

To: David Scanlan, Secretary of State
Ballot Law Commission
From: VotingWorks Ballot Counting Device Audit Team
Date: Tuesday, January 3, 2023
RE: **VotingWorks Ballot Counting Device Hand-Count Audit**

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VotingWorks Hand-Count Audit Report

The Ballot Law Commission is vested with the authority to certify electronic ballot counting devices for use in New Hampshire elections and, as such, is considering new ballot counting devices for certification. At present, only the AccuVote device is certified for New Hampshire elections. The Secretary of State proposed a process to the Ballot Law Commission for the limited testing of the VotingWorks device in an actual election. Included in that process was a request to audit the results after the election. An August 2022 order from the Ballot Law Commission approved the Secretary’s proposed process for the November 2022 General Election.

Based on the Ballot Law Commission’s August 2022 Order, the towns of Newington, Ashland, and Woodstock volunteered to pilot the VotingWorks ballot counting device in the General Election, which took place on Tuesday, November 8th, 2022. On Wednesday, November 9th, 2022 and Thursday, December 15th, 2022, a team of representatives from the Secretary of State’s office (“Audit Team”) conducted a hand-count audit of the VotingWorks device, pursuant to the same order.

The audit was conducted exclusively with those ballots which were counted by the device prior to write-in adjudication. Therefore, the results of the audit were compared only to the Polls Closed Report, not the Return of Votes which includes write-ins and hand-counted ballots. Additionally, all ballots were adjudicated based on how the device would read the ballot, rather than deferring to voter intent, in order to accurately audit the VotingWorks device.

The Audit Team found that the audits of the VotingWorks ballot counting devices used in Ashland and Woodstock were successful, and results were within expected margins. The VotingWorks ballot counting device in Newington did not take place as the device was ultimately not used on Election Day for reasons fully articulated herein.

Woodstock

On Election Day, the town of Woodstock piloted the VotingWorks ballot counting device. The audit for Woodstock's device took place on Wednesday, November 9th, 2022, and showed that there was a one-ballot difference in the total number of ballots counted by the VotingWorks ballot counting device (626) versus the total number of ballots hand-counted by the Audit Team (625). The number of total ballots cast for individual candidates was similarly distributed. For example, the VotingWorks Polls Closed Report (Exhibit 1) counted 364 votes for Sununu in the race for governor, 2 votes for Halldorson, 2 votes for Borysenko, 251 votes for Sherman, 5 undervotes, 0 overvotes, and 2 write-in votes. The hand-count audit showed a singular difference: there was one less vote for Sununu, totaling 363 votes for that candidate. The differences are within the expected margins. A complete tally report of the hand-count audit is attached to this report as Exhibit 2.

During Election Day, poll officials encountered a jam in the VotingWorks ballot counting device. The paper jam proved difficult to remove, in part due to the location of the paper jam and in part due to the number of seals that needed to be broken – and subsequently reinstalled – on the ballot counting device. Though voters were unable to feed their ballot through the ballot counting device while poll officials worked to remove the jam, no voter was delayed as each voter had the option to feed their ballot into the auxiliary ballot bin to be hand-counted once polls closed to voters. The paper jam was ultimately cleared without further issue.

Ashland

Ashland also piloted the VotingWorks ballot counting device at the November 2022 General Election. The audit of Ashland's device took place on Thursday, December 15, 2022, and showed that the total number of ballots counted by the device on Election Night was identical to the total number of ballots counted by the Audit Team.

There were three races with discrepancies. For example, in the race for executive councilor, election night totals showed 473 votes for French, 436 for Warmington, 46 undervotes, and 2 write-ins. After the audit, there were 47 undervotes and 1 write-in. Similarly, in the race for sheriff, election night totals showed 468 votes for Tatham, 429 votes for Stiegler, 58 undervotes, and 2 write-ins. After the audit, there were 59 undervotes, and 1 write-in. In the race for County Commissioner, election night totals showed 483 votes for Ahern, 429 for Morris, 43 undervotes, and 2 write-ins, and after the audit, there were 481 votes for Ahern and 431 votes for Morris.

These differences are within the expected margins. The VotingWorks Polls Closed Report is attached to this report as Exhibit 3, and the hand-count audit tally sheet is attached as Exhibit 4.

Newington

Newington initially volunteered to pilot the VotingWorks device and intended to use the device throughout Election Day. The VotingWorks device was tested prior to Election Day and showed no issues. However, after polls opened to the public on the morning of the election, poll

workers noticed an unusual number of ballots rejected from the device as an overvote. It was initially unclear whether the ballots were truly overvoted or merely false positives at the time. In accordance with New Hampshire law, the supposedly overvoted ballots were placed in the auxiliary bin to be hand-counted at the end of the night.

Within the first hour, nine ballots in a row were rejected by the device as an overvote by the machine. One voter voluntarily showed their ballot to the moderator to verify there were no overvotes on the ballot, confirming poll officials' theory that the device was rejecting at least some ballots as overvoted where the voter had properly followed instructions. Though there were at least several properly rejected ballots, the vast majority of rejected ballots should have been accepted and counted by the device.

After consulting with the Secretary of State, it was determined that the AccuVote ballot counting device, which had been tested in accordance with New Hampshire law prior to the General Election in the event a backup ballot counting device was needed, would be used for the remainder of Election Day. The ballots in the VotingWorks ballot bin and auxiliary bin were fed into the AccuVote ballot counting device, and the rest of Election Day proceeded without issue.

An additional report, prepared by the representatives from VotingWorks, is attached as Exhibit 5. The report includes a full investigation into the source of the VotingWorks ballot counting device malfunction, with additional details as to how that type of malfunction can be prevented in the future. One recommendation is to ensure scanners are cleaned and calibrated both before and after testing, a process which includes feeding a blank piece of paper before and after the test to control for any possibility of scanner cleanliness degradation during the testing process.

Conclusion

Based on the foregoing, the Audit Team found that the audits of the VotingWorks ballot counting devices in Woodstock and Ashland were successful, and results were within the expected margins. Though the VotingWorks ballot counting device was not successful in Newington, the malfunction was ultimately due to a physical obstruction on the portion of the device that scans the ballots and was fixed by cleaning the sensor glass with a microfiber cloth.

Sincerely,

The Audit Team

Exhibit 1

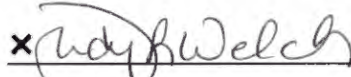
Official Polls Closed Report for Woodstock

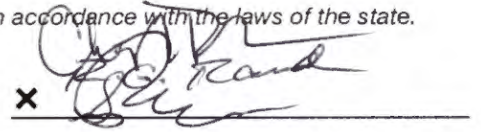
General Election: Tuesday, November 8, 2022, Woodstock, NH

Polls Closed: Nov 8, 2022, 7:22 PM Report Printed: Nov 8, 2022, 7:22 PM Scanner ID: SC-01-121

Certification Signatures: We, the undersigned, do hereby certify the election was conducted in accordance with the laws of the state.

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Governor

626 ballots cast / 0 overvotes / 5 undervotes

Chris Sununu	364
Kelly Halldorson	2
Karlyn Borysenko	2
Tom Sherman	251
Write-In	2

United States Senator

626 ballots cast / 0 overvotes / 10 undervotes

Donald C. Bolduc	254
Jeremy Kauffman	9
Maggie Hassan	353
Write-In	0

Representative in Congress

626 ballots cast / 0 overvotes / 6 undervotes

Robert Burns	254
Ann McLane Kuster	366
Write-In	0

Executive Councilor

626 ballots cast / 0 overvotes / 38 undervotes

Harold F. French	259
Cinde Warmington	327
Write-In	2

State Senator

626 ballots cast / 0 overvotes / 23 undervotes

Carrie L. Gendreau	278
Edith Tucker	325
Write-In	0

State Representative

626 ballots cast / 0 overvotes / 20 undervotes

Bonnie Ham	277
Jerry M. Stringham	328
Write-In	1

Sheriff

626 ballots cast / 0 overvotes / 34 undervotes

Steve Tatham	261
Jeffrey F. Stiegler	326
Write-In	5

County Attorney

626 ballots cast / 0 overvotes / 234 undervotes

Martha Ann Hornick	382
Write-In	10

County Treasurer

626 ballots cast / 0 overvotes / 46 undervotes

Brian Dear	266
Karen Liot Hill	312
Write-In	2

Register of Deeds

626 ballots cast / 0 overvotes / 41 undervotes

John H. Randlett	269
Kelley Jean Monahan	314
Write-In	2

Register of Probate

626 ballots cast / 0 overvotes / 50 undervotes

Paul Ingbertson	264
Chuck Townsend	310
Write-In	2

County Commissioner

626 ballots cast / 0 overvotes / 32 undervotes

Glenn Libby	277
Martha Stroup McLeod	314
Write-In	3

Constitutional Amendment Question #1

626 ballots cast / 0 overvotes / 107 undervotes

Yes	353
No	166

Constitutional Amendment Question #2

626 ballots cast / 0 overvotes / 112 undervotes

Yes	188
No	326

Exhibit 2

2022 WOODSTOCK AUDIT TALLY SHEET**Machine Counted Ballots Only**

GOVERNOR	C. Sununu	K. Halldorson	K. Borysenko	T. Sherman	Under votes	Over votes	Write-ins	Total Votes
Straight Ticket Ballots	177			208				
Mixed Party Ballots	186	2	2	43	5		2	
Totals Hand Count	363	2	2	251	5	0	2	625
Voting Works Mach. count	364	2	2	251	5		2	626

US SENATOR	D. Bolduc	J. Kauffman	M. Hassan		Under votes	Over votes	Write-ins	Total Votes
Straight Ticket Ballots	177		208					
Mixed Party Ballots	76	9	146		9			
Totals Hand Count	253	9	354		9	0	0	625
Voting Works Mach. count	254	9	353		10		0	626

REP IN CONGRESS	R. Burns	A. McLane Kuster			Under votes	Over votes	Write-ins	Total Votes
Straight Ticket Ballots	177	208						
Mixed Party Ballots	76	159			5			
Totals Hand Count	253	367			5	0	0	625
Voting Works Mach. count	254	366			6		0	626

EXEC. COUNCILOR	H French	C. Warmington			Under votes	Over votes	Write-ins	Total Votes
Straight Ticket Ballots	177	208						
Mixed Party Ballots	81	119			38		2	
Totals Hand Count	258	327			38	0	2	625
Voting Works Mach. count	259	327			38		2	626

STATE SENATE	C. Gendreau	E. Tucker			Under Votes	Over votes	Write-ins	Total Votes
Straight Ticket Ballots	177	208						
Mixed Party Ballots	100	118			22			
Totals Hand Count	277	326			22	0	0	625
Voting Works Mach. count	278	325			23		0	626

2022 WOODSTOCK AUDIT TALLY SHEET

Machine Counted Ballots Only

STATE REPRESENTATIVE	B Ham	J. Stringham			Under votes	Over votes	Write-ins	Total Votes
Straight Ticket Ballots	177	208						
Mixed Party Ballots	99	122			18		1	
Totals Hand Count	276	330			18	0	1	625
Voting Works Mach. count	277	328			20		1	626

SHERIFF	S. Tatham	J. Stiegler			Under votes	Over votes	Write-ins	Totals
Straight Ticket Ballots	218	270			20			
Mixed Party Ballots	43	55			14		5	
Totals	261	325			34	0	5	625
Voting Works Mach. count	261	326			34		5	626

COUNTY ATTORNEY		M. Hornick			Under votes	Over votes	Write-ins	Totals
Straight Ticket Ballots		313			195			
Mixed Party Ballots		69			39		9	
Totals Hand Count		382			234	0	9	625
Voting Works Mach. count		382			234		10	626

COUNTY TREASURER	B. Dear	K. Liot Hill			Under votes	Over votes	Write-ins	Totals
Straight Ticket Ballots	218	270			20			
Mixed Party Ballots	47	43			25			
Totals	265	313			45	0	2	625
Voting Works Mach. count	266	312			46		2	626

REG. OF DEEDS	J Randlett	K Monahan			Under votes	Over votes	Write-ins	Totals
Straight Ticket Ballots	218	270			20			
Mixed Party Ballots	47	43			25		2	
Totals Hand Count	265	313			45	0	2	625
Voting Works Mach. count	269	314			41		2	626

2022 WOODSTOCK AUDIT TALLY SHEET**Machine Counted Ballots Only**

REG. OF PROBATE	P. Ingbretson	C. Townsend			Under votes	Over votes	Write-ins	Totals
Straight Ticket Ballots	218	270			20			
Mixed Party Ballots	46	40			29		2	
Totals	264	310			49	0	2	625
Voting Works Mach. count	264	310			50		2	626

COUNTY COMMISSIONER	G. Libby	M. Stroup McLeod			Under votes	Over votes	Write-ins	Totals
Straight Ticket Ballots	218	270			20			
Mixed Party Ballots	58	44			12		3	
Totals Hand Count	276	314			32	0	3	625
Voting Works Mach. count	277	314			32		3	626

CONST. AMENDMENT	Yes	No			Under votes	Over votes		Totals
Straight Ticket Ballots	354	166			105			
Mixed Party Ballots								
Totals Hand Count	354	166			105	0		625
Voting Works Mach. count	353	166			107			626

QUES. ON CONVENTION	Yes	No			Under votes	Over votes		Totals
Straight Ticket Ballots	188	326			111			
Mixed Party Ballots								
Totals Hand Count	188	326			111	0		625
Voting Works Mach. count	188	326			112			626

Exhibit 3

Official Polls Closed Report for Ashland

General Election: Tuesday, November 8, 2022, Ashland, NH

Polls Closed: Nov 8, 2022, 7:02 PM Report Printed: Nov 8, 2022, 7:03 PM Scanner ID: SC-01-113

Certification Signatures: We, the undersigned, do hereby certify the election was conducted in accordance with the laws of the state.

x Patma Iuen

x

x

Governor

957 ballots cast / 0 overvotes / 5 undervotes

Chris Sununu	564
Kelly Halldorson	11
Karlyn Borysenko	3
Tom Sherman	372
Write-In	2

State Representatives (3 seats)

957 ballots cast / 0 overvotes / 442 undervotes

Kendall B. Hughes	483
George Kirk	329
Mike McLaughlin	357
Bill Bolton	403
Sallie Fellows	429
Peter Lovett	423
Write-In	5

Register of Probate

957 ballots cast / 0 overvotes / 72 undervotes

Paul Ingbretson	441
Chuck Townsend	442
Write-In	2

United States Senator

957 ballots cast / 0 overvotes / 5 undervotes

Donald C. Bolduc	430
Jeremy Kauffman	15
Maggie Hassan	504
Write-In	3

Sheriff

957 ballots cast / 0 overvotes / 58 undervotes

Steve Tatham	468
Jeffrey F. Stiegler	429
Write-In	2

County Commissioner

957 ballots cast / 0 overvotes / 43 undervotes

Omer C. Ahern, Jr.	483
Marcia Morris	429
Write-In	2

Representative in Congress

957 ballots cast / 0 overvotes / 13 undervotes

Robert Burns	427
Ann McLane Kuster	515
Write-In	2

County Attorney

957 ballots cast / 0 overvotes / 416 undervotes

Martha Ann Hornick	532
Write-In	9

Constitutional Amendment

Question #1

957 ballots cast / 0 overvotes / 132 undervotes

Yes	547
No	278

Executive Councilor

957 ballots cast / 0 overvotes / 46 undervotes

Harold F. French	473
Cinde Warrington	436
Write-In	2

County Treasurer

957 ballots cast / 0 overvotes / 70 undervotes

Brian Dear	450
Karen Liot Hill	435
Write-In	2

Constitutional Amendment

Question #2

957 ballots cast / 0 overvotes / 126 undervotes

Yes	301
No	530

State Senator

957 ballots cast / 0 overvotes / 41 undervotes

Timothy Lang	480
Kate Miller	435
Write-In	1

Register of Deeds

957 ballots cast / 0 overvotes / 52 undervotes

John H. Randlett	463
Kelley Jean Monahan	442
Write-In	0

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Paul J. Kelly

Ann-Maria Bernay

Beth Dwyer

Exhibit 4

2022 ASHLAND AUDIT TALLY SHEET
Machine Counted Ballots Only 12/15/22

GOVERNOR	Sununu	Halldorson	Borysenko	Sherman			Under votes	Over votes	Write-ins	Total Votes
Straight Ticket Ballots Team 1	191	0	0	1			0	0	0	192
Straight Ticket Ballots Team 2	56	0	0	103			0	0	0	159
Straight Ticket Ballots Team 3	1	3	1	197			1	0	0	203
Mixed Party Ballots Team 1	132	4	2	1			3	0	2	144
Mixed Party Ballots Team 2	101	4	0	35			1	0	0	141
Mixed Party Ballots Team 3	83			35			0	0	0	118
Totals Hand Count	564	11	3	372	0	0	5	0	2	957
Voting Works Mach. Count	564	11	3	372			5		2	957

US SENATOR	Bolduc	Kauffman	Hassan				Under votes	Over votes	Write-ins	Total Votes
Straight Ticket Ballots Team 1	191	0	1				0	0	0	192
Straight Ticket Ballots Team 2	56	0	103				0	0	0	159
Straight Ticket Ballots Team 3	1		197				0	0	0	198
Mixed Party Ballots Team 1	122	5	12				2	0	3	144
Mixed Party Ballots Team 2	44	6	89				2	0	0	141
Mixed Party Ballots Team 3	16	4	102				1	0	0	123
Totals Hand Count	430	15	504	0	0	0	5	0	3	957
Voting Works Mach. Count	430	15	504				5		3	957

REP IN CONGRESS	Burns	McLane Kuster					Under votes	Over Votes	Write-ins	Total Votes
Straight Ticket Ballots Team 1	191	1					0	0	0	192
Straight Ticket Ballots Team 2	56	103					0	0	0	159
Straight Ticket Ballots Team 3	1	197					0	0	0	198
Mixed Party Ballots Team 1	129	0					13	0	2	144
Mixed Party Ballots Team 2	50	91					0	0	0	141
Mixed Party Ballots Team 3		123					0	0	0	123
Totals Hand Count	427	515					13	0	2	957
Voting Works Mach. Count	427	515					13		2	957

2022 ASHLAND AUDIT TALLY SHEET

Machine Counted Ballots Only 12/15/22

EXEC. COUNCILOR	French	Warmington						Under votes	Over votes	Write-ins	Total Votes
Straight Ticket Ballots Team 1	191	1						0	0	0	192
Straight Ticket Ballots Team 2	56	103						0	0	0	159
Straight Ticket Ballots Team 3	1	197						0	0	0	198
Mixed Party Ballots Team 1	128	1						14	0	1	144
Mixed Party Ballots Team 2	59	57						25	0	0	141
Mixed Party Ballots Team 3	38	77						8	0	0	123
Totals Hand Count	473	436	0	0	0	0		47	0	1	957
Voting Works Mach. Count	473	436						46		2	957

STATE SENATE	Lang	Miller						Under Votes	Over votes	Write-ins	Total Votes
Straight Ticket Ballots Team 1	191	1						0	0	0	192
Straight Ticket Ballots Team 2	56	103						0	0	0	159
Straight Ticket Ballots Team 3	1	197						0	0	0	198
Mixed Party Ballots Team 1	129	2						12	0	1	144
Mixed Party Ballots Team 2	67	53						21	0	0	141
Mixed Party Ballots Team 3	36	79						8	0	0	123
Totals Hand Count	480	435	0	0	0	0		41	0	1	957
Voting Works Mach. Count	480	435						41		1	957

STATE REPRESENTATIVE	Hughes	Kirk	McLaughlin	Bolton	Fellows	Lovett		Under Votes	Over votes	Write-ins	Total Votes
Straight Ticket Ballots Team 1	191	191	191	1	1	1		0	0	0	576
Straight Ticket Ballots Team 2	56	56	56	103	103	103		0	0	0	477
Straight Ticket Ballots Team 3	1	1	1	197	197	197		0	0	0	594
Mixed Tally Sheet Team 1	108	43	49	4	4	4		216	0	4	432
Mixed Tally Sheet Team 2	74	21	34	44	53	57		140	0	0	423
Mixed Tally Sheet Team 3	53	17	26	54	71	61		86	0	1	369
Totals Hand Count	483	329	357	403	429	423		442	0	5	2871
Voting Works Mach. Count	483	329	357	403	429	423		442		5	2871

SHERIFF	Tatham	Stiegler						Under votes	Over votes	Write-ins	Totals
Straight Ticket Ballots Team 1	285	1						0	0	0	286
Straight Ticket Ballots Team 2	38	132						17	0	0	187
Straight Ticket Ballots Team 3	2	236						0	0	0	238

2022 ASHLAND AUDIT TALLY SHEET

Machine Counted Ballots Only 12/15/22

Mixed Party Ballots Team 1	22	6					22	0	0	50
Mixed Party Ballots Team 2	81	20					11	0	1	113
Mixed Party Ballots Team 3	40	34					9	0	0	83
Totals Hand Count	468	429	0	0	0	0	59	0	1	957
Voting Works Mach. Count	468	429					58		2	957
COUNTY ATTORNEY		Hornick					Under votes	Over Votes	Write-ins	Totals
Straight Ticket Ballots Team 1		1					285	0	0	286
Straight Ticket Ballots Team 2		132					55	0	0	187
Straight Ticket Ballots Team 3		236					2	0	0	238
Mixed Party Ballots Team 1		0					50	0	0	50
Mixed Party Ballots Team 2		80					24	0	9	113
Mixed Party Ballots Team 3		83					0	0	0	83
Totals Hand Count		532	0	0	0	0	416	0	9	957
Voting Works Mach. Count		532					416		9	957

COUNTY TREASURER	Dear	Liott Hill					Under votes	Over votes	Write-ins	Totals
Straight Ticket Ballots Team 1	285	1					0	0	0	286
Straight Ticket Ballots Team 2	38	132					17	0	0	187
Straight Ticket Ballots Team 3	2	236					0	0	0	238
Mixed Party Ballots Team 1	13	3					34	0	0	50
Mixed Party Ballots Team 2	74	26					11	0	2	113
Mixed Party Ballots Team 3	38	37					8	0	0	83
Totals Hand Count	450	435	0	0	0	0	70	0	2	957
Voting Works Mach. Count	450	435					70		2	957

REG. OF DEEDS	Randlett	Monahan					Under votes	Over votes	Write-ins	Totals
Straight Ticket Ballots Team 1	285	1					0	0	0	286
Straight Ticket Ballots Team 2	38	132					17	0	0	187
Straight Ticket Ballots Team 3	2	236					0	0	0	238

2022 ASHLAND AUDIT TALLY SHEET
Machine Counted Ballots Only 12/15/22

Mixed Party Ballots Team 1	19	6					25	0	0	50
Mixed Party Ballots Team 2	81	28					4	0	0	113
Mixed Party Ballots Team 3	38	39					6	0	0	83
Totals Hand Count	463	442	0	0	0	0	52	0	0	957
Voting Works Mach. Count	463	442					52		0	957

REG. OF PROBATE	Ingbretson	Townsend					Under votes	Over votes	Write-ins	Totals
Straight Ticket Ballots Team 1	285	1					0	0	0	286
Straight Ticket Ballots Team 2	38	132					17	0	0	187
Straight Ticket Ballots Team 3	2	236					0	0	0	238
Mixed Party Ballots Team 1	12	4					34	0	0	50
Mixed Party Ballots Team 2	70	28					13	0	2	113
Mixed Party Ballots Team 3	34	41					8	0	0	83
Totals Hand Count	441	442	0	0	0	0	72	0	2	957
Voting Works Mach. Count	441	442					72		2	957

COUNTY COMMISSIONER	Ahern	Morris					Under votes	Over votes	Write-ins	Totals
Straight Ticket Ballots Team 1	285	1					0	0	0	286
Straight Ticket Ballots Team 2	38	132					17	0	0	187
Straight Ticket Ballots Team 3	2	236					0	0	0	238
Mixed Party Ballots Team 1	27	5					17	0	1	50
Mixed Party Ballots Team 2	84	25					3	0	1	113
Mixed Party Ballots Team 3	45	32	0	0	0	0	6	0	0	83
Totals	481	431					43	0	2	957
Voting Works Mach. Count	483	429					43		2	957

CONST. AMENDMENT	Yes	No					Under votes	Over votes		Totals
Straight Ticket Ballots Team 1	70	97					53	0		220
Straight Ticket Ballots Team 2	46	86					38	0		170
Straight Ticket Ballots Team 3	126	44					16	0	0	186

2022 ASHLAND AUDIT TALLY SHEET

Machine Counted Ballots Only 12/15/22

Mixed Party Ballots Team 1	93	12					11	0	0	116
Mixed Party Ballots Team 2	114	11					5	0	0	130
Mixed Party Ballots Team 3	98	28					9	0	0	135
Totals Hand Count	547	278	0	0	0	0	132	0	0	957
Voting Works Mach. Count	547	278					132			957

QUES. ON CONVENTION	Yes	No					Under votes	Over votes		Totals
Straight Ticket Ballots Team 1	70	97					53	0	0	220
Straight Ticket Ballots Team 2	46	86					38	0	0	170
Straight Ticket Ballots Team 3	126	44					16	0	0	186
Mixed Party Ballots Team 1	16	94					6	0		116
Mixed Party Ballots Team 2	13	115					2	0	0	130
Mixed Party Ballots Team 3	30	94					11	0	0	135
Totals Hand Count	301	530	0	0	0	0	126	0	0	957
Voting Works Mach. Count	301	530					126			957

Exhibit 5

Newington NH Election Day Report

Author: Brian Donovan , VotingWorks

Date: Nov 8, 2022

Summary

The town of Newington, NH was testing the VxScan in their 11/8 General Election. Polls opened at 8:05am and voting proceeded without apparent issues. There was an early overvote that was rejected and placed in the ballot bag, but we didn't see any unusual problems until the ballot count reached about 45 about an hour into voting. At that time we started seeing ballots being rejected for multiple overvotes, which were apparently false positives. These ballots were placed in the auxiliary bag. This continued to happen for about 15 minutes before the Senior Deputy Secretary of State Patty Lovejoy made the decision to switch over to the AccuVote scanner instead. All the ballots from the auxiliary bag and the VxScan ballot bag were hand-fed by Patty into the AccuVote. Brian Donovan packed up the VxScan and took a backup to investigate the overvotes. Review of the ballot images supports the initial hypothesis that the use of felt tip markers on some ballots left an ink residue on the scanner that would cause streaks in the direction of the scan (vertical). These streaks counted as marks for ballots oriented the same way as the ballots that left the ink on the scanner, which counted as overvotes if other bubbles in the affected contests were marked. To prevent this issue in the future, VotingWorks recommends 1) using standard ballpoint pens to mark paper ballots as well as 2) cleaning and calibrating scanners before and after testing.

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Timeline

- 7:20am Brian Donovan arrived at Newington Town Hall and met Jack (moderator), Doreen (clerk), and Patty (Senior Deputy Secretary of State)
- 7:30am VxScan setup began
- 8:05am polls were opened
- 8:07am first voter cast a ballot on VxScan
- 8:14am ballot was rejected due to an overvote. Unclear whether it was a false positive or not at the time (it was not a false positive)
- 8:15am another ballot was rejected due to an overvote. Unclear whether it was a false positive or not at the time (it was not a false positive)
- 8:48am voter asks about whether the bleed through he's seeing on the ballot will cause problems; Jack assures him it will not
- 8:55am 9 ballots in a row are rejected for multiple overvotes each over the next 10 minutes; Brian Donovan theorizes it's due to ink from previous voters' ballots because of the question the voter at 8:58am asked about bleed through; Jack verified that these overvotes were *not real* because one voter showed his ballot (no one prompted him to do so) and he had clearly marked the ballot without overvotes
- 9:00am Ashland and Woodstock replace all pens in the polling place with standard ballpoint pens to prevent the issue in other pilot towns
- 9:00am Brian Donovan proposed that we clean the glass on the scanner; SoS decided not to do that, and we were either going to try to put all ballots through VxScan as-is without cleaning or we would switch to the AccuVote
- 9:05am Matt Roe and Brian Donovan spoke on the phone; Matt agreed that we should try to clean it
- 9:12am voters continued trying to place ballots into the VxScan, most but not all are rejected because of (false) overvotes; poll workers replaced all the felt tip pens with ballpoint pens; AccuVote was prepped to begin accepting ballots
- 9:18am Matt Roe spoke on the phone with Patty and reiterated that we could likely fix the problem by cleaning the scanner; she deferred to Dave Scanlan (SoS) and told Matt to speak to him; unless he told her otherwise, she was going to try the VxScan as-is until it became clear it was or was not working
- 9:18am Matt Roe spoke to Dave Scanlan to explain the situation and our hypothesis at the time (which was confirmed by an investigation); Scanlan decided to move forward with AccuVote ballot scanning
- 9:25am after some trial and error, we discovered that ballots are (mostly) being accepted if they are fed in face up and bottom first (later it became clear this was due to the scanner streaks not overlapping with any bubbles when fed in this way)
- 9:30am Patty informed Brian Donovan that we were going to switch to AccuVote and run the auxiliary bag and VxScan ballots through it

9:45am ballots fed into the AccuVote, some outstacked due to overvotes (the actual overvotes mentioned earlier, presumably); VxScan polls are closed and a backup taken where Brian Donovan then began examining the ballot images

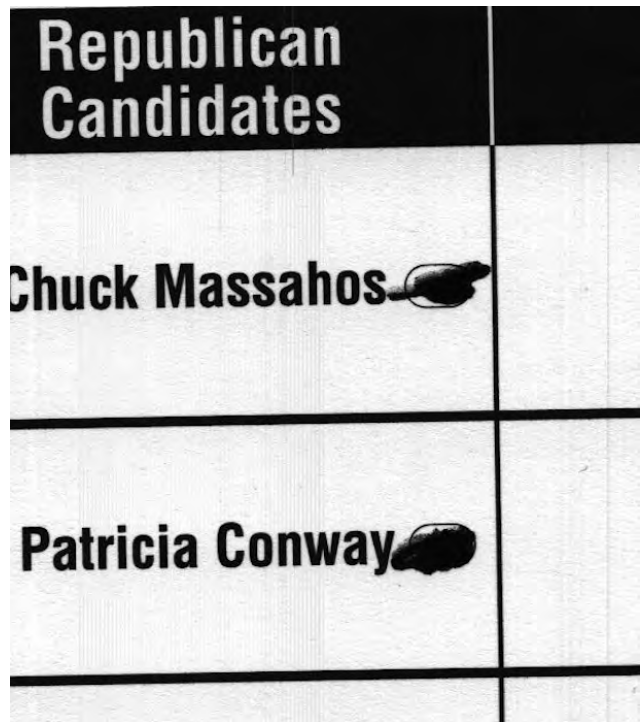
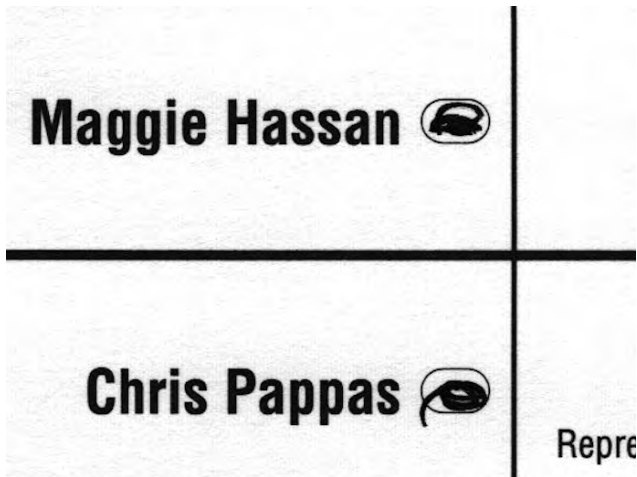
Ballot Image Analysis

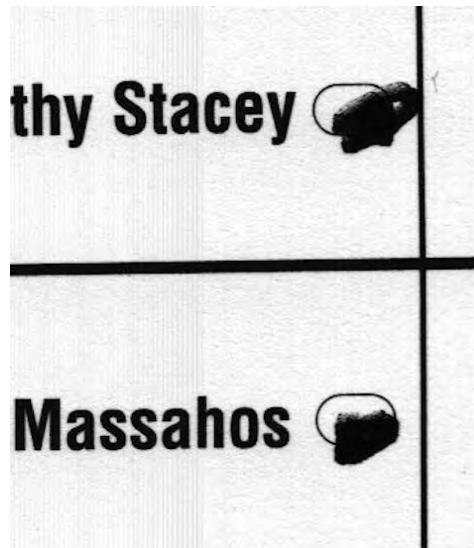
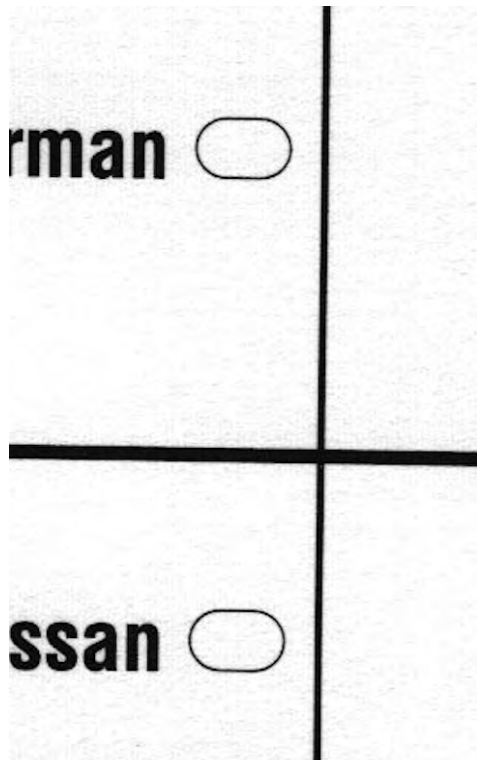
As expected, ballot images showed significant signs of streaking that increased as more ballots were scanned. Early ballots did show vertical lines with characteristics similar to the streaks we saw later, but these lines are consistent with previous testing and may have been improved with scanner calibration. Most of the streaking appears to have happened in timing mark columns 26 and 32. Because of the way New Hampshire state ballots are laid out, a single column typically contains all the bubbles for candidates of a given political party. In the case of the Newington ballot, column 26 contains the bubbles for candidates of the Democratic party (and the “Yes” answers to the constitutional questions) and column 32 contains the bubbles for write-in candidates (and the “No” answers to the constitutional questions).

In practice, this means that in ballots where a voter voted only for Democratic candidates, a streak in that column would not affect those ballots since the bubbles were already filled in. For ballots where a voter voted for non-Democratic candidates (i.e. Republican, Other, or Write-In) and oriented their ballot such that column 26 had a streak, the ballot would be flagged as having overvotes and rejected. The same is true for column 32 where the primary streak identified occurred.

Early Example Ballots

The first several ballot images do not show clear signs of streaks. In order to protect voters' privacy, only partial ballots will be shown in this report. Here are some crops of random ballots from early on in the day:







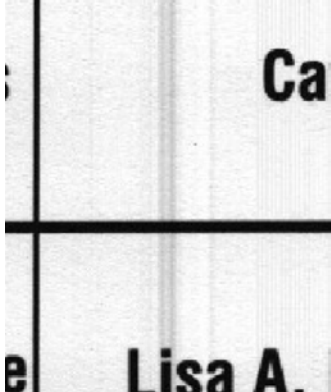
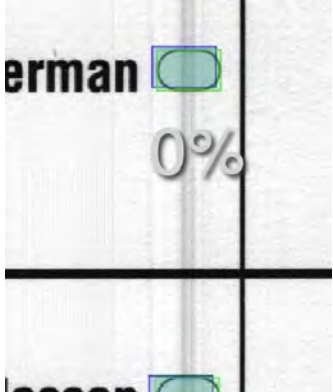
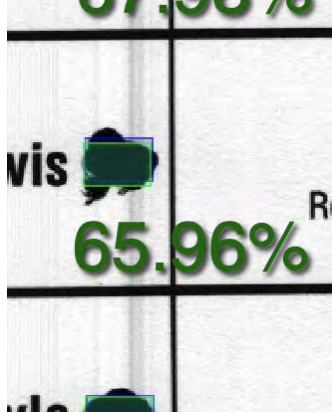
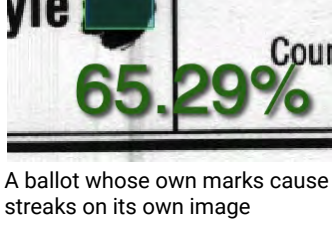

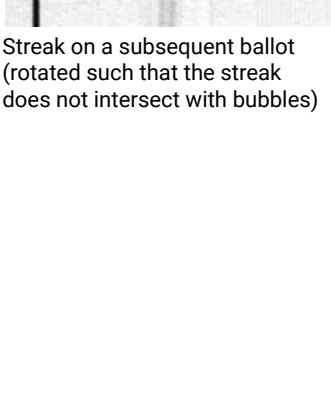
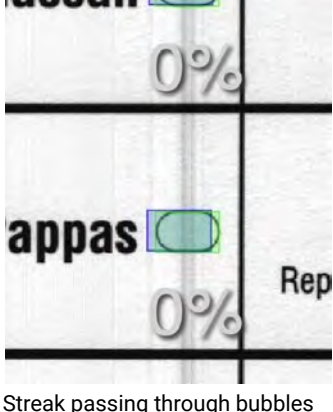
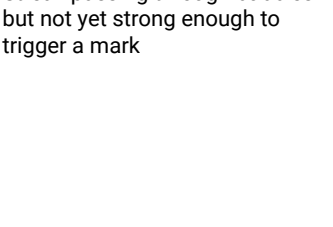
Real Overvotes Flagged During the Election

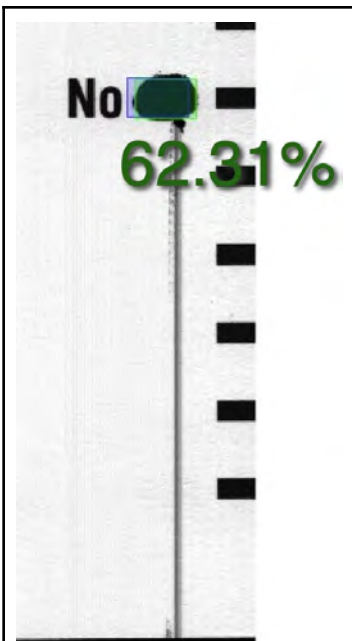
As mentioned in the Timeline, there were two ballots flagged for overvotes which did indeed have overvotes. The overvoted contests are shown below along with the score assigned to each mark (a mark score with a score of 8% or higher is considered a valid mark):



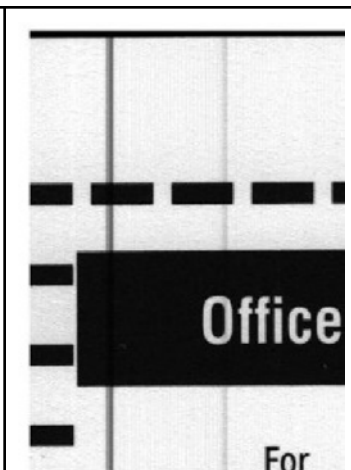
Streaks Appear and Get Worse After Heavily-Marked Ballots

Ballots marked with a heavy ink (presumably felt tip pens, though we cannot know which voters used which pens) exhibit streaks. Those streaks appear on subsequent ballots in the same position (or the mirror image position if the ballot was rotated). The following examples show streaks and their effect on subsequent ballots.

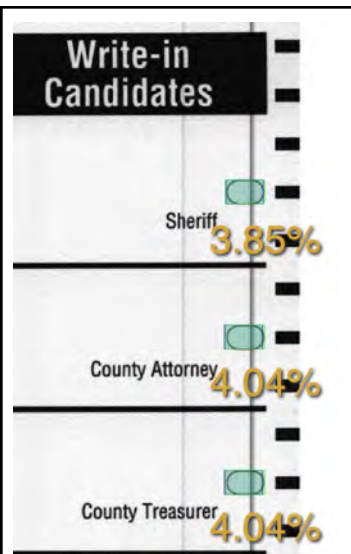
			
<p>A ballot whose own marks cause streaks on its own image</p>	   <p>A ballot whose own marks cause streaks on its own image</p>	 <p>Streak on a subsequent ballot (rotated such that the streak does not intersect with bubbles)</p>	  <p>Streak passing through bubbles but not yet strong enough to trigger a mark</p>



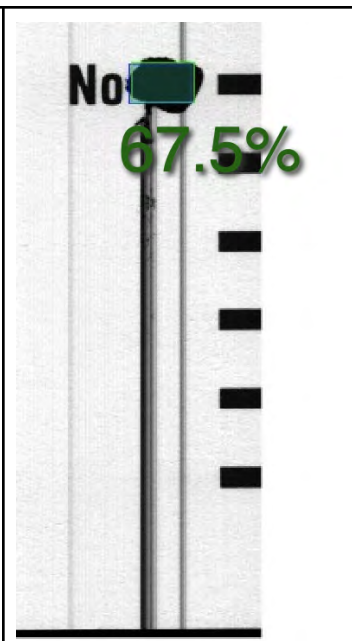
An ink deposit beginning a streak on the back of the ballot that turns out to be problematic later.



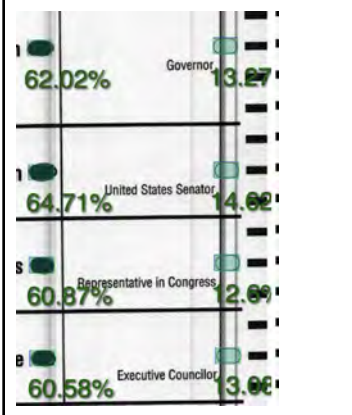
The same streak from the previous ballot scan shown on the next ballot (which was scanned rotated compared to the last ballot).



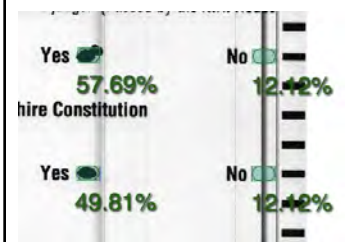
The streak from the last two panes is enough to cause relatively high scores for "empty" bubbles, but still not enough to cross the 8% threshold and be considered votes.



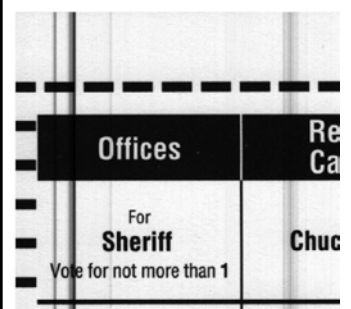
Another streak beginning on the last contest "No" bubble joins the previous streak.



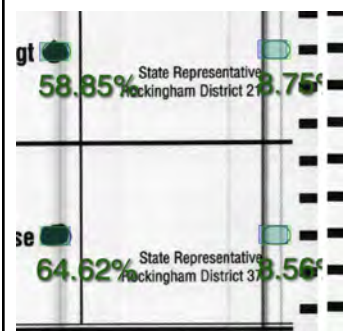
These two streaks combined are dark enough to cross the 8% threshold.



This streak continues to cause overvotes for any ballots inserted top first.

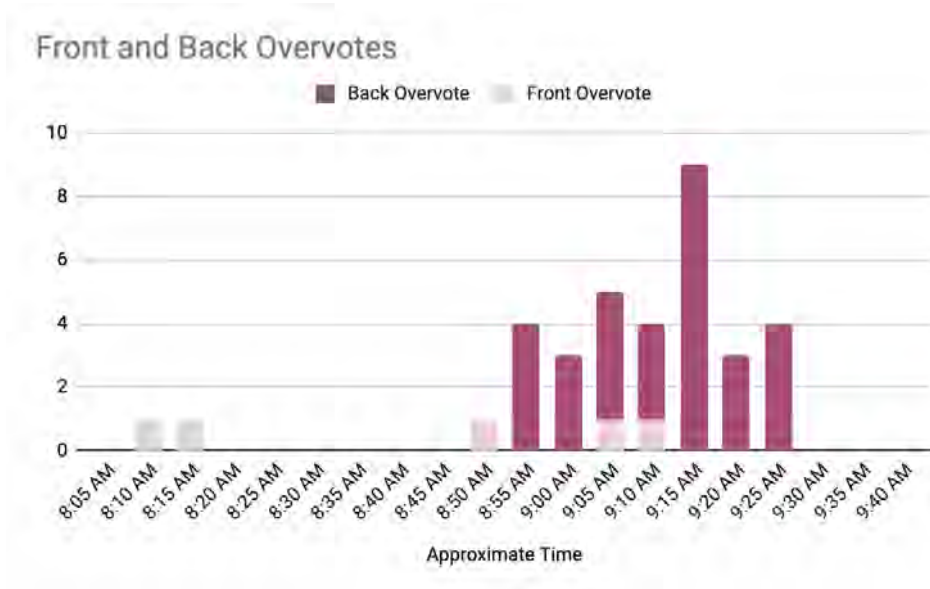


A ballot inserted bottom first is accepted after 9 ballots inserted top first are rejected.



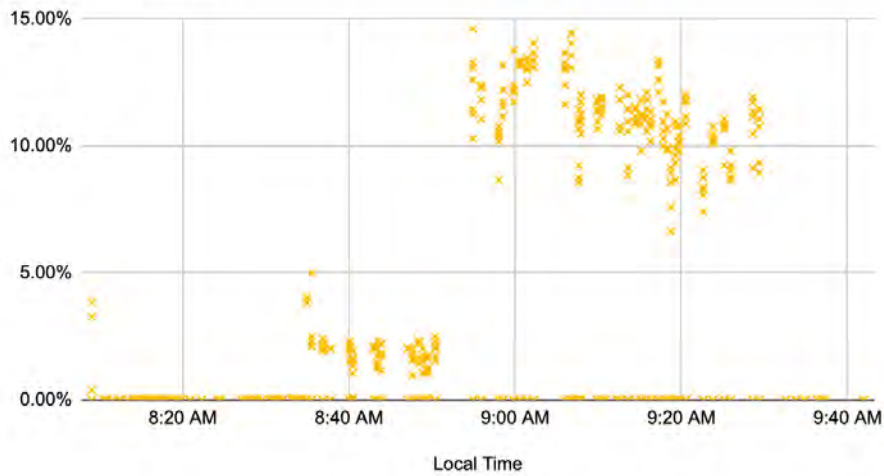
The front of a ballot has overvotes from the same streak after a ballot is inserted upside down and bottom first.

Trends & Data Analysis



This chart shows the prevalence of overvotes detected on both the front and back of ballots over the time the VxScan was operational. The back clearly had more, which is attributable to voters primarily scanning their ballots the same way: top first and face up. The two streaks that originated in column 32's final "No" bubble triggered the write-ins on many of the subsequent ballot scans.

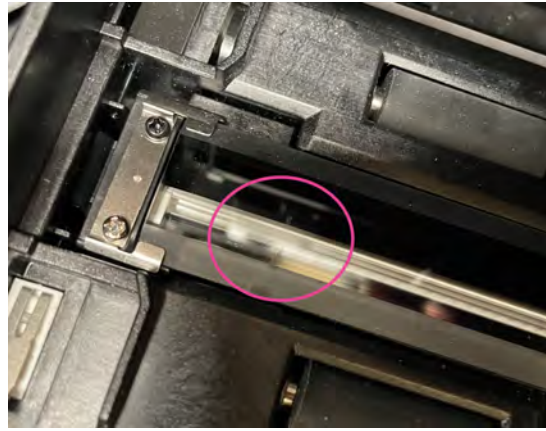
Write-In Scores



Many of the overvotes happened in the Write-In column and write-ins are somewhat uncommon, so graphing write-in scores is one way to show the streak-induced scores over time. This chart does show somewhat high initial scores with the average going down as more ballots are scanned, but the trend is not clear enough to infer definitively that the streaks significantly weaken over the course of a relatively small number of ballots.

Physical Scanner Investigation

After close of polls Brian Donovan looked for smudges on the scanner and found the following:



There was one fairly significant ink smudge, shown twice in the photos above. Its position corresponds to the location of the most pronounced streak on the ballot images. There were also a couple smaller smudge marks which presumably align with the lesser streaks shown in the images. The streaks were easily removed with a microfiber cloth used for cleaning eyeglasses. Given this, we're confident that the issue is fixed by cleaning the sensor glass.

Recommendations

To prevent this issue in the future, two steps should be taken when using VotingWorks equipment:

1. Mark all ballots with standard ballpoint pens to prevent ink marks on the optical scanner from marker ink that is not fully dry.
2. Ensure that scanners are cleaned and calibrated before and after testing.