

Statistical Voting Analysis of the 2020 NY-22 Congressional Contest

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Executive Summary

A team of unpaid citizen volunteer mathematicians, scientists, engineers and IT veterans, collaborated in a statistical vote analyses of selected states in the 2020 Presidential, Senate, and Congressional Elections. The purpose of a statistical analysis is not to tell **what** happened (e.g., ballot stuffing, voting machine algorithm, something innocent, etc.), but rather **where** there were unusual results. To verify vote integrity, Phase 2 is to have a **forensic audit** done of the locations where suspicious results were identified — which likely can resolve the **what**. This statistical report focuses on the 2020 Congressional NY District 22 Election. For any questions, please contact one of the above listed authors.

Based on the limited data available, it is noted that NY-22 has a few things that are anomalous:

- 1.) Oneida and Broome 2020 results differ from their 2016 and 2018 histories
- 2.) Oneida and Broome are outlier counties that have different down-ballot votes vs Presidential
- 3.) Oneida has unusual correlations of absentee participation across parties, even per precinct
- 4.) 307 Broome County overvotes (where a voter votes for two candidates) are apparently not accounted for by NY BoE
- 5.) We have not been given (and were unable to find) Broome county absentee or precinct data. Accordingly, we have a lower confidence level as to where the issues are in Broome County.

Recommended Forensic Audits:

Oneida County

- If (due to time or financial constraints), it is not practical to do a forensic audit of the entire Oneida county, then the next best alternative would be to do a forensic audit on the city of Utica, and the towns of New Hartford, Kirkland, Whitestown.
- If (due to time or financial constraints), it is not practical to do the above, then do a forensic audit on these precincts: Utica 6-8, New Hartford 4-1, New Hartford 4-4, Kirkland 3, and Whitestown 16.

Broome County

- If (due to time or financial constraints), it is not practical to do a forensic audit of the entire Broome county, then the next best alternative would be to do a forensic audit on the towns of Union and Vestal.
- If (due to time or financial constraints), it is not practical to do a forensic audit of the towns of Union and Vestal, then the next best thing would be to do a forensic audit on these precincts: Union 27 and Vestal 6.

NY-22 2020: Basic Look

Please reference the attached Excel Data document for some additional details of this report. Our caveat is that the data we were given (and were able to find) is quite limited. Sufficient data for a high-confidence analysis includes: **a)** precinct data, **b)** time-series data, and **c)** precinct data for the prior election. Another challenge we faced is that four of the eight NY-22 counties are only partially included in the Congressional District. The partial counties are: Broome, Herkimer, Oswego, and Tioga.

A comparison between the US Presidential race and the US Congressional race indicates that Broome and Oneida counties generally behave unlike other NY-22 counties. For example, there is a large discrepancy between the Congressional and Presidential votes (Brindisi vs Biden and Tenney vs Trump). These two also have the largest absentee vote of the entire district, by a sizeable margin.

We are only showing Oneida county (Figure 1), as we don't have the Broome County precinct data (Broome one of the counties that is only partially in NY-22). From the limited data we do have, Broome County seems to have anomalies similar to Oneida County. For comparison, Figure 2 shows Madison County, where the Congressional and Presidential votes track somewhat more normally. (Find more information about both of these figures on the 2020 Overview Data page of our Excel Data document.)

President	Trump (REP)	Biden (DEM)	Other	Total Votes	Dem/Rep
TOTAL	57180	41567	2948	101695	42D / 58R
US Rep	Tenney (REP)	Brindisi (DEM)	Other	Total Votes	Dem/Rep
TOTAL	50094	48501	1682	100277	49D / 51R

Pres vs US Rep	Tenney Loss	Brindisi Gain	3 rd Party Loss	Total Vote Diff
TOTAL	-7086	6934	-1266	-1418

Figure 1: Oneida County Presidential Results vs Congressional Results
(Brindisi was 117% Biden, while Tenney was 88% of Trump)

President	Trump (REP)	Biden (DEM)	Other	Total Votes	Dem/Rep
TOTAL	18408	14807	1050	34265	45D / 55R
US Rep	Tenney (REP)	Brindisi (DEM)	Other	Total Votes	Dem/Rep
TOTAL	17040	15648	1721	34409	48D / 52R

Pres vs US Rep	Tenney Loss	Brindisi Gain	3 rd Party Gain	Total Vote Diff
TOTAL	-1368	841	671	144

Figure 2: Madison County Presidential Results vs Congressional Results
(Brindisi was 106% Biden, while Tenney was 93% of Trump)

Another often useful comparison is to look at recent Congressional race results. Examining the last three Congressional elections, we use the statistical technique of “contrast” (difference of differences between Dem and Rep: Figure 3). Once again, Oneida and Broome behave unlike the other counties.

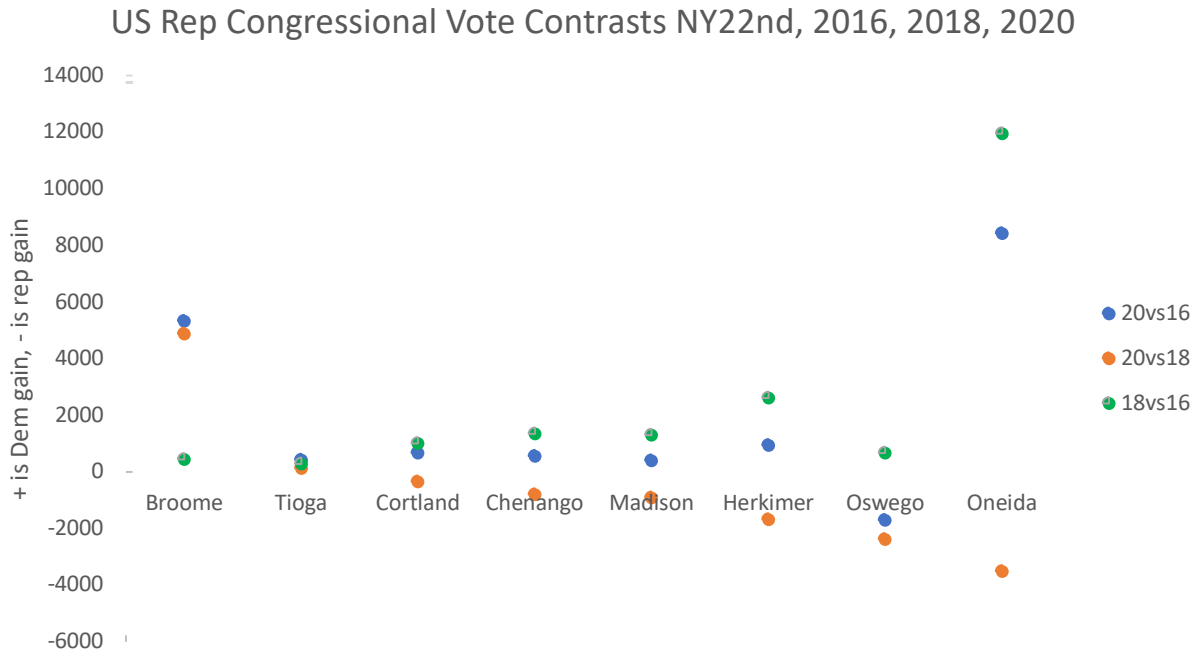


Figure 3: NY-22 County Congressional Contrasts, 2016 through 2020

Another way to look at this historical contrast is a two-variable (bivariate) graph comparing contrasts of candidates (see Figure 4). This bivariate graph employs a statistical contrast of Tenney vs 2018 and 2016, as well as Brindisi 2020 vs 2018 and Myers 2016. It’s clear that Broome and Oneida are outliers.

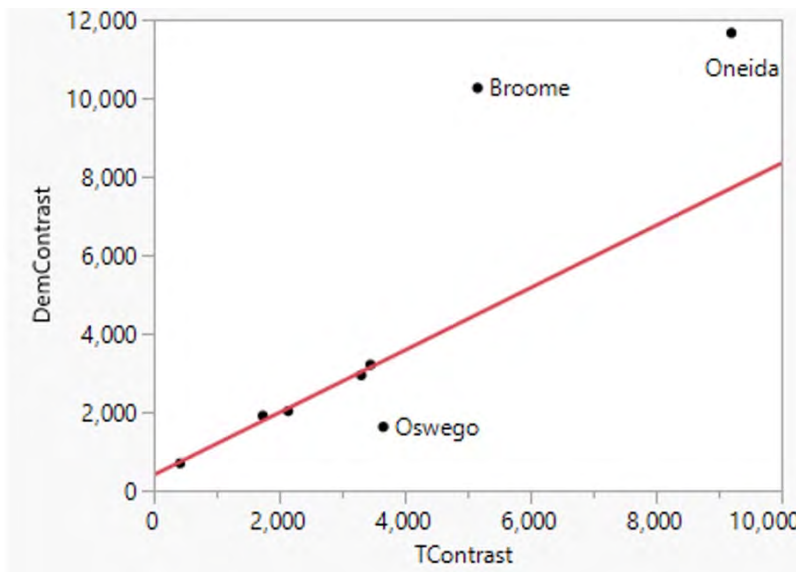


Figure 4: NY-22 County Congressional Contrasts, 2016 through 2020

On Figure 4 (prior page) we note five counties that indicate a linear relationship and three counties off the line. As indicated on the plot, the two points above the line are Broome and Oneida counties. In these counties the Democrats did better than expected by quite a number of votes. Broome, and Oneida results are consistent with artificially manipulating votes in 2020 relative to 2016 and 2018. By comparison, in Oswego County, Brindisi did not increase his vote total as much as Tenney did.

The data for the Figure 3 and 4 plots is in Figure 5 (below). Unusual values are highlighted in color.

County	Tenney2016	Tenney2018	Tenney2020	TContrast	Myers2016	Brindisi2018	Brindisi2020	DemContrast
Broome	31,301	31,545	36,581	5,158	40,095	40,780	50,697	10,260
Chenan...	10,170	9,282	11,868	2,142	6,989	7,455	9,248	2,026
Cortland	8,249	7,378	9,551	1,738	9,101	9,246	11,079	1,906
Herkimer	10,344	10,362	13,658	3,305	5,811	8,451	10,070	2,939
Madison	13,880	13,296	17,040	3,452	12,074	12,809	15,648	3,207
Oneida	42,591	39,192	50,094	9,203	32,563	41,115	48,501	11,662
Oswego	10,244	9,588	13,572	3,656	5,759	5,770	7,388	1,624
Tioga	2,665	2,599	3,051	419	1,874	2,089	2,676	695

Figure 5: Table of NY-22 County Congressional Contrasts, 2016 through 2020

Finally, we look at the *Presidential* election contrast data for the NY-22 counties in Figure 6 (below). The right-hand column shows how the NY-22 counties compare to the other sixty-two NYS counties. A low number rank (e.g. Broome) means that the county had more election result deviance (contrast) than most NY counties.

County	Biden2020	Trump2020	Clinton2016	Trump2016	Contrast	Rank
Broome	46,909	43,728	39,212	40,943	4912	7
Chenango	5,126	11,736	6,775	11,921	-1464	47
Cortland	10,367	10,788	8,771	9,900	708	19
Herkimer	7,282	17,038	8,083	16,699	-1140	42
Madison	14,807	18,408	11,667	15,936	668	20
Oneida	30,542	51,950	33,743	51,437	-3714	51
Oswego	20,824	31,677	17,095	27,688	-260	34
Tioga	9,634	14,791	7,526	13,260	577	22

Figure 6: Table of NY-22 County Presidential Contrasts, 2016 and 2020

In the next two sections we look a bit closer at Oneida and Broome counties, again with just the limited data we have available, and the very short time allotted to analyze that information.

Oneida County

By using various analytic tools, we see that Oneida County has several unusual features.

First, Oneida has unexpected correlations across precincts and parties for absentee voting. The Pearson coefficient (i.e., linear correlation — which would be expected to be zero) across all precincts is 0.49, which indicates unusual positive correlation. Some townships like Kirkland have stronger correlation with a Pearson coefficient of 0.78. See Figure 7 (below). Basically this means that absentee voting participation is unnaturally correlated — i.e., if there is a jump or drop in Absentee voting for Tenney, there is a similar jump or drop for Brindisi. We are aware of no reasonable explanation for this behavior, other than artificial vote manipulation.

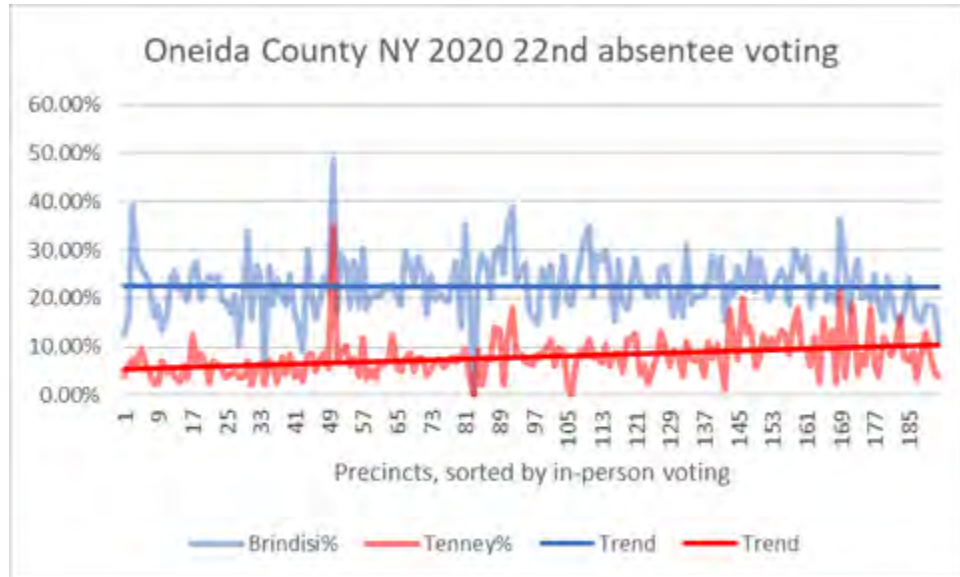


Figure 7: Graph of Oneida County Absentee Ballot by Precinct

Second, four voting variables were used for a multi-variable analysis: Tenney (in-person and absentee) and Brindisi (in-person and absentee). Five Oneida County precincts are outliers. See the next page (Figure 9) for the data.

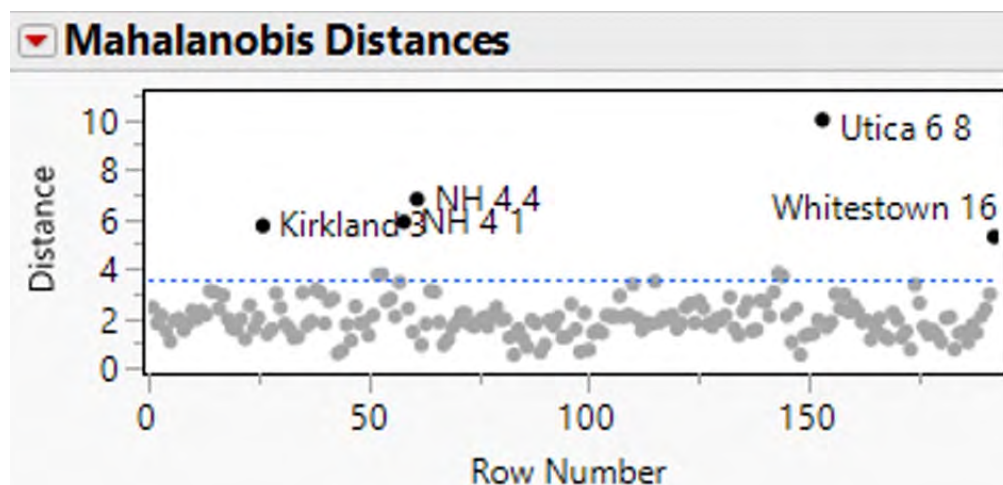


Figure 8: 2020 Oneida County Congressional Votes - Four Variables Plot

Oneida	TIn-Person	TAbsentee	T%Ab	BIn-Person	BAbsentee	B%Ab
Kirkland 3	91	25	21.55	338	193	36.35
NH 4 1	254	56	18.06	294	187	38.88
NH 4 4	502	52	9.39	439	237	35.06
Utica 6 8	158	85	34.98	193	183	48.67
Whitestown 16	535	72	11.86	365	160	30.48

Figure 9: 2020 Oneida County Congressional Votes - Four Variables Data

By comparison, look at the same analysis for Oswego County (Figure 10). There are only two precincts above the line, and not by much. These are not outliers as seen in Oneida County.

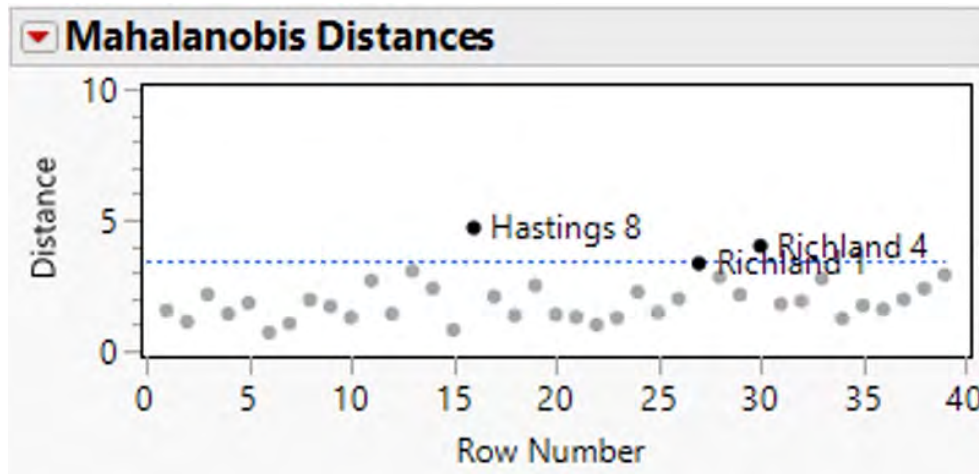


Figure 10: 2020 Oswego County Congressional Votes - Four Variables Plot

Third, applying statistical contrast across the NY-22 Congressional races in the last 3 elections is shown below (Figure 11).

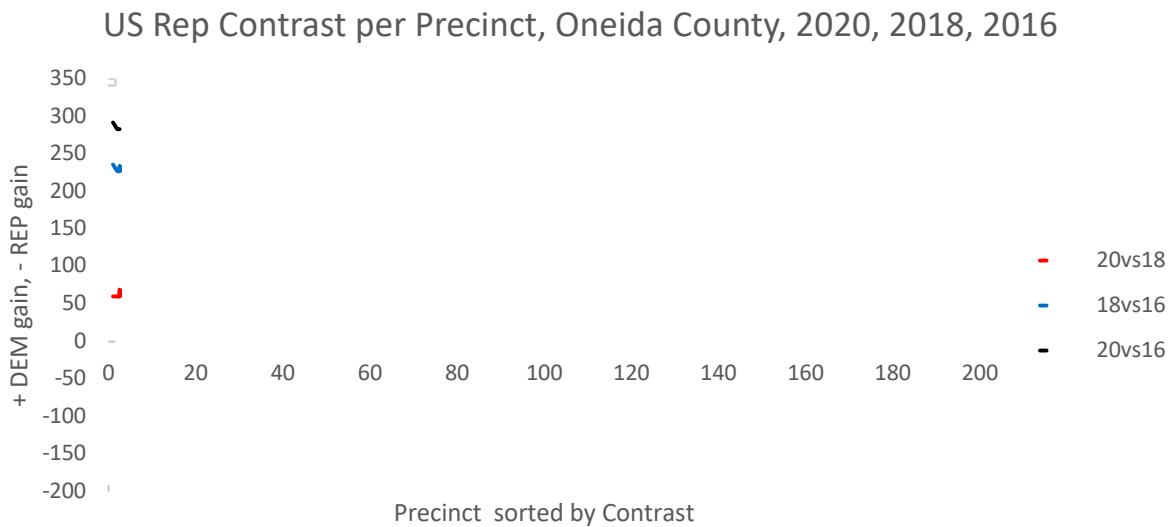


Figure 11: NY-22 voter behavior changes per precinct in the last 3 Congressional contests

The outliers from this analysis (Figure 11) are shown in the table below (Figure 12). Not surprisingly, the top 5 outliers from the 2020 bivariate analysis (see Figures 8 and 9) appear here again.

Oneida District	Rank	Contrast		
		20vs18	20vs16	18vs16
NH 2 4	1	56	292	236
NH 1 3	2	9	219	210
NH 4 1	3	45	214	169
NH 3 1	4	69	211	142
NH 4 4	5	54	197	143
Kirkland 6	6	50	186	136
NH 1 1	7	4	184	180
NH 3 4	8	31	177	146
NH 1 4	9	37	172	135
Whitestown 16	10	-32	165	197
NH 3 2	11	-6	160	166
Utica 6 2	12	30	156	126
NH 2 3	13	10	155	145
Kirkland 3	14	-65	147	212
NH 4 2	15	38	147	109
NH 1 5	16	32	136	104
NH 3 3	17	48	134	86
Utica 3 3	18	17	134	117
Whitestown 9	19	27	133	106
Utica 6 8	20	-9	129	138

Figure 12: NY-22 voter behavior changes per Oneida precinct in the last 3 Congressional contests
(sorted by the 2020 vs 2016 column)

In summary, Oneida County has the following mathematical anomalies, occurring all in concert:

- 1.) Significant Congressional vs Presidential voting differences in 2020
- 2.) Unusual correlating absentee voting behaviors per precinct
- 3.) Several precinct outliers of absentee voting vs the majority of precincts within Oneida
- 4.) The same precinct outliers of total votes behaving quite differently across the last 3 elections

Specifically, we recommend a forensic audit of these 5 precincts, in priority order:

- 1.) NH 4-4
- 2.) NH 4-1
- 3.) Utica 6-8
- 4.) Kirkland 3
- 5.) Whitestown 16

Broome County

By using several different analytic tools, we conclude that Broome County has some unusual results.

First, and most importantly, the Broome County picture is incomplete. The precinct level data has not been obtained, both via our requests and from our own data searches. This is a concern based on multiple indicators — e.g., in the 2020 Presidential Election, Broome County is the largest outlier of the NY-22 counties, as compared to its own history (see Figure 6).

Second, 307 double-ballot counts (where a person votes for both candidates) are seemingly undetected by the New York Board of Elections. (See Figure 13, below, and the “Others” Data sheet of our Excel Data document.) This discrepancy is only seen when examining the 3rd party and Over/Under vote. The sums between the official reports do not add up. Although we identified other discrepancies between County and State reported results, Broome County’s stood out.

County	In Person - Provided By Tenney Campaign				In-Person - NY Board of Elections "Other" Votes					In-Person County Boards of Elections "Other" Votes				
	Tenney	Brindisi	Other	Total	Price (Lib)	Blank/ Under	Void/ Over	Write-in	TOTAL OTHER	Price (Lib)	Blank/ Under	Void/ Over	Write-in	TOTAL OTHER
[Broome]	32,301	35,593	3,220	71,114	1,994	1,799	47	42	3,882	1,994	1,799	354	42	4,189
Chenango	10,420	5,958	1,058	17,436	524	406	7	8	945	524	406	128	8	1,066
Cortland	8,434	7,460	683	16,577	479	462	18	7	966	NA	NA	NA	NA	NA
[Herkimer]	12,467	7,637	297	20,401	297	405	1	7	710	NA	NA	NA	NA	NA
Madison	15,360	11,226	1,325	27,911	561	634	12	6	1,213	NA	NA	NA	NA	NA
Oneida	45,851	36,425	1,013	83,289	1,104	1,115	33	32	2,284	NA	NA	NA	NA	NA
[Oswego]	12,348	5,305	349	18,002	349	463	6	7	825	349	469		7	825
[Tioga]	2,745	1,935	96	4,776	159	101	3	1	264	159	101	3	1	264
Total	139,926	111,539	8,041	259,506	5,467	5,385	127	110	11,089	3,026	2,775	485	58	[7950]
In-P %	53.9%	43.0%	3.1%	100%										

Figure 13: NY-22 Counties “Other” Results — NYS vs County Reports

Third, for whatever reason, comparing the 2018 and 2020 votes, Broome County was the only NY-22 county where Candidate Tenney significantly lost ground (see Figure 14, below). Reference the Historical sheet in the Excel Data document for more details.

2018 Congressional NY-22					2020 Congressional NY-22					Comparisons with the Past		
County	Tenney	Brindisi	Te %	Te-Br	County	Tenney	Brindisi	Te %	Te-Br	Te 2020-2018	Br 2020-2018	Te Net 2020-2018
[Broome]	31,545	40,780	44%	-9,235	[Broome]	36,581	50,697	42%	-14,116	5,036	9,917	4,881
Chenango	9,282	7,455	55%	1,827	Chenango	11,868	9,248	56%	2,620	2,586	1,793	793
Cortland	7,378	9,246	44%	-1,868	Cortland	9,551	11,079	46%	-1,528	2,173	1,833	340
[Herkimer]	10,362	8,451	55%	1,911	[Herkimer]	13,658	10,070	58%	3,588	3,296	1,619	1,677
Madison	13,296	12,809	51%	487	Madison	17,040	15,648	52%	1,392	3,744	2,839	905
Oneida	39,192	41,115	49%	-1,923	Oneida	50,094	48,501	51%	1,593	10,902	7,386	3,516
[Oswego]	9,588	5,770	62%	3,818	[Oswego]	13,572	7,388	65%	6,184	3,984	1,618	2,366
[Tioga]	2,599	2,089	55%	510	[Tioga]	3,051	2,676	53%	375	452	587	136
Total	123,242	127,715	49%	-4,473	Total	155,415	155,307	50%	108	32,173	27,592	4,581
% of Vote	49%	51%			% of Vote	48%	48%					

Figure 14: Comparing NY-22 Counties 2018 and 2020 Election Results

Without 2020 Broome precinct level, we’re rather blind to suggest a strongly confident precinct to audit. However, we do have 2016 and 2018 precinct data. This, with our experience in analyzing the election across many states and races, allows us to estimate the anomalies appearing in a specific type of township with a particular party and voting ratio. This leads us to the townships of Union and Vestal.

In summary, Broome has the following mathematical anomalies, occurring all in concert:

- 1.) Significant (14%) US Rep vs Presidential voting differences in 2020
- 2.) 307 double-ballot counts that are inconsistent between the New York BoE and the County BoE
- 3.) Broome County has 666 votes unaccounted for in the Congressional Race from the unofficial results
- 4.) 2020 Broome County election precinct level data has so far been unavailable.
- 5.) Compared to all Broome county is one of the larger historical outliers in the Presidential Election in NYS.

Specifically, we recommend auditing these 2 townships and/or precincts:

- 1.) Union, specifically Union 27
- 2.) Vestal, specifically Vestal 6

Lastly, we recommend the campaign verify counts of Void ballots (overvotes, double votes) and Blank ballots (undervotes) for each NY-22 county to ensure the accuracy of all ballots cast.