

# Exhibit 2

SUPREME COURT OF THE STATE OF NEW YORK  
COUNTY OF STEUBEN

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TIM HARKENRIDER, GUY C. BROUGHT,  
LAWRENCE CANNING, PATRICIA CLARINO,  
GEORGE DOOHER, JR., STEPHEN EVANS, LINDA  
FANTON, JERRY FISHMAN, JAY FRANTZ,  
LAWRENCE GARVEY, ALAN NEPHEW, SUSAN  
ROWLEY, JOSEPHINE THOMAS, and MARIANNE  
VOLANTE,

Index No. E2022-0116CV

Petitioners,

-against-

GOVERNOR KATHY HOCHUL, LIEUTENANT  
GOVERNOR AND PRESIDENT OF THE SENATE  
BRIAN A. BENJAMIN, SENATE MAJORITY LEADER  
AND PRESIDENT PRO TEMPORE OF THE SENATE  
ANDREA STEWART-COUSINS, SPEAKER OF THE  
ASSEMBLY CARL HEASTIE, NEW YORK STATE  
BOARD OF ELECTIONS, and THE NEW YORK STATE  
LEGISLATIVE TASK FORCE ON DEMOGRAPHIC  
RESEARCH AND REAPPORTIONMENT,

Respondents.

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**SUPPLEMENTAL REPORT OF SEAN P. TRENDE  
ON THE SPECIAL MASTER'S PROPOSED  
CONGRESSIONAL MAP**

**May 18, 2022**

## **I. Introduction And Qualifications**

I have been retained by Troutman Pepper Hamilton Sanders LLP on behalf of their clients, Petitioners in the above-titled action, to evaluate the Proposed Congressional Map of Special Master Jonathan Cervas, Ph.D. (“Special Master’s Map,” “Proposed Map,” or “Proposed Plan”), and to compare it to their proposed revisions to the map (“Proposed Revisions” or “Proposed Revised Map”). I also compare these maps to the map that this Court struck down (“Legislative Map”). My qualifications have been laid out in this case in my Expert Report of Sean P. Trende.

## **II. Summary Of Opinions**

The Special Master’s Map substantially improves the compactness, competitiveness, and partisan fairness of the districts, while greatly reducing the number of county and jurisdictional splits. It is an impressive piece of work product, especially given the volume of commentary and the time pressures involved.

Nevertheless, the map can be, and should be, improved. In particular, the Special Master’s Map favors Democrats when compared to a politically neutral ensemble of maps, and should be altered to bring the districts more into line with the ensemble of maps that have guided judicial decisionmaking throughout this process. In so doing, the Special Master could reduce the number of split counties and improve the compactness of the districts while further increasing the number of competitive districts. There are likely multiple ways that this could be achieved; the Proposed Revised Map provides one avenue for doing so.

## **III. Comparison of Special Master’s Proposed Map and Proposed Revisions Under New York Redistricting Criteria.**

### **a. Contiguity, Equal Population, Compactness**

Like the Special Master’s Map, the Proposed Revisions retain districts that are equipopulous and contiguous. They also improve the compactness on the perimeter-based Polsby-Popper and Inverse Schwartzberg metrics, while they are modestly less compact utilizing the area-based Reock and Convex Hull metrics.

**Table 1: Average Compactness**

METRIC	LEGISLATIVE	PROPOSED MAP	PROPOSED REV.
Reock	0.324	0.400	0.390
Polsby-Popper	0.252	0.346	0.381
I. Schwartzberg	0.493	0.580	0.610
Convex Hull	0.700	0.768	0.771

The same is true when looking at the worst performing district in each map.

**Table 2: Minimum Compactness**

METRIC	LEGISLATIVE	PROPOSED MAP	PROPOSED REV.
Reock	0.131	0.230	0.170
Polsby-Popper	0.052	0.173	0.175
I. Schwartzberg	0.228	0.416	0.419
Convex Hull	0.403	0.542	0.492

In fact, Dave’s Redistricting App (“DRA”), on which the Special Master has relied in part, gives the Special Master’s Map an overall compactness score of 60. It gives the Proposed Revisions an overall compactness score of 61. In other words, overall, the Proposed Revisions slightly increase the compactness of the districts.

#### **b. County Splits**

As Table 3 demonstrates, the Proposed Revisions reduce the number of county splits vis-à-vis the Special Master’s Proposed Map.

**Table 3: Split Counties**

LEGISLATIVE MAP	PROPOSED MAP	PROPOSED REVISIONS
34	15	14

As Table 4 demonstrates, the Proposed Revisions increase the number of county fragments by one vis-à-vis the Proposed Map. In other words, on balance the two maps perform similarly with respect to political splits.

**Table 4: County Splits**

LEGISLATIVE MAP	PROPOSED MAP	PROPOSED REVISIONS
56	26	27

### c. Core Retention

As Table 5 demonstrates, the Proposed Revisions exhibit a high degree of core retention. In fact, on average they retain 73.3% of the previous district cores, while the Proposed Map retains 70.9% of the previous district cores. Note that, for this table, District 24 is assumed to be eliminated, while District 24 is compared to District 27 under the old map.

**Table 5: Core Retention, Compared to 2012-2020 Lines**

DISTRICT	PROPOSED MAP	PROPOSED REV.
1	98.6%	98.6%
2	73.4%	77.3%
3	63.3%	63.5%
4	87.5%	84.6%
5	87.0%	86.7%
6	81.0%	75.9%
7	51.1%	41.1%
8	62.6%	62.5%
9	61.0%	68.9%
10	39.4%	26.8%
11	79.0%	87.3%
12	58.1%	54.6%
13	93.1%	93.2%
14	59.5%	55.3%
15	64.6%	64.5%
16	75.5%	75.5%
17	74.4%	74.4%
18	73.8%	75.1%
19	47.5%	57.0%
20	91.6%	91.6%
21	84.7%	87.8%
22	43.1%	43.1%
23	64.4%	93.6%
25	100.0%	100.0%
26	85.4%	89.3%
27	43.3%	78.1%

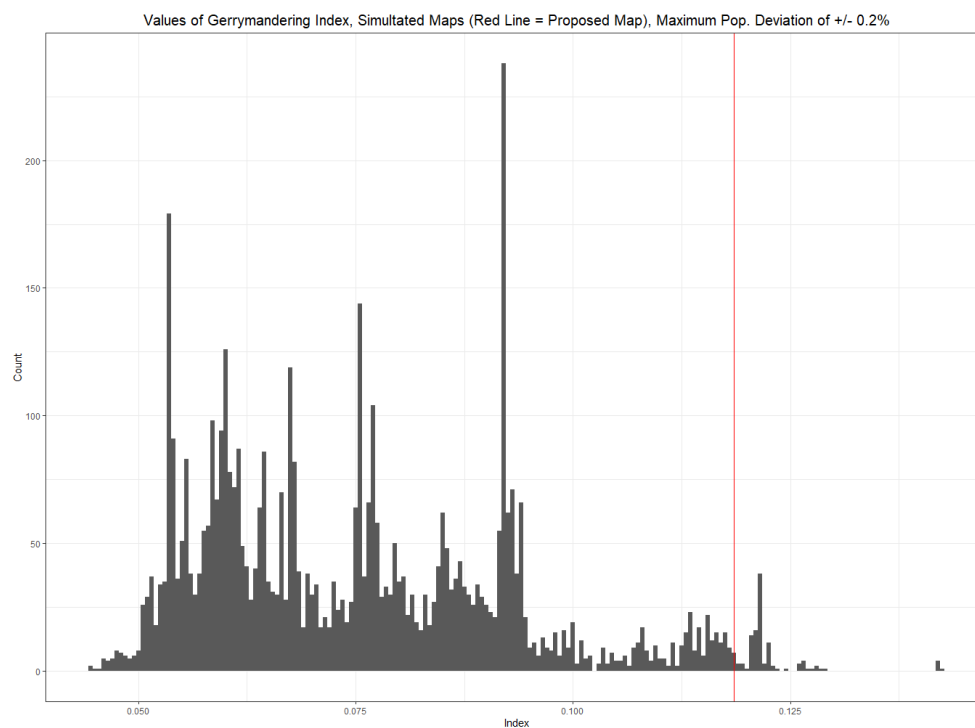
**d. Race**

Because the Proposed Revisions draw so heavily upon the Special Master's Proposed Map, it should not be surprising that both maps provide three plurality Black districts (5, 8 and 9), three plurality Hispanic districts (13, 14 and 15) and one plurality Asian district (6). In other words, the Proposed Revisions would not result in a map that reduces any minority group's ability to participate in the political process and elect their candidate of choice.

**e. Political Bias**

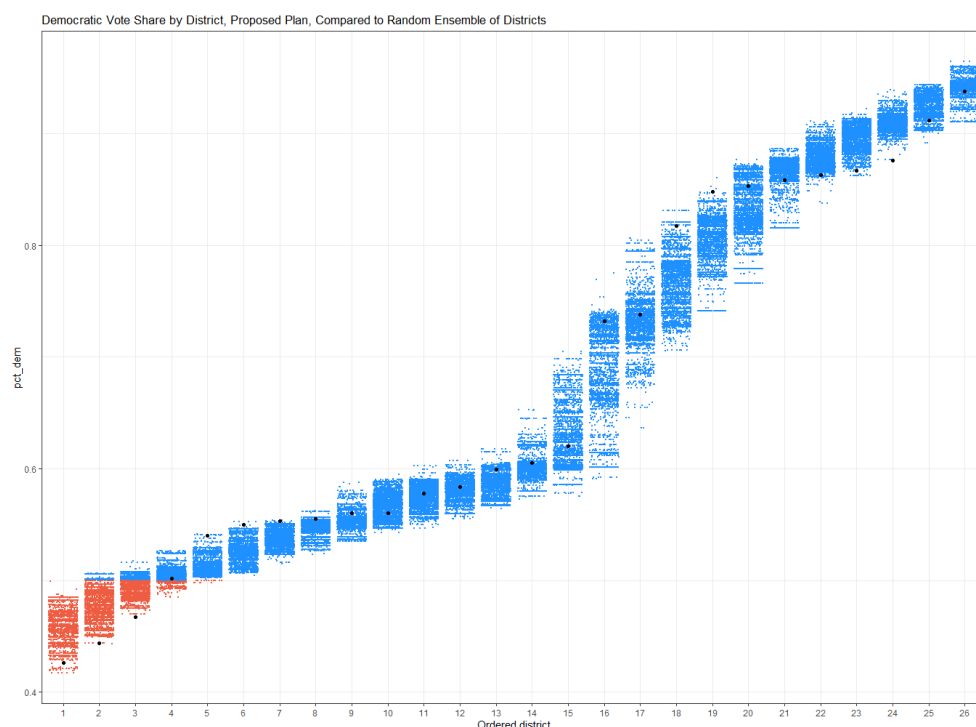
Throughout this litigation, Petitioners have utilized, and courts have relied upon, the same definition of a district's political leanings: a composite of statewide races from 2016, 2018 and 2020. While there are multiple ways to measure a district's underlying political dynamic, metrics that rely more heavily on pre-2018 data can give unreliable results, given the national swing of the suburbs against the Republican Party in 2018 and 2020.

But regardless of whether one uses the average of statewide Democratic performance from 2016 and 2020 to measure partisanship, as Petitioners have done, or if one uses the 2016/2020 PVI, as the Special Master has done, the Proposed Revisions improve upon the Proposed Map. First, consider the Gerrymandering Index of the Special Master's Proposed Map.

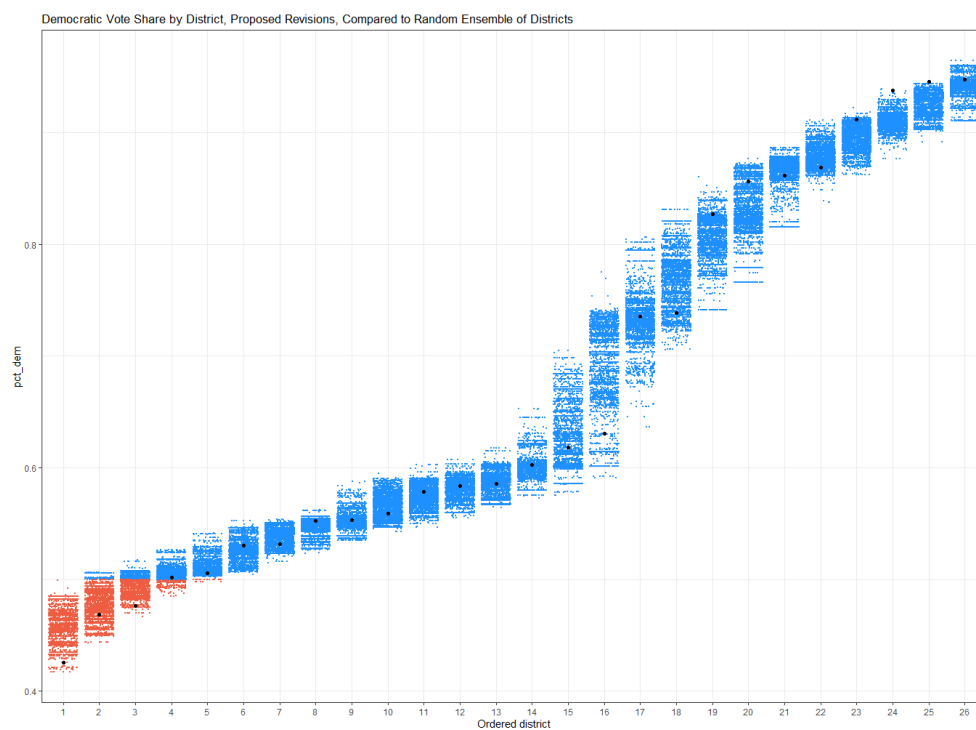


The Gerrymandering Index of 0.118 is much better than the map enacted by the Legislature and struck down by this Court and falls within the distribution of maps created by the ensemble. Still, it is an outlier, with 97.5% of maps showing smaller indices.

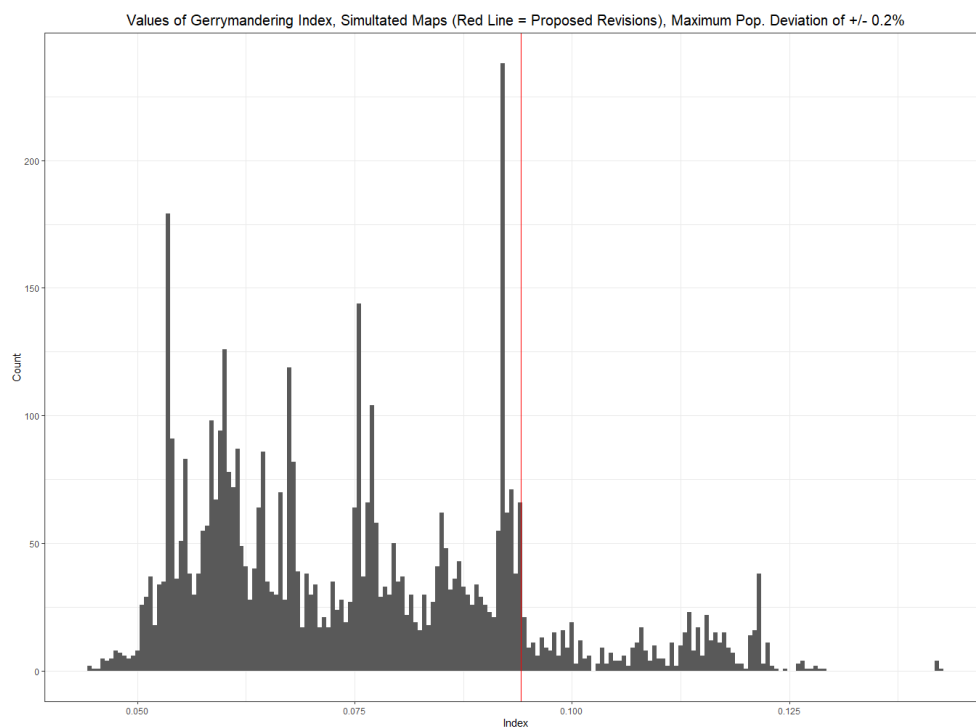
The dotplots help explain the nature of the deviation and show that the Special Master's Proposed Map favors the Democrat Party vis-à-vis the politically neutral ensemble. As one can see, beginning around the fifth most Republican district, and continuing through the eighth most Republican district, the districts are consistently more Democratic than we would expect. This is important because these districts are on the outer limits of what we would normally consider competitive districts in New York in a typical year.



The Proposed Revisions address this. As you can see, the districts fall squarely within the center of “bins,” particularly in the crucial competitive range referenced above.



As a result of this, the Gerrymandering Index is smaller, coming in at 0.094. Around 88.5% of the districts in the ensemble have smaller indices, suggesting that this map is not an outlier.



Even using the alternate data and the Special Master's assumptions about competitiveness, the Proposed Revisions would outperform the Special Master's Map. In the Special Master's Map,



using the 2016 and 2020 presidential data, three districts lean Republican, 15 lean Democratic, and eight fall in the competitive 45-55% range. Under the Proposed Revisions, three districts lean Republican, 14 lean Democratic, and nine fall in the 45-55% range. In other words, the Proposed Revisions would both bring the districts more closely in line with what we would expect from New York's underlying political geography and would increase the number of competitive districts by one.

Moreover, using the Special Master's approach to competitiveness, the revisions would pull the districts more closely in line with New York's political alignment. As explained in the March 1, 2022 Reply of Sean P. Trende, the traditional way to utilize presidential data is to center it on the party's national vote share, and then average across the elections. This yields a Partisan Voting Index, or PVI, which suggests how Republican or Democratic a district is<sup>1</sup> Table 6 provides the PVI's for the Special Master's Map and the Proposed Revisions.

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<sup>1</sup> PVI looks at how much more Republican or Democratic a district was than the country as a whole in the last two presidential elections. Donald Trump received 49% the popular vote (excluding third parties) in 2016, 48% in 2020. Assume Donald Trump tied with the Democratic candidate in both years. PVI helps to correct for national forces by noting that the district was a point to the right of the country in 2016 and two points to the right in 2020, for a PVI of R+1.5. PVI is a reasonably strong classifier: Democrats currently hold every district with a Democratic-leaning PVI but six; Democrats hold 20 of the Republican-leaning PVI's (this Democratic bias reflects the fact that Democrats have had two good election cycles in a row). This is available on Cook's subscription-only website.

**Table 6: PVI, Proposed Map & Proposed Revs.**  
(Negative Indicates Republican Lean)

DISTRICT	PROPOSED MAP	PROPOSED REV.
1	-6.2	-6.2
2	-0.1	-0.9
3	0.3	6.6
4	5.0	0.0
5	31.7	30.9
6	16.7	16.9
7	32.1	33.2
8	25.2	40.4
9	29.2	42.0
10	32.1	-2.0
11	-2.8	-5.5
12	34.6	35.0
13	39.9	39.9
14	29.3	27.0
15	36.6	36.6
16	20.4	20.4
17	2.9	2.9
18	0.4	-1.6
19	-0.8	-4.6
20	5.5	5.5
21	-8.4	-7.4
22	0.7	0.7
23	-11.5	-8.4
24	-12.2	-12.4
25	6.9	7.4
26	7.6	8.3

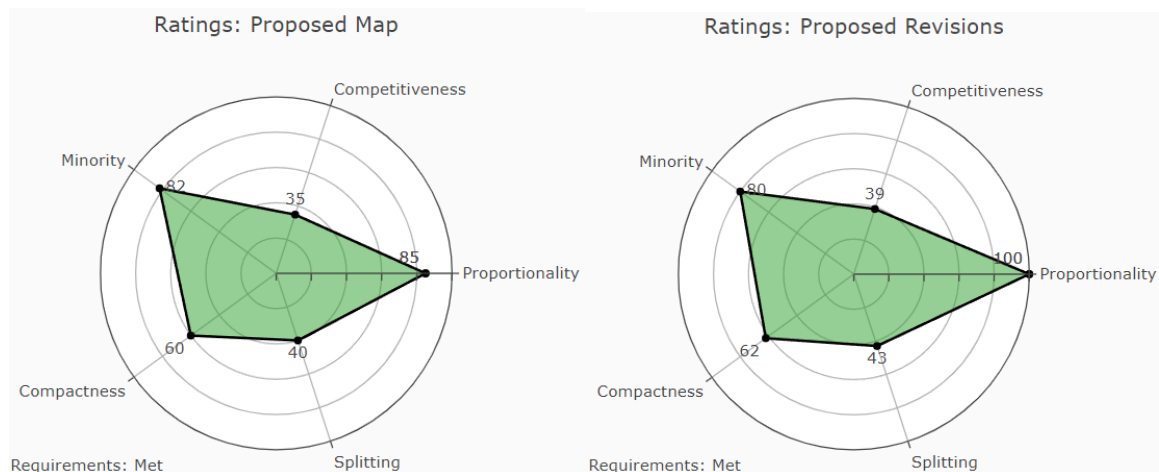
As you can see, the Special Master's Map provides just six districts with a Republican PVI, or 23.1% of the districts. The Proposed Revisions modify this, creating nine districts with Republican PVIs, or 34.6% of the districts. In a state where Republicans typically win between 35% and 40% of the vote and where the underlying political geography does not confer a meaningful "winner's bonus" on the Democrats, this distribution of district partisanship more closely reflects the true partisanship of the state.

#### IV. Conclusion

The Special Master's Proposed Map clearly improves upon the Legislature's unconstitutional map. At the same time, it can be improved upon further. In particular, it is possible to draw a map that is more compact, retains a larger share of the previously enacted districts, and achieves better political fairness under the dotplot and gerrymandering-index analyses, without sacrificing minority representation or other traditional redistricting criteria. We can see this with two final illustrations. The first borrows from the Special Master's illustration of the Proposed Map. At the bottom of that paper is a chart comparing the Proposed Map to the legislative proposal. Petitioners have simply updated it to include the Proposed Revisions.

METRIC	LEGISLATIVE PROPOSAL	PROPOSED MAP	PROPOSED REVISIONS
Counties Split	34	15	14
County Splits	56	26	27
Reock Compactness	32	40	39
Polsby-Popper Compactness	25	34	37
Competitive Districts	3	8	9

The second borrows from DRA. It compares the Proposed Map to the Proposed Revisions across five dimensions. As you can see, the Proposed Revisions improve across four dimensions, with a substantial improvement in proportionality. There is a minor reduction in the "minority" dimension, but as demonstrated above, it does not result in a reduction in the number of seats where the minority group would be favored to elect their candidate of choice.



In short, it is possible to improve upon the map and make it hew more closely to New York law without a wholesale revision of the underlying approach chosen by the Special Master.

Dated: May 18, 2022



SEAN P. TRENDÉ