

Report of the Special Master  
May 20, 2022

Jonathan Cervas  
Special Master

*Harkenrider v. Hochul*

## Jonathan Cervas Short Bio

I am a postdoctoral fellow at Carnegie Mellon University in the Institute for Politics and Strategy. I have been involved in drawing maps for three federal courts in voting rights and redistricting cases. Three cases involved questions related to the Voting Rights Act and the U.S. Constitution. In *Navajo Nation v. San Juan County, UT*, D.C. No. 2:12-CV-00039-RJS (2018), the district court ruled that the election districts for school board and county commission violated the Fourteenth Amendment to the United States Constitution. After the court rejected the county's remedial map, the court retained Prof. Bernard Grofman as special master. I was employed as assistant to the special master and helped to prepare remedial maps. The court selected the illustrative maps I helped prepare for immediate use in the next election. These maps were upheld by the Tenth Circuit Court of Appeals *Navajo Nation v. San Juan County*, No.18-4005 (10th Cir. 2019). In *Bethune-Hill v. Virginia State Bd. of Elections*, 141 F. Supp. 3d 505 (ED Va. 2015) the federal court ruled that twelve of Virginia's 100 House of Delegates districts were unconstitutional gerrymanders under precedent set in *Shaw v. Reno* 509 US 630 (1993). Eventually reaching the United States Supreme Court (SCOTUS) the first time, the court remanded *Bethune-Hill v. Virginia State Board of Elections*, 580 U.S. \_\_\_\_ (2017). The district court then ruled eleven of the twelve districts were unconstitutional racial gerrymanders and ordered them redrawn. *Bethune-Hill v. Virginia State Bd. of Elections*, 326 F. Supp. 3d 128 (2018). The district court retained Prof. Grofman as special master. I worked with Prof. Grofman as assistant to the special master. Together we created ten map modules; three in Norfolk, two in the peninsula area, three in Petersburg, and two in Richmond. The court selected module combinations that adjusted the boundaries of twenty-five districts. The case was heard for a second time on appeal to SCOTUS, who remanded on standing. *Virginia House of Delegates v. Bethune-Hill*, 587 U.S. \_\_\_\_ (2019). These districts were used in the 2019 election, and because of census delays, again used in 2021. In *Wright v. Sumter County Board of Elections and Registration* (1:14-CV-42 (WLS) U.S. District Court, Middle District of Georgia (2020)), the district court ruled that Sumter County's voting districts diluted the voting power of Blacks in violation of section 2 of the Voting Rights Act. The court retained Prof. Grofman in his capacity as special master. I again served as assistant to the special master. Working with Prof. Grofman I helped craft four seven-district illustrative plans and one five-district illustrative plan. The court choose one of the plans I helped to prepare. Defendants appealed to the eleventh circuit court, who reviewed the entire record and found the district court did not err in concluding a section 2 violation and that the special master "expressly found an easily achievable remedy available". *Wright v. Sumter County Board of Elections and Registration*, No. 15-13628 at 45 (11th Cir. 2020). In July of 2021, I entered into contract with the Pennsylvania Legislative Reapportionment Commission to provide consulting work relating to the creation of the PA state House of Representatives and PA Senate districts to be used during elections held between 2022 and 2030. This work involved numerous aspects of the reapportionment process, not limited to map drawing. The maps drafted by the commission passed with a bi-partisan vote on February 4, 2022. The Pennsylvania Supreme Court unimously affirmed the final reapportionment plan. My work with the commission is ongoing.

1. In *Harkenrider v. Hochul* (2022), the State of New York Supreme Court ruled that the congressional and state senate plan passed by the Legislature and signed by the Governor had bypassed the Redistricting Commission and thus were not enacted through a constitutionally valid process. For the congressional plan, the Court also held that the Respondents "engaged in prohibited gerrymandering when creating the districts" (2022.03.21 [243] *Harkenrider v. Hochul* DECISION and ORDER at 1). The findings that there were no constitutional maps for either New York's Congressional delegation or for the New York State Senate triggered the new provision of the State Constitution that shifted the burden to state courts to specify a process for creating constitutional maps for each body. On April 18, 2022, I was asked by Judge and Acting Supreme Court Justice Patrick McAllister to serve as Special Master in preparing a remedial plan for the New York congressional delegation to be considered by the Court; after the State of New York Court of Appeals heard the case on appeal, my responsibilities were extended by Justice McAllister to include preparing a remedial plan for the state senate for the Court's consideration on April 27, 2022.

2. In proposing maps for the Court's consideration, Justice McAllister Court instructed me to fully adhere to all the provisions of the New York State Constitution, such as the strict equal population requirement for Congress and the block-on-the-border rule and town-on-the border rule for the state senate.<sup>1</sup> In my map making I avoided fragmenting existing political subunits such as counties and cities and I sought to draw districts that were reasonably compact. I was also instructed by the Court to draw proposed maps in a fashion that was blind to the location of incumbents and I followed that injunction. **The predominant motive of these proposed maps was to fully comply with federal and state law.** Race-based districting is strictly prohibited by the U.S. constitution, and therefore I did not use race as a preponderant criterion. Later in this Report, I discuss in more detail how I dealt with each of the many relevant provisions in the New York Constitution, including the one dealing with communities of interest.

3. The failure of the Commission to agree on lawful maps and the time consumed by subsequent litigation meant that, even after an initial postponement of the date for the primaries, the Court was operating under extremely severe time constraints. The Court provided a timetable for my work which included deadlines for submission of comments and expert witness reports to me and the Court, a deadline for the dissemination of a preliminary proposal and report, deadlines for submission of comments and expert witness reports pertaining to this preliminary proposal, and a deadline for the preparation and dissemination of a final map adopted by the Court.

4. The urgency of the tasks confronting me, the great volume of suggestions made to the Court (and previously to the Redistricting Commission), and the time pressure made it impossible for a single individual to do everything that was needful. I employed research assistants to whose work I am greatly

---

<sup>1</sup> The latter rules are found in Article III, section 4(c).

indebted (Marissa Zanfardino<sup>2</sup>; Jason Fierman<sup>3</sup>, and Zachary Griggy<sup>4</sup>) to work under my direction. In addition, with the approval of the Court, I brought in the distinguished redistricting scholar, Bernard Grofman (University of California, Irvine), as a consultant. I had previously worked with him in other cases where Grofman had been the Special Master.<sup>5</sup> All decisions as to what recommendations were to be given to the Court vis-a-vis proposed remedial maps were ones made by me.

5. I did not begin my map drawing process *de novo*. There was a considerable volume of information and public comment that had been compiled by the Redistricting Commission that I was able to draw upon. In preparing my preliminary proposed maps for the Court, I (with the help of my research assistants) poured over thousands of pages of court records and testimony that was presented to the Redistricting Commission. In addition, I reviewed the several hundred submissions of testimony via email or through the court docket that came after or just before my appointment, along with several dozen complete or near complete plans directly submitted to me. While I received roughly two dozen congressional map submissions that were fully compliant with one-person, one-vote, relatively few senate maps were submitted that fully satisfied the strict block-on-border and town-on-border rules for equalizing population. Among those, several appear to build off one

---

<sup>2</sup> Zanfardino completed her JD from New York Law School in 2022. She is currently a Legal Fellow at the New York Census and Redistricting Institute. Zanfardino graduated from Tulane University in 2019 with a bachelor's degree in Economics and Sociology. She is a lifelong New York resident, living in Massapequa, Brooklyn, and Manhattan at various stages.

<sup>3</sup> Fierman graduated from The George Washington University with a bachelor's degree in Political Science and Criminal Justice in 2011, and from George Mason University with an MPA in 2016. Fierman has worked as an associate at Princeton University working on issues of redistricting and as a consultant at DailyKos working on elections. Fierman grew up in Westchester, NY.

<sup>4</sup> Griggy is an undergraduate at the University of California, Irvine. He is expected to graduate in 2023 with a degree in Political Science and Urban Studies. He previously worked as an assistant to the Special Master and has assisted in the map-drawing process for several remedial court maps.

<sup>5</sup> Grofman was indispensable in drafting this report and in his consultation throughout the process of producing these maps. Grofman taught for six years at SUNY Stony Brook before he took a tenured position at the University of California, Irvine. He also spent a full academic year as a Straus Fellow at New York University Law School and two other academic quarters as a visiting scholar there. Some time ago, in two different decades, Grofman was chosen by federal courts as a senior consultant on New York redistricting (Congress and state legislature). He also once served as a consultant on New York City redistricting for a redistricting commission. Over the past seven years, Grofman's work as a Special Master or senior consultant to federal or state courts has been in southern and western states, including North Carolina (Congress), Virginia (Congress and state legislature), Georgia (local districting), and Utah (local redistricting). In the past he has been a consultant to both political parties and to minority legal groups as well as to the U.S. Department of Justice.

another. I borrowed pieces of maps as the base of both the congressional and senate map, but adopted no map in full. And I had available to me the maps enacted in 2012, along with plans proposed by the Redistricting Commission. I also benefited from hearing in person from around 30 citizens in Bath, NY on May 6, 2022. Because of these inputs, I was able to complete my task of preparing a proposed map for the Court in the time frame required. In so doing, I looked for good ideas from the many submissions by concerned citizens and groups and, to the extent feasible given the time constraints, incorporated them when they allowed for integration into a complete map drawn fully according to constitutional principles. I evaluated suggestions based on the merits of the proposal not on who (or which political party) was suggesting the change.

6. To the extent feasible given the severe time constraints, in addition to the considerable body of information previously integrated into the initial map-making process, the Court solicited further comments from the public and concerned groups on the proposed preliminary maps. After the dissemination of a map on May 16, 2022, I was pleased to receive additional extensive input from the public and concerned groups, most of which was specifically directed to the proposed maps. This feedback included over 800 e-mails and messages directed at me through social media. Additionally, I estimate that over 3,000 comments were submitted to the Court directly, pursuant to the Court's stipulation of time periods to receive suggestions for map revisions and briefs or expert witness reports.<sup>6</sup> My team and I read all these suggestions and they were organized and categorized by my research assistants. With respect to these comments, of necessity, the ones to which I paid the greatest attention were those which the political scientists Peter Miller and Bernard Grofman refer to as *mappable suggestions*, i.e., ones that were based on the existing map proposals and made specific suggestions for how changes could be made to improve them.<sup>7</sup>

7. At this stage of the map-making process my attention was focused on suggestions for changes in the proposed maps that involved the treatment of particular communities of interest. However, in a number of cases, either the submission was not sufficiently well articulated in a mappable way as to allow consideration of how its ideas it might be incorporated into the proposed maps, or submissions proposed changes that were inconsistent with changes proposed in other submissions so as to suggest a lack of public consensus on where particular communities of interest were located. Some submissions were simply infeasible to implement without ripple effects that would force dramatic changes in the maps, affect other constitutional criteria, or suggestions were infeasible in practice because of the very binding population equality constraints imposed by the New York Constitution. Also, suggestions to reconfigure the map to benefit the reelection chances of a particular party or incumbent or to unpair particular incumbents were disregarded as inappropriate in a map drawing process entirely based on the good government strictures embedded in the Redistricting Amendment to the New

---

<sup>6</sup> I want to extend a debt of gratitude to the Court staff, especially Brenda Wise, for receiving and promptly posting submissions to the court docket.

<sup>7</sup> Miller, Peter, and Bernard Grofman. 2018. "Public Hearings and Congressional Redistricting: Evidence from the Western United States 2011-2012." *Election Law Journal: Rules, Politics, and Policy* 17(1): 21-38. <http://www.liebertpub.com/doi/10.1089/elj.2016.0425>.

York State Constitution, and the requirement that maps neither favor nor disfavor any political party or incumbent. However, as before, I evaluated suggestions based on the merits of the proposal, not on who (or which political party) was suggesting the change. In particular, if a change was advocated to unify neighborhoods or for community of interest reasons and had few or no partisan consequences and it was feasible to implement, I examined it very carefully and sometimes proposed it to the Court for adoption in the final map (see discussion of changes from the preliminary map to the final map discussed at the end of the report).

8. The preliminary maps were each accompanied by a one-page report highlighting its key features. In this Report I describe the criteria used in devising a constitutional map and review the key features of the final map adopted by the Court. At the end of this Report, I also identify some issues having to do with communities of interest that were brought to the Court's attention in multiple submissions, and discuss how those suggestions for improvement were dealt with in the final revisions to the initial proposed maps.

9. Any constitutional map requires the satisfaction of the multiple criteria laid out in the New York State Constitution that are not fully consistent with one another and that necessarily require tradeoffs. Because of this fact there cannot be a "perfect" map. The New York State Constitution does not clearly rank order criteria. Here we list them in the order given in the Constitution.<sup>8</sup>

#### **9A. VOTING RIGHTS.**

"(1) When drawing district lines, the commission shall consider whether such lines would result in the denial or abridgement of racial or language minority voting rights, and districts shall not be drawn to have the purpose of, nor shall they result in, the denial or abridgement of such rights. Districts shall be drawn so that, based on the totality of the circumstances, racial or minority language groups do not have less opportunity to participate in the political process than other members of the electorate and to elect representatives of their choice."

In map drawing I have adhered to the instructions for treatment of minority groups laid down in the New York State constitution. I have taken the groups whose rights need be paid special attention to be the same racial and linguistic minorities that are identified by the U.S. Congress in the Voting Rights Act of 1965 and in its subsequent amendments. Other groups I consider under the category of communities of interest. In New York, the largest minority groups -- African-Americans, those of Spanish heritage, and Asian-Americans -- are almost always highly geographically concentrated. Even in a completely race blind process there will be many districts (both for Congress and especially for the State Senate) that have a large minority population,

---

<sup>8</sup> Our federal system of government places criteria found in the U.S. Constitution as highest priorities, federal law next, and then provisions of the state constitution and state law.

and these demographic and geographic realities are fully reflected in the maps that I drew for the Court. I did not use race as a preponderant criterion. As indicated earlier, the standard good government criteria laid down in the New York State Constitution were the dominant considerations in my map-making.<sup>9</sup>

#### **9B. EQUAL POPULATION.**

"(2) To the extent practicable, districts shall contain as nearly as may be an equal number of inhabitants. For each district that deviates from this requirement, the commission shall provide a specific public explanation as to why such deviation exists."

"(6) In drawing senate districts, towns or blocks which, from their location may be included in either of two districts, shall be so placed as to make said districts most nearly equal in number of inhabitants. The requirements that senate districts not divide counties or towns, as well as the 'block-on-border' and 'town-on-border' rules, shall remain in effect."

While the language in (2) above suggests that the New York State constitutional standard for equal population is essentially the same as that in the federal constitution (as interpreted by federal courts), that is wrong. There are other more specific requirements for population equality laid down elsewhere in the NY Constitution that make it much harder to satisfy one person, one vote standards in New York than is the case in other states.

In particular, while federal case law allows for some deviations from perfect equality for Congress when there is compelling justification (with plans with a total population deviation of less than 0.75% sometimes found acceptable)

---

<sup>9</sup> Time did not permit a full analysis of the Section 2 VRA factors. However, (a) in order to bring a Section 2 claim it must be demonstrated that an additional compact 50%+ citizen voting age district can be created (*Bartlett v. Strickland*, 556 U.S. 1, 2009), and (b) any requirement to create a 50%+ citizen voting age district can be rebutted by a showing that the challenged district also gives minorities a realistic equal opportunity to elect candidates of choice. The Court maps contain so many districts with substantial minority populations whose candidate of choice is likely to be able to win primary victories and then go on to win general elections with non-Hispanic White crossover support in districts that are very heavily Democratic in political leaning that litigants would be unlikely to be able to satisfy the *Gingles* requirement that the candidate of choice of the minority community would be expected to regularly lose in the reconfigured district. It is the rights of minority communities, not the rights to office of individual candidates that are protected. This view of the potential for a successful Section 2 challenge to the Court imposed remedial maps is shared by Professor Grofman. Let me reiterate, however, that race was not a preponderant motive in my line drawing; rather, the heavily minority districts I have drawn simply reflect the population concentrations visible to citizens of the state New York or to someone who has studied demographic information about the state.

the New York standard is plus or minus one-person. This is a very demanding standard, especially in New York City where precincts (and blocks) are often rather large. As a consequence, satisfying New York's congressional one person, one vote requirement can force some irregularity in a district perimeter and may limit the potential for fully incorporating particular neighborhoods or communities of interest in a single district.

Similarly, while federal case law generally allows for a total population deviation of plus or minus five percent, and relatively few states require more restricting population constraints than those laid down in federal law, and even when they do, do not require perfect population equality, the block-on-border and town-on-border rules (see (6) above) force very strict population constraints on most of the districts. For example, in New York City all of the Senate districts within NYC must essentially be identical in population.<sup>10</sup>

### **9C. CONTIGUITY.**

"(3) Each district shall consist of contiguous territory."

The mathematical definition of contiguity is straightforward: "Is it possible to proceed from any part of the district to any other party of the district without leaving the district?" I have sought, however, to avoid contiguity that is only "technical," i.e., generated only at a point or only via a

---

<sup>10</sup> The block-on-border rule requires any district that includes only part of a city to have exactly the same population as every other district in that city. The 'town-on-border' rule requires population to be balanced between districts found in the same county, by ensuring that no town or city can be moved to an adjacent district which would lower the deviation between the two. These requirements are mandated by the text of the constitution and by state case law.



narrow wedge or a thin string of connecting blocks,<sup>11</sup> or contiguity that is not *functional contiguity*.<sup>12</sup>

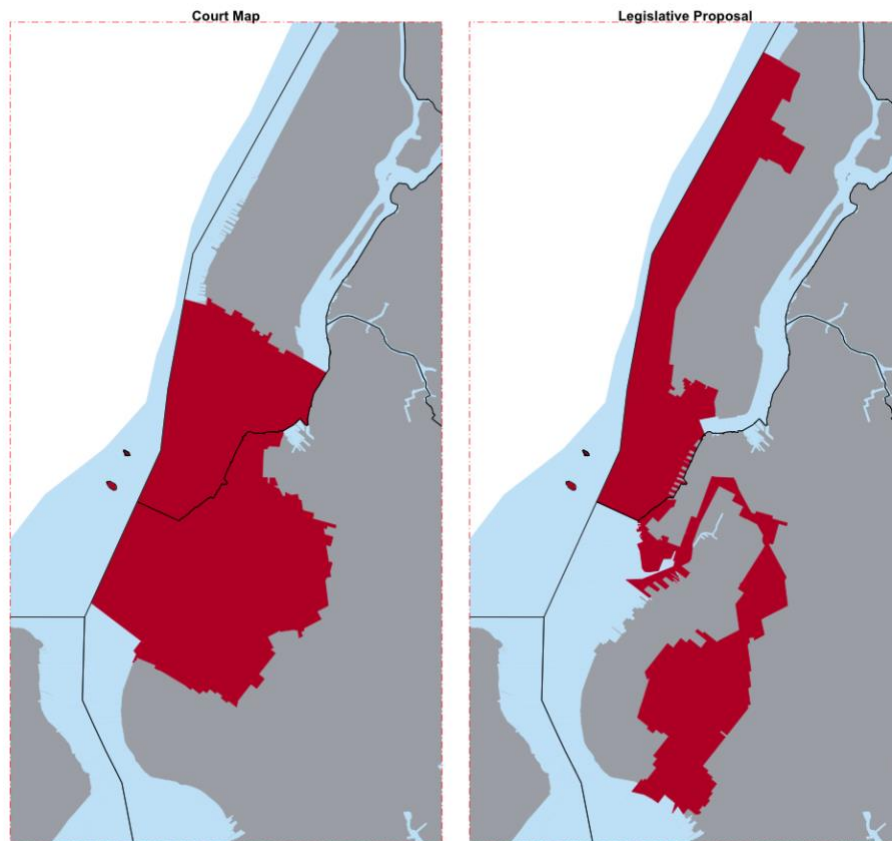
**9D. COMPACTNESS.**

“(4) Each district shall be as compact in form as practicable.”

---

<sup>11</sup> For example, one of the several problems with the way in which Congressional District 10 was configured in the unconstitutional map was that it achieved contiguity only in a very ill-compact way.

**District 10 in Legislative Proposal and in Court Map**



<sup>12</sup> *Functional contiguity* is generally taken to require that there be a way to traverse the district on foot or by car that does not require using a boat (or an airplane). As I note in identifying changes in the preliminary map later in the Report, one change that the Court did make at my recommendation was to ensure functional contiguity over water in District 17. (I am indebted to Steven Dunn for calling that issue to my attention.) There are, however, some states in which contiguity by water is permitted, but I prefer to avoid that option if possible.

Standard measures of compactness are defined in terms of area or perimeter and these can be measured in various ways, but two standard measures are *Polsby-Popper* (for area) and *Reock* (for perimeter).<sup>13</sup> There is no dispute that the Court maps are compact on both measures, and more compact (and in the case of the congressional map, much more compact) than the maps found unconstitutional. (See summary table in section 10).

#### **9E. COMPETITION, PARTISAN OR INCUMBENT BIAS, DISTRICT CORES, PRE-EXISTING POLITICAL SUBDIVISIONS, AND COMMUNITIES OF INTEREST**

“(5) Districts shall not be drawn to discourage competition or for the purpose of favoring or disfavoring incumbents or other particular candidates or political parties. The commission shall consider the maintenance of cores of existing districts, of pre-existing political subdivisions, including counties, cities, and towns, and of communities of interest.”

I discuss each of these clauses separately below.

#### **9E1. RESPONSIVENESS AND POLITICAL COMPETITION.**

Representative democracy requires elections that are free, open, and equal, with representatives ultimately accountable to the voters for their actions in office. One way in which such accountability is assured is in limiting the duration of office holding so that the will of the people is repeatedly assessed. Another way in which responsiveness is fostered is to have districts that are sufficiently competitive that they might realistically change in outcome in response to a change in voter preferences. In the U.S., since early in the Republic, elections are mediated by political parties serving as gatekeepers to organize voters for collective action. In the maps I drew for the Court’s consideration, I reviewed whether those maps allowed for state-wide partisan outcomes to be responsive to changes in voter preferences by having a reasonable number of politically competitive districts.

Future election outcomes are hypothetical, and no crystal ball exists to perfectly predict elections, and political contexts change over time. Nonetheless, plausible expectations can be developed about which districts might be politically competitive in future elections by projecting past elections into the new districts. Political polarization has made outcomes more predictable and party orientation and vote choice more stable. Of course, projections can depend on which elections are incorporated into the model. I preferred data averaged from the presidential elections of 2016 and 2020. Political scientists have found that increasingly, congressional elections tend to mirror presidential ones, and even state elections are

---

<sup>13</sup> See e.g., Niemi, Richard G., Bernard Grofman, Carl Carlucci, and Thomas Hofeller. 1990. “Measuring compactness and the role of a compactness standard in a test for partisan and racial gerrymandering.” *Journal of Politics*, 52(4):1155-1181. This essay, written from a purely academic and non-partisan point of view, has one co-author who would be regarded as a Republican expert and another who would be regarded as a Democratic expert.

increasingly affected by national forces. For comparison purposes, I also examined projections based on a composite of 6 statewide elections over the period 2016-2020 (President 2016, U.S. Senate 2016, U.S. Senate 2018, Governor 2018, Attorney General 2018, President 2020). Because this set includes several rather idiosyncratic elections won overwhelmingly by the Democratic candidate, it shows projected outcomes to be more Democratic leaning than is the case for the presidential elections. Conclusions as to competition can also vary depending on exactly how a competitive district is defined. I use a definition that is standard in the political science literature: an average (of past recent elections) with a two-party vote share between 45% and 55%. Both the congressional and state senate maps have a substantial number of competitive seats (far more than in the unconstitutional maps) and are going to be responsive to the public will. Exact comparisons are provided in the Table in numbered section 10 of this Report and in the one page summary document released simultaneously with the new map and this Report.

## **9E2 PARTISAN OR INCUMBENT BIAS**

Neither the proposed maps nor the final maps adopted by the Court were “drawn ... for the purpose of favoring or disfavoring incumbents or other particular candidates or political parties.” (emphasis added) This statement cannot be a matter of dispute. I served the Court as a non-partisan expert. These maps were drawn blind to the homes of incumbents, using the good government criteria set down in the New York State Constitution.

Most of the attention has been devoted to the congressional map. As far as I can judge, the issues raised vis-a-vis the Senate map almost all have to do with the configuration of particular districts in terms of communities, so I will only focus on the congressional map with respect to partisanship. The Petitioners claim that the congressional plan does not give Republicans enough districts, while Respondents complain that the map does not allow them to keep the expected gains in congressional seats given to them by the map found unconstitutional, and incumbents complain about reconfiguring of their districts or about pairings.

There are many metrics that can be used to evaluate partisan neutrality. Most of these indicators show a slight Republican bias to the Court’s congressional map, although a few show a pro-Democratic bias, and some essentially no statistically significant bias at all. Since this Report is not a Ph.D. dissertation, I will not try to explicate why measures for partisan gerrymandering such as *seats bias*, *votes bias*, *declination*, the *efficiency gap*, the *mean minus median gap*, and various results based on ensembles using particular instructions to a computer using a limited set of criteria and parameters that give specific weight to each criteria and can not reach the threshold levels of population equality to be completely unbiased do not give the exact same answers. Suffice it to note that some of these metrics can be unreliable in a state like New York where one party is dominant<sup>14</sup>; they work best in states in evaluating gerrymandering in states that are competitive at the state-wide level.

---

<sup>14</sup> Nagle, John F., and Alec Ramsay. 2021. “On Measuring Two-Party Partisan Bias in Unbalanced States.” *Election Law Journal: Rules, Politics, and Policy* 20(1): 116-38. <https://www.liebertpub.com/doi/10.1089/elj.2020.0674>.

To the extent that we find pro-Republican bias in New York even in maps drawn by Democrats, Democratic voting strength is inefficiently distributed largely because of highly concentrated Democratic voting strength in almost all of New York City – that is, Democrats can be expected to win around 90% of the votes in districts centered in New York City, but the most overwhelmingly Republican districts will only reach around 60%. Common sense tells us that this lopsided difference will necessarily penalize Democrats in their translations of votes into seats.

The average Democratic congressional winner projected in the Court map (based on past presidential elections averaged in 2016 and 2020) are expected to win with 70% of the vote and the average Republican winner projected to win with only 56% of the vote. But it is equally clear that this is an overwhelmingly Democratic leaning state in terms of recent statewide elections (Democratic presidential candidates average 61.75% of the statewide Democratic vote, compared with 38.25% Republican vote); accordingly, non-dilutive treatment of the two parties argues that this fact should be reflected in the congressional and legislative maps. The second simple point I would make is that the maps I proposed have a substantial proportion of competitive seats. In a good year for Republicans, the Republicans can pick up seats; in a more typical Democratic year, it is likely that seats will remain in the hands of the incumbent party in the district, though now, because of an eliminated upstate district, there is one less congressional district being held by a Republican.

I show below the *Plan Score* evaluations of the final congressional map and the final Senate map (Results for the preliminary maps are essentially identical.) *Plan Score* is a project of the Campaign Legal Center, a nonpartisan organization, whose stated goal is to advance democracy through law.

**Congress :**

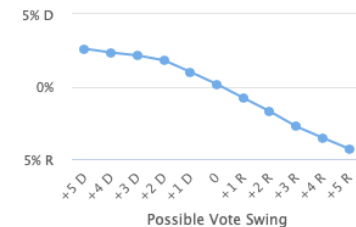
**Efficiency Gap: 0.1% D**



Votes for Democratic candidates are expected to be inefficient at a rate 0.1% D lower than votes for Republican candidates, favoring Democrats in 52% of predicted scenarios.\*

[Learn more >](#)

**Sensitivity Testing**



Sensitivity testing shows us a plan's expected efficiency gap given a range of possible vote swings. It lets us evaluate the durability of a plan's skew.

**Declination: 0 R**



The difference between mean Democratic vote share in Democratic districts and mean Republican vote share in Republican districts along with the relative fraction of seats won by each party leads to a declination that favors Republicans in 56% of predicted scenarios.\*

[Learn more >](#)

View PlanScore here:

<https://planscore.campaignlegal.org/plan.html?20220520T183242.680480746Z>

**Senate :**

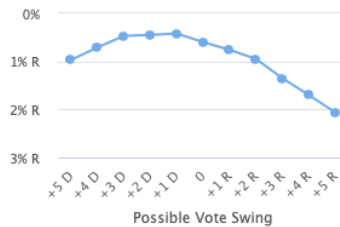
### Efficiency Gap: 0.6% R



Votes for Republican candidates are expected to be inefficient at a rate 0.6% R lower than votes for Democratic candidates, favoring Republicans in 58% of predicted scenarios.\*

[Learn more >](#)

### Sensitivity Testing



Sensitivity testing shows us a plan's expected efficiency gap given a range of possible vote swings. It lets us evaluate the durability of a plan's skew.

### Declination: 0.11 D



The difference between mean Republican vote share in Republican districts and mean Democratic vote share in Democratic districts along with the relative fraction of seats won by each party leads to a declination that favors Democrats in 77% of predicted scenarios.\*

[Learn more >](#)

View PlanScore here:

<https://planscore.campaignlegal.org/plan.html?20220521T024453.892105205Z>

The Plan Score evaluations find the final Court maps to be almost perfectly politically neutral for both the congressional and the state senate plans.

### 9E3 CORES OF EXISTING DISTRICTS.

After the 2020 census, state specific shifts in relative population share meant that New York lost one of its congressional districts. Moreover, the regional distribution of population within the State of New York has changed, with upstate losing population relative to downstate - requiring a shift that is roughly the equivalent of one full congressional seat. As a consequence, direct comparisons between the 2012 congressional map and any 2022 proposed congressional maps can be quite misleading.

Similarly, loss of population upstate relative to downstate led to a loss of two Senate seats upstate. As a consequence, direct comparisons between the 2012 State Senate map and any proposed 2022 State Senate maps can also be quite misleading. Moreover, the 2012 State Senate map was drawn with partisan goals as thus comparisons to a map satisfying the new constitutional requirements for State Senate maps can be misleading on that ground alone.

Nonetheless, despite population shifts, core retention was actually quite high. According to the analysis done by Sean Trende, congressional core retention in the preliminary congressional map was 70.9% and that percentage should not be expected to change drastically in the final map.<sup>15</sup> I take this

---

<sup>15</sup> See 2022.05.18 [646] Harkenrider v. Hochul - Moskowitz Aff Ex. 2 SUPPLEMENTAL REPORT OF SEAN P. TRENDE ON THE SPECIAL MASTER'S PROPOSED CONGRESSIONAL MAP May 18, 2022.) Professor Trende's map, which is tilted toward Republicans, has 73.3% core retention. At the level of individual districts, Professor Trende's map has a higher core retention in 11 districts; the proposed map has higher core retention in 9 districts; and 6 districts are ties.

to be clear evidence that despite all the changes made in the Court drawn congressional map to improve compactness and limit county and city cuts, the Court's Congressional map clearly takes core retention into consideration -- which is all that is required by the language of the New York State Constitution.

#### **9E4 PRE-EXISTING POLITICAL SUBDIVISIONS**

Very specific population equality provisions in the New York Constitution are completely inflexible and therefore were given the most weight. Among the factors listed in the New York constitution, I regard maintenance of pre-existing political subdivisions as an important consideration.

Some comments have objected to the apparent weight I gave to political subdivision boundaries. But there are what I believe to be six strong reasons why maintenance of these borders should be an important consideration in good government map-making.

First, there can be no disagreement that the constitutional amendment on redistricting was intended to limit the potential for partisan gerrymandering.

"The People of the State of New York have spoken clearly. ... [I]n the 2014 Constitutional Amendment not only did the People include language to prevent gerrymandering, but they also set forth a process to attain bipartisan redistricting maps." (2022.03.21 [243] Harkenrider v. Hochul DECISION and ORDER at 10)

- (1) While maintaining pre-existing county and city borders is not a guarantee against gerrymandering, since what I (and Bernard Grofman) have called "stealth gerrymandering" i.e., plans that adhere closely with traditional redistricting criteria but nonetheless are carefully to still egregiously favor one party over another,<sup>16</sup> still remain possible, imposing a rule limiting county and city cuts makes it harder to gerrymander.
- (2) If we treat jurisdictional boundaries as non-constraining and allow maps to wander, it becomes easy for mapmakers to make claims that they are simply preserving communities of interest as a mask for what is actually partisan or incumbency preservation gerrymandering. As I note in our discussion of the community of interest criterion below, there is a certain looseness to the concept, except when communities are defined in racial or linguistic terms. But thinking of communities of interest only in racial or linguistic terms brings me to another compelling reason to maintain county and municipal boundaries.
- (3) Political subunits are *cognizable* to ordinary citizens, to use Professor Bernard Grofman's terminology, because they have a clear geographic location that is usually marked by signage, often including that on road or parkway exits, and a long-standing history. In thinking

---

<sup>16</sup> Cervas, Jonathan R., and Bernard Grofman. 2020. "Tools for Identifying Partisan Gerrymandering with an Application to Congressional Districting in Pennsylvania." *Political Geography* 76: 102069.

about what is where, political subunits are a natural way to demarcate space.<sup>17</sup>

- (4) Prioritizing respect for fixed and known boundaries immediately renders highly implausible any claim that race was a preponderant motive in the way in which maps were drawn, and thus limits the potential for a constitutional challenge to a map under the *Shaw v. Reno* (509 U.S. 630, 1993) constitutionally rooted prohibition of "race serving as a preponderant motive" in the line drawing process.
- (5) Units, such as cities and counties, are units of governance and thus have an inherent political relevance.
- (6) Relatedly, units such as cities and counties are also cognizable communities and can readily be viewed as themselves communities of interest in that residents of such units have interests in common.

Of course, given strict 'one-person, one-vote' requirements in both the congressional and senate maps, some political subdivisions will have to be divided. Nonetheless in the congressional map I have sought to limit the number of county splits to near to  $N-1$ , where  $N$  is the number of constituencies.<sup>18</sup> Similarly, in the Senate map I have sought to limit the number of municipality splits to no more than one per district. But, given the geography and the size of the different cities, completely eliminating all municipality splits is simply impossible.

#### **9E5 COMMUNITIES OF INTEREST**

Communities of interests are notoriously difficult to precisely define.<sup>19</sup> Even within a specific minority community there may be issues of what are the boundaries of particular neighborhoods and which neighborhoods most appropriately belong together. In reading through testimony submitted to the IRC or to the special master about communities of interest, some testimony has been contradictory, and the same tends to be true in other jurisdictions with which I am familiar. Also, while there are certainly historic communities, community definitions can be constantly evolving, especially as the racial or ethnic population of neighborhoods changes. Since communities of interest are often smaller than a single Congressional district or even a State Senate district, some combining of communities of interest will be

---

<sup>17</sup>Chen, Sandra J. et al. 2022. "Turning Communities Of Interest Into A Rigorous Standard For Fair Districting." *Stanford Journal of Civil Rights and Civil Liberties* 18: 101-89, provides a brief discussion of the idea of cognizability.

<sup>18</sup>It can be shown mathematically that  $N-1$  is the lowest mathematically feasible number of splits except where there are whole counties or cities or aggregates of cities and counties that exactly meet population requirements. This result has been shown by Professor Grofman and demonstrated in a mathematically elegant fashion by Professor John Nagle (personal communication).

<sup>19</sup> See discussion in Chen, Sandra J. et al. 2022. "Turning Communities Of Interest Into A Rigorous Standard For Fair Districting." *Stanford Journal of Civil Rights and Civil Liberties* 18: 101-89, and references therein.

necessary. Finding the appropriate communities to combine is often more art than science and there will almost never be one absolutely correct answer, especially given the other constraints that need to be satisfied for a constitutional map.

10. Below is a summary chart showing key features of the Court’s final congressional map and the Court’s final Senate map, with a comparison to the corresponding unconstitutional maps.

<b>CONGRESS</b>	<b>Court Map</b>	<b>Legislative Proposal</b>
Number of Counties Split	<b>16</b>	34
Total Number of County Splits	<b>26</b>	56
Reock Compactness	<b>41</b>	32
Polsby-Popper Compactness	<b>35</b>	25
Competitive Districts <sup>20</sup>	<b>8</b>	3
For splits, lower is better. For compactness and competitive districts, higher numbers are better.		

<b>SENATE</b>	<b>Special Master Proposal</b>	<b>Legislative Proposal</b>

<sup>20</sup> As measured using the 2016/2020 Presidential election PVI on DRA; districts between 45% and 55%.



Number of Counties Split	<b>25</b>	30
Total Number of County Splits	<b>66</b>	71
Reock Compactness	<b>39</b>	35
Polsby-Popper Compactness	<b>34</b>	28
Competitive District	<b>12</b>	6
For splits, lower is better. For compactness and competitive districts, higher numbers are better.		

## 11. CHANGES TO PROPOSED MAPS

I was very pleased to see the high level of civic engagement and interest reflected in the volume of comments this Court (and the Redistricting Commission earlier) had received, and particularly pleased with the many suggestions for improvements in the preliminary maps I prepared for the Court. And I sought to be very responsive to citizen concerns in my recommendations to the Court for the shape of the final maps. But there are several realities that must be understood that made it impossible to incorporate most of the suggestions.

First, some of those suggestions were mutually contradictory.

Second, while I was quite successful in limiting the number of counties and cities that were split, some splits are simply inevitable given the geography of the state and the population constraints, and the need to take into account other of the multiple competing criteria for redistricting identified in the state constitution that I listed earlier in this Report. I can assure you that if yours was one of these units that were split it was not because of any kind of animus but was essentially due to the mathematical necessity of splitting some units, though I have tried especially hard to limit splits of smaller units.<sup>21</sup>

---

<sup>21</sup> Professor Bernard Grofman has joked that there are so many different criteria that a Special Master must pay attention to that it's like being asked to simultaneously juggle things as diverse as tires, tea pots, and burning torches, with some pennies to juggle (population equality constraints) thrown in for good measure.

Third, under federal law, it is unconstitutional for race to be a preponderant motive in redistricting, and I did not do so. Some of the changes that were proposed involved moving pockets of concentrated minority populations from one district to another simply to increase minority influence without a clear justification in terms of unifying long-established geographically defined neighborhoods and communities.

Fourth, changes to a proposed map needed to be geographically feasible in terms of changes to the proposed map that reflects the spirit and rules set out in the constitution.

Fifth, perhaps, most importantly, any change has a ripple effect that can force substantial redrawing of lines. In particular, even small changes in one part of the map can force more substantial changes overall due to the strict population constraints in the New York State Constitution.

Finally, and relatedly, changes which seem desirable from the standpoint of one community of interest may have fewer desirable consequences for other communities of interest.

Nonetheless, despite the important caveats in the paragraphs above about why it was simply impossible to address all the public's concerns, I am pleased to report that I was able to incorporate into the final maps a very large proportion of the most serious and most often repeated suggestions about changes needed in the preliminary maps. Below I have sought to explain my reasons for key changes I did or did not make - often involving a hard choice between two options, each of which could be supported with good reasons. There are 28 proposed changes that had some substantial support that I reference below. Of these 28 changes, I was able to adopt in whole or in part 21.

My preliminary proposed maps were informed by testimony before the Redistricting Commission, evidence in the court record, and suggestions given directly to me prior to my drafting of a preliminary map. But I find the present round of citizen submissions of particular usefulness to me as a mapmaker, since they were directly offering what they believe to be improving changes in a map whose main features were likely to be adopted by the Court. Having a map to work from allows the public to be better informed about how their recommendations might be made compatible with concerns of other citizens and groups in a lawful map.

Several changes to the Proposed Maps have been made based on the comments of citizens and interest groups. I am thankful for the time invested by those citizens in helping me to identify areas for improvement from the Proposed map I delivered to the court on May 16, 2022. I provide in the following section reasons why some suggested changes were or were not made in the revised map.

## **CONGRESSIONAL MAP**

### **NEW YORK CITY**

#### **11A. BROOKLYN - BEDFORD-STUYVESANT**

In the draft congressional map, I inadvertently split the community of Bedford-Stuyvesant while trying to create compact, legally compliant districts in Brooklyn. In the final version of the map, I have placed this community in full in district 8. Bedford-Stuyvesant is now the core of district 8, as has historically been the case.

#### **11B. BROOKLYN - CROWN HEIGHTS**

In the draft congressional map, I inadvertently split the community of Crown Heights while trying to create compact, legally compliant districts in Brooklyn. In the final version of the map, I have placed this community in full in district 9. Crown Heights is now the core of district 9, as has historically been the case.

#### **11C. SUNSET PARK, MANHATTAN CHINATOWN, RED HOOK**

Several changes from the proposed map were made to Congressional District 10 to reflect numerous public comments concerning preserving communities of interest. There were many comments about maintaining the community of interest between Manhattan Chinatown, the Lower East Side, Sunset Park, and Red Hook within one congressional district. More specifically, many comments cited to the language in the federal case Diaz v. Silver, 978 F. Supp. 96 (E.D.N.Y) (per curiam), aff'd, 522 U.S. 801 (1997), which recognized that Manhattan Chinatown and Brooklyn's Sunset Park were a community of interest and should be kept together within the then 12th Congressional District. This configuration has been followed in the last two redistricting cycles. The Unity Map Coalition, APA Voice Redistricting Task Force, Common Cause New York, as well as many other members of the public, provided comments concerning the maintenance of this community of interest. There were also many comments about including Red Hook, Carroll Gardens, Gowanus, and Sunset Park within one congressional district, which is also reflected in Congressional District 10. Comments also requested to keep Park Slope with Red Hook, which was also reflected in the congressional map. While many comments addressed maintaining Red Hook, Sunset Park, and Manhattan Chinatown in Congressional District 7 with Bushwick and Williamsburg, this was not possible given the population constraints.

#### **11D. MANHATTAN**

There are clearly multiple ways in which communities on Manhattan Island are conceptualized. One conceptualization is the east side and the west side, with the focus on Central Park as a divider. Others have said that they appreciate the way my proposed map creates upper, middle, and lower Manhattan districts, which is another common way to think about NYC in spatial terms. And other observations were that Central Park is an area that, rather than being seen as a barrier, can be viewed as a green space for shared activities that unite uptown Manhattan. Moreover, the proposed uptown congressional district includes more than just areas bordering on Central Park for which the East Side versus West Side distinction may be most relevant. Furthermore, looking at Manhattan as a whole, the East Side versus West Side distinction tends to break down as we move further south. Also, even the areas of the city bordering on opposite sides of Central Park do not appear to be as strongly distinguished in terms of economic and demographic differences as they once were. Thus, while this is a hard choice, I do not find a compelling

community of interest argument for changing the configurations of Manhattan congressional districts in the proposed map.

#### **11E. NORTH BRONX/WESTCHESTER - CO-OP CITY**

There is conflicting testimony as to the appropriate portion of the Bronx that would be included in district 16. All former parts of district 16 cannot be included because of population constraints. Co-Op City, which was previously in Congressional District 16, had to be moved out of the 16<sup>th</sup> because the population loss in upstate required CD 16 to take in more population to the north. Unfortunately, even though many hundreds of citizens sent me requests for Co-Op City to be placed into the 16<sup>th</sup> CD, this is not possible given the constraints imposed by the combination of population and other criteria. I am pleased to note that Co-Op City is maintained wholly within Congressional District 14, an adjacent district that is also majority-minority in character.

#### **11F. BROOKLYN - BENSONHURST**

In the proposed congressional map, Bensonhurst was inadvertently divided between two congressional districts. Bensonhurst is now united in Congressional District 11. This reflects comments about keeping Bensonhurst whole and within Congressional District 11.

#### **11G. BROOKLYN - BENSONHURST, BATH BEACH, NEW UTRECHT**

The area of south Brooklyn was unintentionally divided in the proposed congressional map. Numerous comments were made about keeping the South Brooklyn areas of Bensonhurst, Bath Beach, and New Utrecht together in one congressional district and uniting these areas with Staten Island. I made changes to reflect these comments and now unite Bay Ridge, New Utrecht, Bensonhurst, and Bath Beach in CD 11 with Staten Island.

#### **11H. QUEENS - BAYSIDE**

Several comments related to the neighborhood of Bayside being included in Congressional District 6 instead of Congressional District 3 on the proposed map. Given population constraints, including all of Bayside in CD 6 is not possible. However, I have taken the suggestion of APA Voice and added the southern portion by making population exchanges.

### **LONG ISLAND**

#### **11I. LONG ISLAND COMMUNITIES**

Several changes were made to Long Island districts in both the Senate and Congressional maps. Testimony by the League of Women Voters Long Island chapter, and others, suggested that splitting Long Island in a way that respects the north shore and south shore communities would be more appropriate. The congressional map now reflects that change.

#### **11J. NASSAU/QUEENS COUNTY BORDER**

Common Cause reported that there was community activist sentiment for Congressional District 5 not to cross the Nassau County border. This feature is maintained in the final congressional map.

#### **11K. WESTBURY/NEW CASSEL**

Although there were numerous comments about including Westbury and New Cassel with Hempstead within a congressional district, Westbury and New Cassel were not included in Congressional District 4 in order to maintain the district within the city line.

#### **UPSTATE**

#### **11L. DISTRICT 17 - CONTIGUITY**

Rockland County was inadvertently left discontinuous in the Proposed congressional map. The city of Greenburgh is now split in such a way that the Mario M. Cuomo Bridge connects Rockland to the rest of CD 17. I thank Steve Dunn for bringing this error to my attention.

#### **11M. CAPITAL REGION**

Congressional District 20, which is centered on the capital city of Albany, initially did not include the culturally and economically connected city of Saratoga Springs. In the final Court map, all of Saratoga County is included, along with the city of Troy in Rensselaer County. I was not able to include Amsterdam given population constraints and the requirement to consider county subdivision boundaries.

#### **11N. ERIE COUNTY THREE WAY SPLIT**

Several changes have been made to Erie County. First, objections to the additional split of Erie County have been corrected in the congressional map. Erie County now consists of parts of CD 23 and 26. CD 24 now includes the more rural parts of Niagara County. This configuration better reflects the map submissions made to me and the testimony I have received since the release of the Proposed maps.

#### **11O. KINGSTON CITY SPLIT**

Some cities are necessarily split in the process of equalizing the population between districts. The Court map minimizes the impacted cities by only splitting one city in each district (in accordance with N-1 splitting criteria laid out above, and in the preservation of political sub-divisions). The residents of Kingston were clear about the particular harm splitting their community would cause, and therefore I maintained the entirety of Kingston in the final map.

## **SENATE**

### **NEW YORK CITY**

#### **11P. BROOKLYN - BENSONHURST/SUNSET PARK**

In the final senate map, changes were made to reflect numerous testimony about keeping the neighborhoods of Sunset Park and Bensonhurst whole and together in one Senate District. This comment was received by APA Voice Redistricting Task Force, The Unity Map Coalition, Common Cause, as well as many other individuals. This is reflected in Senate District 17.

#### **11Q. BROOKLYN - BAY RIDGE**

Bay Ridge was unintentionally split in the proposed State Senate map. Several comments were made about keeping Bay Ridge whole within a Senate District. The Senate map changes reflect these comments and keep Bay Ridge whole and with Dyker Heights within Senate District 26.

#### **11R. BROOKLYN - PARK SLOPE**

In the proposed map, I inadvertently excluded a northern triangular portion of Park Slope from other districts that contained the Park Slope neighborhood. Given the difficulties in obtaining equal population in these highly dense areas, I was unable to unite this portion of the neighborhood.

#### **11S. QUEENS - BAYSIDE, OAKLAND GARDENS, AUBURNDALE**

Several comments related to the neighborhoods of Bayside, Oakland Gardens, and Auburndale being included in Senate District 16 instead of Senate District 11. To keep neighborhoods together, comments also reflected requests to add part of the "Hillside Corridor" to Senate District 11 instead of its inclusion in proposed Senate District 16. These comments are reflected in written submissions from APA Voice Redistricting Task Force, The Unity Map Coalition, and Common Cause. I prioritized written comments to make changes to the map to include more of Bayside, Oakland Gardens, and Auburndale into senate district 16 while including areas of what is classified as the "Hillside Corridor" into Senate District 11.

#### **11T. QUEENS - RICHMOND HILL/OZONE PARK**

Numerous comments requested the inclusion of more of Richmond Hill within Senate District 15 with Ozone Park. I changed Senate District 15 to reflect these comments. I was not, however, able to get all of South Ozone Park into Senate District 15 due to population constraints. These district changes were made in an effort to preserve neighborhood boundaries as best as possible. Unfortunately, Forest Hills is slightly split in this new configuration.

#### **11U. QUEENS - WOODSIDE/ELMHURST**

Numerous statements from APA Voice Redistricting Task Force provided support for keeping Woodside and Elmhurst together in Senate District 15. Based on this testimony, I made the decision to unite these two communities and maintain Senate District 15.

#### **11V. NORTH BRONX/WESTCHESTER - CO-OP CITY**

I was able to follow the guidance of numerous testimony regarding the North Bronx/Westchester region, proposing uniting the neighborhoods of Co-Op City, Edenwald, and Williamsbridge with Mount Vernon, Eastchester, and Wakefield in one senate district. This is now achieved in Senate District 36.

### **LONG ISLAND**

#### **11W. SENATE DISTRICT 4**

According to Article III, Section 4(c)(1) of the New York Constitution, when drawing district lines one must "...consider whether such lines would result in the denial or abridgment of racial or language minority voting rights, and districts shall not be drawn to have the purpose of, nor shall they result in, the denial or abridgment of such rights." Here, following the injunctions of the State Constitution to respect communities of interest (NYS Const. Art. III, Section 4(c)(5)) and to not draw districts that would result in the denial or abridgment of racial or language minority voting rights, the final map includes a district similar to one suggested by Common Cause.<sup>22</sup>

#### **11X. LAKEVIEW/ROCKVILLE CENTRE**

In the proposed state Senate map, Lakeview was inadvertently divided. I have made a change to keep Lakeview whole in Senate District 6. Rockville Centre is also kept whole in a senate district, as requested by public feedback to the preliminary map.

#### **11Y. WESTBURY/NEW CASSEL**

There were numerous comments about including Westbury and New Cassel with Hempstead in a district. The map was changed such that it includes this community of interest in Senate District 6.

### **UPSTATE**

#### **11Z. SYRACUSE/AUBURN**

---

<sup>22</sup> Whether failing to create this district would be a federal Voting Rights Act violation is unclear, as federal law on whether or not the Voting Rights Act applies to combined minority groups is currently unsettled. In any case, we have relied on state law, not federal law here.

There were many requests to keep Auburn and Syracuse together in one senate district. Comments highlighted the shared interests of Cayuga County and Onondaga County. I changed the Syracuse area to reflect this and keep these two cities together within Senate District 48. Cayuga County is kept whole within Senate District 48.

**11AA. UTICA/ROME**

There were also numerous requests to keep the cities of Utica and Rome together in one district. This change is reflected in Senate District 53 that unites these two cities.

**11AB. BUFFALO**

In the proposed map, I inadvertently split the city of Buffalo to join it with the more rural area of Erie County. There were comments that the previous split between a more urban district and a more rural district did not respect neighborhood interests. The configuration has been changed to provide a clearer separation between more urban and rural populations of the county.

**11AC. ROCHESTER**

At least one group has questioned the split in the senate map of Rochester. However, for Senate Districts 55 and 56, the maps submitted by the Petitioners and the Respondents each had identical lines and I saw no reason to not propose that same configuration to the Court for the final map.

**11AD. GREENE/COLUMBIA**

I received testimony that requested to join Greene and Columbia Counties in the senate map. I have made a change in the final map to reflect this.