

# Post-Election Audit Summary

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## March 15, 2016 Primary Election

*Delegates-at-Large and Alternates-at-Large to the National Convention (Democratic)*  
*Justice of the Supreme Court FTC 1/1/2017 (Republican)*  
*Representative to Congress – 9<sup>th</sup> District (Republican)*

Beginning April 12, 2016 we conducted a Risk-Limiting Post-Election Audit for the March 2016 Primary Election. There were 361,098 total ballots cast in the election.

A total of 54 unique batches were audited, consisting of a hand count total of 7,846 ballots from the audited races. There were no discrepancies in vote totals and no page discrepancies among all ballot pages audited, giving us a 100% accuracy rate for the election. Audited race and batch details are provided below:

RACE	TOTAL BALLOTS CAST	UNIQUE BATCHES AUDITED	TOTAL BALLOTS AUDITED	NUMBER OF PRECINCTS IN CONTEST
Delegates-at-Large and Alternates-at-Large to the National Convention (Democratic)	209,004	10	1,598	980
Justice of the Supreme Court FTC 1/1/2017 (Republican)	145,929	27	4,298	980
Representative to Congress – 9 <sup>th</sup> District (Republican)	31,897	17	1,950	197

Our Risk-Limiting Audit was based upon the Kaplan-Markov method as explained by Philip B. Stark and Mark Lindeman. Auditing best practices recommend we split up the total ballots cast by precinct into multiple batch types. We utilized five batch types each consisting of one single ballot type category: Absentee, Election Day, Provisional, Post Absentee, and Post Election Day.

A master spreadsheet was created for each contest with statistical formulas to determine the number of batches that must be audited in order to reach a 90% confidence level. This confidence level means the audit has at least a 90% probability of leading to a full recount if the apparent outcome is incorrect.

We used a “Probability Proportional to Error Bound with Replacement” selection method. We assigned numbers ranging from 000000 through 999,999 for each batch within each contest. Unique ranges of numbers were allocated to specific batches based upon their error bound - i.e. the greater the possibility of a miscount within a batch, the more numbers assigned, and the more likely it is to be selected. For example, if a single batch has a high probability of a miscount, multiple numbers would be assigned to that single batch, making the random selection of that batch more likely during the audit. Each of those individual numbers might be randomly selected and included in the overall batch audit requirement, but the single batch to which those numbers are assigned would need to be audited only once. To obtain the precinct batch number we rolled differently colored dice numbered 0 - 9, each one of the colored dice representing one digit of the batch number.

*Delegates-at-Large and Alternates-at-Large to the National Convention (Democratic)*

PRECINCT NAME	NUMBER OF TIMES SELECTED	SELECTED BATCH TYPE	OFFICIAL BALLOTS CAST	AUDIT HAND COUNT	DIFFERENCE / DISCREPANCY
CLEVELAND -04-Q	1	Election Day	290	290	0
CLEVELAND -13-H	1	Election Day	110	110	0
CLEVELAND -17-N	1	Election Day	211	211	0
CLEVELAND HEIGHTS -03-B	1	Election Day	263	263	0
MAYFIELD HEIGHTS -00-M	1	Absentee	60	60	0
MORELAND HILLS -00-A	1	Absentee	61	61	0
OAKWOOD -05-A	1	Absentee	28	28	0
PARMA HEIGHTS -03-B	1	Election Day	158	158	0
SHAKER HEIGHTS -00-A	1	Election Day	224	224	0
UNIVERSITY HEIGHTS -00-D	1	Election Day	193	193	0
<b>TOTAL</b>		-	<b>1,598</b>	<b>1,598</b>	<b>0</b>

*Justice of the Supreme Court FTC 1/1/2017 (Republican)*

PRECINCT NAME	NUMBER OF TIMES SELECTED	SELECTED BATCH TYPE	OFFICIAL BALLOTS CAST	AUDIT HAND COUNT	DIFFERENCE / DISCREPANCY
BRECKSVILLE -00-C	1	Absentee	120	120	0
BROOKLYN HEIGHTS -00-A	1	Absentee	66	66	0
CLEVELAND -07-B	1	Election Day	21	21	0
CLEVELAND -13-P	1	Election Day	127	127	0
CLEVELAND HEIGHTS -01-A	1	Absentee	20	20	0
EUCLID -08-E	1	Election Day	44	44	0
INDEPENDENCE -00-E	1	Election Day	305	305	0
MAPLE HEIGHTS -01-A	1	Election Day	64	64	0
MIDDLEBURG HEIGHTS -02-A	1	Election Day	214	214	0
MIDDLEBURG HEIGHTS -02-B	1	Election Day	205	205	0
NORTH OLMSTED -01-B	2	Election Day	197	197	0
NORTH OLMSTED -01-E	1	Election Day	318	318	0
NORTH OLMSTED -03-A	1	Election Day	203	203	0
PARMA -04-C	1	Election Day	144	144	0
PARMA -07-B	1	Absentee	71	71	0
PARMA -09-F	1	Absentee	53	53	0
PARMA HEIGHTS -04-C	1	Election Day	162	162	0
PEPPER PIKE -00-D	1	Election Day	286	286	0
SHAKER HEIGHTS -00-C	1	Election Day	142	142	0
SHAKER HEIGHTS -00-S	1	Election Day	184	184	0
SHAKER HEIGHTS -00-T	1	Election Day	180	180	0
SOLON -04-C	1	Election Day	223	223	0

SOUTH EUCLID -02-C	1	Election Day	128	128	0
STRONGSVILLE -01-E	1	Absentee	84	84	0
STRONGSVILLE -02-D	1	Election Day	243	243	0
STRONGSVILLE -02-G	1	Election Day	250	250	0
STRONGSVILLE -02-H	1	Election Day	244	244	0
<b>TOTAL</b>		-	<b>4,298</b>	<b>4,298</b>	<b>0</b>

*Representative to Congress – 9<sup>th</sup> District (Republican)*

PRECINCT NAME	NUMBER OF TIMES SELECTED	SELECTED BATCH TYPE	OFFICIAL BALLOTS CAST	AUDIT HAND COUNT	DIFFERENCE / DISCREPANCY
BAY VILLAGE -02-C	1	Election Day	252	252	0
BROOK PARK -01-C	1	Election Day	194	194	0
BROOK PARK -04-A	1	Election Day	182	182	0
CLEVELAND -11-H	1	Election Day	67	67	0
CLEVELAND -11-I	1	Election Day	39	39	0
CLEVELAND -12-Q	1	Absentee	6	6	0
CLEVELAND -13-I	1	Election Day	111	111	0
CLEVELAND -13-L	1	Election Day	97	97	0
CLEVELAND -16-O	1	Absentee	8	8	0
LAKEWOOD -03-D	1	Election Day	132	132	0
PARMA -01-B	1	Absentee	25	25	0
PARMA -01-B	1	Election Day	143	143	0
PARMA -02-A	1	Election Day	153	153	0
PARMA -02-B	1	Absentee	56	56	0
PARMA -02-D	1	Election Day	156	156	0
PARMA -04-D	1	Election Day	163	163	0
PARMA -09-C	1	Election Day	166	166	0
<b>TOTAL</b>		-	<b>1,950</b>	<b>1,950</b>	<b>0</b>

# Historical Post-Election Audit Accuracy Rate

