



Office of the Clerk & Recorder

1750 33rd Street · Boulder, CO 80301 · www.BoulderCounty.org

Hillary Hall, Boulder County Clerk & Recorder

November 21, 2013

RE: Post-Election Audit of the 2013 Boulder County Coordinated Election

The 2013 Coordinated Election Audit included the manual verification of results for thirteen races/issues across 155 audit batches, eight scanning systems, and one electronic voting device. A total of 26,065 individual contests and 161,741 contest options were audited, resulting in the determination that there is no change in the outcomes for any race for the 2013 Boulder County Coordinated Election, and no recommended recounts.

Of the 161,741 options verified, a total 28 differences were identified between machine results and the manual verification results, of which one was attributed to a stray particle captured in the target area, and 27 attributed to voter error.

Nine of the differences resulted from a voter crossing out a choice made without making an alternative corrected choice and therefore voting for less than the number of choices allowed. Unintentional or ambiguous marks by the voter resulted in eighteen additional differences. One difference was identified as a stray particle captured in the target area.

Attached is the Audit Summary, Summary of Differences, and Impact Analysis document utilized in confirming no impact to election outcomes, or escalation requirements. It is also important to note that all differences identified in the audit would be identified in a recount.

Motor Vehicle Division

1750 33rd Street, Suite 100
Boulder, CO 80301-2534
303.413.7710

Elections Division

1750 33rd Street, Suite 200
Boulder, CO 80301-2546
303.413.7740

Recording Division

1750 33rd Street, Suite 201
Boulder, CO 80301-2549
303.413.7770

Longmont Branch Office

529 Coffman Street, Suite 110
Longmont, CO 80501-5450
303.413.7710

Lafayette Branch Office

1376 Miners Drive, Suite 101
Lafayette, CO 80026
303.413.7710



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The Canvass Board therby affirms that through the Post-Election Audit it is verified that there is no change in the outcome of the 2013 Boulder County Coordinated Election. The board further confirms that no recounts are necessary for the 2013 Boulder County Coordinated Election.

Canvass Board Member:

[Redacted Signature]

Valeria Skitt, City Clerk of Longmont Colorado

11/21/2013

Date

Canvass Board Member:

[Redacted Signature]

Alisa Lewis, City Clerk of Boulder Colorado

11/21/2013

Date

Designated Election Official:

[Redacted Signature]

Hillary Hall, Boulder County Clerk and Recorder

11-21-13

Date

2013 Boulder County Coordinated Election
Post-Election Audit Summary

	CITY OF BOULDER COUNCIL CANDIDATES Vote For 5	CITY OF LAFAYETTE COUNCIL CANDIDATES Vote For 4	CITY OF LONGMONT COUNCIL MEMBER AT LARGE Vote For 2	CITY OF LOUISVILLE CITY COUNCIL PERSON WARD II Vote For 1	CITY OF LOUISVILLE CITY COUNCIL PERSON WARD III Vote For 1	ESTES PARK SCHOOL DISTRICT R-3 SCHOOL DIRECTOR AT LARGE Vote For 2	THOMPSON SCHOOL DISTRICT R2-J BOARD OF EDUCATION DIRECTOR DISTRICT B Vote For 1	THOMPSON SCHOOL DISTRICT R2-J BOARD OF EDUCATION DIRECTOR DISTRICT E Vote For 1	City of Lafayette Ballot Question No. 2A Vote For 1	CITY OF LAFAYETTE BALLOT ISSUE NO. 301 Vote For 1	City of Longmont Ballot Question 2C Vote For 1	LYONS REGIONAL LIBRARY DISTRICT BALLOT ISSUE 4C: Vote For 1	Rocky Mountain Fire Protection District Ballot Question 5B: Vote For 1	13	Contests Selected				
	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	155	MBBs Selected for Audit				
MBBs to Audit	66	17	37	3	4	3	1	1	7	45	3	13	11	211	MBB Contests Selected				
Ballot-Contests	9561	1945	5157	330	487	100	11	11	909	5061	431	799	1263	26,065	Ballot-Contests Selected				
														27,543	Total Ballots included for Audit				
														36	Total Recounts Required				
Audit ID														# of Ballots		# of Contests	Counts Required	Sys ID	Scan Batch #'s
p_mb_057						Audit								150	Selected	1	1	A	10
p_mb_058									Audit					150	Selected	1	1	A	11
p_mb_033	Audit													150	Selected	1	1	A	16
p_mb_040	Audit													150	Selected	1	1	A	23
p_mb_409	Audit													150	Selected	1	*3	A	37
p_mb_403	Audit													149	Selected	1	3	A	43
p_mb_236									Audit					150	Selected	1	1	A	46
p_mb_631	Audit													148	Selected	1	*3	A	59
p_mb_548			Audit											150	Selected	1	1	A	67
p_mb_555				Audit										150	Selected	1	1	A	68
p_mb_549	Audit													150	Selected	1	1	A	69
p_mb_473	Audit													150	Selected	1	1	A	71
p_mb_013													Audit	150	Selected	1	1	B	2
p_mb_112	Audit													150	Selected	1	1	B	7
p_mb_024	Audit													149	Selected	1	1	B	19
p_mb_378			Audit											150	Selected	1	1	B	30
p_mb_376	Audit													149	Selected	1	1	B	31
p_mb_373	Audit													150	Selected	1	1	B	34
p_mb_372									Audit					150	Selected	1	1	B	35
p_mb_235	Audit													148	Selected	1	1	B	40
p_mb_260									Audit					150	Selected	1	1	B	41
p_mb_251												Audit		150	Selected	1	1	B	49
p_mb_533			Audit											150	Selected	1	1	B	61
p_mb_476	Audit													150	Selected	1	*1	B	67
p_mb_508	Audit													300	Selected	1	1	B	79-80
p_mb_008												Audit		150	Selected	1	1	C	1

* Manual Verification resulted in a difference between the audit team results and the tabulated results.

2013 Boulder County Coordinated Election
Post-Election Audit Summary

	CITY OF BOULDER COUNCIL CANDIDATES Vote For 5	CITY OF LAFAYETTE COUNCIL CANDIDATES Vote For 4	CITY OF LONGMONT COUNCIL MEMBER AT LARGE Vote For 2	CITY OF LOUISVILLE CITY COUNCIL PERSON WARD II Vote For 1	CITY OF LOUISVILLE CITY COUNCIL PERSON WARD III Vote For 1	ESTES PARK SCHOOL DISTRICT R-3 SCHOOL DIRECTOR AT LARGE Vote For 2	THOMPSON SCHOOL DISTRICT R2-J BOARD OF EDUCATION DIRECTOR DISTRICT B Vote For 1	THOMPSON SCHOOL DISTRICT R2-J BOARD OF EDUCATION DIRECTOR DISTRICT E Vote For 1	City of Lafayette Ballot Question No. 2A Vote For 1	CITY OF LAFAYETTE BALLOT ISSUE NO. 301 Vote For 1	City of Longmont Ballot Question 2C Vote For 1	LYONS REGIONAL LIBRARY DISTRICT BALLOT ISSUE 4C: Vote For 1	Rocky Mountain Fire Protection District Ballot Question 5B: Vote For 1						
p_mb_130	Audit													150	Selected	1	1	C	12
p_mb_136	Audit													150	Selected	1	1	C	17
p_mb_137	Audit													150	Selected	1	1	C	18
p_mb_140													Audit	150	Selected	1	1	C	21
p_mb_144	Audit													150	Selected	1	*1	C	25
p_mb_199			Audit											150	Selected	1	1	C	27
p_mb_209			Audit											150	Selected	1	1	C	29
p_mb_198	Audit													150	Selected	1	*3	C	31
p_mb_339	Audit													149	Selected	1	1	C	42
p_mb_537	Audit													160	Selected	1	1	C	57
p_mb_518	Audit													150	Selected	1	2	C	88
p_mb_666	Audit													300	Selected	1	1	C	66-67
p_mb_503									Audit					300	Selected	1	1	C	74-75
p_mb_679	Audit													300	Selected	1	1	C	76-77
p_mb_079			Audit											150	Selected	1	1	D	10
p_mb_149	Audit													150	Selected	1	2	D	20
p_mb_320	Audit													150	Selected	1	2	D	22
p_mb_318	Audit													150	Selected	1	*1	D	24
p_mb_311													Audit	150	Selected	1	1	D	31
p_mb_207			Audit											150	Selected	1	1	D	32
p_mb_425										Audit				150	Selected	1	1	D	36
p_mb_437	Audit													150	Selected	1	*3	D	43
p_mb_440			Audit											150	Selected	1	1	D	45
p_mb_279	Audit													150	Selected	1	1	D	49
p_mb_280	Audit													150	Selected	1	1	D	50
p_mb_523					Audit									150	Selected	1	1	D	52
p_mb_525	Audit													150	Selected	1	1	D	54
p_mb_534			Audit											150	Selected	1	*1	D	60
p_mb_654			Audit											150	Selected	1	*1	D	66
p_mb_018			Audit											150	Selected	1	1	D	14-15
p_mb_062			Audit											150	Selected	1	1	E	3
p_mb_146			Audit											150	Selected	1	1	E	16
p_mb_298	Audit													150	Selected	1	*3	E	17
p_mb_098			Audit											150	Selected	1	1	E	19

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2013 Boulder County Coordinated Election
Post-Election Audit Summary

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p_mb_100			Audit											150	Selected	1	1	E	21
p_mb_081			Audit											150	Selected	1	1	E	22
p_mb_215									Audit					150	Selected	1	1	E	36
p_mb_217	Audit													150	Selected	1	1	E	38
p_mb_261									Audit					150	Selected	1	1	E	41
p_mb_263	Audit													150	Selected	1	1	E	43
p_mb_270									Audit					150	Selected	1	1	E	48
p_mb_344									Audit					150	Selected	1	1	E	51
p_mb_346	Audit													150	Selected	1	*3	E	53
p_mb_465	Audit													150	Selected	1	2	E	62
p_mb_466				Audit										150	Selected	1	1	E	63
p_mb_467			Audit											150	Selected	1	1	E	64
p_mb_487			Audit											300	Selected	1	1	E	89-90
p_mb_103												Audit		149	Selected	1	1	F	4
p_mb_106			Audit											150	Selected	1	1	F	7
p_mb_107			Audit											149	Selected	1	1	F	8
p_mb_159													Audit	150	Selected	1	1	F	20
p_mb_166			Audit											150	Selected	1	1	F	23
p_mb_167					Audit									150	Selected	1	1	F	24
p_mb_382	Audit													150	Selected	1	*3	F	31
p_mb_231													Audit	150	Selected	1	1	F	39
p_mb_327	Audit													150	Selected	1	1	F	47
p_mb_329									Audit					150	Selected	1	1	F	49
p_mb_447			Audit											150	Selected	1	1	F	54
p_mb_622									Audit					150	Selected	1	1	F	63
p_mb_540									Audit					150	Selected	1	1	F	64
p_mb_490									Audit					299	Selected	1	1	F	80-81
p_mb_171			Audit											150	Selected	1	1	G	2
p_mb_176									Audit					150	Selected	1	1	G	6
p_mb_182	Audit													150	Selected	1	*1	G	12
p_mb_184	Audit													150	Selected	1	2	G	14
p_mb_188									Audit					149	Selected	1	1	G	18
p_mb_299	Audit													150	Selected	1	*3	G	23
p_mb_221									Audit					149	Selected	1	1	G	32

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2013 Boulder County Coordinated Election
Post-Election Audit Summary

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p_mb_223													Audit	150	Selected	1	1	G	33
p_mb_226	Audit													148	Selected	1	1	G	36
p_mb_228									Audit					150	Selected	1	*3	G	38
p_mb_229	Audit													149	Selected	1	1	G	39
p_mb_412									Audit					150	Selected	1	1	G	42
p_mb_274			Audit											150	Selected	1	1	G	57
p_mb_630													Audit	150	Selected	1	1	G	65
p_mb_484			Audit											300	Selected	1	*1	G	82-83
p_mb_514									Audit					298	Selected	1	1	G	92-93
p_mb_195	Audit													150	Selected	1	*3	H	6
p_mb_286									Audit					150	Selected	1	1	H	11
p_mb_289									Audit					150	Selected	1	1	H	14
p_mb_030	Audit													150	Selected	1	1	H	16
p_mb_301										Audit				149	Selected	1	1	H	17
p_mb_304	Audit													150	Selected	1	2	H	20
p_mb_305	Audit													149	Selected	1	1	H	21
p_mb_360	Audit													150	Selected	1	1	H	50
p_mb_607									Audit					300	Selected	1	1	H	53, 54
p_mb_610	Audit													150	Selected	1	*3	H	57
p_mb_461	Audit													149	Selected	1	1	H	58
p_mb_541	Audit													150	Selected	1	*1	H	61
p_mb_646	Audit													300	Selected	1	1	H	72-73
p_mb_577	Audit													299	Selected	1	1	H	80-81
p_mb_402									Audit			Audit		150	Selected	2	*1	A	44
p_mb_675	Audit								Audit					299	Selected	2	1	A	87-88
p_mb_113	Audit												Audit	150	Selected	2	1	B	8
p_mb_669		Audit								Audit				150	Selected	2	1	B	69
p_mb_074			Audit									Audit		150	Selected	2	2	C	3
p_mb_123			Audit										Audit	150	Selected	2	1	C	5
p_mb_127	Audit		Audit											150	Selected	2	1	C	9
p_mb_128		Audit							Audit					150	Selected	2	1	C	10
p_mb_129		Audit							Audit					150	Selected	2	2	C	11
p_mb_615		Audit							Audit					150	Selected	2	*1	C	55
p_mb_480	Audit											Audit		149	Selected	2	1	E	69

* Manual Verification resulted in a difference between the audit team results and the tabulated results.

2013 Boulder County Coordinated Election
Post-Election Audit Summary

	CITY OF BOULDER COUNCIL CANDIDATES Vote For 5	CITY OF LAFAYETTE COUNCIL CANDIDATES Vote For 4	CITY OF LONGMONT COUNCIL MEMBER AT LARGE Vote For 2	CITY OF LOUISVILLE CITY COUNCIL PERSON WARD II Vote For 1	CITY OF LOUISVILLE CITY COUNCIL PERSON WARD III Vote For 1	ESTES PARK SCHOOL DISTRICT R-3 SCHOOL DIRECTOR AT LARGE Vote For 2	THOMPSON SCHOOL DISTRICT R2-J BOARD OF EDUCATION DIRECTOR DISTRICT B Vote For 1	THOMPSON SCHOOL DISTRICT R2-J BOARD OF EDUCATION DIRECTOR DISTRICT E Vote For 1	City of Lafayette Ballot Question No. 2A Vote For 1	CITY OF LAFAYETTE BALLOT ISSUE NO. 301 Vote For 1	City of Longmont Ballot Question 2C Vote For 1	LYONS REGIONAL LIBRARY DISTRICT BALLOT ISSUE 4C: Vote For 1	Rocky Mountain Fire Protection District Ballot Question 5B: Vote For 1						
p_mb_680	Audit											Audit		299	Selected	2	*1	E	73-74
p_mb_110						Audit						Audit		150	Selected	2	1	F	12
p_mb_348		Audit								Audit				150	Selected	2	1	F	51
p_mb_628					Audit								Audit	150	Selected	2	1	G	63
p_mb_570			Audit									Audit		134	Selected	2	2	G	73-74
p_mb_645		Audit								Audit				222	Selected	2	1	G	76-77
p_mb_510		Audit								Audit				300	Selected	2	1	G	86-87
p_mb_512	Audit					Audit								300	Selected	2	1	G	88-89
p_mb_513	Audit		Audit											300	Selected	2	*1	G	90-91
p_mb_303		Audit								Audit				150	Selected	2	1	H	19
p_mb_396			Audit								Audit			150	Selected	2	*1	H	34
p_mb_471			Audit								Audit			150	Selected	2	*1	H	65
p_mb_579										Audit		Audit		300	Selected	2	1	H	84-85
p_mb_650										Audit		Audit		296	Selected	2	1	H	86-88
p_mb_051		Audit		Audit						Audit				146	Selected	3	2	A	4
p_mb_496	Audit		Audit									Audit		600	Selected	3	*3	A	79-82
p_mb_492	Audit		Audit									Audit		450	Selected	3	1	E	74-76
p_mb_909			Audit		Audit						Audit			300	Selected	3	1	E	87-88
p_mb_169		Audit							Audit	Audit				150	Selected	3	1	F	27
p_mb_307		Audit							Audit	Audit				150	Selected	3	1	H	23
p_mb_649							Audit	Audit		Audit				300	Selected	3	1	H	78-79
p_mb_517		Audit	Audit						Audit	Audit				298	Selected	4	*1	E	35,99
p_mb_481		Audit							Audit	Audit			Audit	300	Selected	4	1	E	79-80
p_mb_232	Audit	Audit							Audit	Audit				150	Selected	4	1	F	40
p_mb_502	Audit	Audit							Audit	Audit				300	Selected	4	1	G	84-85
p_mb_574	Audit	Audit	Audit						Audit	Audit				302	Selected	5	1	C	84-85
j_sc_003	Audit	Audit												60	Selected	2	1	DRE	N/A

* Manual Verification resulted in a difference between the audit team results and the tabulated results.

2013 Boulder County Coordinated Election Post-Election Audit

Summary of Differences

For the 2013 Coordinated Post-Election Audit, 13 contested races were selected for the audit and spanned 155 scan station MBB batches selected by the Canvass Board. A total of 26,065 ballot contests were manually verified in the audit. All eight election scan stations were included.

Out of the 26,065 ballot contests audited, there were a total of 28 differences identified. These 28 differences account for 0.01% of the audited contests. Of these 28 differences, all but 2 were attributed to voter error. Analysis confirmed no impact on election results.

There were a total of 6 types of differences discovered.

The first 4 types account for 26 of the 28 differences (93%), these were attributed to voter error.

1. A difference identified between the audit team count and machine count that was due to a **stray mark** in the target area which counted as a vote. Stray marks totaled 3 of the 28 differences.
2. A difference identified between the audit team count and machine count that was due to a **striketrough**, which counted as a vote. Strikethroughs totaled 9 of the 28 differences.
3. A difference identified between the audit team count and machine count that was due to a **hesitant or incomplete mark** in the target area which counted as a vote. Hesitant/incomplete marks totaled 11 of the 28 differences.
4. A difference identified between the audit team count and machine count that was due to an **inconsistent mark** in the target area which counted as a vote. Inconsistent marks totaled 3 of the 28 differences.

The last 2 types account for 2 of the 28 differences (7%).

5. A difference identified between the audit team count and machine count that was due to **pencil/erasure marks** in the target area, which was counted as a vote by the resolution judges. Pencil/erasure marks totaled 1 of the 28 differences.
6. A difference identified between the audit team count and machine count was due to **dust/debris** causing a mark in the target area which counted as a vote. Dust/debris marks totaled 1 of the 28 differences.

Statistical analysis was completed on all contest outcomes to include the impact of the differences. No impact was found in any contest outcome that warrants escalation or a recommendation for recount.

Below are images and descriptions reflecting the types of differences identified.

Stray Mark Example

CITY OF BOULDER COUNCIL CANDIDATES

Following are the candidates for City Council. You may vote for up to five (5) candidates. If you vote for five (5) or less, your votes in this race will be counted. If you vote for more than five (5), your votes in this race will not be counted.

- Mary Young
- John Gerstle
- Matthew Appelbaum
- Kevin Hotaling
- Macon Cowles
- Jonathan Dings
- Ed Byrne
- Micah Parkin
- Greatful Fred Smith
- Andrew Shoemaker
- Sam Weaver

Ballot questions referred by the general

Mary Young

Confirm: AutoRes.

Confirm: AutoRes.

Confirm: AutoRes.

Macon Cowles

Jonathan Dings

Confirm: AutoRes.

Confirm: AutoRes.

Confirm: AutoRes.

Confirm: AutoRes.

Confirm: AutoRes.

System H – Batch 81 - Boulder City Council Contest

A stray mark entered the target area and triggered a vote for Macon Cowles. This accounts for the differences in votes for Macon Cowles and Undervotes.

Contest Option	MVW Count	Machine Count
Mary Young	122	122
John Gerstle	56	56
Matthew Appelbaum	109	109
Kevin Hotaling	27	27
Macon Cowles	100	101
Jonathan Dings	38	38
Ed Byrne	76	76
Micah Parkin	87	87
Greatful Fred Smith	22	22
Andrew Shoemaker	107	107
Sam Weaver	107	107
OVER	1	1
UNDER	639	638

Strikethrough Example

CITY OF BOULDER COUNCIL CANDIDATES

Following are the candidates for City Council. You may vote for up to five (5) candidates. If you vote for five (5) or less, your votes in this race will be counted. If you vote for more than five (5), your votes in this race will not be counted.

- Mary Young
- John Gerstle
- Matthew Appelbaum
- Kevin Hotaling
- ~~Macon Cowles~~
- Jonathan Dings
- Ed Byrne
- Micah Parkin
- Greatful Fred Smith
- Andrew Shoemaker
- Sam Weaver

System D – Batch 24 – Boulder City Council Contest

Strikeout through Macon Cowles resulted in a vote for Macon Cowles, instead of a vote cancellation. This accounts for the differences in votes for Macon Cowles and Undervotes.

Contest Option	MVW Count	Machine Count
Mary Young	63	63
John Gerstle	39	39
Matthew Appelbaum	65	65
Kevin Hotaling	30	30
Macon Cowles	61	62
Jonathan Dings	22	22
Ed Byrne	56	56
Micah Parkin	38	38
Greatful Fred Smith	9	9
Andrew Shoemaker	69	69
Sam Weaver	69	69
OVER	1	1
UNDER	224	223

Hesitant/Incomplete Mark Example

**CITY OF LONGMONT COUNCIL
MEMBER AT LARGE**

(Vote for Not More Than Two (2))

Alex Sammoury

Gabe Santos

Polly Christensen

Ron Gallegos

Trisa Baxter

**CITY OF LONGMONT COUNCIL
MEMBER WARD 2**

UNPRO
FIRST
RETAI
WITH
REVEN
SCHOL
REQUI
AND B
TAX OI
MARIJ
PRODI
BEING
OF RE
MAKJI
RELAT
THE U
MARIJ

**CITY OF LONGMONT COUNCIL
MEMBER AT LARGE**

(Vote for Not More Than Two (2))

Alex Sammoury

Gabe Santos

Polly Christensen

Ron Gallegos

Trisa Baxter

System D – Batch 66 – Longmont Council At-Large Contest

A hesitant/incomplete mark entered target area and caused a vote for Polly Christensen. This accounts for the differences between Polly Christensen and Undervotes.

Contest Option	MVW Count	Machine Count
Alex Sammoury	14	14
Gabe Santos	18	18
Polly Christensen	13	14
Ron Gallegos	12	12
Trisa Baxter	11	11
OVER	0	0
UNDER	32	31

Inconsistent Mark Example

CITY OF BOULDER COUNCIL CANDIDATES

Following are the candidates for City Council. You may vote for up to five (5) candidates. If you vote for five (5) or less, your votes in this race will be counted. If you vote for more than five (5), your votes in this race will not be counted.

Mary Young

John Gerstle

Matthew Appelbaum

Kevin Hotaling

Macon Cowles

Jonathan Dings

Ed Byrne

Micah Parkin

Greatful Fred Smith

Andrew Shoemaker

Sam Weaver

Ballot questions referred by the general

race will not be counted.

Mary Young
Confirm: AutoRes.

John Gerstle
Confirm: AutoRes.

Matthew Appelbaum

Kevin Hotaling
Confirm: AutoRes.

Macon Cowles
Confirm: AutoRes.

Jonathan Dings
Confirm: AutoRes.

Ed Byrne

Micah Parkin
Confirm: AutoRes.

Greatful Fred Smith
Confirm: AutoRes.

Andrew Shoemaker

Sam Weaver
Confirm: AutoRes.

System F – Batch 31 – Boulder City Council Contest

An inconsistent mark was used in the target area for Ed Byrne. The resolution team and audit team had a difference of opinion in voter intent. This accounts for the differences in votes for Ed Byrne and Undervotes.

Contest Option	MVW Count	Machine Count
Mary Young	65	65
John Gerstle	44	44
Matthew Appelbaum	66	66
Kevin Hotaling	22	22
Macon Cowles	44	44
Jonathan Dings	17	17
Ed Byrne	58	59
Micah Parkin	45	45
Greatful Fred Smith	10	10
Andrew Shoemaker	56	56
Sam Weaver	67	67
OVER	0	0
UNDER	256	255

Pencil Mark Example

CITY OF BOULDER COUNCIL CANDIDATES

Following are the candidates for City Council. You may vote for up to five (5) candidates. If you vote for five (5) or less, your votes in this race will be counted. If you vote for more than five (5), your votes in this race will not be counted.

<input checked="" type="checkbox"/>	Mary Young
<input checked="" type="checkbox"/>	John Gerstle
<input type="checkbox"/>	Matthew Appelbaum
<input type="checkbox"/>	Kevin Hotaling
<input checked="" type="checkbox"/>	Macon Cowles
<input type="checkbox"/>	Jonathan Dings
<input type="checkbox"/>	Ed Byrne
<input checked="" type="checkbox"/>	Micah Parkin
<input type="checkbox"/>	Greatful Fred Smith
<input type="checkbox"/>	Andrew Shoemaker
<input checked="" type="checkbox"/>	Sam Weaver

System D – Batch 43 – Boulder City Council Contest

Voter voted mail ballot in pencil, attempted to erase the vote marked for Sam Weaver. The resolution team reviewed it and decided it should count as a vote. The resolution team then manually changed it to a vote (since the scanner didn't originally mark it as such). The batch was counted by 3 audit teams, and all of them determined that the voter intent was to erase the vote. Differences of opinion in voter intent between resolution team and audit team caused discrepancy. This accounts for the differences between Sam Weaver and Undervotes.

Contest Option	MVW Count	Machine Count
Mary Young	67	67
John Gerstle	41	41
Matthew Appelbaum	69	69
Kevin Hotaling	22	22
Macon Cowles	74	74
Jonathan Dings	14	14
Ed Byrne	63	63
Micah Parkin	51	51
Greatful Fred Smith	5	5
Andrew Shoemaker	55	55
Sam Weaver	73	74
OVER	0	0
UNDER	216	215

Dust Example

CITY OF BOULDER COUNCIL CANDIDATES

Following are the candidates for City Council. You may vote for up to five (5) candidates. If you vote for five (5) or less, your votes in this race will be counted. If you vote for more than five (5), your votes in this race will not be counted.

Mary Young

John Gerstle

Matthew Appelbaum

Kevin Hotaling

Macon Cowles

Jonathan Dings

Ed Byrne

Micah Parkin

Greatful Fred Smith

Andrew Shoemaker

Sam Weaver

Ballot questions referred by the general assembly or any political subdivision are

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race will not be counted.



System G – Batch 23 - Boulder City Council Contest

Some dust or other debris during scanning caused a mark to appear in the target area and register a vote for Micah Parkin. Examination of the ballot showed no mark. This accounts for the differences in votes for Micah Parkin and Undervotes.

Contest Option	MVW Count	Machine Count
Mary Young	84	84
John Gerstle	36	36
Matthew Appelbaum	85	85
Kevin Hotaling	20	20
Macon Cowles	65	65
Jonathan Dings	16	16
Ed Byrne	47	47
Micah Parkin	54	55
Greatful Fred Smith	10	10
Andrew Shoemaker	68	68
Sam Weaver	80	80
OVER	1	1
UNDER	180	179

2013 Boulder County Coordinated Election
Post-Election Audit Impact Analysis

Difference Data

System	Scan Batch	Contest	Category	Impacted	Packet Batch Number	Packet Batch Date
A	37	Boulder City Council	Incomplete Mark	Matthew Appelbaum	286	11/2/2013
A	59	Boulder City Council	Stray Mark	Matthew Appelbaum	415	11/5/2013
A	79	Boulder City Council	Inconsistent Mark	Micah Parkin	566	11/5/2013
B	67	Boulder City Council	Incomplete Mark	Ed Byrne	522	11/5/2013
C	25	Boulder City Council	Strikethrough	John Gerstle Micah Parkin	180	11/1/2013
C	31	Boulder City Council	Incomplete Mark	Andrew Shoemaker	251	11/3/2013
C	55	Lafayette Council	Strikethrough	Brad Wiesley	478	11/5/2013
D	24	Boulder City Council	Strikethrough	Macon Cowles	264	11/2/2013
D	43	Boulder City Council	Pencil Mark	Sam Weaver	369	11/4/2013
D	60	Longmont Council At-Large	Strikethrough	Trisa Baxter	440	11/5/2013
D	66	Longmont Council At-Large	Incomplete Mark	Polly Christensen	531	11/5/2013
E	17	Boulder City Council	Incomplete Mark	Greatful Fred Smith	175	11/1/2013
E	53	Boulder City Council	Inconsistent Mark	Micah Parkin	366	11/4/2013
E	73	Boulder City Council	Strikethrough	Mary Young	552	11/6/2013
E	99	Lafayette Council	Incomplete Mark	Gustano Reyna	657	11/6/2013
F	31	Boulder City Council	Inconsistent Mark	Ed Byrne	282	11/2/2013
G	12	Boulder City Council	Stray Mark	Andrew Shoemaker	179	11/1/2013
G	23	Boulder City Council	Dust	Micah Parkin	191	11/1/2013
G	38	Lafayette 301	Strikethrough	No	224	11/1/2013
G	83	Longmont Council At-Large	Strikethrough	Polly Christensen	630	11/6/2013
G	88	Boulder City Council	Incomplete Mark	John Gerstle	655	11/6/2013
H	6	Boulder City Council	Strikethrough	John Gerstle	55	10/29/2013
H	34	Longmont Council At-Large	Incomplete Mark	Gabe Santos	244	11/1/2013
H	57	Boulder City Council	Incomplete Mark	Jonathan Dings	493	11/5/2013
H	61	Boulder City Council	Incomplete Mark	Sam Weaver	482	11/5/2013
H	65	Longmont Council At-Large	Incomplete Mark	Polly Christensen	527	11/5/2013
H	81	Boulder City Council	Stray Mark	Macon Cowles	662	11/6/2013

2013 Boulder County Coordinated Election
Post-Election Audit Impact Analysis

Difference Data Statistics

Category	Total
Incomplete Mark	11
Strikethrough	8
Stray Mark	3
Inconsistent Mark	3
Dust	1
Pencil Mark	1
Grand Total	27

Date	Total
10/29/2013	1
11/1/2013	6
11/2/2013	3
11/3/2013	1
11/4/2013	2
11/5/2013	9
11/6/2013	5
Grand Total	27

Contest	Total
Boulder City Council	19
Longmont Council At-Large	5
Lafayette Council	2
Lafayette 301	1
Grand Total	27

Contest	Total
Boulder City Council	19
Incomplete Mark	7
Inconsistent Mark	3
Strikethrough	4
Stray Mark	3
Pencil Mark	1
Dust	1
Lafayette Council	2
Incomplete Mark	1
Strikethrough	1
Lafayette 301	1
Strikethrough	1
Longmont Council At-Large	5
Incomplete Mark	3
Strikethrough	2
Grand Total	27

Impacted Candidate	Total
Micah Parkin	4
Polly Christensen	3
John Gerstle	3
Sam Weaver	2
Ed Byrne	2
Matthew Appelbaum	2
Macon Cowles	2
Andrew Shoemaker	2
Gabe Santos	1
Brad Wiesley	1
No	1
Mary Young	1
Trisa Baxter	1
Greatful Fred Smith	1
Gustano Reyna	1
Jonathan Dings	1
Grand Total	28

2013 Boulder County Coordinated Election
Post-Election Audit Impact Analysis

Impact of Differences

Impact of all differences:			
	Counts	Discrepancy Count	Discrepancy Rate
Contest Ballots Audited	26,065	27	0.001035872
All Option Boxes Audited	161,741	28	0.000173116
Boulder City Council Ballots Audited	9,561	19	0.001987240
Boulder City Council Option Boxes Audited	105,171	20	0.000190166
Lafayette City Council Ballots Audited	1,945	2	0.001028278
Lafayette City Council Option Boxes Audited	11,670	2	0.000171380
Longmont Council At Large Ballots Audited	5,157	5	0.000969556
Longmont Council At Large Option Boxes Audited	25,785	5	0.000193911
Longmont Council Ward II Ballots Audited	330	0	0.000000000
Longmont Council Ward II Option Boxes Audited	660	0	0.000000000
Longmont Council Ward III Ballots Audited	487	0	0.000000000
Longmont Council Ward III Option Boxes Audited	974	0	0.000000000
Estes Park R-3 School Director Ballots Audited	100	0	0.000000000
Estes Park R-3 School Director Option Boxes Audited	500	0	0.000000000
Thompson Education Director District B Ballots Audited	11	0	0.000000000
Thompson Education Director District B Option Boxes Audited	33	0	0.000000000
Thompson Education Director District E Ballots Audited	11	0	0.000000000
Thompson Education Director District E Option Boxes Audited	22	0	0.000000000
Lafayette 2A Ballots Audited	909	0	0.000000000
Lafayette 2A Option Boxes Audited	1,818	0	0.000000000
Lafayette 301 Ballots Audited	5,061	1	0.000197589
Lafayette 301 Option Boxes Audited	10,122	1	0.000098795
Longmont 2C Ballots Audited	431	0	0.000000000
Longmont 2C Option Boxes Audited	862	0	0.000000000
Lyons Library District 4C Ballots Audited	799	0	0.000000000
Lyons Library District 4C Option Boxes Audited	1,598	0	0.000000000
Rocky Mountain 5B Ballots Audited	1,263	0	0.000000000
Rocky Mountain 5B Option Boxes Audited	2,526	0	0.000000000
			<i>0.000215925</i> Average Uncertainty Rate
Totals:			<i>0.001987240</i> Max Uncertainty Rate

2013 Boulder County Coordinated Election
Post-Election Audit Impact Analysis

Impact of Differences

Exclude differences determined to be attributed to voter error:

	Counts	Discrepancy Count	Discrepancy Rate
Contest Ballots Audited	26,065	2	0.000076731
All Option Boxes Audited	161,741	2	0.000012365
Boulder City Council Ballots Audited	9,561	2	0.000209183
Boulder City Council Option Boxes Audited	105,171	2	0.000019017
Lafayette City Council Ballots Audited	1,945	0	0.000000000
Lafayette City Council Option Boxes Audited	11,670	0	0.000000000
Longmont Council At Large Ballots Audited	5,157	0	0.000000000
Longmont Council At Large Option Boxes Audited	25,785	0	0.000000000
Longmont Council Ward II Ballots Audited	330	0	0.000000000
Longmont Council Ward II Option Boxes Audited	660	0	0.000000000
Longmont Council Ward III Ballots Audited	487	0	0.000000000
Longmont Council Ward III Option Boxes Audited	974	0	0.000000000
Estes Park R-3 School Director Ballots Audited	100	0	0.000000000
Estes Park R-3 School Director Option Boxes Audited	500	0	0.000000000
Thompson Education Director District B Ballots Audited	11	0	0.000000000
Thompson Education Director District B Option Boxes Audited	33	0	0.000000000
Thompson Education Director District E Ballots Audited	11	0	0.000000000
Thompson Education Director District E Option Boxes Audited	22	0	0.000000000
Lafayette 2A Ballots Audited	909	0	0.000000000
Lafayette 2A Option Boxes Audited	1,818	0	0.000000000
Lafayette 301 Ballots Audited	5,061	0	0.000000000
Lafayette 301 Option Boxes Audited	10,122	0	0.000000000
Longmont 2C Ballots Audited	431	0	0.000000000
Longmont 2C Option Boxes Audited	862	0	0.000000000
Lyons Library District 4C Ballots Audited	799	0	0.000000000
Lyons Library District 4C Option Boxes Audited	1,598	0	0.000000000
Rocky Mountain 5B Ballots Audited	1,263	0	0.000000000
Rocky Mountain 5B Option Boxes Audited	2,526	0	0.000000000
			0.000011332 Average Uncertainty Rate
Totals:			0.000209183 Max Uncertainty Rate

Outcome Impact - All Differences

Contest	Absolute Margins	W	L	Margin W - L	V = W + L	Recount Threshold 0.005*W	Is M <= RT?	New W = W - UV	New L = L + UV	New Margin = W - L	New Recount Threshold = 0.005 * W	Is M <= RT?
BOULDER COUNCIL CANDIDATES -- Vote For 5	442	12,511	12,069	442	24,580	62.56	No	12,462	12,118	344	62.31	No
LAFAYETTE COUNCIL CANDIDATES -- Vote For 4	332	3,527	3,195	332	6,722	17.64	No	3,514	3,208	305	17.57	No
LONGMONT MAYOR -- Vote For 1	4,362	14,389	10,027	4,362	24,416	71.95	No	14,340	10,076	4,265	71.70	No
LONGMONT COUNCIL MEMBER AT LARGE -- Vote For 2	533	9,909	9,376	533	19,285	49.55	No	9,871	9,414	456	49.35	No
LONGMONT COUNCIL MEMBER WARD 2 -- Vote For 1	927	3,921	2,994	927	6,915	19.61	No	3,907	3,008	900	19.54	No
LOUISVILLE CITY COUNCIL PERSON WARD I -- Vote For 1 UNOPPOSED	2,008	2,008	0	2,008	2,008	10.04	No	2,004	4	2,000	10.02	No
LOUISVILLE CITY COUNCIL PERSON WARD II -- Vote For 1	462	1,417	955	462	2,372	7.09	No	1,412	960	453	7.06	No
LOUISVILLE CITY COUNCIL PERSON WARD III -- Vote For 1	390	1,289	899	390	2,188	6.45	No	1,285	903	381	6.42	No
ESTES PARK R-3 SCHOOL DIRECTOR AT LARGE -- Vote For 2	49	1,326	1,277	49	2,603	6.63	No	1,321	1,282	39	6.60	No
THOMPSON R2-J BOARD OF EDUCATION DIRECTOR DISTRICT A -- Vote For 1	968	13,167	12,199	968	25,366	65.84	No	13,117	12,249	867	65.58	No
THOMPSON R2-J BOARD OF EDUCATION DIRECTOR DISTRICT B -- Vote For 1	204	14,919	14,715	204	29,634	74.60	No	14,860	14,774	86	74.30	No
THOMPSON R2-J BOARD OF EDUCATION DIRECTOR DISTRICT E -- Vote For 1	1,289	15,155	13,866	1,289	29,021	75.78	No	15,097	13,924	1,174	75.49	No
THOMPSON R2-J BOARD OF EDUCATION DIRECTOR DISTRICT F -- Vote For 1	1,443	15,249	13,806	1,443	29,055	76.25	No	15,191	13,864	1,328	75.96	No
Amendment 66 (CONSTITUTIONAL) -- Vote For 1	401,335	889,048	487,713	401,335	1,376,761	4,445.24	No	886,312	490,449	395,863	4,431.56	No
Proposition AA (STATUTORY) -- Vote For 1	416,504	889,788	473,284	416,504	1,363,072	4,448.94	No	887,079	475,993	411,086	4,435.40	No
BOULDER NO. 2A -- Vote For 1	9,878	20,204	10,326	9,878	30,530	101.02	No	20,143	10,387	9,757	100.72	No
BOULDER NO. 2B -- Vote For 1	9,964	20,151	10,187	9,964	30,338	100.76	No	20,091	10,247	9,843	100.45	No
Boulder 2C -- Vote For 1	15,484	22,974	7,490	15,484	30,464	114.87	No	22,913	7,551	15,363	114.57	No
Boulder 2D -- Vote For 1	12,827	21,293	8,466	12,827	29,759	106.47	No	21,234	8,525	12,709	106.17	No
Boulder 2E -- Vote For 1	9,417	18,960	9,543	9,417	28,503	94.80	No	18,903	9,600	9,304	94.52	No
Boulder 2F -- Vote For 1	13,957	20,757	6,800	13,957	27,557	103.79	No	20,702	6,855	13,847	103.51	No
Boulder 2G -- Vote For 1	7,053	17,628	10,575	7,053	28,203	88.14	No	17,572	10,631	6,941	87.86	No
Boulder 2H -- Vote For 1	16,842	23,390	6,548	16,842	29,938	116.95	No	23,331	6,607	16,723	116.65	No
Boulder No. 310 -- Vote For 1	11,566	21,100	9,534	11,566	30,634	105.50	No	21,039	9,595	11,444	105.20	No
Lafayette No. 2A -- Vote For 1	868	4,660	3,792	868	8,452	23.30	No	4,643	3,809	834	23.22	No
LAFAYETTE NO. 301 -- Vote For 1	84	4,303	4,219	84	8,522	21.52	No	4,286	4,236	50	21.43	No
Lafayette No. 300 -- Vote For 1	1,773	5,248	3,475	1,773	8,723	26.24	No	5,231	3,492	1,738	26.15	No
Longmont 2A -- Vote For 1	12,314	18,906	6,592	12,314	25,498	94.53	No	18,855	6,643	12,213	94.28	No
Longmont 2B -- Vote For 1	9,173	17,430	8,257	9,173	25,687	87.15	No	17,379	8,308	9,071	86.89	No
Longmont 2C -- Vote For 1	8,924	15,753	6,829	8,924	22,582	78.77	No	15,708	6,874	8,834	78.54	No
ESTES PARK SCHOOL DISTRICT R-3 3A -- Vote For 1	140	2,454	2,314	140	4,768	12.27	No	2,445	2,323	121	12.22	No
LYONS REGIONAL LIBRARY DISTRICT 4C: -- Vote For 1	41	713	672	41	1,385	3.57	No	710	675	35	3.55	No
LYONS REGIONAL LIBRARY DISTRICT 4D: -- Vote For 1	440	914	474	440	1,388	4.57	No	911	477	434	4.56	No
LEFTHAND FIRE PROTECTION DISTRICT 5A -- Vote For 1	417	554	137	417	691	2.77	No	553	138	414	2.76	No
Rocky Mountain Fire Protection District 5B: -- Vote For 1	344	2,832	2,488	344	5,320	14.16	No	2,821	2,499	323	14.11	No
BC SUBDIVISION PAVING PUBLIC IMPROVEMENT DISTRICT 5C -- Vote For 1	1,473	6,659	5,186	1,473	11,845	33.30	No	6,635	5,210	1,426	33.18	No
BC NEDERLAND ECO PASS PUBLIC IMPROVEMENT DISTRICT 5D -- Vote For 1	149	786	637	149	1,423	3.93	No	783	640	143	3.92	No

U =
Combined
Discrepancy
Rate
0.001987240

U=uncertainty as a % of V
Assume worse-case and that
all U is such to reduce M

Without uncertainty, the
recount equation is
M<=0.005W

With worse-case uncertainty
the recount equation becomes
(W-UV)-(L+UV) <= 0.005(W-UV)

*In reviewing the need for an
audit escalation, we looked at
what the impact would be created
if the highest difference rate were
applied across the election
contests and the results are shown
in column Y.

Outcome Impact - Exclude differences determined to be attributed to voter error

Contest	Absolute Margins	W	L	Margin W - L	V = W + L	Recount Threshold 0.005*W	Is M <= RT?	New W = W - UV	New L = L + UV	New Margin = W - L	New Recount Threshold = 0.005 * W	Is M <= RT?
BOULDER COUNCIL CANDIDATES -- Vote For 5	442	12,511	12,069	442	24,580	62.56	No	12,506	12,074	432	62.53	No
LAFAYETTE COUNCIL CANDIDATES -- Vote For 4	332	3,527	3,195	332	6,722	17.64	No	3,526	3,196	329	17.63	No
LONGMONT MAYOR -- Vote For 1	4,362	14,389	10,027	4,362	24,416	71.95	No	14,384	10,032	4,352	71.92	No
LONGMONT COUNCIL MEMBER AT LARGE -- Vote For 2	533	9,909	9,376	533	19,285	49.55	No	9,905	9,380	525	49.52	No
LONGMONT COUNCIL MEMBER WARD 2 -- Vote For 1	927	3,921	2,994	927	6,915	19.61	No	3,920	2,995	924	19.60	No
LOUISVILLE CITY COUNCIL PERSON WARD I -- Vote For 1 UNOPPOSED	2,008	2,008	0	2,008	2,008	10.04	No	2,008	0	2,007	10.04	No
LOUISVILLE CITY COUNCIL PERSON WARD II -- Vote For 1	462	1,417	955	462	2,372	7.09	No	1,417	955	461	7.08	No
LOUISVILLE CITY COUNCIL PERSON WARD III -- Vote For 1	390	1,289	899	390	2,188	6.45	No	1,289	899	389	6.44	No
ESTES PARK R-3 SCHOOL DIRECTOR AT LARGE -- Vote For 2	49	1,326	1,277	49	2,603	6.63	No	1,325	1,278	48	6.63	No
THOMPSON R2-J BOARD OF EDUCATION DIRECTOR DISTRICT A -- Vote For 1	968	13,167	12,199	968	25,366	65.84	No	13,162	12,204	957	65.81	No
THOMPSON R2-J BOARD OF EDUCATION DIRECTOR DISTRICT B -- Vote For 1	204	14,919	14,715	204	29,634	74.60	No	14,913	14,721	192	74.56	No
THOMPSON R2-J BOARD OF EDUCATION DIRECTOR DISTRICT E -- Vote For 1	1,289	15,155	13,866	1,289	29,021	75.78	No	15,149	13,872	1,277	75.74	No
THOMPSON R2-J BOARD OF EDUCATION DIRECTOR DISTRICT F -- Vote For 1	1,443	15,249	13,806	1,443	29,055	76.25	No	15,243	13,812	1,431	76.21	No
Amendment 66 (CONSTITUTIONAL) -- Vote For 1	401,335	889,048	487,713	401,335	1,376,761	4,445.24	No	888,760	488,001	400,759	4,443.80	No
Proposition AA (STATUTORY) -- Vote For 1	416,504	889,788	473,284	416,504	1,363,072	4,448.94	No	889,503	473,569	415,934	4,447.51	No
BOULDER NO. 2A -- Vote For 1	9,878	20,204	10,326	9,878	30,530	101.02	No	20,198	10,332	9,865	100.99	No
BOULDER NO. 2B -- Vote For 1	9,964	20,151	10,187	9,964	30,338	100.76	No	20,145	10,193	9,951	100.72	No
Boulder 2C -- Vote For 1	15,484	22,974	7,490	15,484	30,464	114.87	No	22,968	7,496	15,471	114.84	No
Boulder 2D -- Vote For 1	12,827	21,293	8,466	12,827	29,759	106.47	No	21,287	8,472	12,815	106.43	No
Boulder 2E -- Vote For 1	9,417	18,960	9,543	9,417	28,503	94.80	No	18,954	9,549	9,405	94.77	No
Boulder 2F -- Vote For 1	13,957	20,757	6,800	13,957	27,557	103.79	No	20,751	6,806	13,945	103.76	No
Boulder 2G -- Vote For 1	7,053	17,628	10,575	7,053	28,203	88.14	No	17,622	10,581	7,041	88.11	No
Boulder 2H -- Vote For 1	16,842	23,390	6,548	16,842	29,938	116.95	No	23,384	6,554	16,829	116.92	No
Boulder No. 310 -- Vote For 1	11,566	21,100	9,534	11,566	30,634	105.50	No	21,094	9,540	11,553	105.47	No
Lafayette No. 2A -- Vote For 1	868	4,660	3,792	868	8,452	23.30	No	4,658	3,794	864	23.29	No
LAFAYETTE NO. 301 -- Vote For 1	84	4,303	4,219	84	8,522	21.52	No	4,301	4,221	80	21.51	No
Lafayette No. 300 -- Vote For 1	1,773	5,248	3,475	1,773	8,723	26.24	No	5,246	3,477	1,769	26.23	No
Longmont 2A -- Vote For 1	12,314	18,906	6,592	12,314	25,498	94.53	No	18,901	6,597	12,303	94.50	No
Longmont 2B -- Vote For 1	9,173	17,430	8,257	9,173	25,687	87.15	No	17,425	8,262	9,162	87.12	No
Longmont 2C -- Vote For 1	8,924	15,753	6,829	8,924	22,582	78.77	No	15,748	6,834	8,915	78.74	No
ESTES PARK SCHOOL DISTRICT R-3 3A -- Vote For 1	140	2,454	2,314	140	4,768	12.27	No	2,453	2,315	138	12.27	No
LYONS REGIONAL LIBRARY DISTRICT 4C: -- Vote For 1	41	713	672	41	1,385	3.57	No	713	672	40	3.56	No
LYONS REGIONAL LIBRARY DISTRICT 4D: -- Vote For 1	440	914	474	440	1,388	4.57	No	914	474	439	4.57	No
LEFTHAND FIRE PROTECTION DISTRICT 5A -- Vote For 1	417	554	137	417	691	2.77	No	554	137	417	2.77	No
Rocky Mountain Fire Protection District 5B: -- Vote For 1	344	2,832	2,488	344	5,320	14.16	No	2,831	2,489	342	14.15	No
BC SUBDIVISION PAVING PUBLIC IMPROVEMENT DISTRICT 5C -- Vote For 1	1,473	6,659	5,186	1,473	11,845	33.30	No	6,657	5,188	1,468	33.28	No
BC NEDERLAND ECO PASS PUBLIC IMPROVEMENT DISTRICT 5D -- Vote For 1	149	786	637	149	1,423	3.93	No	786	637	148	3.93	No

U = Combined Discrepancy Rate
0.000209183

U=uncertainty as a % of V
Assume worse-case and that all U is such to reduce M

Without uncertainty, the recount equation is $M \leq 0.005W$

With worse-case uncertainty the recount equation becomes $(W-UV)-(L+UV) \leq 0.005(W-UV)$

*When removing voter error, we utilized the discrepancy rate for the remaining differences; a hair/dust particle that created an unintended vote and an erased pencil mark that was resolved as a vote.