherVoteVariation : String [0..1]
```

Figure 18 - Class Contest

Attribute	Multiplicity	Type	Attribute Description
Abbreviation	0..1	String	An abbreviation associated with the contest.
Code	0..*	Code	A code or identifier used for this contest.
{ContestSelection}	1..*	ContestSelection	Identifies the contest selections in the contest.
Name	0..1	String	Title or name of the contest, e.g., "Governor" or "Question on Legalization of Gambling".
VoteVariation	0..1	VoteVariation	The vote variation for this contest, from the VoteVariation enumeration.
OtherVoteVariation	0..1	String	If VoteVariation is 'other', the vote variation for this contest.

29

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.10 Class ContestSelection

ContestSelection represents a contest selection in a contest. Contest can include an instance of ContestSelection for each contest selection in the contest or, as desired, all contest selections.

ContestSelection has three subclasses, each used for a specific type of contest selection:

1. BallotMeasureSelection - used for ballot measures,

2. CandidateSelection - used for candidate selections, and

3. PartySelection - used for straight party selections.

Instances of CVRContestSelection subsequently link to the contest selections as needed so as to tie together the contest, the contest selection, and the mark(s) made for the contest selection.

ContestSelection contains one attribute, Code, that can be used to identify the contest selection and thereby eliminate the need to identify it using the subclasses.

ContestSelection
-Code : Code [0..*]

Figure 19 - Class ContestSelection

Attribute	Multiplicity	Type	Attribute Description
Code	0..*	Code	Code used to identify the contest selection.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.11 Class CVR

CVR constitutes a cast vote record, generated by a ballot scanning device, containing indications of contests and contest options chosen by the voter, as well as other information for auditing and annotation purposes. Each sheet of a multi-page paper ballot is represented by an individual CVR, e.g., if all sheets of a 5-sheet ballot are scanned, 5 CVRs will be created. CastVoteRecordReport includes multiple instances of CVR as applicable.

CVR
-BallotAuditId : String [0..1]
-BallotImage : ImageData [0..*]{ordered}
-BallotPrePrintedId : String [0..1]
-BatchSequenceId : Integer [0..1]
-BallotSheetId : String [0..1]
-BallotStyleId : String [0..1]
-BatchId : String [0..1]
-UniqueId : String [0..1]

Figure 20 - Class CVR

Attribute	Multiplicity	Type	Attribute Description
BallotAuditId	0..1	String	A unique identifier for this CVR, used to link the CVR with the corresponding audit record, e.g., a paper ballot. This identifier may be impressed on the corresponding audit record as it is scanned, or otherwise associated with the corresponding ballot.
BallotImage	0..*	ImageData	An image of the ballot sheet created by the scanning device.
BallotPrePrintedId	0..1	String	A unique identifier for the ballot (or sheet of a multi-sheet ballot) that this CVR represents, used if ballots are pre-marked with unique identifiers. If provided, this number would be the same on all CVRs that represent individual sheets from the same multi-sheet ballot. This identifier is not the same as one that may be impressed on the corresponding ballot as it is scanned or otherwise associated with the corresponding ballot; see the BallotAuditId attribute.
BallotSheetId	0..1	String	A unique number for the ballot (or sheet of a multi-sheet ballot) that this CVR represents, used if ballots are pre-marked with unique numbers. If provided, this number would be the same on all CVRs

31

COMPLAINT_0100

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Attribute	Multiplicity	Type	Attribute Description
			that represent individual sheets from the same multi-sheet ballot. This number is not the same as one that may be impressed on the corresponding ballot as it is scanned or otherwise associated with the corresponding ballot; see the `BallotAuditId` attribute.
`BallotStyleId`	0..1	String	An identifier of the ballot style associated with the corresponding ballot.
`{BallotStyleUnit}`	0..1	GpUnit	Identifies the smallest unit of geography associated with the corresponding ballot, typically a precinct or split-precinct.
`BatchId`	0..1	String	The identifier for the batch that includes this CVR.
`BatchSequenceId`	0..1	Integer	The sequence number of the corresponding paper ballot within a batch.
`{CreatingDevice}`	0..1	ReportingDevice	Identifies the device that created the CVR.
`{CurrentSnapshot}`	1	CVRSnapshot	Identifies the snapshot that is currently tabulatable.
`{CVRSnapshot}`	1..*	CVRSnapshot	Identifies the repeatable portion of the CVR that links to contest selections and related information.
`{Election}`	1	Election	Used to identify an election with which the CVR is associated.
`{Party}`	0..*	Party	Identifies the party associated with a CVR, typically for partisan primaries.
`UniqueId`	0..1	String	The sequence number for this CVR. This represents the ordinal number that this CVR was processed by the tabulating device.

32

COMPLAINT_0101

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.12 Class CVRContest

CVRContest class is included by <u>CVRSnapshot</u> for each contest on the ballot that was voted, that is, whose contest options contain indications that may constitute a vote. CVRContest includes <u>CVRContestSelection</u> for each contest option in the contest containing an indication or write-in.

<u>CVRSnapshot</u> can also include CVRContest for every contest on the ballot regardless of whether any of the contest options contain an indication, for cases where the CVR must include all contests that appeared on the ballot.

CVRContest attributes are for including summary information about the contest.

Overvotes plus Undervotes plus TotalVotes must equal the number of votes allowable in the contest, e.g., in a "chose 3 of 5" contest in which the voter chooses only 2, then Overvotes = 0, Undervotes = 1, and TotalVotes = 2, which adds up to the number of votes allowable = 3.

```
            CVRContest
-Overvotes : Integer [0..1]
-Selections : Integer [0..1]
-Status : ContestStatus [0..*]
-OtherStatus : String [0..1]
-Undervotes : Integer [0..1]
-WriteIns : Integer [0..1]
```

Figure 21 - Class CVRContest

Attribute	Multiplicity	Type	Attribute Description
{Contest}	1	<u>Contest</u>	Used to link to an instance of <u>Contest</u> specific to the contest at hand, for the purpose of specifying information about the contest such as its contest identifier.
{CVRContestSelection}	0..*	<u>CVRContestSelection</u>	Used to include information about a contest selection in the contest, including the associated indication(s).
Overvotes	0..1	Integer	The number of votes lost due to overvoting.
Selections	0..1	Integer	Used to indicate the number of possible contest selections in the contest.

33

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Attribute	Multiplicity	Type	Attribute Description
Status	0..*	ContestStatus	The status of the contest, e.g., overvoted, undervoted, from the ContestStatus enumeration.
OtherStatus	0..1	String	Used when Status is 'other' to include a user-defined status.
Undervotes	0..1	Integer	The number of votes lost due to undervoting.
WriteIns	0..1	Integer	The total number of write-ins in the contest.

34

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.13 Class CVRContestSelection

CVRContestSelection is used to link a contest option containing an indication with information about the indication, such as whether a mark constitutes a countable vote, or whether a mark is determined to be marginal, etc. CVRContest includes an instance of CVRContestSelection when an indication for the selection is present, and CVRContestSelection then includes SelectionPosition for each indication present. To tie the indication to the specific contest selection, CVRContestSelection links to an instance of ContestSelection that has previously been included by Contest.

Since multiple indications per contest option are possible for some voting methods, CVRContestSelection can include multiple instances of SelectionPosition, one per indication. CVRContestSelection can also be used for the purpose of including, in the CVR, all contest options in the contest regardless of whether indications are present. In this case, CVRContestSelection would not include SelectionPosition if no indication is present but would link to the appropriate instance of ContestSelection.

```
                  CVRContestSelection
-OptionPosition : Integer [0..1]
-Rank : Integer [0..1]
-Status : ContestSelectionStatus [0..*]
-OtherStatus : String [0..1]
-TotalFractionalVotes : FractionalNumber [0..1]
-TotalNumberVotes : Integer [0..1]
```

Figure 22 - Class CVRContestSelection

Attribute	Multiplicity	Type	Attribute Description
{ContestSelection}	0..1	ContestSelection	Used to link to an instance of a contest selection that was previously included by Contest.
OptionPosition	0..1	Integer	Used to include the ordinal position of the contest option as it appeared on the ballot.
Rank	0..1	Integer	For the RCV voting variation, the rank chosen by the voter, for when a contest selection can represent a ranking.

35

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Attribute	Multiplicity	Type	Attribute Description
{SelectionPosition}	1..*	SelectionPosition	Used to include further information about the indication/mark associated with the contest selection. Depending on the voting method, multiple indications/marks per selection may be possible.
Status	0..*	ContestSelectionStatus	Contains the status of the contest selection, e.g., 'needs-adjudication' for a contest requiring adjudication, using values from the ContestSelectionStatus enumeration.
OtherStatus	0..1	String	Used when Status is 'other' to include a user-defined status.
TotalFractionalVotes	0..1	FractionalNumber	For cumulative or range and other similar voting variations, contains the total proper fractional number of votes across all indications/marks.
TotalNumberVotes	0..1	Integer	For cumulative or range and other similar voting variations, contains the total number of votes across all indications/marks.

36

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.14 Class CVRSnapshot

CVRSnapshot contains a version of the contest selections for a CVR; there can be multiple versions of CVRSnapshot within the same CVR. Type specifies the type of the snapshot, i.e., whether interpreted by the scanner according to contest rules, modified as a result of adjudication, or the original, that is, the version initially scanned before contest rules are applied. CVR includes CVRSnapshot.

Other attributes are repeated in each CVRSnapshot because they may differ across snapshots, e.g., the contests could be different as well as other status.

```
        «requiredId»
        CVRSnapshot
-Status : CVRStatus [0..*]
-OtherStatus : String [0..1]
-Type : CVRType [1]
```

Figure 23 - Class CVRSnapshot

Attribute	Multiplicity	Type	Attribute Description
{Annotation}	0..*	Annotation	Used to include an annotation associated with the CVR snapshot.
{CVRContest}	0..*	CVRContest	Identifies the contests in the CVR.
Status	0..*	CVRStatus	The status of the CVR.
OtherStatus	0..1	String	When Status is 'other', contains the ballot status.
Type	1	CVRType	The type of the snapshot, e.g., original.

37

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.15 Class CVRWriteIn

CVRWriteIn is used when the contest selection is a write-in. It has attributes for the image or text of the write-in.

CVRWriteIn
-Text : String [0..1]
-WriteInImage : ImageData [0..1]

Figure 24 - Class CVRWriteIn

Attribute	Multiplicity	Type	Attribute Description
Text	0..1	String	Used for the text of the write-in, typically present when the CVR has been created by electronic ballot marking equipment.
WriteInImage	0..1	ImageData	Used for an image of the write-in, typically made by a scanner when scanning a paper ballot.

38

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.16 Class Election

Election defines instances of the Contest and Candidate classes so that they can be later referenced in CVR classes. Election includes an instance of Contest for each contest in the election and includes an instance of Candidate for each candidate. This is done to utilize file sizes more efficiently; otherwise each CVR would need to define these instances separately and much duplication would occur.

Election
–Code : Code [0..*] –Name : String [0..1]

Figure 25 - Class Election

Attribute	Multiplicity	Type	Attribute Description
{Candidate}	0..*	Candidate	Used to establish a collection of candidate definitions that will be referenced by the CVRs. The contests in each CVR will reference the candidate definitions.
Code	0..*	Code	Used for a code associated with the election, e.g., a precinct identifier if the election scope is a precinct.
{Contest}	1..*	Contest	Used for establishing a collection of contest definitions that will be referenced by the CVRs.
{ElectionScope}	1	GpUnit	Used to identify the election scope, i.e., the political geography corresponding to the election.
Name	0..1	String	A text string identifying the election.

39

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.17 Class File

Used to hold the contents of a file or identify a file created by the scanning device. The file generally would contain an image of the scanned ballot or an image of a write-in entered by a voter onto the scanned ballot. SubClass Image is used if the file contains an image.

File
attributes
«simpleContent»-Data : base64Binary [1]
-FileName : String [0..1]
-MimeType : String [0..1]

Figure 26 - Class File

Attribute	Multiplicity	Type	Attribute Description
Data	1	base64Binary	Contains the base64 binary contents of the file.
FileName	0..1	String	Contains the name of the file or an identifier of the file.
MimeType	0..1	String	The mime type of the file, e.g., image/jpeg.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.18 Class FractionalNumber

A proper fractional value represented using fractional or decimal notation.

Figure 27 - Class FractionalNumber

Attribute	Multiplicity	Type	Attribute Description
pattern		String	Pattern describing the allowed values for a FractionalNumber.

41

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.19 Class GpUnit

Used for identifying a geographical unit for various purposes, including:

- The reporting unit of the report generation device, e.g., a precinct location of a scanner that creates the collection of CVRs,
- The geographical scope of the election, or the unit of geography associated with an individual CVR.

CastVoteRecordReport includes instances of GpUnit as needed. Election references GpUnit as ElectionScope, for the geographical scope of the election. CVR references GpUnit as BallotStyleUnit to link a CVR to the smallest political subdivision that uses the same ballot style as was used for the voter's ballot.

```
          GpUnit
-Code : Code [0..*]
-Name : String [0..1]
-Type : ReportingUnitType [1]
-OtherType : String [0..1]
```

Figure 28 - Class GpUnit

Attribute	Multiplicity	Type	Attribute Description
Code	0..*	Code	A code associated with the geographical unit.
Name	0..1	String	Name of the geographical unit.
{ReportingDevice}	0..*	ReportingDevice	The collection of cast vote records associated with the reporting unit and the reporting device.
Type	1	ReportingUnitType	Contains the type of geographical unit, e.g., precinct, split-precinct, vote center, using values from the ReportingUnitType enumeration. If no values apply, use 'other' and include a user-defined type in OtherType.
OtherType	0..1	String	Used when Type is 'other' to include a user-defined type.

42

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.20 Class Hash

Hash is used to specify a hash associated with a file such as an image file of a scanned ballot.

Figure 29 - Class Hash

Attribute	Multiplicity	Type	Attribute Description
Type	1	HashType	The type of the hash, from the HashType enumeration.
OtherType	0..1	String	If Type is 'other', the type of the hash.
Value	1	String	The hash value, encoded as a string.

43

COMPLAINT_0112

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.21 Class Image

Used by `File` for a file containing an image, e.g., an image of a write-in on a paper ballot.

Image

Figure 30 - Class Image

44

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.22 Class ImageData

`ImageData` is used to specify an image file such as for a write-in or the entire ballot. It works with several other classes, as follows:

- `File` with SubClass `Image` – to contain either a filename for an external file or the file contents, and
- `Hash` – to contain cryptographic hash function data for the file.

ImageData
-Location : anyURI [0..1]

Figure 31 - Class ImageData

Attribute	Multiplicity	Type	Attribute Description
{Hash}	0..1	Hash	A hash value for the image data, used for verification comparisons against subsequent copies of the image.
{Image}	0..1	Image	The image of an individual ballot sheet created by the scanner, could possibly include both sides of a two-sided ballot sheet depending on the scanner's configuration.
Location	0..1	anyURI	A pointer to the location of the image file.

45

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.23 Class Party

Party is used for describing information about a political party associated with the voter's ballot.
CVR includes instances of Party as needed, e.g., for a CVR corresponding to a ballot in a partisan
primary, and CandidateContest references Party as needed to link a candidate to their political
party.

Party
–Abbreviation : String [0..1]
–Code : Code [0..*]
–Name : String [0..1]

Figure 32 - Class Party

Attribute	Multiplicity	Type	Attribute Description
Abbreviation	0..1	String	Short name for the party, e.g., "DEM".
Code	0..*	Code	A code associated with the party.
Name	0..1	String	Official full name of the party, e.g., "Republican".

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.24 Class PartyContest

PartyContest is a subclass of Contest and is used to identify the type of contest as involving a straight party selection. It inherits attributes from Contest.

Figure 33 - Class PartyContest

47

COMPLAINT_0116

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.25 Class PartySelection

PartySelection is a subclass of ContestSelection and is used typically for a contest selection in a straight-party contest.

PartySelection

Figure 34 - Class PartySelection

Attribute	Multiplicity	Type	Attribute Description
{Party}	1..*	Party	The party associated with the contest selection.

48

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.26 Class ReportingDevice

ReportingDevice is used to specify a voting device as the "political geography" at hand. CastVoteRecordReport refers to it as ReportGeneratingDevice and uses it to specify the device that created the CVR report. CVR refers to it as CreatingDevice to specify the device that created the CVRs.

ReportingDevice
- -Application : String [0..1]
- -Code : Code [0..*]
- -Manufacturer : String [0..1]
- -MarkMetricType : String [0..1]
- -Model : String [0..1]
- -Notes : String [0..*]
- -SerialNumber : String [0..1]

Figure 35 - Class ReportingDevice

Attribute	Multiplicity	Type	Attribute Description
Application	0..1	String	The application associated with the reporting device.
Code	0..*	Code	A code associated with the reporting device.
Manufacturer	0..1	String	Manufacturer of the reporting device.
MarkMetricType	0..1	String	The type of metric being used to determine quality. The type must be specific enough that the attached value can be accurately verified later, e.g., 'Acme Mark Density' may be a sufficiently specific type.
Model	0..1	String	Manufacturer's model of the reporting device.
Notes	0..*	String	Additional explanatory notes as applicable.
SerialNumber	0..1	String	Serial number or other identification that can uniquely identify the reporting device.

49

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.27 Class RetentionContest

RetentionContest is a subclass of <u>BallotMeasureContest</u> and is used to identify the type of contest as involving a retention, such as for a judicial retention. While it is similar to <u>BallotMeasureContest</u>, it contains a link to <u>Candidate</u> that <u>BallotMeasureContest</u> does not. RetentionContest inherits attributes from <u>Contest</u>.

RetentionContest

Figure 36 - Class RetentionContest

Attribute	Multiplicity	Type	Attribute Description
{Candidate}		Candidate	Identifies the candidate in the retention contest.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.28 Class SelectionPosition

CVRContestSelection includes SelectionPosition to specify a voter's indication/mark in a contest option, and thus, a potential vote. The number of potential SelectionPositions that could be included by CVRContestSelection is the same as the number of ovals next to a particular option. There will be usually 1 instance of SelectionPosition for plurality voting, but there could be multiple instances for RCV, approval, cumulative, or other vote variations in which a voter can select multiple options per candidate.

SelectionPosition contains additional information about the mark to specify whether the mark is countable, as well as information needed for certain voting methods. MarkMetricValue specifies the measurement of a mark on a paper ballot. The measurement is assigned by the scanner for measurements of mark density or quality and would be used by the scanner to indicate whether the mark is a valid voter mark representing a vote or is marginal.

```
                  SelectionPosition
-Code : Code [0..*]
-FractionalVotes : FractionalNumber [0..1]
-HasIndication : IndicationStatus [1]
-IsAllocable : AllocationStatus [0..1]
-IsGenerated : Boolean [0..1]
-MarkMetricValue : String [0..*]
-NumberVotes : Integer [1]
-Position : Integer [0..1]
-Rank : Integer [0..1]
-Status : PositionStatus [0..*]
-OtherStatus : String [0..1]
```

Figure 37 - Class SelectionPosition

Attribute	Multiplicity	Type	Attribute Description	
Code	0..*	Code	Code used to identify the contest selection position.	
{CVRWriteIn}	0..1	CVRWriteIn	Used to store information regarding a write-in vote.	
FractionalVotes	0..1	FractionalNumber	The proper fractional number of votes represented by the position.	
HasIndication	1	IndicationStatus	Whether there is a selection indication present.	
IsAllocable	0..1	AllocationStatus	Whether this indication should be allocated to the contest option's accumulator.	
IsGenerated	0..1	Boolean	Whether this indication was generated by election rules, if not present, False is assumed.	
MarkMetricValue	0..1	String	The value of the mark metric, represented as a string.	

51

COMPLAINT_0120

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Attribute	Multiplicity	Type	Attribute Description	
NumberVotes	1	Integer	The number of votes represented by the position, usually 1 but may be more depending on the voting method.	
Position	0..1	Integer	The ordinal position of the selection position within the contest option.	
Rank	0..1	Integer	For the RCV voting variation, the rank chosen by the voter, for when a position can represent a ranking.	
Status	0..*	PositionStatus	Status of the position, e.g., "generated-rules" for generated by the machine, from the PositionStatus enumeration. If no values apply, use 'other' and include a user-defined status in OtherStatus.	
OtherStatus	0..1	String	Used when Status is "other" to include a user-defined status.	

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.29 Enumeration AllocationStatus

Used in `SelectionPosition::IsAllocable` to indicate whether the
`SelectionPosition::NumberVotes` should be allocated to the underlying contest option
counter.

Figure 38 – Enumeration AllocationStatus

Value	Value Description
no	To not allocate votes to the contest option's accumulator.
unknown	When the decision to allocate votes is unknown, such as when adjudication is needed.
yes	To allocate votes to the contest option's accumulator.

53

COMPLAINT_0122

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.30 Enumeration CastVoteRecordVersion

To identify the version of the CVR specification being used, i.e., version 1.0.0. This will need to be updated for different versions of the specification.

Figure 39 – Enumeration CastVoteRecordVersion

Value	Value Description
1.0.0	Fixed value for the version of this specification.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.31 Enumeration ContestSelectionStatus

Used in CVRContestSelection::Status to identify the status of a contest selection in the CVR.

Figure 40 – Enumeration ContestSelectionStatus

Value	Value Description
generated-rules	To indicate that the contest selection was created per contest rules.
invalidated-rules	To indicate that the contest selection was invalidated by the creating device because of contest rules.
needs-adjudication	To indicate that the contest selection was flagged by the creating device for adjudication.
other	Used in conjunction with CVRContestSelection::OtherStatus when no other value in this enumeration applies.

55

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.32 Enumeration ContestStatus

Used in CVRContest::Status to identify the status of a contest in which contest selection(s) were made.

Figure 41 – Enumeration ContestStatus

Value	Value Description
invalidated-rules	To indicate that the contest has been invalidated by the creating device because of contest rules.
not-indicated	For a CVRContest with no SelectionPosition, i.e. to specify the position contains no marks or other indications.
overvoted	To indicate that the contest was overvoted.
undervoted	To indicate that the contest was undervoted.
other	Used in conjunction with CVRContest::OtherStatus when no other value in this enumeration applies.

56

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.33 Enumeration CVRStatus

Used in `CVRSnapshot::Status` to identify the status of the CVR.

Figure 42 - Enumeration CVRStatus

Value	Value Description
needs-adjudication	To indicate that the CVR needs to be adjudicated.
other	Used in conjunction with `CVRSnapshot::OtherStatus` when no other value in this enumeration applies.

57

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.34 Enumeration CVRType

Used in CVRSnapshot::Type to indicate the type of snapshot.

Figure 43 - Enumeration CVRType

Value	Value Description
interpreted	Has been adjudicated.
modified	After contest rules applied.
original	As scanned, no contest rules applied.

58

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.35 Enumeration HashType

Used in Hash::Type to indicate the type of hash being used for an image file.

Figure 44 - Enumeration HashType

Value	Value Description
md6	To indicate that the MD6 message digest algorithm is being used.
sha-256	To indicate that the SHA 256-bit signature is being used.
sha-512	To indicate that the SHA 512-bit signature is being used.
other	Used in conjunction with Hash::OtherType when no other value in this enumeration applies.

COMPLAINT_0128

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.36 Enumeration IdentifierType

Used in Code::Type to indicate the type of code/identifier being used.

Figure 45 - Enumeration IdentifierType

Value	Value Description
fips	To indicate that the identifier is a Federal Information Processing Standard (FIPS) code.
local-level	To indicate that the identifier is from a local-level scheme, i.e., unique to a county or city.
national-level	To indicate that the identifier is from a national-level scheme other than FIPS or Open Civic Data Identifier (OCD-ID).
ocd-id	To indicate that the identifier is from the OCD-ID scheme.
state-level	To indicate that the identifier is from a state-level scheme, i.e., unique to a particular state.
other	Used in conjunction with Code::OtherType when no other value in this enumeration applies.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.37 Enumeration IndicationStatus

Used in <u>SelectionPosition</u>::HasIndication to identify whether a selection indication is present.

Figure 46 - Enumeration IndicationStatus

Value	Value Description
no	There is no selection indication.
unknown	It is unknown whether there is a selection indication, e.g., used for ambiguous marks.
yes	There is a selection indication present.

COMPLAINT_0130

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.38 Enumeration PositionStatus

Used in `SelectionPosition::Status` to identify the status of a selection indication.

«enumeration»
PositionStatus

adjudicated
generated-rules
invalidated-rules
other

Figure 47 - Enumeration PositionStatus

Value	Value Description
adjudicated	Used if the indication was adjudicated.
generated-rules	Used if the indication was generated by the creating device per contest rules.
invalidated-rules	Used if the indication was invalidated by the creating device because of contest rules.
other	Used in conjunction with `SelectionPosition::OtherStatus` when no other value in this enumeration applies.

62

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.39 Enumeration ReportingUnitType

Used in `GpUnit::Type` to indicate a type of political geography.

Figure 48 - Enumeration ReportingUnitType

Value	Value Description
combined-precinct	To indicate a combined precinct.
polling-place	To indicate a polling place.
precinct	To indicate a precinct.
split-precinct	To indicate a split-precinct.
vote-center	To indicate a vote-center.
other	Used in conjunction with `GpUnit::OtherType` when no other value in this enumeration applies.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.40 Enumeration ReportType

Used in CastVoteRecordReport::ReportType to indicate the type of the CVR report.

Figure 49 - Enumeration ReportType

Value	Value Description
adjudicated	To indicate that the report contains adjudications.
aggregated	To indicate that the report is an aggregation of device reports.
originating-device-export	To indicate that the report is an export from a device such as a scanner.
rcv-round	To indicate that the report is the result of a ranked choice voting round.
other	Used in conjunction with CastVoteRecordReport::OtherReportType when no other value in this enumeration applies.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

4.41 Enumeration VoteVariation

Used in Contest::VoteVariation to indicate the vote variation (vote method) used to tabulate the contest.

Figure 50 - Enumeration VoteVariation

Value	Value Description
approval	To indicate approval voting.
borda	To indicate the borda count method.
cumulative	To indicate cumulative voting.
majority	To indicate majority voting.
n-of-m	To indicate the N of M voting method.
plurality	To indicate plurality voting.
proportional	To indicate proportional voting.
range	To indicate range voting.
rcv	To indicate Ranked Choice Voting (RCV).
super-majority	To indicate the super majority voting method.
other	Used in conjunction with Contest::OtherVoteVariation when no other value in this enumeration applies.

COMPLAINT_0134

66-CV-22-2022

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SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

5   Usage Examples

This section contains examples showing how to use this specification in various voting scenarios. The examples refer to several XML files whose locations can be found in Appendix D. Some of the sections use examples from Section 3 but show them in XML.

5.1   Anatomy of a CVR

This section refers to the file for Example 1.

The CVR specification allows for a wide range of data to be stored in a CVR, ranging from minimal information about the selected contests and contest options to expanded information about all contests on the ballot as well as other items. This section explains the construction of a minimal cast vote record containing only the contests and candidates that were selected by the voter. It contains two CVRs, each indicating a selection for a candidate in a contest. Each CVR also references an image of the corresponding scanned ballot.

A 1500-103 instance (in XML or JSON) may contain one or more CVRs, which in turn must contain one or more CVRSnapshots, each representing a CVR at a specific point in time. The file is divided roughly into two parts: the CVR elements at the beginning followed by other elements for defining the election and its contests, candidates, and contest selections so that the CVR elements can link to them as necessary. Lines 205 to 244 describe an election containing the contest, candidate, and contest selection definitions.

The CVR elements link to these items by using identifiers defined in the contest, candidate, and contest selection's ObjectId attributes. For example, the contest definition starting on line 228 contains:

```
<Contest ObjectId="_C1" xsi:type="CandidateContest">
```

so that CVR elements can link to this contest definition by using _C1:

```
<ContestId>_C1</ContestId>
```

Importantly, *the object identifiers are not the same as the codes that a jurisdiction may use to identify contests or candidates. The object identifiers are entirely unique to a CVR report; the exporting application must add them as it builds the report file. These identifiers are used only as a means for linking contest, contest selections, etc., together within the report file.*

Lines 3 to 204 contain the CVR elements. Each CVR element includes at least one CVRSnapshot. Each CVRSnapshot represents a particular type, such as the original captured from a scanner, or after it has been interpreted (i.e., business rules have been applied), or otherwise modified. The CVRSnapshot element includes one or more CVRContest elements, which link to the voted contest whose object identifier is _C1, thereby identifying that contest within the report file. It then includes CVRContestSelection, which links to a contest option that was selected by the

66

COMPLAINT_0135

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

voter. Each `CVR` element also includes an optional sequence number (`SequenceNumber`); this isn't required but could be helpful to auditors.

5.2   Basic Example

This section refers to the file for Example 2.

Consider the following contest:

| For Treasurer of State |
| ☑ *Connie Pillich* |
| ☐ *Josh Mandel* |

Figure 51 - Treasurer Contest

which can be represented with the following XML fragment:

```
<cdf:CVRContest>
    <cdf:ContestId>_5TS</cdf:ContestId>
    <cdf:CVRContestSelection>
        <cdf:ContestSelectionId>_1ECP</cdf:ContestSelectionId>
        <cdf:Position>1</cdf:Position>
        <cdf:SelectionPosition>
            <cdf:HasIndication>yes</cdf:HasIndication>
            <cdf:IsAllocable>yes</cdf:IsAllocable>
            <cdf:NumberVotes>1</cdf:NumberVotes>
        </cdf:SelectionPosition>
        <cdf:TotalNumberVotes>1</cdf:TotalNumberVotes>
    </cdf:CVRContestSelection>
    <cdf:Position>1</cdf:Position>
    <cdf:TotalNumberVotes>1</cdf:TotalNumberVotes>
    ...
</cdf:CVRContest>
```

The `ContestSelectionId` value of `_1ECP` represents the reference to the selected contest option:

```
<cdf:Candidate ObjectId="_1ECP">
    ...
    <cdf:Name>Connie Pillich</cdf:Name>
    ...
</cdf:Candidate>
```

67

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

By dereferencing _5TS, we can see this does indeed represent a contest selection of Connie Pillich for Treasurer of State:

```
<cdf:Contest xsi:type="cdf:CandidateContest" ObjectId="_5TS">
    ...
    <cdf:Name>For Treasurer of State</cdf:Name>
    <cdf:VoteVariation>n-of-m</cdf:VoteVariation>
    <cdf:VotesAllowed>1</cdf:VotesAllowed>
</cdf:Contest>
```

5.3   SelectionPosition

Section 3.4 discussed SelectionPosition in detail; this section contains additional information about usage and examples.

5.3.1   Position and Rank in SelectionPosition

It is important to know, when tabulating a CVR, the position on the ballot corresponding to the selection indication. There may be effectively only one position for those contest options in which one selection at most is possible, such as for a single candidate. However, consider the following contest in which three candidates are to be ranked for a county council position:

Member of County Council at Large

Contest Option	1st	2nd	3rd
Ileen Shapiro	[x]	[ ]	[ ]
Debbie Walsh	[ ]	[ ]	[x]
Sandra Kurt	[ ]	[x]	[ ]

Figure 52 - Importance of Position and Rank

Each contest option has three possible choices and each possible position indicates a ranking. The selection of Sandra Kurt's contest option corresponds to the following XML fragment:

```
<cdf:CVRContestSelection>
    <cdf:ContestSelectionId>_1HSK</cdf:ContestSelectionId>
    <cdf:OptionPosition>3</cdf:Position>
    <cdf:SelectionPosition>
        <cdf:HasIndication>yes</cdf:HasIndication>
        <cdf:IsAllocable>yes</cdf:IsAllocable>
        <cdf:NumberVotes>1</cdf:NumberVotes>
        <cdf:Position>2</cdf:Position>
    </cdf:SelectionPosition>
    <cdf:TotalNumberVotes>1</cdf:TotalNumberVotes>
</cdf:CVRContestSelection>
```

68

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

From the above, Kurt's (_1HSK) position on the ballot is third and she was ranked second. This is represented by setting CVRContestSelection.SelectionPosition to 3 and SelectionPosition.OptionPosition to 2. Depending on how the contest options are structured, SelectionPosition.Rank could be used instead, e.g., for RCV contests.

5.3.2 Voter Made Marks (Paper Only)

A mark (made by a voter) may be associated with one or more MarkMetricValues, which is an implementation dependent measure of a mark.

When a metric is used, its type (MarkMetricType) must be first specified by the ReportingDevice playing the role of the CVR's CreatingDevice.

```
<cdf:ReportingDevice ObjectId="rd">
    <cdf:MarkMetricType>AJAX</cdf:MarkMetricType>
</cdf:ReportingDevice>
```

Thus, the MarkMetricType used is expected to be the same for all marks originating from the same CreatingDevice. From the above example, we can see that the mark has a quality measurement of type AJAX (a fictional quality measurement).

The IsGenerated boolean can be used to indicate whether the indication is the result of a mark on the ballot or whether it was generated by the application of contest rules or through adjudication. However, setting it to false does not confirm that an indication meets scanner-determined thresholds for mark quality, thus HasIndication is used. It can tell us if the mark met the threshold or logic of a MarkMetricType to be considered a selection indication for the contest option (machine interpretation), or if adjudication resulted in the capture of a selection (human interpretation).

The following table, repeated from Section 3, shows the mapping of mark types to HasIndication values:

Mark type	HasIndication
machine-readable mark	yes
marginally machine-readable mark	unknown
machine unreadable mark	no

Figure 53 - Mapping of Mark Types to HasIndication Values

69

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

5.3.3 Machine Generated Indications

If an indication was generated by machine, such as in the indirect selections of straight party voting, `IsGenerated` can be set to `true`. `HasIndication` will have, of course, a value of `yes`.

```
<cdf:SelectionPosition>
    <cdf:HasIndication>yes</cdf:HasIndication>
    <cdf:IsAllocable>yes</cdf:IsAllocable>
    <cdf:IsGenerated>true</cdf:IsGenerated>
    <cdf:NumberVotes>1</cdf:NumberVotes>
    <cdf:Status>generated-rules</cdf:Status>
</cdf:SelectionPosition>
```

5.4 Handling Overvotes

This section only applies to paper ballots.

Consider again the treasurer contest, this time overvoted:

Figure 54 - Overvoted Contest

This can be represented with the XML below:

```
<cdf:CVRContest>
    <cdf:ContestId>_5TS</cdf:ContestId>
    <cdf:CVRContestSelection>
        <cdf:ContestSelectionId>_1ECP</cdf:ContestSelectionId>
        <cdf:OptionPosition>1</cdf:OptionPosition>
        <cdf:SelectionPosition>
            <cdf:HasIndication>yes</cdf:HasIndication>
            <cdf:IsAllocable>no</cdf:IsAllocable>
            <cdf:NumberVotes>1</cdf:NumberVotes>
        </cdf:SelectionPosition>
        <cdf:TotalNumberVotes>0</cdf:TotalNumberVotes>
    </cdf:CVRContestSelection>
    <cdf:CVRContestSelection>
        <cdf:ContestSelectionId>_1EJM</cdf:ContestSelectionId>
        <cdf:OptionPosition>2</cdf:OptionPosition>
        <cdf:SelectionPosition>
            <cdf:HasIndication>yes</cdf:HasIndication>
```

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

```
            <cdf:IsAllocable>no</cdf:IsAllocable>
            <cdf:NumberVotes>1</cdf:NumberVotes>
        </cdf:SelectionPosition>
        <cdf:TotalNumberVotes>0</cdf:TotalNumberVotes>
    </cdf:CVRContestSelection>
    <cdf:Overvotes>1</cdf:Overvotes>
    <cdf:Undervotes>0</cdf:Undervotes>
</cdf:CVRContest>
```

Note that the indications are still accounted for, even though the votes will not be allocated to the contest option accumulators for Connie Pillich nor John Mandel, but instead to the overvote accumulator.

Where adjudication is warrented, `IsAllocable` *should be set to* unknown.

5.5   Write-Ins

Consider the following plurality contest in which one vote can be allocated across the 4 possible choices:

For Governor

☐ Edward FitzGerald
☐ John Kasich
☐ Anita Rios
☑ Write-In (John Smith)

Figure 55 - Write-In Selection

The write-in box was selected, and "John Smith" is the candidate name. This can be represented with the following XML fragment:

```
<cdf:CVRContest>
    <cdf:ContestId>_1GO</cdf:ContestId>
    <cdf:CVRContestSelection>
        <cdf:OptionPosition>4</cdf:OptionPosition>
        <cdf:SelectionPosition>
            <cdf:CVRWriteIn>
                <cdf:Text>John Smith</cdf:Text>
            </cdf:CVRWriteIn>
            <cdf:HasIndication>yes</cdf:HasIndication>
            <cdf:IsAllocable>unknown</cdf:IsAllocable>
            <cdf:NumberVotes>1</cdf:NumberVotes>
        </cdf:SelectionPosition>
```

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

```
        <cdf:Status>needs-adjudication</cdf:Status>
    </cdf:CVRContestSelection>
</cdf:CVRContest>
```

Note that this fragment is the original CVR from the `CreatingDevice` and thus we do not yet know the validity of the write-in (it has not yet been adjudicated). Still we can say some things about it:

- The text of the write-in is John Smith, represented using the `Text` element.
- `SelectionPosition` represents both the selection of the write-in contest option and the write-in itself. Therefore, it is not possible for one to be valid but the other not.

If John Smith is determined to be a valid write-in, then the following may occur:

- `IsAllocable` is set to yes
- `CVRContestSelection` is linked to the `ContestSelection` associated with the candidate.

Some systems may not be capable of tabulating votes for the candidate underlying a write-in.

5.5.1 Write-In Counter

If desired, the `CVRContest` may contain the number of write-ins, i.e., the number of write-in contest options selected. This includes options that were selected, but no candidate was specified (e.g., a filled oval with an empty line).

5.5.2 Adjudication of Write-Ins

Adjudication can accomplish two things:

1. Determine if the name represents a valid write-in option, i.e., does the write-in text represent a valid write-in option?
2. Determine if the contest selection should be allocated.

(2) is different from (1), in that if it is determined that the write-in text represents a valid write-in option, it could still be overwritten by interpretation of voter intent.

5.6 CVR Snapshots

A CVR can be used throughout various points in the election lifecycle:

- Capture of contest selections
- Interpretation of contest selections

72

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

- Adjudication of contest selections
- Other operations

If a downstream system needs to modify the CVR, e.g., to add a `CVRContestSelection` as the result of adjudication, a new `CVRSnapshot` should be created.

Consider the following XML fragment:

```
<cdf:CVRSnapshot ObjectId="css-02">
      <cdf:CVRContest>
            <cdf:ContestId>_6RC</cdf:ContestId>
            <cdf:CVRContestSelection>
                  <cdf:ContestSelectionId>_1FMZ</cdf:ContestSelectionId>
                  <cdf:OptionPosition>1</cdf:OptionPosition>
                  <cdf:SelectionPosition>
                        <cdf:HasIndication>yes</cdf:HasIndication>
                        <cdf:IsAllocable>unknown</cdf:IsAllocable>
                        <cdf:MarkMetricValue>76</cdf:MarkMetricValue>
                        <cdf:NumberVotes>1</cdf:NumberVotes>
                  </cdf:SelectionPosition>
            </cdf:CVRContestSelection>
      </cdf:CVRContest>
      <cdf:Status>needs-adjudication</cdf:Status>
      <cdf:Type>original</cdf:Type>
</cdf:CVRSnapshot>
```

This represents a CVR having a single marked contest, in which the indication is unknown (e.g., the mark is marginal). The `Status` of the `CVRSnapshot` is `needs-adjudication` so as to flag a downstream system or process.

Say that an adjudicator determines the mark is a result of the voter resting their pen on the contest option position, and not voter intent to make a selection for Mark Zetzer. Thus, `HasIndication` is set to no, and a new `CVRSnapshot` is created recording this action:

```
   ...
   <cdf:CVRSnapshot ObjectId="css-03">
      <cdf:Annotation>
         <cdf:AdjudicatorName>Mark Kennamond</cdf:AdjudicatorName>
         <cdf:Message>Resting Mark, Mark Zetzer</cdf:Message>
         <cdf:TimeStamp>2018-05-16T12:10:09</cdf:TimeStamp>
      </cdf:Annotation>
      <cdf:CVRContest>
         <cdf:ContestId>_6RC</cdf:ContestId>
         <cdf:CVRContestSelection>
            <cdf:ContestSelectionId>_1FMZ</cdf:ContestSelectionId>
            <cdf:Position>1</cdf:Position>
            <cdf:SelectionPosition>
               <cdf:HasIndication>no</cdf:HasIndication>
               <cdf:Mark>
```

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

```
                    <cdf:MarkMetricValue>76</cdf:MarkMetricValue>
            </cdf:Mark>
                <cdf:NumberVotes>1</cdf:NumberVotes>
            </cdf:SelectionPosition>
            <cdf:TotalNumberVotes>0</cdf:TotalNumberVotes>
        </cdf:CVRContestSelection>
    </cdf:CVRContest>
    <cdf:Type>interpreted</cdf:Type>
</cdf:CVRSnapshot>
```

Information about the adjudication is conveyed via the `Annotation` element. We can see the name of the adjudicator and the description of the changes to the CVR. There can be as many `Annotation` elements as required to describe the changes made to the CVR.

Each `CVRSnapshot` should represent a set of changes to a CVR during a phase of processing. It is not necessary to create a separate `CVRSnapshot` for every adjudication change, however; this is left to the developer.

5.6.1 Current CVR

If a system is looking to tabulate a set of CVRs, it must know for each CVR, which `CVRSnapshot` is the currently tabulatable record. This is achieved by using a `CurrentSnapshot` reference from `CVR` to the relevant `CVRSnapshot`.

5.7 Ballot Images

If a scanner is capable of capturing raster ballot images, then that data can be stored alongside the structured CVR. Ballot images can either be referenced from the CVR as a `URI`, or stored within it, as base64 encoded binary.

5.7.1 Storing the Image as a Reference

```
<BallotImage>
    <Location>http://192.168.1.1/imageserver/ballot1056.jpeg</Location>
</BallotImage>
```

5.7.2 Storing the Image Data

```
<BallotImage>
    <Image FileName="CVR1_Ballot.jpg"
    MimeType="image/jpeg">Q1ZSIEltYWdl</Image>
</BallotImage>
```

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

5.8 Voting Method Support

This specifications supports all major voting methods currently in use in the United States (plurality, cumulative, N of M, range, RCV). The following two examples deal with RCV and cumulative.

5.8.1 Rank Choice Voting

Consider the following RCV contest in which candidates are to be ranked from 1 to 3:

Member of County Council at Large

Contest Option	1st	2nd	3rd
Ileen Shapiro	[ ]	[x]	[ ]
Debbie Walsh	[x]	[ ]	[ ]
Sandra Kurt	[ ]	[ ]	[x]

Figure 56 - RCV Example

This can be represented with the following XML fragment:

```
<cdf:CVRContest>
    <cdf:ContestId>_9CC</cdf:ContestId>
    <cdf:CVRContestSelection>
        <cdf:ContestSelectionId>_1HIS</cdf:ContestSelectionId>
        <cdf:OptionPosition>1</cdf:OptionPosition>
        <cdf:SelectionPosition>
            <cdf:HasIndication>yes</cdf:HasIndication>
            <cdf:IsAllocable>yes</cdf:IsAllocable>
            <cdf:NumberVotes>1</cdf:NumberVotes>
            <cdf:Rank>2</cdf:Rank>
        </cdf:SelectionPosition>
        <cdf:TotalNumberVotes>1</cdf:TotalNumberVotes>
    </cdf:CVRContestSelection>
    <cdf:CVRContestSelection>
        <cdf:ContestSelectionId>_1HDW</cdf:ContestSelectionId>
        <cdf:OptionPosition>2</cdf:OptionPosition>
        <cdf:SelectionPosition>
            <cdf:HasIndication>yes</cdf:HasIndication>
            <cdf:IsAllocable>yes</cdf:IsAllocable>
            <cdf:NumberVotes>1</cdf:NumberVotes>
            <cdf:Rank>1</cdf:Rank>
        </cdf:SelectionPosition>
        <cdf:TotalNumberVotes>1</cdf:TotalNumberVotes>
    </cdf:CVRContestSelection>
    <cdf:CVRContestSelection>
```

```
        <cdf:ContestSelectionId>_1HSK</cdf:ContestSelectionId>
        <cdf:OptionPosition>3</cdf:OptionPosition>
        <cdf:SelectionPosition>
            <cdf:HasIndication>yes</cdf:HasIndication>
            <cdf:IsAllocable>yes</cdf:IsAllocable>
            <cdf:NumberVotes>1</cdf:NumberVotes>
            <cdf:Rank>3</cdf:Rank>
        </cdf:SelectionPosition>
        <cdf:TotalNumberVotes>1</cdf:TotalNumberVotes>
    </cdf:CVRContestSelection>
    <cdf:Undervotes>0</cdf:Undervotes>
</cdf:CVRContest>
```

Each candidate may be ranked using the Rank attribute. The rank may or may not be the same as the `Position`.

5.8.2   Cumulative Voting

Consider the following cumulative contest in which up to 3 votes can be allocated among the candidates:

Member of County Council at Large

Contest Option	1st	2nd	3rd
Ileen Shapiro	[ ]	[x]	[ ]
Debbie Walsh	[x]	[ ]	[x]
Sandra Kurt	[ ]	[ ]	[ ]

Figure 57 - Cumulative Voting Example

In this example, Ileen Shapiro has 1 vote and Debbie Walsh has 2. Assuming the ballot was hand marked, the following CVR fragment could be constructed:

```
<cdf:CVRContest>
    <cdf:ContestId>_9CC</cdf:ContestId>
    <cdf:CVRContestSelection>
        <cdf:ContestSelectionId>_1HIS</cdf:ContestSelectionId>
        <cdf:OptionPosition>1</cdf:OptionPosition>
        <cdf:SelectionPosition>
            <cdf:HasIndication>yes</cdf:HasIndication>
            <cdf:IsAllocable>yes</cdf:IsAllocable>
            <cdf:NumberVotes>1</cdf:NumberVotes>
            <cdf:Position>2</cdf:Position>
        </cdf:SelectionPosition>
        <cdf:TotalNumberVotes>1</cdf:TotalNumberVotes>
    </cdf:CVRContestSelection>
    <cdf:CVRContestSelection>
```

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

```
        <cdf:ContestSelectionId>_1HDW</cdf:ContestSelectionId>
        <cdf:OptionPosition>2</cdf:OptionPosition>
        <cdf:SelectionPosition>
            <cdf:HasIndication>yes</cdf:HasIndication>
            <cdf:IsAllocable>yes</cdf:IsAllocable>
            <cdf:NumberVotes>1</cdf:NumberVotes>
            <cdf:Position>1</cdf:Position>
        </cdf:SelectionPosition>
        <cdf:SelectionPosition>
            <cdf:HasIndication>yes</cdf:HasIndication>
            <cdf:IsAllocable>yes</cdf:IsAllocable>
            <cdf:NumberVotes>1</cdf:NumberVotes>
            <cdf:Position>3</cdf:Position>
        </cdf:SelectionPosition>
        <cdf:TotalNumberVotes>2</cdf:TotalNumberVotes>
    </cdf:CVRContestSelection>
    <cdf:Undervotes>1</cdf:Undervotes>
</cdf:CVRContest>
```

Because the ballot was handmarked and Debbie Walsh received two votes, she has two `SelectionIndications`. If the same vote was cast on a ballot marking device, the CVR could be simplified somewhat:

```
<cdf:CVRContest>
    <cdf:ContestId>_9CC</cdf:ContestId>
    <cdf:CVRContestSelection>
        <cdf:ContestSelectionId>_1HIS</cdf:ContestSelectionId>
        <cdf:OptionPosition>1</cdf:OptionPosition>
        <cdf:SelectionPosition>
            <cdf:HasIndication>yes</cdf:HasIndication>
            <cdf:IsAllocable>yes</cdf:IsAllocable>
            <cdf:NumberVotes>1</cdf:NumberVotes>
        </cdf:SelectionPosition>
        <cdf:TotalNumberVotes>1</cdf:TotalNumberVotes>
    </cdf:CVRContestSelection>
    <cdf:CVRContestSelection>
        <cdf:ContestSelectionId>_1HDW</cdf:ContestSelectionId>
        <cdf:OptionPosition>2</cdf:OptionPosition>
        <cdf:SelectionPosition>
            <cdf:HasIndication>yes</cdf:HasIndication>
            <cdf:IsAllocable>yes</cdf:IsAllocable>
            <cdf:NumberVotes>2</cdf:NumberVotes>
        </cdf:SelectionPosition>
        <cdf:TotalNumberVotes>2</cdf:TotalNumberVotes>
    </cdf:CVRContestSelection>
    <cdf:Undervotes>0</cdf:Undervotes>
</cdf:CVRContest>
```

The representation of the indication for Ilene Shapiro is unchanged, but Debbie Walsh's votes have been consolidated into a single `SelectionIndication`, with a `NumberVotes` of 2.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Appendix A—Acronyms

Selected acronyms and abbreviations used in this document are defined below.

BMD	Ballot Marking Device
CDF	Common Data Format
CVR	Cast Vote Record
DRE	Direct Record Electronic
EMS	Election Management System
ID	Identifer
JSON	JavaScript Object Notation
RCV	Ranked Choice Voting
UML	Unified Modeling Language
URI	Uniform Resource Identifier
XML	eXtensible Markup Language

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Appendix B—Glossary

Selected terms used throughout this document are defined below. In some of the definitions, there is ancillary information that is not part of the definition but helpful in understanding the definition; this ancillary information is preceded with "*Note:*".

Adjudication:
Process of resolving flagged cast ballots to reflect voter intent. Common reasons for flagging include:
- write-ins,
- overvotes,
- marginal marks,
- having no contest selections marked on the entire ballot, or
- the ballot being unreadable by a scanner.

Batch:
As used in auditing elections, a collection of paper ballots gathered as a group for tabulation or for auditing.

Batch fed scanner:
A ballot processing device that:
- accepts stacks of hand-marked or BMD-produced paper ballots and automatically processes them until the stack is empty,
- is usually used at an election jurisdiction's central location,
- is mostly commonly used to process absentee or mail ballots,
- usually has input and output hoppers for ballots,
- scans a ballot and rejects it if either unreadable or un-processable,
- detects, interprets, and validates contest selections,
- detects and sorts (either digitally or physically) ballots that are unreadable or un-processable, or that contain undeterminable selections, marking exceptions, or write-ins, and
- tabulates and reports contest results as required.

This unit was previously referred to as central count optical scanner or CCOS.

Ballot marking device (BMD):
A device that:
- permits contest options to be reviewed on an electronic interface,
- produces a human-readable paper ballot, and
- does not make any other lasting record of the voter's selections.

80

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Cumulative voting:	A voting method used in multi-seat contests where a voter is permitted to distributed allowed selections to 1 or more candidates in whole vote increments. See also proportional voting.
DRE:	A vote-capture device that allows: • electronic presentation of a ballot, • electronic selection of valid contest options, and • electronic storage of contest selections as individual records. It also provides a summary of these contest selections.
Election management system (EMS):	Set of processing functions and databases within a voting system typically used to: • define, develop, and maintain election databases, • perform election definition and ballot layout functions, • create ballot presentation templates for ballot printers or devices used by voters for ballot markup, • count votes, • consolidate and report results and maintain audit trails.
Hash function:	A data processing function, usually using a specified NIST approved cryptographic rule, to produce a fixed-length bit string from a set of data that is variable in both content and length and unique to that specific data. The resultant "hash value" cannot be used to reproduce the original data that it was derived from. It is used as a digital signature to confirm that the data being evaluated is identical to another set of data with the same hash value.
N-of-M voting:	Voting variation in which the voter is entitled to allocate a fixed number of votes (N) over a list of M contest options or write-in options, with the constraint that at most 1 vote may be allocated to a given contest option. This usually occurs when multiple seats are concurrently being filled in a governing body such as a city council or school board where candidates run at-large. The voter is not obliged to allocate all N votes. 1-of-M is N-of-M where N = 1.
Overvote:	Occurs when the number of selections made by the voter in a contest is more than the maximum number allowed in a contest.
Range voting:	A voting method for single-seat elections, in which voters give each candidate a score, the scores are added (or averaged), and the candidate with the highest total is elected.
Ranked Coice Voting (RCV):	A set of election methods which allow each voter to rank contest options in order of the voter's preference, in which votes are counted in rounds using a series of runoff tabulations to defeat contest options with the fewest votes, and which elects a winner with a

81

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

majority of final round votes in a single-winner contest and provides proportional representation in multi-winner contests.

Schema:
A file containing definitions of data elements and attributes with rules for usage, e.g., for JSON or XML.

Straight party override:
Explicit voter selection that overrides or supplements the vote selections made by a straight party voting option. Straight party overrides may be subject to state election rules for how they work or whether they are allowed.

Tabulator:
A device that counts votes.

Undervote:
Occurs when the number of voter selections in a contest is less than the maximum number allowed for that contest or when no selection is made. The number of undervotes is equal to the number of votes lost, e.g., if no selection is made in a single option contest, the number of votes lost is 1.

Voter facing scanner:
A ballot processing device that:
- accepts hand-marked or BMD-produced paper ballots one sheet at a time;
- is usually used for in-person voting;
- permits election workers to open and close the polls; scans a ballot and rejects it if either unreadable or un-processable; detects, interprets and validates contest selections; notifies the voter of voting exceptions (such as undervotes or overvotes) or unreadable marks; stores accepted ballots in a secure container; sorts or otherwise marks ballots or ballot images that need subsequent human review; and tabulates and reports contest results after polls are closed.

This unit was previously referred to as precinct count optical scanner or PCOS.

Voting method:
Voting style such as in-person voting, absentee voting, straight party voting, N-of-M voting, cumulative voting, or ranked choice voting.

Write-in option:
A type of contest option that allows a voter to specify a candidate, usually not already listed as a contest option. Depending on jurisdiction rules, in some cases only previously approved names will be considered as valid write-in contest selections.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Appendix C—References

[1]   Object Management Group (OMG), *UML Specification version 1.1* (OMG document ad/97-08-11) September 22, 2011, http://omg.org/ [accessed 02/01/2019].

[2]   W3C, *Extensible Markup Language (XML) 1.0 (Fifth Edition)*, W3C Recommendation, November 26, 2008, http://www.w3.org/TR/xml/ [accessed 02/01/2019].

[3]   JavaScript Object Notation, http://www.ecma-international.org/publications/files/ECMA-ST/ECMA-404.pdf [accessed 02/01/2019].

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Appendix D—File Download Locations

The files associated with this specification are available for download from a NIST repository, whose address is:

https://github.com/usnistgov/CastVoteRecords

These files are also available from:

http://vote.nist.gov

The files include:

- This specification,
- UML model,
- XML and JSON schemas, and
- Example files.

SP 1500-103, Version 1.0
NIST Cast Vote Records CDF Specification

Appendix E—Change Log

Version 1 Release 2 – March 31, 2020

- In the UML documentation, corrected the order of UML class attributes and enumeration values in the tables so that they match the order in the UML model and in the JSON and XML schemas.
- In the UML documentation, mentions of class and attribute names are properly linked to each other. Also done for mentions of enumeration and value names.

EXHIBIT J

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April 5, 2022

Kathleen Hagen
10120 Gonvick Avenue
Lonsdale, MN 55046

RE: Data Practices Request – Cast Vote Record

Dear Ms. Hagen:

You recently contacted the Rice County Attorney's Office via email dated 04/03/2022 and requested a copy of the "Cast Vote Records" for all electronic equipment used in the 2020 general election. You attach to your email a copy of NIST Special Publication 1500-103, describing minimum standard guidelines for cast vote record common data format specification. You also attach a copy of your 01/11/2022 letter, in which you previously asked for:

> ...all public records including, but not limited to those pertaining to the Cast Vote Record (CVR) from all electronic equipment used in the 2020 general election. I am requesting the full CVR report for the November 2020 election in Rice County.

As you have previously been informed, Minnesota Law does not define the term Cast Vote Record. Nor does any of the voting equipment used by Rice County produce a report known as a Cast Vote Record or a "full CVR report."

In order to more comprehensively respond to your inquiry, Rice County contacted Election Systems & Software (ES&S), the company which manufactures the election equipment used by Rice County during the 2020 general election. ES&S indicated that the software that would be able to produce a Cast Vote Record and a "full CVR report" is a version of Electionware Software that was not used by Rice County in the 2020 general election.

Accordingly, Rice County does not maintain, nor has it ever possessed, any data pertaining to a Cast Vote Record or a full CVR report for the 2020 general election.

Exhibit J

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www.co.rice.mn.us

You also asked for the appeal procedures available to you under the law. Please be advised that Minnesota Statutes, Chapter 13 includes various provisions for additional review of data practices questions.

Sincerely,

Sean R. McCarthy
Assistant Rice County Attorney

c: Denise Anderson, Property Tax & Elections Department