VOTE CUYAHOGA COUNTY BOARD OF ELECTIONS

Post-Election Audit Summary

November 3, 2020 General Election

President and Vice President
Justice of the Supreme Court (FTC 1-1-2021)
Judge of the Court of Appeals (8th District) UTE 1-1-2023

There were 631,199 total ballots cast in the November 3, 2020 General Election. A hand count was conducted of 10,031 ballots cast in the audited contests. The accuracy rate for the post-election audit is 100%.

Beginning December 8, 2020, we conducted three Risk-Limiting Post-Election Audits for the 2020 General Election. Audited race and batch details are provided below:

RACE	TOTAL BALLOTS CAST	UNIQUE BATCHES AUDITED	TOTAL BALLOTS AUDITED	NUMBER OF PRECINCTS IN CONTEST
President and Vice President	631,199	8	2,585	975
Justice of the Supreme Court (FTC 1-1-2021)	631,199	20	5,196	975
Judge of the Court of Appeals (8th District) UTE 1-1-2023	631,199	9	2,250	975
Total		**37**	**10,031**	

Our Risk-Limiting Audits were 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 six batch types each consisting of one single ballot type category: Vote-by-Mail, Election Day, Early In-Person, Provisional, Post Vote-by-Mail, 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.

President and Vice President

PRECINCT NAME	NUMBER OF TIMES SELECTED	SELECTED BATCH TYPE	OFFICIAL BALLOTS CAST	AUDIT HAND COUNT	DIFFERENCE
CLEVELAND -01-Q	1	Election Day	221	221	0
EUCLID -07-B	1	Vote-by-Mail	189	189	0
LAKEWOOD -01-H	1	Vote-by-Mail	632	632	0
LAKEWOOD -04-E	1	Election Day	219	219	0
MAPLE HEIGHTS -07-A	1	Election Day	246	246	0
PARMA -04-A	1	Election Day	356	356	0
ROCKY RIVER -01-A	1	Vote-by-Mail	547	547	0
UNIVERSITY HEIGHTS -00-E	1	Election Day	175	175	0
Total	**8**		**2585**	**2585**	**0**

Justice of the Supreme Court (FTC 1-1-2021)

PRECINCT NAME	NUMBER OF TIMES SELECTED	SELECTED BATCH TYPE	OFFICIAL BALLOTS CAST	AUDIT HAND COUNT	DIFFERENCE
BEDFORD -02-A	1	Election Day	253	253	0
BEREA -04-B	1	Post Election Day	5	5	0
BROOK PARK -01-C	1	Election Day	341	341	0
BROOK PARK -02-B	1	Election Day	276	276	0
CLEVELAND -03-D	1	Vote-by-Mail	476	476	0
CLEVELAND -08-G	1	Election Day	255	255	0
CLEVELAND -12-C	1	Early In-Person	50	50	0
CLEVELAND -17-E	1	Election Day	297	297	0
CLEVELAND HEIGHTS -01-F	1	Early In-Person	136	136	0
EAST CLEVELAND -04-B	1	Election Day	128	128	0
FAIRVIEW PARK -04-A	1	Election Day	393	393	0
GATES MILLS -00-B	1	Early In-Person	49	49	0
LAKEWOOD -03-B	1	Early In-Person	72	72	0
LAKEWOOD -04-F	1	Election Day	271	271	0
OLMSTED FALLS -01-B	1	Vote-by-Mail	285	285	0
ORANGE -00-B	1	Vote-by-Mail	461	461	0
RICHMOND HEIGHTS -03-A	1	Election Day	176	176	0
SOLON -02-A	1	Early In-Person	69	69	0
SOLON -05-A	1	Vote-by-Mail	772	772	0
STRONGSVILLE -02-F	1	Vote-by-Mail	431	431	0
Total	**20**		**5196**	**5196**	**0**

Judge of the Court of Appeals (8th District) UTE 1-1-2023

PRECINCT NAME	NUMBER OF TIMES SELECTED	SELECTED BATCH TYPE	OFFICIAL BALLOTS CAST	AUDIT HAND COUNT	DIFFERENCE
CLEVELAND -02-E	1	Vote-by-Mail	83	83	0
CLEVELAND -04-U	1	Early In-Person	55	55	0
CLEVELAND -14-I	1	Election Day	173	173	0
EAST CLEVELAND -02-C	1	Election Day	135	135	0
EUCLID -05-C	1	Election Day	315	315	0
MAYFIELD VILLAGE -04-A	1	Vote-by-Mail	245	245	0
NORTH ROYALTON -06-C	1	Vote-by-Mail	464	464	0
PARMA -05-D	1	Vote-by-Mail	386	386	0
SOLON -04-A	1	Vote-by-Mail	394	394	0
Total	**9**		**2250**	**2250**	**0**