IN THE SUPREME COURT OF PENNSYLVANIA
MIDDLE DISTRICT

No. 7 MM 2022

Carol Ann Carter; Monica Parrilla; Rebecca Poyourow; William Tung; Roseanne Milazzo; Burt Siegel; Susan Cassanelli; Lee Cassanelli; Lynn Wachman; Michael Guttman; Maya Fonkeu; Brady Hill; Mary Ellen Bachunis; Tom DeWall; Stephanie McNulty; and Janet Temin,

Petitioners,

v.

Leigh M. Chapman, in Her Capacity as Acting Secretary of the Commonwealth of Pennsylvania; and Jessica Matthis, in Her Acting Capacity as Director of the Bureau of Election Services and Notaries,

Respondents.

BRIEF OF *AMICI CURIAE* VOTERS OF THE COMMONWEALTH OF PENNSYLVANIA IN SUPPORT OF SPECIAL MASTER'S REPORT

Supporting Report Containing Proposed Findings of Fact and Conclusions of Law of the Honorable Patricia A. McCullough of the Commonwealth Court of Pennsylvania Supporting Her Recommendation of a Redistricting Plan

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TABLE OF CONTENTS

i

TABLE OF AUTHORITIES

Cases

Statutes and Rules

Other Authorities

Constitutional Provisions

STATEMENT OF INTEREST OF *AMICI CURIAE*

Haroon Bashir, Valerie Biancaniello, Tegwyn Hughes, and Jeffrey Wenk ("Voters of PA") are individuals who reside in Pennsylvania, are registered to vote in Pennsylvania, and consistently vote in each election. The Voters of PA intend to advocate and vote for Republican candidates in the upcoming 2022 primary and general elections. As such, they represent the "mirror-image" interests of the Carter Petitioners, who have averred that they are Pennsylvania registered voters who intend to advocate and vote for Democratic candidates in the upcoming 2022 primary and general elections.

Insofar as "the right to vote is personal" and "the rights sought to be vindicated in a suit challenging an apportionment scheme are 'personal and individual,'" *Albert v. 2001 Legislative Reapportionment Comm'n*, 790 A.2d 989, 994–95 (Pa. 2002), no two voters have precisely the same interest in cases such as these consolidated matters, in which the Court has stated it will adopt the next congressional districting plan. To that end, the Voters of PA sought leave to intervene in this action. Although no proposed voter intervenor groups were granted intervention in this action, the Voters of PA were permitted to participate as amici. Accordingly, the Voters of PA submitted a brief and proposed congressional redistricting plan in order to have their voices and preferences heard. Following the hearing before the Special Master, the Honorable Patricia A. McCullough, the Voters of PA's proposed

congressional redistricting plan was one of three maps submitted that is "consistent

with the Free and Equal Elections Clause of the Pennsylvania Constitution, and, also,

the aspirations and ideals expressed by that constitutional provision as pronounced

by the Court in [*League of Women Voters v. Commonwealth*, 178 A.3d 737 (Pa.

2018)]."

DETERMINATION IN QUESTION

Before the Court is the "Report Containing Proposed Findings of Fact and Conclusions of Law Supporting Recommendation of Congressional Redistricting Plan and Proposed Revision to the 2022 Election Calendar/Schedule" (the "Report") filed by the Special Master, the Honorable Patricia A. McCullough, on February 7, 2022.

STATEMENT OF THE CASE

Pennsylvania's current congressional map is based upon the 2010 Census data, when Pennsylvania had a population of 12,702,379. Dividing the population by the 18 congressional districts apportioned to Pennsylvania, the ideal population for each of Pennsylvania's congressional districts was 705,688. Based on the results of the 2020 Census, Pennsylvania has a population of 13,002,700. Beginning with this year's congressional election, Pennsylvania will have only 17 congressional districts. Thus, the ideal population for each of Pennsylvania congressional districts beginning in 2022 will be 764,865. Thus, at this moment, each congressional district in Pennsylvania will be malapportioned for the 2022 congressional election.

On December 17, 2021, the Carter Petitioners and the Gressman Petitioners—individuals registered to vote in Pennsylvania—each filed a Petition Review in the Commonwealth Court pursuant to its original jurisdiction. On December 20, 2021, the Commonwealth Court consolidated the two actions. Also on December 20, the Commonwealth Court set a deadline of December 31, 2021, for applications to intervene to be filed.

The Voters of PA timely filed an application for leave to intervene on December 31. A total of 10 groups of proposed intervenors sought leave to intervene. The parties to the action filed timely responses. The Commonwealth

Court held a hearing on all of the applications for leave to intervene on January 6, in which the Voters of PA participated.

On January 14, 2022, the Commonwealth Court entered an order denying the Voters of the Commonwealth's Application for Leave to Intervene. In that same order, the Commonwealth Court denied all other applications for leave to intervene filed by individual voters. Also in the order, the Commonwealth Court granted the applications to intervene filed by current officeholders.

On January 24, 2022, the Voters of PA, as amicus participants, submitted a brief and proposed congressional redistricting plan. On January 27 and 28, 2022, the Honorable Patricia A. McCullough presided over an evidentiary hearing regarding the various congressional redistricting plans that were submitted.

On January 29, 2022, the day after the evidentiary hearing concluded, the Carter Petitioners filed an Emergency Application for Extraordinary Relief Under 42 Pa.C.S. § 726 and Pa. R.A.P. 3309, requesting the Court to assume extraordinary jurisdiction over this action. On February 2, 2022, this Court granted the application, designating the Honorable Patricia A. McCullough to serve as Special Master.

Consistent with the Court's Order of February 2, 2022, the Honorable Patricia A. McCullough filed her Report on February 7, 2022. The Report set forth the Special Master's proposed findings of fact and conclusions of law. In the Report, the Honorable Patricia A. McCullough found that:

As a result of its credibility and weight determinations, the Court finds that the map submitted by the Voters of PA *Amici*, the Congressional Intervenors' maps (especially Reschenthaler 1), and the map of the Republican Legislative Intervenors (known as HB 2146) are consistent with the Free and Equal Elections Clause of the Pennsylvania Constitution, and, also, the aspirations and ideals expressed by that constitutional provision as pronounced by the Court in [*League of Women Voters v. Commonwealth*, 178 A.3d 737 (Pa. 2018)] due to their compactness, degree of partisan fairness, and specific development of congressional districts.

Report at 207 ¶ 57. The Special Master thus concluded:

For the above-stated reasons, and as its penultimate suggestion, the Court respectfully, yet firmly, **recommends that our Supreme Court adopt and implement HB 2146 as a matter of state constitutional law as it meets all of the traditional criteria of the Free and Equal Elections Clause, and does so in respects even noted by the Governor's expert, as well as the other considerations noted by the courts, it compares favorably to all of the other maps submitted herein, including the 2018 redistricting map, it was drawn by a non-partisan good government citizen, subjected to the scrutiny of the people and duly amended, it creates a Democratic leaning map which underscores its partisan fairness, and, otherwise, is a reflection of the "policies and preferences of the State, as expressed in statutory and constitutional provisions or in the reapportionment plans proposed by the state legislature."**

Report at 216 ¶ 97 (emphasis in original).

On February 9, 2022, the Court issued an Order temporarily suspending the General Primary Election calendar.

Pursuant to the Court's Order of February 2, 2022, the parties and amicus participants have until February 14, 2022, to file exceptions to the Report. By subsequent order, the Court also instructed any parties and amicus participants to

file briefs in support of the Report by February 14. Argument on the exceptions is

scheduled to take place on February 18, 2022.

SUMMARY OF ARGUMENT

Nearly four years ago, to prevent violations of the Free and Equal Elections Clause of the Pennsylvania Constitution, the Supreme Court of Pennsylvania adopted a set of criteria to serve as a "floor" to ensure that extraneous considerations, including partisan interests, did not subordinate traditional, more neutral factors in the development of a congressional redistricting plan. *See League of Women Voters v. Commonwealth*, 178 A.3d 737, 817 (Pa. 2018). With the General Assembly and Governor unable to reach an agreement on a new redistricting plan, the "unwelcomed obligation" to navigate the "rough terrain" of this "notoriously political endeavor" again falls to this Court. *Carter v. Chapman*, No. 7 MM 2022, Order filed Feb. 2, 2022 (Dougherty, J., concurring statement at 3–5).

The Honorable Patricia A. McCullough, serving as Special Master, ably presided over a complex evidentiary hearing in which more than a dozen congressional redistricting plans were vetted. Having carefully considered the credibility of the expert witnesses who testified, she recommended the adoption of HB 2146, the redistricting plan submitted by the Republican leadership of the General Assembly. This decision was made somewhat easier by the significant number of redistricting plans that failed to satisfy one or more "neutral criteria" that this Court adopted in *LWV*. This Court should adopt the Special Master's Report and Recommendation, and specifically should adopt HB 2146. Alternatively, this

Court should adopt the Voters of PA's Plan, one of just three redistricting plans that the Special Master found to be "consistent with the Free and Equal Elections Clause of the Pennsylvania Constitution, and, also, the aspirations and ideals" expressed by this Court in *LWV*. Report at 207–08 ¶¶ 57–59.

ARGUMENT

I.   The Court's Role in Congressional Redistricting

Courts have long recognized that "the primary responsibility and authority for drawing federal congressional legislative districts rests squarely with the state legislature." *League of Women Voters v. Commonwealth*, 178 A.3d 737, 821 (Pa. 2018) ("*LWV*") (citing U.S. CONST. art. I, § 4; *Butcher v. Bloom*, 216 A.2d 457, 458 (Pa. 1966)); *accord Growe v. Emison*, 507 U.S. 25, 34 (1993) (stating that "the Constitution leaves with the States primary responsibility for apportionment of their federal congressional and state legislative districts."). "Congressional redistricting becomes a judicial responsibility only when, as here, the state legislature has not acted after having had an adequate opportunity to do so." *Mellow v. Mitchell*, 607 A.2d 204, 214 (Pa. 1992) (citing *White v. Weiser*, 412 U.S. 783, 794–95 (1973); *Reynolds v. Sims*, 377 U.S. 583, 586 (1964)).

Regardless of whether the legislative or judicial branch is tasked with reapportionment, the goal is the same: to make "as nearly as is practicable one man's vote in a congressional election … worth as much as another's." *Mellow*, 607 A.2d at 214 (quoting *Wesberry v. Sanders*, 376 U.S. 1, 8 (1964)). "This requirement is the 'preeminent if not the sole, criterion' for appraising the validity of redistricting plans." *Id.* (quoting *Chapman v. Meier*, 420 U.S. 1, 23 (1964)). This goal derives directly from the U.S. Constitution, which mandates that the U.S. House of

10

Representatives "shall be apportioned among the States … according to their respective Numbers." U.S. CONST. art I, § 2.

The last time a congressional redistricting plan was before this Court, the Court noted that Article I, Section 5 of the Pennsylvania Constitution provided additional grounds for achieving this goal. *See LWV*, 178 A.3d at 804. This section provides:

> Elections shall be free and equal; and no power, civil or military, shall at any time interfere to prevent the free exercise of the right of suffrage.

PA. CONST. art. I, § 5. The Court noted that the Free and Equal Elections Clause "mandates that all voters have an equal opportunity to translate their votes into representation." *LWV*, 178 A.3d at 804. Thus, the Free and Equal Elections Clause prohibits any governmental action that "dilutes the vote of any segment of the constituency," *City Council of Bethlehem v. Marcinin*, 515 A.2d 1320, 1323–24 (Pa. 1986), including with respect to redistricting plans, *LWV*, 178 A.3d at 817. Like Article I, Section 2 of the U.S. Constitution, Pennsylvania's Free and Equal Elections Clause prohibits "the creation of congressional districts which confer on any voter an unequal advantage by giving his or her vote greater weight in the selection of a congressional representative" than other voters. *Id.* at 816.

II. <u>Neutral Redistricting Criteria Must Predominate</u>

To determine whether a congressional redistricting plan violates the Free and Equal Elections Clause, this Court adopted the same "neutral benchmarks" for

congressional redistricting that are set forth in Pennsylvania's Constitution to prevent the dilution of individual's votes in state legislative districts. Thus, to ensure that all voters have an equal opportunity to translate their votes for congressional representatives into representation, the essential inquiry is whether the congressional districts created under a redistricting plan are:

> Composed of compact and contiguous territory; as nearly equal in population as practicable; and which do not divide any county, city, incorporated town, borough, township, or ward, except where necessary to ensure equality of population.

LWV, 178 A.3d at 816; *see also* PA. CONST. art. II, § 16 (governing the creation of legislative districts). "These neutral criteria provide a 'floor' of protection for an individual against the dilution of his or her vote in the creation of such districts." *LWV*, 178 A.3d at 817.

Other factors have historically played a role in the drawing of districts, including "preservation of existing … districts, protection of incumbents, avoiding situations where incumbent legislators would be forced to compete for the same new seat." *Holt v. 2011 Legislative Reapportionment Comm'n*, 67 A.3d 1211, 1235 (Pa. 2013) ("*Holt II*"). But these factors must remain "wholly subordinate to the neutral criteria of compactness, contiguity, minimization of the division of political subdivisions, and maintenance of population equality among congressional districts." *LWV*, 178 A.3d at 817. The subordination of the "neutral criteria" constitutes a violation of the Free and Equal Elections Clause, regardless of whether

12

such subordination was intentional. *Id.* (citing *In re New Britain Borough Sch. Dist.*, 145 A. 597 (Pa. 1929)).

Other means may be available to determine whether a redistricting plan violates the Free and Equal Elections Clause. *Id.* at 817. For example, communities "have shared interests for which they can more effectively advocate when they can act as a united body and when they have representatives who are responsive to those interests." *Holt v. 2011 Legislative Reapportionment Comm'n*, 38 A.3d 711, 745 (Pa. 2012) ("*Holt I*"). "Historically, reapportionment bodies have considered 'communities of interest' as one legitimate factor in drawing fair and politically sensitive districts." *Id.* (quoting Gormley, *Racial Mind-Games and Reapportionment*, 4 U. PA. J. CONST. L. 735, 779–81 (2002)). Thus, a map may sacrifice compactness in order to encompass a "dispersed community of interest." *LWV*, 178 A.3d at 828 (Baer, J., concurring and dissenting).

III. The Special Master Properly Recommended Excluding Certain Maps for Failing to Satisfy Constitutional Criteria

The Honorable Patricia A. McCullough properly recommended that the Court not adopt several of the submitted maps because they fail to satisfy one or more of the criteria this Court held "provide a 'floor' of protection for an individual against the dilution of his or her vote in the creation of such districts." *LWV*, 178 A.3d at 817. Regardless of the merits of the extraneous considerations used in drawing those maps, these maps' failure to meet the requirements of Article II, § 16 of the

13

Pennsylvania Constitution—made applicable to congressional redistricting plans in *LWV*—renders them constitutionally infirm and disqualifies them from adoption by the Court.

A. **The Carter Plan, House Democratic Plan, and Ali Plan Fail to Achieve Population Equality**

The Constitution of the United States provides in relevant part that the U.S. House of Representatives "shall be apportioned among the States … according to their respective Numbers." U.S. CONST. art. I, § 2. This requires that congressional districts be drawn to "achieve population equality 'as nearly as is practicable.'" *Karcher v. Daggett*, 462 U.S. 725, 730 (1983) (quoting *Wesberry v. Sanders*, 376 U.S. 1, 7–8 (1964)). This standard "requires that the State make a good-faith effort to achieve precise mathematical equality. *Kirkpatrick v. Preisler*, 394 U.S. 526 (1969) (citing *Reynolds v. Sims*, 377 U.S. 533, 577 (1964)). "Unless population variances among congressional districts are shown to have resulted despite such effort, the State must justify each variance, no matter how small." *Id.* Departures from "mathematical perfection" are justified only to "avoid fragmentation of local government territories and the splitting of election precincts; effectuating adequate representation of a minority group; creating compact and contiguous districts; maintaining relationships of shared community interests; and not unduly departing from the useful familiarity of existing districts." *Mellow*, 607 A.2d at 206.

Three of the plans submitted to the Special Master fail this basic requirement. Both the Carter Plan and the House Democratic Plan feature a population deviation of 2; the other plans achieve "mathematical perfection" by having a population deviation of only 1.[1] But neither the Carter Petitioners nor the House Democratic Intervenors offer any compelling justification for failing to achieve mathematical perfection. Their plans are no more compact than competing plans. Their plans do not boast fewer splits than their competitors. They offered no persuasive evidence that the additional population deviation was used to effectuate adequate representation of a minority group. And while the Carter Petitioners suggest that their plan best preserves the cores and boundaries of the existing 18-district plan— by only a marginal amount—this is an "extraneous consideration" which must be "wholly subordinate" to the neutral criteria of population equality. *LWV*, 178 A.3d 737.

A third plan—submitted by the Ali *Amici*—fails to satisfy the population equality standard by a significantly larger margin. In developing their plan, the Ali *Amici* used Legislative Redistricting Commission "Data Set #2," which adjusts

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[1] The Special Master's Report also finds that the Citizen Voters' Plan has a two-person difference in population between the largest and smallest districts. Report at 204. Although the Citizen Voters did not submit an expert report of their own, experts of other parties opined that their plan had a population deviation of only 1. To the extent the Citizen Voters' Plan has a population deviation greater than 1, their plan fails for the same reason.

Pennsylvania's population to use the home addresses of state prisoners, so as to avoid the practice of so-called "prison-based gerrymandering." (Ali Br. at 9). But this Court refused to utilize this data set just 4 years ago when it crafted the remedial congressional redistricting plan in 2018. *See League of Women Voters v. Commonwealth*, 181 A.3d 1083, 1087 n.8 (Pa. 2018). Thus, when measured against the data set consistently used in past congressional redistricting plans in Pennsylvania (including the one most recently adopted by the Court), the Ali *Amici*'s plan features a population deviation of more than 8,000, several orders of magnitude greater than every other plan submitted to the Court for consideration.

The Carter Plan, the House Democratic Plan, and the Ali *Amici* Plan each fail to offer the justification needed to fail to achieve mathematical perfection in population equality when the other submitted plans meet that standard. Thus, these submitted plans are unconstitutional as a matter of federal and state law. Accordingly, the Special Master properly recommended that these plans not be adopted.

B. **The Governor's Plan, the Senate Democratic Plans, the Draw the Lines Plan, and the Ali Plan Unconstitutionally Split Pittsburgh**

No fewer than 5 proposed plans fail because they ignore the basic constitutional requirement that no city shall be divided "unless absolutely necessary." PA. CONST. art. II, § 16; *see also LWV*, 178 A.3d at 816–17. Each of these plans splits Pennsylvania's second largest city, despite the fact that it easily

fits within a single congressional district. Historically, this significant community of interest has remained a single congressional district in prior districting plans and the plan proponents who would split the city offer no compelling rationale for doing so. Certainly, they fail to establish, as required under *LWV* and the Pennsylvania Constitution, that splitting the City of Pittsburgh is "*absolutely necessary*."

Testimony at the evidentiary hearing confirmed that the splitting of Pittsburgh was not for the purpose of population equality, but rather to either improve compactness scores (N.T. at 216–17, 436), or to create two Democratic-leaning districts rather than one, (N.T. at 526–27). The latter, of course, is an extraneous, partisan, consideration that the Court has expressly required be "subordinated" to the neutral criteria of contiguity, compactness, equal population, and minimization of political subdivision splits. *LWV*, 178 A.3d at 817; *Holt II*, 67 A.3d at 1239.

The numerous plans that do not split Pittsburgh put the lie to any claim that dividing the city into two districts is "absolutely necessary." Numerous plans achieve similar—or, in the Voters of PA's case, *better*—compactness scores with comparable or fewer total political subdivision splits without splitting Pittsburgh. The evidentiary record is devoid of any evidence—and in fact disproves—that the division of Pittsburgh was "absolutely necessary" to achieve equal population or any other neutral criteria.

In a similar vein, although the House Democratic Plan kept the City of Pittsburgh intact, that plan includes a district with a "Freddy-Krueger like claw" that reaches into Allegheny County to "grab" Pittsburgh to combine it with Republican-leaning areas in the North. The House Democrats offer no rationale for doing so. Its effect is the same as those plans that would split Pittsburgh, attempting to harvest a second Democratic-leaning district in and around this city without regard to communities of interest. This Court cannot endorse such a blatant attempt to have partisan interests subordinate the neutral criteria in direct contravention of this Court's recent dictate. Accordingly, the Special Master properly discounted the plans of the Governor,[2] Senate Democrats, House Democrats, Draw the Lines PA, and Ali *Amici* and properly recommended the Court not adopt these plans.

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[2] The Governor's Plan also would split Bucks County for the first time in 150 years (despite Pennsylvania having more congressional districts for much of that period). Like Pittsburgh, it is not "absolutely necessary" to split Bucks County, whose residents generally share the same community of interests. Rather, the primary purpose of splitting Bucks County appears to be to turn a Republican-leaning district into a Democratic-leaning one. The Governor's proposed splitting of Bucks County serves as an additional basis for rejecting his plan, as the Special Master properly did.

IV.   The Special Master Properly Did Not Rely on "Partisan Fairness" Metrics to Compare the Merits of the Plans

A.   "Partisan Fairness" Is a Slippery Slope that Risks Subordinating the Neutral Criteria

Several plan proponents have argued that their plans are superior based, at least in part, on scores obtained using one metric of "partisan fairness" or another. Although the Court successfully used partisan fairness metrics to determine whether partisan considerations subordinated the neutral criteria, the Court should avoid the siren song of using these metrics to determine the relative adequacy of one redistricting plan versus another. The Honorable Patricia A. McCullough resisted this temptation, and the Court would be well advised to do likewise.

First, the partisanship and "maintenance of the political balance which existed after the prior reapportionment" are factors that must be "wholly subordinate to the neutral criteria of compactness, contiguity, minimization of the division of political subdivisions, and maintenance of population equality among congressional districts." *Id.* at 817.

Second, Pennsylvania's political geography—wherein Democratic voters are clustered and Republican voters are a bit more spread out across different geographies of Pennsylvania"—creates a natural geographic advantage for Republicans. *Id.* at 774. Partisan fairness metrics would either ignore or run directly counter to the natural distribution of voters within the Commonwealth.

Third, the use of partisan fairness metrics in the selection of a redistricting plan would be akin to creating a right to proportional party representation, which would be directly at odds with Pennsylvania and federal precedent. *See Vieth v. Jubelirer*, 541 U.S. 267, 288 (2004) (holding that "the Constitution provides no right to proportional representation" and that nothing in the United States Constitution commands "that farmers or urban dwellers, Christian fundamentalists or Jews, Republicans or Democrats, must be accorded political strength proportionate to their numbers"); *Rucho v. Common Cause*, 139 S. Ct. 2484, 2499 (2019) ("The Founders certainly did not think proportional representation was required"); *Holt II*, 67 A.3d at 1236 (holding that the Court "need not credit" arguments that a plan resulted in one party's "dominance out of proportion to party registration and party voting patterns in the Commonwealth"); *see also* Nathaniel Persily, *In Defense of Foxes Guarding Henhouses: The Case for Judicial Acquiescence to Incumbent-Protecting Gerrymanders*, 116 HARV. L. REV. 649, 672–73 (2002) ("So long as the state's majority has its advocate in the executive, is it necessarily true that the state's majority should control the legislature as well?"); *Johnson v. Wis. Elections Comm'n*, 399 Wis. 2d 623, 649 (Wis. 2021) (quoting *Rucho* and *Vieth* and declining to consider the partisan makeup of districts in crafting judicial remedies in the event of a legislative impasse). The use of a partisan fairness metric to select a redistricting plan would necessarily require the Court to enshrine a particular definition of

"fairness," despite the lack of an adequate evidentiary record or legal precedent to do so here.

Fourth, incorporation of one or more metrics of partisan fairness in the selection of a map would quickly prove unworkable. Indeed, the inability to craft a manageable judicial standard led the U.S. Supreme Court to hold that partisan gerrymandering claims present political questions beyond the reach of the federal courts: "Even assuming the court knew which version of fairness to be looking for, there are no discernible and manageable standards for deciding whether there has been a violation." *Rucho*, 139 S. Ct. at 2501.

Declining to use partisan fairness metrics to *select* a map does not mean such metrics have no place in redistricting jurisprudence. This Court successfully utilized metrics such as the mean-median gap and the efficiency gap to determine the extent to which the 2011 congressional redistricting plan constituted a partisan gerrymander that subordinated traditional, neutral criteria. *LWV*, 178 A.3d 774, 777. In *LWV*, the court used these partisan fairness metrics to confirm the 2011 Plan's "outlier status" and to rule out other potential causes for the partisan breakdown of that plan. *Id.* at 773–77. Judge McCullough did likewise in the evidentiary hearing, finding that the House Democratic Plan "has a more favorable efficiency gap outcome for Democrats than 100% of [Dr. Barber's] simulated maps." Report at 176 ¶ FF23.

B.   The Gressman Plan and the Draw the Lines Plan Subordinate Neutral Criteria in Favor of Partisan Fairness

Despite the Court's express command that extraneous considerations—especially partisanship—be subordinated to the neutral criteria of contiguity, compactness, population equality and minimization of political subdivision splits, the Gressman Petitioners and Draw the Lines *Amici* did the exact opposite. As aptly noted by the Special Master, the Gressman Petitioners deliberately created their plan using an algorithm that sought to optimize on partisan fairness. Report at 178 ¶ FF2. Likewise, the Draw the Lines *Amici* admitted to splitting Pittsburgh into two congressional districts to maximize political competitiveness. Report at 178 ¶ FF3. These plans undoubtedly could have featured better compactness scores and fewer political subdivision splits had they not subordinated these neutral criteria to the pursuit of "partisan fairness" as they measured it. Given the political geography of Pennsylvania that naturally lends itself to a Republican advantage, the Gressman Plan's skewing to a Democratic-advantaged map functions as a partisan gerrymander subordinating the neutral criteria enshrined in *LWV*. Accordingly, the Honorable Patricia A. McCullough properly recommended against the adoption of the Gressman and Draw the Lines Plans for their express prioritization of partisan fairness.

V. **The Special Master Correctly Held that the Evidentiary Record Did Not Support Voting Rights Act Considerations, rendering the Gressman Plan an Unconstitutional Racial Gerrymander**

The Honorable Patricia A. McCullough correctly concluded that there is no record evidence that the Black or Hispanic voters of Philadelphia require a majority-minority district, or some other district drawn to a racial target, to have an equal opportunity to elect representatives of their choice to Congress. Report at 19.

"The Equal Protection Clause forbids 'racial gerrymandering,' that is, intentionally assigning citizens to a district on the basis of race without sufficient justification." *Abbott v. Perez*, 138 S. Ct. 2305, 2314 (2018). The Fourteenth Amendment prohibits "the deliberate segregation of voters into separate districts on the basis of race." *Shaw v. Reno*, 509 U.S. 630, 641 (1993). "[C]ourts may not order the creation of majority-minority districts unless necessary to remedy a violation of federal law." *Voinovich v. Quilter*, 507 U.S. 146, 156 (1993). Three threshold elements, must first be proven: (1) the relevant minority group must be "'sufficiently large and geographically compact to constitute a majority' in some reasonably configured legislative district"; (2) the relevant minority group must be "politically cohesive," and (3) the "district's white majority … 'vote[s] sufficiently as a bloc' to usually 'defeat the minority's preferred candidate.'" *Cooper v. Harris*, 137 S. Ct. 1455, 1470 (2017) (quoting *Thornburg v. Gingles*, 478 U.S. 30 (1986)).

The Gressman Plan boasts the creation of three would create three minority opportunity districts. But the Gressman Petitioners did not offer any expert opinion on the *Gingles* factors under the Voting Rights Act, and, in fact, their expert conceded that candidate win rates in Philadelphia suggested that minority-preferred candidates are not usually defeated by white bloc voting. (N.T. at 283). The Gressman Petitioners appear to simply take the view that "more is always better" when it comes to the creation of minority opportunity districts. But U.S. Supreme Court authority confirms this is not the case. Absent sufficient evidence to satisfy each of the *Gingles* factors for each proposed minority opportunity district, the Gressman Petitioners' Plan constitutes an unconstitutional racial gerrymander that cannot be adopted. Accordingly, the Honorable Patricia A. McCullough correctly refused to recommend the Gressman Plan for adoption.

VI. The Special Master's Recommendation to Adopt the HB 2146 Plan Was Proper; Alternatively, the Court Should Adopt the Voters of PA Plan

As set forth *supra*, the plans proposed by the Carter Petitioners, Gressman Petitioners, Governor, House Democrats Intervenors, Senate Democrats Intervenors, Draw the Lines *Amici*, and Ali *Amici* fail on multiple, constitutional grounds.[3] By process of elimination, then, only three plan proponents remain: (1) the General

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[3] Depending on the count, the Citizen-Voter *Amici* Plan may also fail on the ground of excessive population deviation. In any event, the Citizen-Voter Plan was unsupported by any expert report, rendering analysis of that plan more challenging than for those plans which provided an evidentiary predicate.

Assembly's Republican Leadership (via the HB 2146), the Congressional Intervenors, and the Voters of PA. The Honorable Patricia A. McCullough did not err in recommending HB 2146; however, to the extent the Court declines to adopt that recommendation, the Court should adopt the plan proposed by the Voters of PA.

A. Compactness[4]

In addition to avoiding the constitutional defects suffered by the plans discussed *supra*, both HB 2146 and the Voters of PA Plans score well on compactness. As noted by the Governor's expert witness, Dr. Duchin, "the maps [submitted to the Court] are quite good across the board." (N.T. at 334).

The Voter of PA Plan, in fact, offers the most compact plan submitted. This is confirmed by the Dr. Duchin, who, as the Governor's witness, had no interest in supporting the Voter of PA Plan: "By far the two most compact plans, considering these metrics overall, are VotersOfPA and GovPlan. The next two, some ways behind the leaders, are Reschenthaler1 and CitizensPlan." (Duchin Resp. Report at 2). Voters of PA's own analysis bears this out: it boasts the highest mean Reock Score, the highest mean Polsby-Popper Score, and the highest mean Schwartzberg Score among all of the submitted plans. *See* Sean Trende Declaration, attached as

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[4] The Voters of PA Plan, like all of the submitted plans, includes fully contiguous districts. Similarly, like most of the other plans, the Voters of PA Plan also features "mathematical perfection" with respect to its population deviation. *See* Sean Trende Declaration, attached as Appx. B, at 9.

Appx. B, at 10–14. Thus, on a plan-wide basis, the Voters of PA's plan is the most compact. *Id.*

The Voters of PA Plan achieves the highest compactness scores without sacrificing any districts. As reflected in the attached Declaration of Sean Trende, The Voters of PA Plan also features the highest Reock Score for its least compact district—by a substantial margin—while also featuring Polsby-Popper and Schwartzberg Scores for its least compact district that place it in the top half of all plans submitted. *Id.*

Map	Mean Reock	Map	Least Compact (Reock)
Voters of the Commonwealth	0.442	Voters of the Commonwealth	0.343
Draw the Lines	0.436	Reschenthaler 1	0.307
Reschenthaler 1	0.426	Reschenthaler 2	0.307
Citizen Voters	0.418	House Republicans	0.270
Concerned Citizens	0.416	Gressman	0.264
Reschenthaler 2	0.414	Ali	0.234
Carter	0.413	Draw the Lines	0.227
Ali	0.407	House Democrats	0.226
Governor Wolf	0.401	Carter	0.214
Gressman	0.395	Citizen Voters	0.210
House Democrats	0.392	Senate Democrats 1	0.209
House Republicans	0.383	Governor Wolf	0.203
Senate Democrats 2	0.379	Concerned Citizens	0.199
Senate Democrats 1	0.373	Senate Democrats 2	0.197

Map	Mean Polsby-Popper		Map	Least Compact (Polsby-Popper)
Voters of the Commonwealth	0.396		Reschenthaler 1	0.246
Governor Wolf	0.381		Concerned Citizens	0.244
Draw the Lines	0.379		Senate Democrats 2	0.242
Reschenthaler 1	0.363		Citizen Voters	0.234
Ali	0.352		Draw the Lines	0.233
Concerned Citizens	0.352		Voters of the Commonwealth	0.229
Reschenthaler 2	0.352		Senate Democrats 1	0.220
Citizen Voters	0.349		Governor Wolf	0.219
Gressman	0.348		Reschenthaler 2	0.216
Senate Democrats 2	0.335		Ali	0.208
Carter	0.321		House Republicans	0.194
House Republicans	0.321		Gressman	0.187
Senate Democrats 1	0.315		Carter	0.172
House Democrats	0.279		House Democrats	0.148

Map	Mean Schwartzberg		Map	Least Compact (Schwartzberg)
Voters of the Commonwealth	0.626		Reschenthaler 1	0.496
Governor Wolf	0.613		Concerned Citizens	0.494
Draw the Lines	0.611		Senate Democrats 2	0.491
Reschenthaler 1	0.599		Citizen Voters	0.484
Concerned Citizens	0.591		Draw the Lines	0.483
Reschenthaler 2	0.591		Voters of the Commonwealth	0.478
Ali	0.590		Senate Democrats 1	0.469
Citizen Voters	0.589		Governor Wolf	0.468
Gressman	0.585		Reschenthaler 2	0.464
Senate Democrats 2	0.577		Ali	0.456
Carter	0.562		House Republicans	0.440
House Republicans	0.561		Gressman	0.432
Senate Democrats 1	0.558		Carter	0.415
House Democrats	0.521		House Democrats	0.385

B.   Political Subdivision Splits

Both HB 2146 and the Voters of PA Plans score well on the splits of political subdivisions, not only for minimizing the number of political subdivisions that are cut, but in the reasons and manner of splitting same. Both HB 2146 and the Voters of PA Plan contain 15 county splits. Report at 146 ¶ FF33 and 209 ¶ 67; Sean Trende Declaration at 15. Neither plan splits Bucks County. Report at 210–211; Sean Trende Declaration at 15. HB 2146 splits just 16 municipalities, while the Voters of PA Plan splits 17 municipalities. Report at 146 ¶ FF33 and 209 ¶ 67. Neither plan splits the City of Pittsburgh.

More critically, the Voters of PA Plan avoids any three-way splits of counties (except for Philadelphia, whose population requires a three-way split). Sean Trende Declaration at 18. Multiple splits of a single county plague every other map that was submitted and dilute the power of voters in those counties. *Id.* By avoiding multiple splits of a single county, the Voters of PA tie for the least number of county "pieces" or "segments."

Plan	# Splits	3-Way Mongomery Split?	Extends Montgomery Into Berks?	Splits Pittsburg?	Splits Bucks?	Splits Counties 3 Ways?
Ali	16	Yes	Yes	Yes	Yes	Yes
Carter	13	Yes	Yes	No	No	Yes
Citizen Voters	13	Yes	Yes	No	No	Yes
Concerned Citizens	16	No	No	Yes	No	Yes
Draw The Lines	14	Yes	No	Yes	No	Yes
Governor Wolf	16	Yes	Yes	Yes	Yes	Yes
Gressman	14	No	Yes	No	Yes	Yes
House Democrats	16	No	Yes	No	Yes	Yes
House Republicans	15	No	No	No	No	Yes
Reschenthaler 1	13	Yes	No	No	No	Yes
Reschenthaler 2	13	Yes	No	No	No	Yes
Senate Democrats 1	17	No	No	Yes	Yes	Yes
Senate Democrats 2	16	Yes	Yes	Yes	Yes	Yes
Voters of the Commonwealth	15	No	No	No	No	No

Table 6: Splits and Compactness Measures
All Maps

C.   Incumbency Pairings

It is a logical necessity that in dropping from 18 congressional seats to 17, at least 2 incumbents must be paired in the upcoming election. As the Honorable Patricia McCullough observed, however, some of the plans stand out as pairing more incumbents from one party than another. Report at 180 FF17. For example, Senate Democrat Plan 2 and the Draw the Lines Plan both pair a Republican incumbent

with a Democratic incumbent in the same district, while another district within that plan pairs two other Republican incumbents. Uncontroverted testimony at the evidentiary hearing—and common sense—confirms that the pairing of three Republicans and only one Democrat particularly favors Democrats. Conversely, the Reschenthaler 1 Plan and the Citizen-Voters Plan both pair a Republican incumbent with a Democrat incumbent in a single district, while another district pairs two Democratic incumbents, plans which particularly favor Republicans.

In contrast, HB 2146 pairs a Republican and a Democrat in a single district, while also pairing Representatives Lamb and Doyle in a single district; but neither Representative Lamb nor Representative Doyle is seeking reelection.

The Voters of PA Plan scores even better on this measure, eliminating concern of partisanship with respect to incumbency protection. Under the Voters of PA Plan, there are two districts which each pair a Republican with a Democrat: Representative Fitzpatrick, a Republican, is paired with Representative Boyle, a Democrat, while Representative Cartwright, a Democrat, is paired with Representative Meuser, a Republican. In addition, one district is retained as an open district, although it is very close to the residence of Democratic Representative Boyle. The pairing of incumbents under the Voters of PA Plan is thus neutral from a partisan perspective,

or even potentially favoring Democrats slightly.[5] *See* Sean Trende Declaration at

19–20, ¶¶ 50–51. The location of the incumbents in the Voters of PA's Plan are set

forth below and in the Declaration of Sean Trende, attached hereto.

Proposed Map, With Locations of Incumbents, Philadelphia Area Excluded

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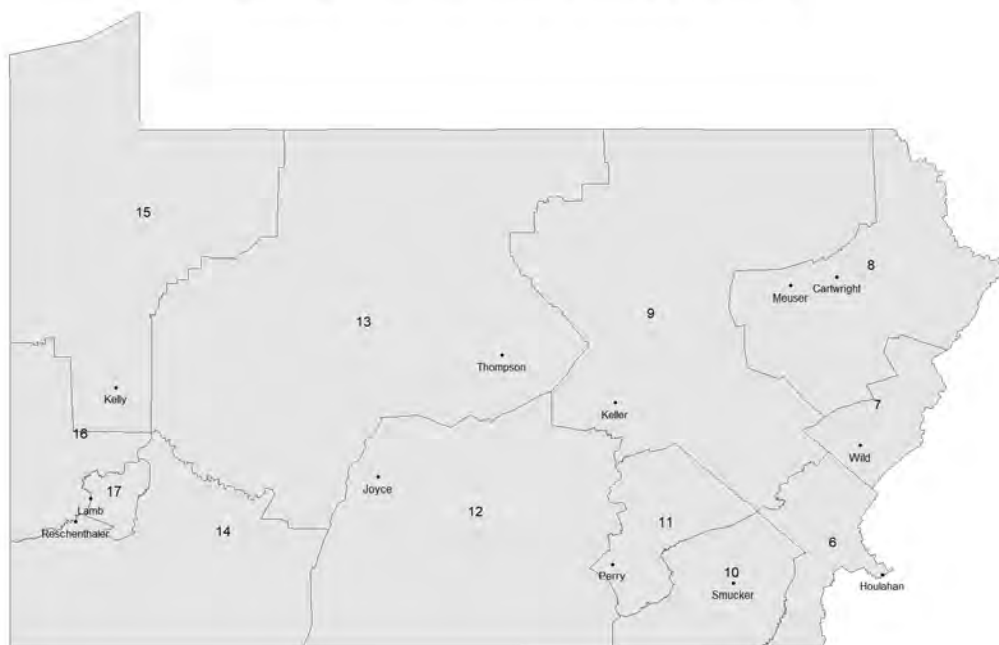
[5] As noted in their Application for Leave to Intervene, the Voters of PA are registered electors who intend to support and vote for Republican candidates.

Proposed Map, With Locations of Incumbents, Philadelphia Area

D.   Partisanship

Pennsylvania courts have not prohibited the use of partisanship in the redistricting process. Our Founders readily observed the political nature of redistricting, noting that whoever draws the district maps might "mould their regulations as to favor the candidates they wished to succeed." 2 Records of the Federal Convention of 1787, at 241 (Max Farrand ed. 1911). The Supreme Court of Pennsylvania likewise acknowledged that "redistricting has an inevitably legislative, and therefore an inevitably political, element; but the constitutional commands and restrictions on the process exist precisely as a brake on the most overt of potential excesses and abuse." *Holt I*, 38 A.3d at 745. This Court has clarified that "partisan gerrymandering dilutes the votes of those who in prior elections voted for the party

not in power to give the party in power a lasting electoral advantage." *LWV*, 178 A.3d at 814. Yet, this Court did not adopt a particular measure to determine the extent to which partisan considerations governed the drawing of a map; instead, it adopted the neutral criteria of Article II, Section 16 to "provide a 'floor' of protection for an individual against the dilution of his or her vote in the creation of such districts." *Id.* at 817.

As argued *supra*, the use of partisan fairness metrics to select a map—as opposed to determining whether a challenged plan is a partisan outlier that subordinated neutral criteria—opens the door to a host of problems. Nevertheless, to the extent the Court determines that partisan fairness metrics have a place in selecting a redistricting plan, the Voters of PA Plan scores well here as well. The Special Master expressly found that both HB 2146 and the Voters of PA "persuasively create a sufficient number of competitive, 'toss up' congressional districts which could go either way, depending upon the particular election and/or office at issue and the qualifications and political platforms of the individual candidates." Report at 208 ¶ 59. Further, the Voters of PA Plan performs well in the efficiency gap and mean-median measures utilized by the Court in *LWV*. *See* Sean Trende Declaration at 24–25.

E.   The Special Master's Credibility Determinations Are Entitled to Special Weight

Although the Court's standard of review in this matter is *de novo*, the Court has recognized that the Special Master's findings of fact are owed "due consideration, as the jurist who presided over the hearings was in the best position to determine the facts." *LWV*, 178 A.3d at 801 n.62 (quoting *Annenberg v. Commonwealth*, 757 A.2d 338, 343 (Pa. 2000)).

The Court's interest in affording the Special Master's proposed findings of fact "due consideration" is particularly high here, given the heightened need for transparency. In *LWV*, Justice Baer objected to the lack of transparency of the Court's process of adopting a remedial congressional plan. *See LWV*, 178 A.3d at 831 (Baer, J., concurring and dissenting). Court adoption of a redistricting plan stands in stark contrast to the comparably open legislative process. During the legislative process, voters may contact their representative and senator to provide input regarding maps under consideration. The public may also provide comments or maps of their own via the Public Comment Ports., https://portal.pennsylvania-mapping.org/#gallery. But the procedure utilized by the Court does not allow for public comment. Rather, the only means by which interested citizens could have their voices heard was their participation in the evidentiary hearing before the Special Master. Disregarding the Special Master's credibility determinations would

serve to cheapen the value of the evidentiary hearing and renew the public's concerns

regarding the integrity of how Pennsylvania's congressional lines are drawn.

VII. The Voters of PA Take No Position Regarding the Primary Election Calendar

The Voters of PA take no position regarding the primary election schedule or

any proposed revisions thereto.

CONCLUSION

Unlike the vast majority of redistricting plans that were submitted, both HB 2146 and the Voters of PA Plans are fully compliant with the standards announced by the Supreme Court of Pennsylvania in *LWV*. Both satisfy the one-person, one-vote requirement, create seventeen contiguous districts, and produce the same number of majority-minority districts as the existing map. The Voters of PA's Plan has better mean compactness scores than the remedial map adopted by the Supreme Court and every other submitted plan. The Voters of PA's Plan minimizes county and municipal splits, and the Voters' Map does not "sacrifice" any county or municipality with more splits or transverses than are necessary. The Voters' Map also scores well within the normal range on conventional partisanship metrics. These metrics combine to provide a high level of assurance that the traditional, neutral criteria predominated in the drafting of the Voters' Map. When so many of the submitted plans were disqualified on constitutional grounds, HB 2146 and the Voters of PA Plan serve as exemplary choices. Even the Governor's expert witness, Dr. Duchin, commended the Voters of PA Plan as the most compact and in the highest "tier" of adherence to the traditional principles.

For the reasons set forth above, *amici curiae* Voters of PA respectfully request that this Honorable Court adopt the Special Master's Report and, by extension, HB 2146 as the congressional redistricting plan for the 2022, 2024, 2026, 2028, and 2030

congressional elections. Alternatively, the Voters of PA submit that to the extent

the Court chooses not to adopt HB 2146, the Voters of PA's proposed congressional

redistricting plan should be adopted for the use in the 2022, 2024, 2026, 2028, and

2030 congressional elections.

<div align="center"></div>

Respectfully submitted,

GALLAGHER GIANCOLA LLC

Dated: February 14, 2022

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Exhibit A

Declaration of Sean Trende

IN THE COMMONWEALTH COURT OF PENNSYLVANIA

Carol Ann Carter, *et al.*, 　　　　　　　　Petitioners 　　　　v. Leigh Chapman, *et al.*, 　　　　　　　　Respondents	: **CASES CONSOLIDATED** : : : No. 464 M.D. 2021 : : : : :
Philip T. Gressman, *et al.*, 　　　　　　　　Petitioners 　　　　v. Leigh Chapman, *et al.*, 　　　　　　　　Respondents	: : : : : No. 465 M.D. 2021 : : :

<u>DECLARATION OF SEAN P. TRENDE</u>

1.　　　I am over the age of 18 and am competent to testify regarding the matters discussed below.

2.　　　I have been retained in this matter by *Amici Curiae* Voters of the Commonwealth Legislative Defendants, and am being compensated at $400.00 per hour for my work in this case.

3.　　　My *curriculum vitae* is attached to this report as Appendix 1.

4.　　　I have been asked to summarize and opine as to the properties of the various maps that have been submitted to this Court by the parties and amici. In particular, I was asked to emphasize and explore the plans' compactness and competitiveness.

1

5.　　I joined RealClearPolitics in January of 2009 after practicing law for eight years. I assumed a full-time position with RealClearPolitics in March of 2010. My title is Senior Elections Analyst. RealClearPolitics is a company of around 50 employees, with offices in Washington D.C. It produces one of the most heavily trafficked political websites in the world, which serves as a one-stop shop for political analysis from all sides of the political spectrum and is recognized as a pioneer in the field of poll aggregation. It produces original content, including both data analysis and traditional reporting. It is routinely cited by the most influential voices in politics, including David Brooks of *The New York Times*, Brit Hume of *Fox News*, Michael Barone of *The Almanac of American Politics*, Paul Gigot of *The Wall Street Journal*, and Peter Beinart of *The Atlantic*.

6.　　My main responsibilities with RealClearPolitics consist of tracking, analyzing, and writing about elections. I collaborate in rating the competitiveness of Presidential, Senate, House, and gubernatorial races. As a part of carrying out these responsibilities, I have studied and written extensively about demographic trends in the country, exit poll data at the state and federal level, public opinion polling, and voter turnout and voting behavior. In particular, understanding the way that districts are drawn and how geography and demographics interact is crucial to predicting United States House of Representatives races, so much of my time is dedicated to that task.

7.　　I am currently a Visiting Scholar at the American Enterprise Institute, where my publications focus on the demographic and coalitional aspects of American Politics. There, I have written on the efficiency gap, a metric for measuring the fairness of redistricting plans.

8.　　I am the author of *The Lost Majority: Why the Future of Government Is Up for Grabs and Who Will Take It.* In this book, I explore realignment theory. It argues that realignments are a poor concept that should be abandoned. As part of this analysis, I conducted a

thorough analysis of demographic and political trends beginning in the 1920s and continuing through the modern times, noting the fluidity and fragility of the coalitions built by the major political parties and their candidates.

9. I co-authored the 2014 *Almanac of American Politics*. The Almanac is considered the foundational text for understanding congressional districts and the representatives of those districts, as well as the dynamics in play behind the elections. PBS's Judy Woodruff described the book as "the oxygen of the political world," while NBC's Chuck Todd noted that "[r]eal political junkies get two *Almanacs*: one for the home and one for the office." My focus was researching the history of and writing descriptions for many of the newly-drawn districts, including tracing the history of how and why they were drawn the way that they were drawn.

10. I have spoken on these subjects before audiences from across the political spectrum, including at the Heritage Foundation, the American Enterprise Institute, the CATO Institute, the Bipartisan Policy Center, and the Brookings Institution. In 2012, I was invited to Brussels to speak about American elections to the European External Action Service, which is the European Union's diplomatic corps. I was selected by the United States Embassy in Sweden to discuss the 2016 elections to a series of audiences there, and was selected by the United States Embassy in Spain to fulfil a similar mission in 2018. I was invited to present by the United States Embassy in Italy, but was unable to do so because of my teaching schedule.

11. In the winter of 2018, I taught American Politics and the Mass Media at Ohio Wesleyan University. I taught Introduction to American Politics at The Ohio State University for three semesters from Fall of 2018 to Fall of 2019, and again in Fall of 2021. In the Springs of 2020 and 2021, I taught Political Participation and Voting Behavior at The Ohio State University. This course spent several weeks covering all facets of redistricting: how maps are drawn, debates

over what constitutes a fair map, measures of redistricting quality, and similar topics. I am teaching this course this semester as well.

12. It is my policy to appear on any major news outlet that invites me, barring scheduling conflicts. I have appeared on both Fox News and MSNBC to discuss electoral and demographic trends. I have been cited in major news publications, including *The New York Times*, *The Washington Post*, *The Los Angeles Times*, *The Wall Street Journal*, and *USA Today*.

13. I sit on the advisory panel for the "States of Change: Demographics and Democracy" project. This project is sponsored by the Hewlett Foundation and involves three premier think tanks: the Brookings Institution, the Bipartisan Policy Center, and the Center for American Progress. The group takes a detailed look at trends among eligible voters and the overall population, both nationally and in key states, to explain the impact of these changes on American politics, and to create population projections, which the Census Bureau abandoned in 1995. In 2018, I authored one of the lead papers for the project: "In the Long Run, We're All Wrong," available at https://bipartisanpolicy.org/wp-content/uploads/2018/04/BPC-Democracy-States-of-Change-Demographics-April-2018.pdf.

14. I am currently a doctoral candidate in political science at The Ohio State university. I received a Master's in Applied Statistics as part of my coursework. My coursework for my Ph.D. and M.A.S. included, among other things, classes on G.I.S. systems, spatial statistics, issues in contemporary redistricting, machine learning, non-parametric hypothesis tests and probability theory. I have completed my coursework and have passed comprehensive examinations in both methods and American Politics. I expect to receive my Ph.D. in May of 2022, and have filed my application to graduate. My dissertation focuses on applications of spatial statistics to political

questions, including an article on redistricting simulations and the effect of communities of interest on partisan bias.

15.   In 2021, I served as one of two special masters appointed by the Supreme Court of Virginia to redraw the districts that will elect the commonwealth's representatives to the House of Delegates, state Senate, and U.S. Congress in the following decades. The Supreme Court of Virginia accepted those maps and were praised by observers from across the political spectrum. "New Voting Maps, and a New Day, for Virginia," *The Washington Post* (Jan. 2, 2002), *available at* https://www.washingtonpost.com/opinions/2022/01/02/virginia-redistricting-voting-maps-gerrymander/; Henry Olsen, "Maryland Shows How to do Redistricting Wrong. Virginia Shows How to Do it Right," *The Washington Post* (Dec. 9, 2021), *available at* https://www.washingtonpost.com/opinions/2021/12/09/maryland-virginia-redistricting/; Richard Pildes, "Has VA Created a New Model for a Reasonably Non-Partisan Redistricting Process," *Election Law Blog* (Dec. 9, 2021), *available at* https://electionlawblog.org/?p=126216.

16.   I previously authored an expert report in *Dickson v. Rucho*, No. 11-CVS-16896 (N.C. Super Ct., Wake County), which involved North Carolina's 2012 General Assembly and Senate maps. Although I was not called to testify, it is my understanding that my expert report was accepted without objection. I also authored an expert report in *Covington v. North Carolina*, Case No. 1:15-CV-00399 (M.D.N.C.), which involved almost identical challenges in a different forum. Due to what I understand to be a procedural quirk, where my largely identical report from *Dickson* had been inadvertently accepted by the plaintiffs into the record when they incorporated parts of the *Dickson* record into the case, I was not called to testify.

17.   I authored two expert reports in *NAACP v. McCrory*, No. 1:13CV658 (M.D.N.C.), which involved challenges to multiple changes to North Carolina's voter laws, including the

elimination of a law allowing for the counting of ballots cast in the wrong precinct. I was admitted as an expert witness and testified at trial. My testimony discussed the "effect" prong of the Voting Rights Act claim. I did not examine the issues relating to intent.

18.   I authored reports in *NAACP v. Husted*, No. 2:14-cv-404 (S.D. Ohio), and *Ohio Democratic Party v. Husted*, Case 15-cv-01802 (S.D. Ohio), which dealt with challenges to various Ohio voting laws. I was admitted and testified at trial in the latter case (the former case settled). The judge in the latter case ultimately refused to consider one opinion, where I used an internet map-drawing tool to show precinct locations in the state. Though no challenge to the accuracy of the data was raised, the judge believed I should have done more work to check that the data behind the application was accurate.

19.   I served as a consulting expert in *Lee v. Virginia Board of Elections*, No. 3:15-cv-357 (E.D. Va. 2016), a voter identification case. Although I would not normally disclose consulting expert work, I was asked by defense counsel to sit in the courtroom during the case and review testimony. I would therefore consider my work *de facto* disclosed.

20.   I filed an expert report in *Mecinas v. Hobbs*, No. CV-19-05547-PHX-DJH (D. Ariz. 2020). That case involved a challenge to Arizona's ballot order statute. Although the judge ultimately did not rule on a motion in limine in rendering her decision, I was allowed to testify at the hearing.

21.   I authored two expert reports in *Feldman v. Arizona*, No. CV-16-1065-PHX-DLR (D. Ariz.). Plaintiffs in that case challenged an Arizona law prohibiting the collection of voted ballots by third parties that were not family members or caregivers and the practice of most of the state's counties to require voters to vote in their assigned precinct. My reports and testimony were admitted. Part of my trial testimony was struck in that case for reasons unrelated to the merits of

the opinion; counsel for the state elicited it while I was on the witness stand and it was struck after Plaintiffs were not able to provide a rebuttal to the new evidence.

22. I authored expert reports in *A. Philip Randolph Institute v. Smith*, No. 1:18-cv-00357-TSB (S.D. Ohio), *Whitford v. Nichol*, No. 15-cv-421-bbc (W.D. Wisc.), and *Common Cause v. Rucho*, NO. 1:16-CV-1026-WO-JEP (M.D.N.C.), which were efficiency gap-based redistricting cases filed in Ohio, Wisconsin and North Carolina.

23. I also authored an expert report in the cases of *Ohio Organizing Collaborative, et al v. Ohio Redistricting Commission, et al* (No. 2021-1210); *League of Women Voters of Ohio, et al v. Ohio Redistricting Commission, et al* (No. 2021-1192); *Bria Bennett, et al v. Ohio Redistricting Commission, et al* (No. 2021-1198). These cases were consolidated and are presently pending in original action before the Supreme Court of Ohio.[1]

24. In 2019, I was appointed as the court's expert by the Supreme Court of Belize. In that case I was asked to identify international standards of democracy as they relate to malapportionment claims, to determine whether Belize's electoral divisions (similar to our congressional districts) conformed with those standards, and to draw alternative maps that would remedy any existing malapportionment.

25. I currently serve as the voting rights act expert to counsel for the Arizona Independent Redistricting Commission.

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[1] I have only been excluded as an expert once, in *Fair Fight v. Raffensperger*, 1:18-CV-5391-SCJ (N.D. Ga.). The judge concluded that I lacked sufficient credentials to testify as an expert in election administration, and this case did not deal with redistricting.

EVALUATION OF MAP

26.   I have been asked to analyze the map submitted on behalf of *amici curiae* Voters of the Commonwealth of Pennsylvania ("Proposed Map") as well as those submitted by the parties and other amici, and to summarize their relevant features for the Court.

27.   I have reviewed the Supreme Court of Pennsylvania's Order in *League of Women Voters of Pennsylvania v. Commonwealth*, 178 A.3d 737 (Pa. 2018). That opinion specifically mentions the following factors as important ones: (1) contiguity; (2) compactness; (3) equality of population; and (4) splits of political subdivisions. *Id.* at 816–17. In addition, I have obtained data relating to incumbent addresses and political affiliation to see whether the map unfairly places incumbents from one party into the same district (called "double bunking"), and whether the map unduly favors one party over another.

28.   To accomplish this analysis, I obtained a block assignment file for the Proposed Map from counsel. A block assignment file simply consists of a list of census blocks for the Commonwealth of Pennsylvania, and the congressional districts to which each block is assigned. I also acquired the shapefiles for those census blocks from the Redistricting Data Hub, a widely utilized resource that collects political data relevant to the redistricting process and makes it publicly available to researchers. *See* https://redistrictingdatahub.org/. These blocks also contain population data. Here, I utilized the population counts that were not adjusted for prisoner population.

29.   I also downloaded precinct shapefiles that included political data from the Redistricting Data Hub, and matched them to the appropriate district. In addition, I downloaded a shapefile for the current congressional districts.

30.   I obtained a list of addresses for incumbents from counsel and geocoded those addresses to obtain latitude and longitude data.

31.   Using a widely utilized statistical and graphics programming language called R, I used the block assignment file to match the shapefile of the blocks to their respective districts. From this, I was able to create a shapefile of the districts in the Proposed Map.

CONTIGUITY AND EQUALITY OF POPULATION

32.   All plans submitted to this Court are contiguous. Most plans contain the minimum population deviation that is possible: 12 districts with a population of 764,865 and five districts with a population of 764,864, for a population deviation of five. The exceptions are as follows:

- The map submitted by the Carter plaintiffs contains four districts with populations of 764,866 and nine districts with populations of 764,864, for a total population deviation of 13.

- The maps submitted by the House Democrats have two districts with populations of 764,866 and seven districts with populations of 764,864, for a total population deviation of 9.

- The map submitted by the Ali *amici* utilizes the Group Quarter Adjusted population (i.e. "prisoner adjusted" population). It is balanced under that count but has total population deviations of 29,479 residents using the unadjusted census counts.

COMPACTNESS

33.   To evaluate the compactness of the districts, I employed three commonly used metrics: Reock, Polsby-Popper and Schwartzberg. All three metrics are based on comparing the drawn district to a circle, which is the most compact shape.

34.   The Reock score looks at the ratio of the area of the district to the area of the smallest circle that would enclose the district (also known as a "minimum bounding circle"). Ernest Reock, "A Note: Measuring Compactness as a Requirement of Legislative Apportionment," 1 *Midwest Jrnl. Pol. Sci.* 70 (1961). This ratio will fall as the district becomes distorted lengthwise; it therefore punishes long, bacon-like districts. Note, however, that a district that weaves back-and-forth in a serpentine fashion could score reasonably well on the Reock scoring. This illustrates the importance of looking at multiple standards of compactness. A "perfect" Reock score is 1, while a zero reflects a theoretical perfectly non-compact district.

35.   The Polsby-Popper score looks at the ratio of the area of a district to the area of a circle that has the same perimeter as the district. Daniel D. Polsby & Robert D. Popper, "The Third Criterion: Compactness as a Procedural Safeguard Against Partisan Gerrymandering," 9 *Yale L. & Pol. Rev.* 301 (1991). To understand the motivation behind Polsby-Popper, sketch out a circle. Then erase some of the edge of the circle, and have a narrow tendril snake into the district toward the center. The Reock score would not change much, since the size of the minimum bounding circle remains the same and the area of the district changes only slightly. The Polsby-Popper score, however, would fall significantly, since the perimeter of the district would be greatly increased. A "perfect" Polsby-Popper score is 1, while a theoretical perfectly non-compact district would score a zero.

36. Finally, I computed the Schwartzberg score. The Schwartzberg score takes the perimeter of the district and compares it to the perimeter (circumference) of a circle that has the same area as the district. *See* Joseph E. Schwartzberg, "Reapportionment, Gerrymanders, and the Notion of Compactness," 50 *Minn. L. Rev.* 443 (1965). By taking the inverse (dividing the number "1" by this score), the scores are, like the above scores, scaled from 0 to 1, with 1 representing a perfectly compact district.

37. The following table provides the mean Reock, Polsby-Popper, and Schwartzberg scores for the maps. I also provide the minimum of each score. This tells us whether the map drawer is "cheating" by drawing one or two badly non-compact districts and then balancing out the average by drawing the remainder of the districts in a fairly compact manner. For example, the Carter plaintiffs' map generally draws compact districts, but then draws a truly grotesque district extending from the Philadelphia border almost to Schuykill County.

Table 1: Comparison of Compactness Measures
All Maps

Measure	Amici					Parties								
	Ali	Cit. Voters	Conc. Crts.	DTL	PA Voters	Carter	Gov. Wolf	Gressman	House Ds	House Rs	Resch 1	Resch 2	Senate Ds 1	Senate Ds 2
Reock														
Mean	0.407	0.418	0.416	0.436	0.442	0.413	0.401	0.395	0.392	0.383	0.426	0.414	0.373	0.379
Minimum	0.234	0.210	0.199	0.227	0.343	0.214	0.203	0.264	0.226	0.270	0.307	0.307	0.209	0.197
Polsby-Popper														
Mean	0.352	0.349	0.352	0.379	0.396	0.321	0.381	0.348	0.279	0.321	0.363	0.352	0.315	0.335
Minimum	0.208	0.234	0.244	0.233	0.229	0.172	0.219	0.187	0.148	0.194	0.246	0.216	0.220	0.242
Schwartzberg														
Mean	0.590	0.589	0.591	0.611	0.626	0.562	0.613	0.585	0.521	0.561	0.599	0.591	0.558	0.577
Minimum	0.456	0.484	0.494	0.483	0.478	0.415	0.468	0.432	0.385	0.440	0.496	0.464	0.469	0.491

38. This is an admittedly dense chart. To help digest it better, the following table focuses only on the Reock Score. It sorts the maps by the mean Reock Score and the minimum Reock Score (recall that a higher score is more compact).

Map	Mean Reock		Map	Least Compact (Reock)
Voters of the Commonwealth	0.442		Voters of the Commonwealth	0.343
Draw the Lines	0.436		Reschenthaler 1	0.307
Reschenthaler 1	0.426		Reschenthaler 2	0.307
Citizen Voters	0.418		House Republicans	0.270
Concerned Citizens	0.416		Gressman	0.264
Reschenthaler 2	0.414		Ali	0.234
Carter	0.413		Draw the Lines	0.227
Ali	0.407		House Democrats	0.226
Governor Wolf	0.401		Carter	0.214
Gressman	0.395		Citizen Voters	0.210
House Democrats	0.392		Senate Democrats 1	0.209
House Republicans	0.383		Governor Wolf	0.203
Senate Democrats 2	0.379		Concerned Citizens	0.199
Senate Democrats 1	0.373		Senate Democrats 2	0.197

39.   As you can see, the Voters of the Commonwealth map has the best mean Reock score, and its least compact district scores better than any of the other least compact districts. In fact, its least compact district is almost as compact as the average district in the Senate Democrats' maps.

40.   Likewise, the Voters of the Commonwealth map has the best overall Polsby-Popper scores, and scores well with respect to the least compact district.

Map	Mean Polsby-Popper		Map	Least Compact (Polsby-Popper)
Voters of the Commonwealth	0.396		Reschenthaler 1	0.246
Governor Wolf	0.381		Concerned Citizens	0.244
Draw the Lines	0.379		Senate Democrats 2	0.242
Reschenthaler 1	0.363		Citizen Voters	0.234
Ali	0.352		Draw the Lines	0.233
Concerned Citizens	0.352		Voters of the Commonwealth	0.229
Reschenthaler 2	0.352		Senate Democrats 1	0.220
Citizen Voters	0.349		Governor Wolf	0.219
Gressman	0.348		Reschenthaler 2	0.216
Senate Democrats 2	0.335		Ali	0.208
Carter	0.321		House Republicans	0.194
House Republicans	0.321		Gressman	0.187
Senate Democrats 1	0.315		Carter	0.172
House Democrats	0.279		House Democrats	0.148

41.   Finally, we provide the same chart for the Schwartzberg scores:

Map	Mean Schwartzberg		Map	Least Compact (Schwartzberg)
Voters of the Commonwealth	0.626		Reschenthaler 1	0.496
Governor Wolf	0.613		Concerned Citizens	0.494
Draw the Lines	0.611		Senate Democrats 2	0.491
Reschenthaler 1	0.599		Citizen Voters	0.484
Concerned Citizens	0.591		Draw the Lines	0.483
Reschenthaler 2	0.591		Voters of the Commonwealth	0.478
Ali	0.590		Senate Democrats 1	0.469
Citizen Voters	0.589		Governor Wolf	0.468
Gressman	0.585		Reschenthaler 2	0.464
Senate Democrats 2	0.577		Ali	0.456
Carter	0.562		House Republicans	0.440
House Republicans	0.561		Gressman	0.432
Senate Democrats 1	0.558		Carter	0.415
House Democrats	0.521		House Democrats	0.385

42.   Once again, the Voters of the Commonwealth map has the best overall compactness, and performs well on the "Least Compact" metric.

43.   In summary, the Voters of the Commonwealth map scores the best on four of the six measures, and is in the top half on the other two metrics.

SPLITS OF POLITICAL SUBDIVISIONS

44.   The final consideration explicitly addressed by the Supreme Court of

Pennsylvania is the number of political subdivisions split. I begin by analyzing county splits in

the proposed map. As shown in Table 4, the map splits only 15 counties between the 17 districts.

Table 4: County Splits, Proposed Map	
County	Districts
Allegheny County	16,17
Berks County	6,9
Chester County	5,6
Cumberland County	11,12
Dauphin County	9,11
Delaware County	3,5
Forest County	13,15
Lackawanna County	8,9
Lawrence County	15,16
Monroe County	7,8
Montgomery County	4,6
Philadelphia County	1,2,3
Tioga County	9,13
Washington County	14,16
York County	10,11

45.   The map splits counties in a manner consistent with the way counties have

historically been split in the Commonwealth. Bucks County appears to have only been split once

in any congressional map since Pennsylvania adopted district-based elections in the Second

Congress, *see* Congressional District Law, Mar. 16, 1791 (C. XIII); Congressional District Law

Apr. 28, 1873 (N. 58) (splitting Bucks between the 7th and 10th Congressional Districts). The

Proposed Map keeps Bucks County intact today.

46.   Additionally, since 1822 Montgomery County has traditionally had a

congressional district wholly assigned to it; when it did not, that district has almost always been

paired with the City of Philadelphia or Bucks County. In the 1980s, the 13th Congressional

District was almost entirely within Montgomery County, paired with a few western Philadelphia

precincts. In the 1990s, the 13th Congressional District was entirely within Montgomery County.

In the 2000s, the portions of the 13th Congressional District that were not in Montgomery County

were paired with northeastern Philadelphia; the same was true of the map used in the early

2010s. The current 4th district is entirely within the boundaries of Montgomery County, except

for a small protrusion into Berks County. *See also* Congressional District Law, Apr. 8, 1822 (C.

CLXXIV) (Montgomery County and the 5th Congressional District were coterminous);

Congressional District Law, June 9, 1832 (Montgomery County and the 5th Congressional

District were coterminous); Congressional District Law, Mar. 25, 1843 (N. 57) (placing all of

Montgomery County in the 5th Congressional District, while pairing it with Delaware County);

Congressional District Law, May 1, 1852 (placing all of Montgomery County in the 5th

Congressional District, while pairing it with what is today northeastern Philadelphia County);

Congressional District Law, Mar. 4, 1862 (N. 409) (placing all of Montgomery County in the 6th

Congressional District, while pairing it with Lehigh County); Congressional District Law Apr.

28, 1873 (N. 58) (placing all of Montgomery County in the 7th Congressional District, while

pairing it with portions of Bucks County); Congressional District Law, May 19, 1887 (N.81)

(placing Montgomery County entirely in the 7th Congressional District, while pairing it with the

entirety of Bucks County); Congressional District Law, July 11, 1901 (N. 331) (placing

16

Montgomery County entirely in the 8th Congressional District, while pairing it with the entirety

of Bucks County) ; Congressional District Law, May 10, 1921 (N. 216) (placing Montgomery

County entirely in the 9th Congressional District, while pairing it with the entirety of Bucks

County); Congressional District law, June 27, 1931 (N.361) (Montgomery County and the 17th

Congressional District were coterminous); Congressional District Law, Feb. 25, 1942

(Montgomery County and the 17th Congressional District were coterminous) (N. 1);

Congressional District Law, May 8, 1943 (Montgomery County and the 16th Congressional

District were coterminous) (N. 119); Congressional District Law Dec. 22, 1951 (N. 464)

(Montgomery County and the 13th Congressional District were coterminous); Congressional

District Law, Jan. 29, 1962 (Montgomery County and the 13th Congressional District were

coterminous); Congressional District Law, Mar. 8, 1966 (placing the 13th Congressional District

entirely within Montgomery County); Congressional District Law Jan. 25, 1972 (N. 3) (placing

13th Congressional District entirely within Montgomery County).

      47.   There are three counties in Pennsylvania that must be split due to their population:

Philadelphia, Montgomery and Allegheny. Outside of these mandatory splits, the splits in the

Proposed Map impact just 25.1% of the population. In addition, the map avoids multiple

traversals of a district. That is to say, when a district crosses a county boundary, it does so only

once.

      48.   The Proposed Map also splits relatively few municipal divisions, as illustrated in

Table 5. Notably, the only large city the Proposed Map splits in Philadelphia (which must be

split due to its population). Large cities such as Pittsburgh, Allentown, Erie, and Reading are

kept intact. Most of the municipal splits are confined to places with small populations.

MCD	Districts	Population
Carbondale city	8,9	8,828
Chartiers township	14,16	8,632
Darby township	3,5	9,219
Delmar township	9,13	2,856
Easttown township	5,6	10,984
Hampden township	11,12	32,761
Jenks township	13,15	3,629
Limerick township	4,6	20,458
Mount Lebanon township	16,17	34,075
Neshannock township	15,16	9,843
Philadelphia city	1,2,3	1,603,797
Pocono township	7,8	10,844
Spring Garden township	10,11	13,683
Springettsbury township	10,11	27,058
Upper Darby township	3,5	85,681
Upper Paxton township	9,11	4,161
York township	10,11	29,719

Table 5: MCD Splits, Proposed Map

49. In summary: The Voters of the Commonwealth map does split more counties than some maps, but it does so by avoiding the three-way splits that plague every other map and dilute the power of voters in those counties. Even setting that issue aside, the Voters of the Commonwealth map and the House Republicans map are the only ones that neither include a needless three-way split of Montgomery County, nor extends the Montgomery County district into Berks County, nor splits Pittsburgh, nor splits Bucks County.

18

Table 6: Splits and Compactness Measures
All Maps

| Plan	# Splits	3-Way Mongomery Split?	Extends Montgomery Into Berks?	Splits Pittsburg?	Splits Bucks?	Splits Counties 3 Ways?
Ali	16	Yes	Yes	Yes	Yes	Yes
Carter	13	Yes	Yes	No	No	Yes
Citizen Voters	13	Yes	Yes	No	No	Yes
Concerned Citizens	16	No	No	Yes	No	Yes
Draw The Lines	14	Yes	No	Yes	No	Yes
Governor Wolf	16	Yes	Yes	Yes	Yes	Yes
Gressman	14	No	Yes	No	Yes	Yes
House Democrats	16	No	Yes	No	Yes	Yes
House Republicans	15	No	No	No	No	Yes
Reschenthaler 1	13	Yes	No	No	No	Yes
Reschenthaler 2	13	Yes	No	No	No	Yes
Senate Democrats 1	17	No	No	Yes	Yes	Yes
Senate Democrats 2	16	Yes	Yes	Yes	Yes	Yes
Voters of the Commonwealth	15	No	No	No	No	No

INCUMBENCY

50.   The Supreme Court of Pennsylvania has acknowledged that incumbency

protection is a factor that has historically played a role in the drawing of districts, and may be

pursued and considered, so long as their accommodation does not subordinate the neutral criteria

of compactness, contiguity, minimization of the division of political subdivisions, and

maintaining equal population among congressional districts. I have examined whether the

Proposed Map unfairly places incumbents in districts together.

51.   Using the incumbency file referenced above, I have plotted the addresses of the

existing incumbents who have declared that they will be seeking re-election in 2022. Under the

Proposed Map, the 2nd and 17th Congressional Districts are open districts. Most incumbents are

placed in a district by themselves. The exceptions are Rep. Matt Cartwright and Rep. Dan

Meuser, who are placed together in the 8th Congressional District, and Rep. Brendan Boyle and

Rep. Brian Fitzpatrick, who are placed together in the 1st district. Notably, however, Rep. Boyle

lives close to the 2nd District, which is retained as an open district.

Proposed Map, With Locations of Incumbents, Philadelphia Area Excluded
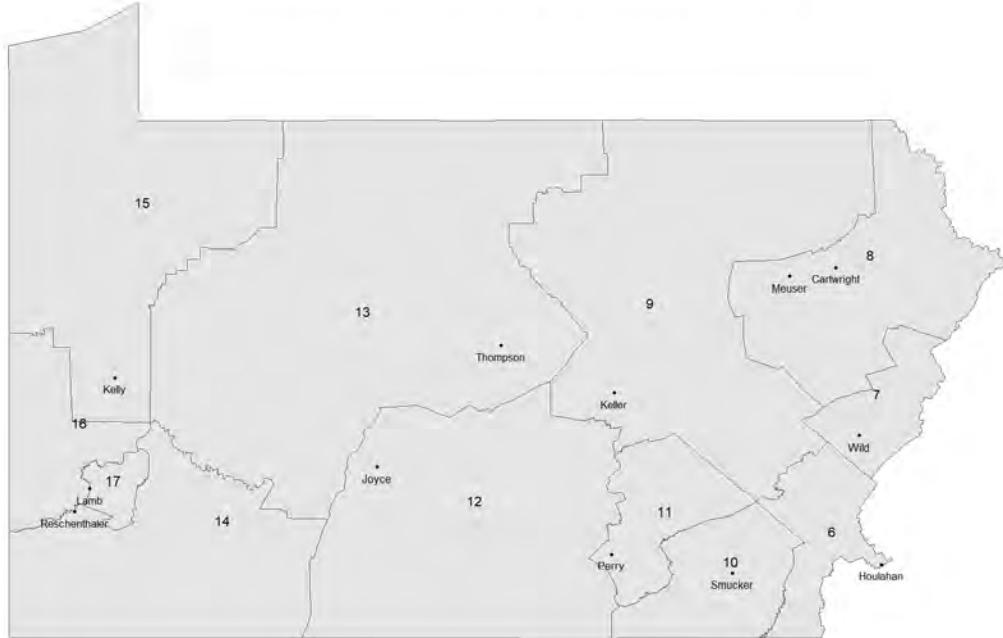
Proposed Map, With Locations of Incumbents, Philadelphia Area

PARTISANSHIP

52.   Finally, although it was not mentioned as a factor in *LWV*, I was asked by counsel to evaluate the existing and proposed plan under various proposed measures of partisanship. This is a difficult endeavor, because there are, at the very least, dozens of proposed metrics for partisan gerrymandering (just as there are for compactness). Some of them are difficult to explain, some are difficult to interpret, and some are both. For purposes of this report, I have drawn on two of the most common, straightforward metrics: the efficiency gap and mean-median.

53.   Before exploring those metrics, some foundation must be laid. One must first decide how to assess the partisanship of a district when no elections have yet been held in it. One of the most common ways of doing so is to look at previously held elections. But which ones? No fewer than eleven statewide partisan elections have been held in Pennsylvania over the past three election cycles. But the farther one goes back, the more difficult it becomes to assess whether the election is relevant to current outcomes. Election totals from Chester County in 2012, when Mitt Romney narrowly carried the county, are likely to be significantly less probative of outcomes in the 2020s than the election totals from 2020, when Joe Biden carried the county by 20 points.

54.   Even then, Donald Trump may have unique appeal among voters for a Republican candidate in certain areas of the state, while turning otherwise-Republican voters off in other portions of the state. This would counsel examining multiple elections. But it may also be the case that Trump represents the future of the Republican Party, and therefore particular heed should be paid to the results of elections in which he was a candidate.

21

55.   Because of this, I have examined three different sets of election results: The Biden/Trump race alone, all the statewide partisan elections from 2020, and all of the non-judicial partisan statewide elections from 2016 to 2020. The results were downloaded from the Redistricting Data Hub, disaggregated to the census block level using R (weighting by VAP), and then aggregated back up to the relevant map shapefile.

56.   While aggregating races can be problematic in a state like Maryland or Massachusetts, where Republican overperformances in gubernatorial races can twice the "true" partisanship of a district, the races in Pennsylvania are reasonably consistent. Narrow Republican wins are not uncommon, nor are substantial Democratic victories.

57.   Mean-median is the difference between a party's statewide vote share and its vote share in the middle district in the state. The goal is to keep a party's share of the seats in which it performs better than it performed statewide roughly the same as the party's share of the seats where it performed worse than it performed statewide.

58.   The efficiency gap proceeds from the following intuition: When a party seeks to gerrymander, it seeks to waste the other party's votes. It wastes the other party's votes by either clumping them into a few districts where the other party will win overwhelmingly (packing), or by spreading them out over many districts where they have little chance of winning (cracking). The efficiency gap is simply the percentage of the statewide vote total that consists of wasted Democratic votes (votes either cast in districts Democrats lose or those beyond 50% of the vote in districts they win) minus the percentage of the statewide vote total that consists of wasted Republican votes.

59.   The following table gives the mean-median and efficiency gap scores for the plans using different races as indicators.

Table 7: Comparison of Competitiveness Measures
All Maps

	Amici					Parties								
race	Ali	Cit.Voters	Conc.Cits	DTL	PA.Voters	Carter	Gov	Gressman	House.Ds	House.Rs	Rens.1	Rens.2	Sen.Ds.1	Sen.Ds.2
Mean-Median														
Trump/Biden	0.0	2.2	0.3	0.3	3.0	0.3	-1.8	0.3	-1.7	2.8	1.4	1.4	0.6	-1.6
All 2020	0.0	0.9	0.2	0.2	2.0	0.0	-1.1	0.1	-0.8	1.9	0.5	0.5	0.3	-1.3
2016-2020	0.4	1.0	0.3	0.3	2.2	0.5	0.3	0.2	0.1	2.1	1.4	1.4	0.9	-0.2
Efficiency Gap														
Trump/Biden	-2.9	3.6	-3.1	-3.0	3.6	-3.0	-2.9	-3.0	-8.7	3.5	3.6	3.6	-3.0	-2.9
All 2020	-9.0	3.0	-3.7	-3.6	3.0	-9.1	-3.5	-9.0	-9.3	3.0	3.0	3.0	3.1	-3.5
2016-2020	-6.3	-0.9	-6.5	-6.4	5.6	-6.4	-1.0	-6.3	-12.1	5.5	-0.9	-0.9	0.3	-6.3

60. One downside of the various partisan fairness metrics is that, while they attempt to quantify the amount of partisanship involved in the line drawing, they do not answer the question of "how much gerrymandering is too much." As you can see, all of the maps exhibit some degree of partisan bias. It is just difficult to say how much is "excessive" or when partisanship comes to predominate.

61. To put this in perspective, when I participated in the map drawing in Virginia, we concluded that our congressional maps, which had a mean-median gap of 2.1, did not "unduly favor" one party or the other. Plaintiffs in the case of *Common Cause v. Rucho* (the "efficiency gap" case that eventually made its way to the Supreme Court of the United States) suggested an efficiency gap of 7.5 as a threshold for a state with a relatively large number of Congressional Districts. 279 F. Supp. 3d 587, 662 (M.D.N.C. 2018), *vacated and remanded*, 138 S.Ct. 2679 (2018).

62. One way to look at this is to ask ourselves "what is the maximum efficiency gap we see" under the various iterations of the map. To measure this, I take the absolute value of the efficiency gaps below, so that a Republican efficiency gap is treated the same as a Democratic efficiency gap. As the following chart makes clear, the Voters of the Commonwealth Map

performs well here, landing in the bottom half, and never exceeds the thresholds suggested in earlier cases:

Table 8: Ranked Maximum Efficiency Gaps
All Maps

Plan	Max E.G.
House.Ds	12.1
Carter	9.1
Ali	9.0
Gressman	9.0
Conc.Cits	6.5
DTL	6.4
Sen.Ds.2	6.3
PA.Voters	5.6
House.Rs	5.5
Cit.Voters	3.6
Rens.1	3.6
Rens.2	3.6
Gov	3.5
Sen.Ds.1	3.1

63.   Of course, the efficiency gap is not without its problems (as I have testified previously), and it is particularly inappropriate for non-competitive states (where some of its stranger properties become relevant). I am generally of the mind that the traditional redistricting criteria, perhaps combined with computer simulations, are the best way to evaluate a map. I include these metrics simply because they have become popular, and because the Court may find them to be of interest.

64.   In other words, the Voters of the Commonwealth map performs well on the metrics that this Court laid out in *LCV*, and also performs well on metrics such as the efficiency gap and mean-median. Adopting the Voters of the Commonwealth plan would be consistent with
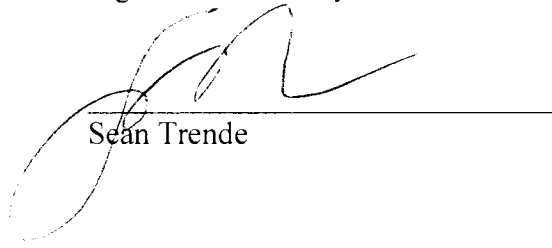
this Court's earlier instructions to lower courts as to what factors they should consider when evaluating plans.

CONCLUSION

65.   The Voters of the Commonwealth map is the most compact map offered according to most metrics and respects the geography of Pennsylvania better than any of the proposed maps, save, perhaps, the House Republican maps. Its partisan bias is small by historic standards. If the Court were not to accept the magistrate judge's recommendations to accept the House Republican maps, it would be the best plan for this Court to adopt.

I declare under penalty of perjury under the law of the Commonwealth of Pennsylvania that the foregoing is true and correct.

Signed on: February 14, 2022, at Delaware County, Ohio, United States of America

Sean Trende

4891-5716-4549 v.1

25

Appendix 1

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EDUCATION

Ph.D., The Ohio State University, Political Science, expected 2022.

M.A.S. (Master of Applied Statistics), The Ohio State University, 2019.

J.D., Duke University School of Law, *cum laude*, 2001; Duke Law Journal, Research Editor.

M.A., Duke University, *cum laude*, Political Science, 2001. Thesis titled *The Making of an Ideological Court: Application of Non-parametric Scaling Techniques to Explain Supreme Court Voting Patterns from 1900-1941*, June 2001.

B.A., Yale University, with distinction, History and Political Science, 1995.

PROFESSIONAL EXPERIENCE

Law Clerk, Hon. Deanell R. Tacha, U.S. Court of Appeals for the Tenth Circuit, 2001-02.

Associate, Kirkland & Ellis, LLP, Washington, DC, 2002-05.

Associate, Hunton & Williams, LLP, Richmond, Virginia, 2005-09.

Associate, David, Kamp & Frank, P.C., Newport News, Virginia, 2009-10.

Senior Elections Analyst, RealClearPolitics, 2009-present.

Columnist, Center for Politics Crystal Ball, 2014-17.

Gerald R. Ford Visiting Scholar, American Enterprise Institute, 2018-present.

BOOKS

Larry J. Sabato, ed., *The Blue Wave*, Ch. 14 (2019).

Larry J. Sabato, ed., *Trumped: The 2016 Election that Broke all the Rules* (2017).

Larry J. Sabato, ed., *The Surge:2014's Big GOP Win and What It Means for the Next Presidential Election*, Ch. 12 (2015).

Larry J. Sabato, ed., *Barack Obama and the New America*, Ch. 12 (2013).

Barone, Kraushaar, McCutcheon & Trende, *The Almanac of American Politics 2014* (2013).

The Lost Majority: Why the Future of Government is up for Grabs – And Who Will Take It (2012).

PREVIOUS EXPERT TESTIMONY

Dickson v. Rucho, No. 11-CVS-16896 (N.C. Super. Ct., Wake County) (racial gerrymandering).

Covington v. North Carolina, No. 1:15-CV-00399 (M.D.N.C.) (racial gerrymandering).

NAACP v. McCrory, No. 1:13CV658 (M.D.N.C.) (early voting).

NAACP v. Husted, No. 2:14-cv-404 (S.D. Ohio) (early voting).

Ohio Democratic Party v. Husted, Case 15-cv-01802 (S.D. Ohio) (early voting).

Lee v. Virginia Bd. of Elections, No. 3:15-cv-357 (E.D. Va.) (early voting).

Feldman v. Arizona, No. CV-16-1065-PHX-DLR (D. Ariz.) (absentee voting).

A. Philip Randolph Institute v. Smith, No. 1:18-cv-00357-TSB (S.D. Ohio) (political gerrymandering).

Whitford v. Nichol, No. 15-cv-421-bbc (W.D. Wisc.) (political gerrymandering).

Common Cause v. Rucho, No. 1:16-CV-1026-WO-JEP (M.D.N.C.) (political gerrymandering).

Mecinas v. Hobbs, No. CV-19-05547-PHX-DJH (D. Ariz.) (ballot order effect).

Fair Fight Action v. Raffensperger, No. 1:18-cv-05391-SCJ (N.D. Ga.) (statistical analysis).

Pascua Yaqui Tribe v. Rodriguez, No. 4:20-CV-00432-TUC-JAS (D. Ariz.) (early voting).

COURT APPOINTMENTS

Appointed as Voting Rights Act expert by Arizona Independent Redistricting Commission (2020)

Appointed special Master by the Supreme Court of Virginia to redraw maps for the Virginia House of Delegates, the Senate of Virginia, and for Virginia's delegation to the United States Congress for the 2022 election cycle.

Appointed redistricting expert by the Supreme Court of Belize in *Smith v. Perrera*, No. 55 of 2019 (one-person-one-vote).

INTERNATIONAL PRESENTATIONS AND EXPERIENCE

Panel Discussion, European External Action Service, Brussels, Belgium, *Likely Outcomes of 2012 American Elections.*

Selected by U.S. Embassies in Sweden, Spain, and Italy to discuss 2016 and 2018 elections to think tanks and universities in area (declined Italy due to teaching responsibilities).

Selected by EEAS to discuss 2018 elections in private session with European Ambassadors.

TEACHING

American Democracy and Mass Media, Ohio Wesleyan University, Spring 2018.

Introduction to American Politics, The Ohio State University, Autumn 2018, 2019, 2020, Spring 2018.

Political Participation and Voting Behavior, Spring 2020, Spring 2021.

REAL CLEAR POLITICS COLUMNS

Full archives available at http://www.realclearpolitics.com/authors/sean_trende/

CERTIFICATE OF COMPLIANCE

I hereby certify that this brief contains fewer than the 7,000 words permitted under Pa. R.A.P. 2135(a)(1), excluding the cover page, table of contents, and table of authorities. This word county relies upon the word count of the word processing software used to prepare this brief.

GALLAGHER GIANCOLA LLC

Dated: February 14, 2022

/s/ Kathleen A. Gallagher
Kathleen A. Gallagher
Russell D. Giancola

CERTIFICATE OF COMPLIANCE
WITH PUBLIC ACCESS POLICY

I certify that this filing complies with the provisions of the *Public Access Policy of the United Judicial System of Pennsylvania: Case Records of the Appellate and Trial Courts* that require filing confidential information and documents differently than non-confidential information and documents.

GALLAGHER GIANCOLA LLC

Dated: February 14, 2022

/s/ Kathleen A. Gallagher
Kathleen A. Gallagher
Russell D. Giancola