

IN THE COMMONWEALTH COURT OF PENNSYLVANIA

No. 464 MD 2021

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.

No. 465 MD 2021 (consolidated at No. 464 MD 2021)

Philip T. Gressman; Ron Y. Donagi; Kristopher R. Tapp; Pamela A. Gorkin; David P. Marsh; James L. Rosenberger; Amy Myers; Eugene Boman; Gary Gordon; Liz McMahan; Timothy G. Feeman; and Garth Isaak,

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 THEIR PROPOSED MAP

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STATEMENT OF INTEREST OF AMICI CURIAE

Haroon Bashir, Valerie Biancaniello, Tegwyn Hughes, and Jeffrey Wenk (“Voters of the Commonwealth”) are individuals who reside in Pennsylvania, are registered to vote in Pennsylvania, and consistently vote in each election. The Voters of the Commonwealth 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 may adopt the next congressional districting plan. The Voters of the Commonwealth submit this brief and a proposed map in order to have their voices and preferences heard.

Pursuant to Rule 531 of the Pennsylvania Rules of Appellate Procedure, the Fair Lines America Foundation contributed to the payment for the preparation of this brief. No other person or entity paid in whole or in part for the preparation of this brief or authored any part of this brief.

DETERMINATION IN QUESTION

AND NOW, this 14th day of January, 2022, in consideration of the petitions to intervene and the applications for expedited review and the responses thereto filed in the above-consolidated actions, it is hereby ORDERED:

1. This Order supersedes this Court's December 20, 2021 Order.
2. The Applications for Leave to Intervene of: (i) the Speaker and Majority Leader of the Pennsylvania House of Representative and the President Pro Tempore and the Majority Leader of the Pennsylvania Senate, (ii) Pennsylvania State Senators Maria Collett, Katie J. Muth, Sharif Street, and Anthony H. Williams; (iii) Tom Wolf, Governor of the Commonwealth of Pennsylvania; (iv) Senator Jay Costa and members of the Democratic Caucus of the Senate of Pennsylvania; (v) Representative Joanna E. McClinton, Leader of the Democratic Caucus of the Pennsylvania House of Representatives; and (vi) Congressman Guy Reschenthaler, Swatara Township Commissioner Jeffrey Varner, Tom Marino, Ryan Costello, and Bud Shuster are **GRANTED**.

Pursuant to the Notice of Amendment and Joinder from Senate Democratic Caucus Intervenors and Democratic Senator Intervenors, the Applications for Leave to Intervene of: (i) Pennsylvania State Senators Maria Collett, Katie J. Muth, Sharif Street, and Anthony H. Williams; and (ii) Senator Jay Costa and members of the Democratic Caucus of the Senate of Pennsylvania are hereby joined, and these individuals shall constitute a single party. The Application for Intervention filed by Democratic Senator Intervenors shall be withdrawn. Democratic Senator Intervenors are added to the Senate Democratic Caucus Intervenors' Application for Intervention.

These intervenors which are hereinafter referred to as Parties shall be allowed to participate in these consolidated actions as parties. Any answers to the Petitions for Review attached to applications to intervene as exhibits are deemed filed.

3. All Parties shall submit for the Court's consideration at least one (1) but no more than two (2) proposed 17-district congressional redistricting plan(s) that are consistent with the results of the 2020 Census and, if the party chooses to

do so, a supporting brief and/or a supporting expert report, by 5:00 p.m. on **Monday, January 24, 2022.**

4. Parties must file a responsive brief and/or a responsive expert report (from the same expert who prepared the **January 24** report or any other expert), addressing other parties' **January 24** submissions, by 5:00 p.m. on **Wednesday, January 26, 2022.**
5. The Applications for Leave to Intervene as parties filed by (i) Voters of the Commonwealth of Pennsylvania, (ii) Citizen-Voters; (iii) Draw the Lines-PA; and (iv) Khalif Ali et al. are **DENIED.**

Voters of the Commonwealth of Pennsylvania, Citizen-Voters, Draw the Lines-PA, and Khalif Ali et al., are permitted to participate in these matters as Amicus Participants, which means that their participation shall be limited to submissions to the Court **in writing** as set forth in Paragraph 6 of this Order.

6. Amicus Participants who wish to submit for the Court's consideration one (1) proposed 17-district congressional redistricting map/plan that is consistent with the results of the 2020 Census shall file the proposed map/plan and, if the Amicus Participant chooses to do so, a supporting brief and/or a supporting expert report, by 5:00 p.m. on **Monday, January 24, 2022.**
7. All proposed 17-district congressional redistricting maps/plans shall comply with constitutional standards and any other standards required by law.
8. After submission, no proposed plan/map may be later modified or amended.
9. No Party or Amicus Participant may take discovery in this matter.
10. The Parties shall submit to the Court a Joint Stipulation of Facts by 2:00 p.m. on **Wednesday, January 26, 2022.**
11. The Court shall conduct an evidentiary hearing on **Thursday, January 27, 2022, and Friday, January 28, 2022,** participation in which is limited to the Parties as identified herein. The hearing will begin at 9:30 a.m. in Courtroom 3001 of the Pennsylvania Judicial Center, Harrisburg, PA. It shall be the responsibility of Petitioners to secure the services of a court reporter(s) throughout the duration of the hearing. Each Party is limited to presenting

one witness at the hearing, who shall be subject to cross examination by the other Parties. Opening and closing statements and argument by Parties shall be permitted. The Court will also consider revisions to the 2022 election schedule/calendar as part of the hearing.

12.If the General Assembly has not produced a new congressional map by January 30, 2022, the Court shall proceed to issue an opinion based on the hearing and evidence presented by the Parties.

s/ Patricia A. McCullough _____
PATRICIA A. McCULLOUGH, Judge

STATEMENT OF THE CASE

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 the Commonwealth 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 the Commonwealth participated.

On January 14, 2022, the Commonwealth Court entered the 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 currently elected officeholders.

An evidentiary hearing is set to take place on January 27 and 28, 2022. This Court has held that “[i]f the General Assembly has not produced a new congressional

map by January 30, 2022, the Court shall proceed to issue an opinion based on the hearing and evidence presented by the Parties.”

Pennsylvania’s 2022 primary election is currently scheduled to take place on May 17, 2022. The first day to circulate nominating petitions is February 15, 2022.

The Voters of the Commonwealth hereby submit this brief, expert report, and redistricting plan as *amici curiae*.

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. *See League of Women Voters v. Commonwealth*, 178 A.3d 737, 817 (Pa. 2018) (“*LWV*”). With three weeks until the first day to circulate nominating petitions, it appears increasingly likely—although not certain—that the task of drawing the congressional maps will again fall to the courts.

With this brief, the Voters of the Commonwealth have submitted a redistricting plan (the “Voters’ Map”) that not only complies with the minimal standards established by the Supreme Court in *LWV*, but displays metrics of traditional, neutral criteria that in many respects surpass the existing, remedial map adopted by the Supreme Court. The Voters’ Map thus provides a high level of assurance that the *LWV*-approved neutral criteria predominated in the drawing of this map, and that extraneous considerations, including partisanship, were wholly subordinated to those neutral criteria. Accordingly, the Voters of the Commonwealth respectfully request that this Honorable Court adopt the Voters’ Map as Pennsylvania’s congressional districting plan for the next decade.

ARGUMENT

I. The Free and Equal Elections Clause Governs Redistricting Plans

Article I, Section 5 of the Pennsylvania Constitution, entitled “Elections,” is contained within the Pennsylvania Constitution’s “Declaration of Rights,” which enumerates the fundamental individual human rights possessed by the people of this Commonwealth that are specifically exempted from the powers of the Commonwealth government to diminish. *League of Women Voters v. Commonwealth*, 178 A.3d 737, 804 (Pa. 2018) (“LWV”). 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 Supreme Court of Pennsylvania has held 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). The Supreme Court has held that the Free and Equal Elections Clause applies to vote dilution claims relating to redistricting plans. *LWV*, 178 A.3d at 817.

II. Neutral Redistricting Criteria Must Predominate

To determine whether a congressional redistricting plan violates the Free and Equal Elections Clause, an 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

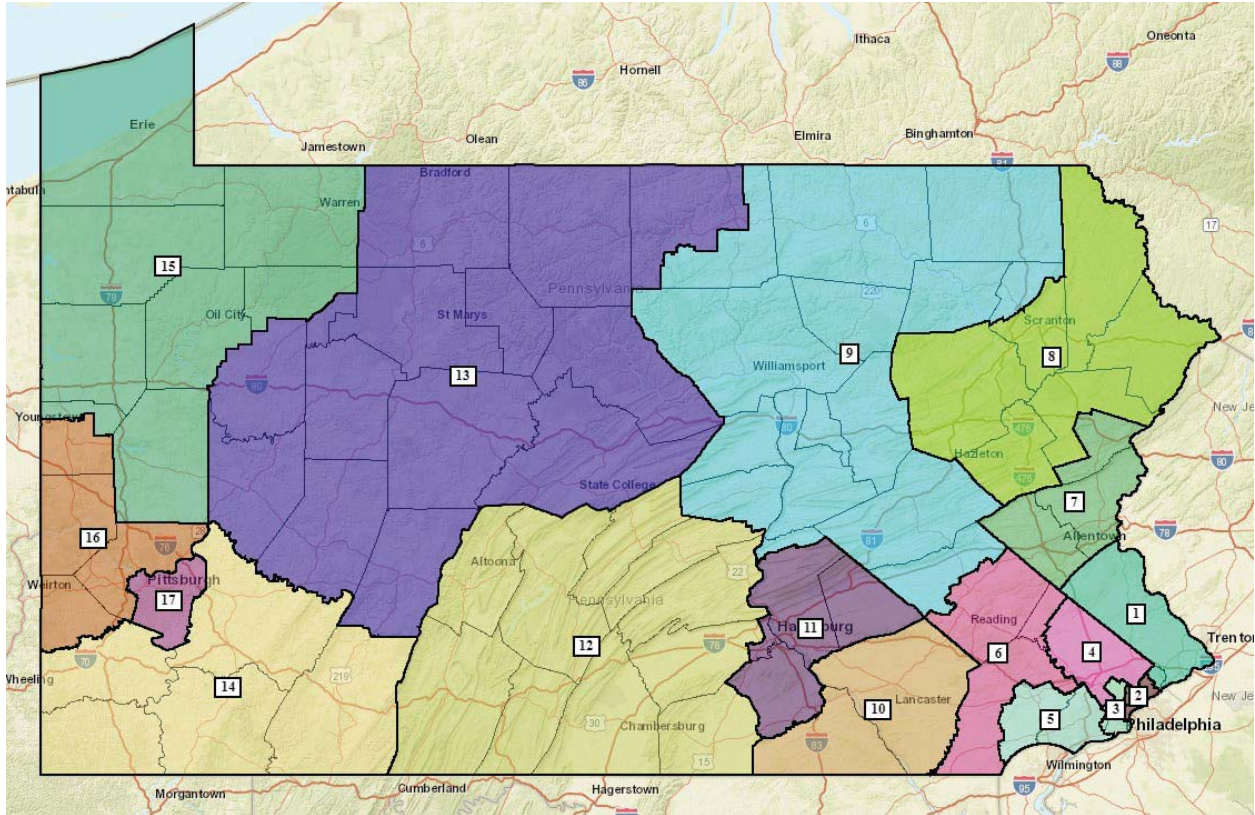
such subordination was intentional. *Id.* (citing *In re New Britain Borough Sch. Dist.*, 145 A. 597 (Pa. 1929)).

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. Proposed Redistricting Plan of the Voters of the Commonwealth

The Voters of the Commonwealth hereby submit the expert report of Sean Trende and proposed 17-district congressional redistricting plan (the “Voters’ Map”), attached hereto as Exhibit A. Consistent with past enacted and adopted congressional redistricting plans, the Voters’ Map utilized population data that was not adjusted for prisoner population. *See Ex. A* at 8. Further, 2020 Census block

equivalency and shapefiles expressing the Voters' Map are being submitted to the Court contemporaneously with this filing.



A. Contiguity

A contiguous district is “one in which a person can go from any point within the district to any other point (within the district) without leaving the district, or one in which no part of the district is wholly physically separate from any other part. *Holt II*, 67 A.3d at 1242 (citing *Commonwealth ex rel. Specter v. Levin*, 293 A.2d 15, 23 (Pa. 1972)).

The Voters' Map satisfies the contiguity requirement. Using the shapefiles for the Voters' Map, Mr. Trende created an “adjacency matrix” which lists all of the

precincts and which blocks border them. Each precinct within each district borders at least one other precinct within that same district; no part of any district is wholly physically separate from any other part.

B. Equality of Population

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.*

The existing decennial census of the population establishes the basis for reapportionment of congressional districts. 2 U.S.C. § 2a. According to the 2020 census, Pennsylvania has a population of 13,002,700.¹ Pennsylvania has been

¹ See U.S. Census Bureau, QUICKFACTS PENNSYLVANIA, available at <https://www.census.gov/quickfacts/fact/table/PA/POP010220> (last viewed January 24, 2022).

apportioned 17 districts, requiring each congressional district to have a population of 764,864 or 764,865.

The Voters' Map fully complies with the requirement of equal population. Five districts contain a population 764,864, while the other twelve districts contain a population of 764,865. *See* Ex. A at 8–9. The Voters' Map thus fully complies with this requirement.

C. Compactness

The Supreme Court of Pennsylvania has previously observed that “no principle has been articulated to us by which we may assess which of multiple methods of assessing compactness could or should be employed.” *Holt II*, 67 A.3d at 1242. In *LWV*, the Supreme Court used the Reock Compactness Scores and Polsby-Popper Compactness Scores to analyze the 2011 congressional redistricting plan (the “2011 Plan”). *LWV*, 178 A.3d at 818–19. There, the Supreme Court held that the 2011 Plan’s Reock Compactness Score of 0.278 and Polsby-Popper Compactness Score of 0.164 demonstrated that “the 2011 Plan cannot, as a statistical matter, be a plan directed at complying with traditional redistricting requirements is sufficient to establish that it violates the Free and Equal Elections Clause.” *Id.* at 818–20. These compactness scores also “comport[ed] with a lay examination of the Plan, which reveals tortuously drawn districts that cause plainly unnecessary political-subdivision splits.” *Id.* at 819.

To evaluate the compactness of the districts in the Voters’ Map, Mr. Trende employed the Reock, Polsby-Popper, and Schwartzberg tests. 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.” Schwartzberg, *Reapportionment, Gerrymanders, and the Notion of “Compactness,”* 50 MINN. L. REV. 443 (1966).; *see also Specter*, 293 A.2d at 20 n.22.

As reflected in Table 3 below, the Voters’ Map is superior to the remedial map adopted by the Supreme Court of Pennsylvania in *LWV*. The Voters’ Map has higher mean, median, and minimum scores for each of these compactness metrics.

Measure	Proposed Map	Existing Map
Reock		
Mean	0.4419	0.4280
Median	0.4335	0.4101
Minimum	0.3432	0.3243
Polsby-Popper		
Mean	0.3951	0.3356
Median	0.3791	0.3244
Minimum	0.2289	0.1808
Schwartzberg		
Mean	0.6256	0.5754
Median	0.6157	0.5695
Minimum	0.4784	0.4252

While the mean and median scores reflect the Voters' Map represents an even lower risk of extraneous considerations subordinating the traditional, neutral criteria than was attendant with the Supreme Court's remedial map, the significantly higher minimum scores on all three measures demonstrates that no district was "sacrificed" for the sake of the map's overall compactness.

The compactness of the Voters' Map also compares favorably to the map suggested by the Governor (the "Governor's Map").² The Voters' Map has superior mean, median, and minimum compactness scores under the Reock, Polsby-Popper, and Schwartzberg metrics, in some instances by a large margin:

² See Congressional Districts Map Proposals, Governor's Map Proposal, *available at* <https://www.governor.pa.gov/congressional-districts-map-proposals/#governors-map> (last visited Jan. 24, 2022).

Table 8: Comparison of Compactness Measures
Proposed Map, Existing Map, and Governor's Map

Measure	Proposed Map	Existing Map	Governor Map
Reock			
Mean	0.4419	0.4280	0.4013
Median	0.4335	0.4101	0.3964
Minimum	0.3432	0.3243	0.2033
Polsby-Popper			
Mean	0.3950	0.3355	0.3838
Median	0.3790	0.3244	0.3936
Minimum	0.2288	0.1807	0.2208
Schwartzberg			
Mean	0.6256	0.5754	0.3838
Median	0.6157	0.5695	0.3936
Minimum	0.4784	0.4251	0.2208

By all accounts, the Voters' Map scores well on the compactness scores, providing assurance that this traditional, neutral redistricting criterion was not subordinated in favor of extraneous considerations.

D. Splits of Political Subdivisions

1. County Splits

Of the 67 counties in Pennsylvania, the proposed map only splits 15. No county is split more than once, with the exception of Philadelphia County. But Philadelphia County's population of 1,603,797 requires that it be split twice to

accommodate congressional districts no larger than 764,865.³ In addition, Montgomery and Allegheny County, with respective populations of 856,553⁴ and 1,250,578,⁵ require one split each. Thus, the Voters' Map minimizes county splits.

Moreover, the county splits utilized are consistent with prior splits implemented in Pennsylvania. For example, Bucks County has been split for one congressional map since district-based elections were adopted in 1791. *See* Ex. A at 13. The Voters' Map keeps would keep Bucks County intact as it has for every congressional map in the past 149 years.

Similarly, for the past 200 years, Montgomery County has traditionally had a congressional district wholly assigned to it. *Id.* at 14. When it did not have a congressional district to itself, it has almost always been aired with the City of Philadelphia or Bucks County. *Id.* The Voters' Map adheres to this well-established practice.

Not including the mandatory splits of Philadelphia, Montgomery, and Allegheny Counties, the splits in the Voters' Map affect just 25.1% of the

³ *See* U.S. Census Bureau, QUICKFACTS PHILADELPHIA COUNTY PENNSYLVANIA, available at <https://www.census.gov/quickfacts/philadelphiacountypennsylvania> (last viewed January 24, 2022).

⁴ *See* U.S. Census Bureau, QUICKFACTS MONTGOMERY COUNTY, PENNSYLVANIA, available at <https://www.census.gov/quickfacts/montgomerycountypennsylvania> (last visited Jan. 24, 2022).

⁵ U.S. Census Bureau, QUICKFACTS ALLEGHENY COUNTY, PENNSYLVANIA, available at <https://www.census.gov/quickfacts/allegHENYcountypennsylvania> (last visited Jan. 24, 2022).

population. *See* Ex. A at 15. Further, the Voters’ Map avoids multiple traversals of a district, i.e., when it is necessary for a district to cross a county boundary, it does so only once. *Id.*

The same cannot be said for the Governor’s Map. The Governor’s Map splits 16 counties a total of 19 times, both figures exceeding the Voters’ Map’s metrics. The Governor’s Map needlessly creates three-way splits of Berks County and Montgomery County, diluting the voting power of these counties. *See* Ex. A at 23. The Governor’s Map also uses “multiple traversals” in Westmoreland and Northumberland Counties, strongly suggesting that extraneous considerations weighed heavily in the development of his map. *Id.* The Governor’s Map also splits Bucks County for the first time in 150 years and pairs Montgomery County with a county other than Philadelphia or Bucks County for the first time since the 1860s. *Id.*

Unquestionably, the Voters’ Map minimizes county splits, while the same cannot be said for the Governor’s Map.

2. Municipal Splits

The Voters’ Map splits relatively few municipal divisions. Philadelphia is the only large city split by the Voters’ Map; this is a mandatory split, due to its

population.⁶ The next remaining largest cities: Pittsburgh, Allentown, Reading, and Erie, are all kept intact. *See* Ex. A at 15. Most of the municipal splits are confined to places with small populations. *Id.* As with the county splits, the Voters' Map splits municipalities no more than once, with the exception of the city of Philadelphia, which requires 2 splits. The Voters' Map splits only 17 municipalities.

⁶ U.S. Census Bureau, QUICKFACTS PHILADELPHIA CITY, PENNSYLVANIA, *available at* <https://www.census.gov/quickfacts/philadelphiacitypennsylvania> (last visited Jan. 24, 2022).

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

In contrast, the Governor’s Map needlessly splits Pittsburgh, Pennsylvania’s second largest city, for what appears to be an obvious partisan advantage. *See* Ex. A at 24–30. This split is not mandated by population,⁷ but instead appears to be

⁷ U.S. Census Bureau, QUICKFACTS PITTSBURGH CITY, PENNSYLVANIA, *available at* <https://www.census.gov/quickfacts/pittsburghcitypennsylvania> (last visited Jan. 24, 2022).

solely aimed to establish a Democratic majority in an additional congressional district in Western Pennsylvania. *Id.*

By limiting municipal non-mandatory splits to those few, mostly small municipalities that were absolutely necessary to maintain equal population, the Voters' Map complies with this traditional, neutral criterion.

E. Voting Rights Act Considerations

Section 2 of the Voting Rights Act of 1965, 52 U.S.C. § 10301, prohibits voting practices or procedures that discriminate on the basis of race, color, or membership in one of the language minority groups identified in Section 4(f)(2) of the Act. This prohibition includes districting plans and methods of election for governmental bodies. *Grove v. Emison*, 507 U.S. 25, 39–40 (1993). Likewise, Article I, Section 29 prohibits the denial or abridgement of equality of rights because of an individual's race or ethnicity. A redistricting plan cannot licitly dilute the votes of minorities in compact areas in the Commonwealth, causing inequality in the opportunities enjoyed by minority voters to elect their preferred representatives. *See Thornburg v. Gingles*, 478 U.S. 30, 47 (1986). The Supreme Court of Pennsylvania made clear that congressional district maps must still “comply with federal law, and, most specifically, the Voting Rights Act, 52 U.S.C. § 10301.” *LWV*, 178 A.3d at 817 n.72.

The Voters' Map creates at least one district in which Black voters comprise a majority of the Voting Age Population; this is the same number of such districts in the existing plan. *See* Ex. A at 16–17. In addition, minority groups comprise almost 65% of the Voting Age Population in another district in the Voters' Map. *Id.*

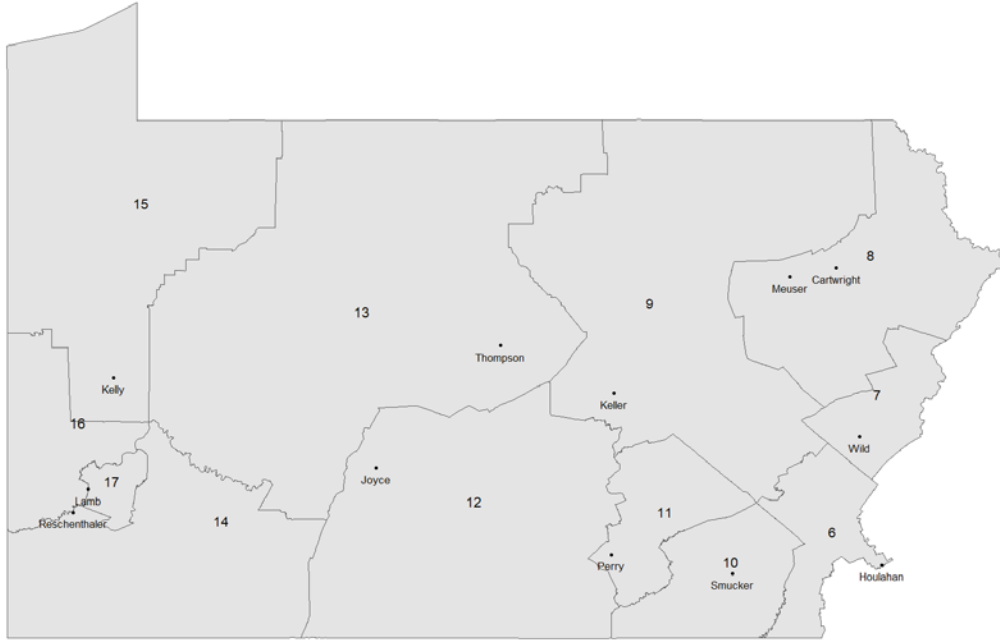
F. Incumbency

The Supreme Court of Pennsylvania has acknowledged that protection of incumbents “may indeed be pursued and considered, so long as their accommodation does not cause a demonstrated violation of Section 16 factors, factors which are politically neutral.” *Holt II*, 67 A.3d at 1239. More recently, the Supreme Court of Pennsylvania confirmed that that the protection of incumbents was a factor that “historically played a role” in the drawing of districts. *LWV*, 178 A.3d at 817. But this factor 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.” *Id.*

The Voters' Map places most incumbents in a district by themselves. Under the Voters' Map, two districts (one in the eastern part of the state, one in the western) would be open districts. *See* Ex. A at 17. Representative Matt Cartwright (a Democrat) and Representative Dan Meuser (a Republican) would both reside in a single district, as would Representative Brendan Boyle (a Democrat) and

Representative Brian Fitzpatrick (a Republican). *Id.* Notably, Representative Boyle would live a stone's throw away from one of the two open districts. *Id.* at 17–18.

Proposed Map, With Locations of Incumbents, Philadelphia Area Excluded



Proposed Map, With Locations of Incumbents, Philadelphia Area



In a decennial where Pennsylvania lost a congressional seat, the Voters' Map assures that neither political party is adversely affected: a Republican incumbent would be matched with a Democrat incumbent in two districts, and two districts on opposite ends of the state would be open for the 2022 congressional elections.

G. 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. Although the Supreme Court of Pennsylvania 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, the Supreme 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.

Nevertheless, numerous metrics have been developed in an effort to measure the extent to which partisan considerations factored into the development of the map, including but not limited to the efficiency gap and the mean-median gap. The efficiency gap attempts to measure the number of “wasted” votes for the minority political party under a particular redistricting plan. *Id.* at 777; *see also* Ex. A at 21. The mean-median gap compares the average vote share per party in a particular district with the “middle best district” or “district that either party has to win in order to win the election.” *LWV*, 178 A.3d at 774; *see also* Ex. A at 21.

During the review of the 2011 Plan, evidence demonstrated that in running two sets of 500 computer-simulated redistricting plans, a mean-median gap of between 0 and 4% was in the “normal range.” *LWV*, 178 A.3d at 773, 820. The Voters’ Map has a mean-median gap of between 2% and 3%. *See* Ex. A at 21.

Also in *LWV*, evidence was presented that historically, in states with more than six congressional districts, the efficiency gap is close to 0%. *LWV*, 178 A.3d at 777. When running simulations, “75% of the time, the efficiency gap is between 10% and negative 10%.” *Id.* The Voters’ Map has an efficiency gap of between 3% and 5.6%, which is comparable to the efficiency gap of the existing map. *See* Ex. A at 21.

Although there is no consensus regarding whether any particular metric accurately measures partisanship in congressional maps—or, even if such a metric existed, how much partisanship constitutes “too much”—on the partisanship metrics utilized the last time Pennsylvania courts considered a congressional plan, the Voters’ Map falls well within the “normal range,” further demonstrating that the traditional, neutral criteria predominated in the development of the map.

CONCLUSION

The Voters' Map is fully compliant with the standards announced by the Supreme Court of Pennsylvania in *LWV*. It satisfies the one-person, one-vote requirement, creates seventeen contiguous districts, and produces the same number of majority-minority districts as the existing map. The Voters' Map has better compactness scores than the remedial map adopted by the Supreme Court. The Voters' Map 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.

For the reasons set forth above, *amici curiae* Voters of the Commonwealth of Pennsylvania respectfully request that this Honorable Court adopt the proposed congressional redistricting plan attached hereto.

Respectfully submitted,

GALLAGHER GIANCOLA LLC

Dated: January 24, 2022

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Exhibit A

(Report of Sean Trende)

**IN THE COMMONWEALTH COURT OF
PENNSYLVANIA**

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

DECLARATION OF SEAN P. TRENDE

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.

EXPERT CREDENTIALS

4. I am currently enrolled as a doctoral candidate in political science at The Ohio State University. I have completed all of my coursework and have passed comprehensive examinations in both methods and American Politics. 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 expect to receive my Ph.D. in May of 2021. My dissertation focuses on applications of spatial statistics to political questions.

5. I joined RealClearPolitics in January of 2009 after practicing law for eight years. I assumed a fulltime 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.

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.

7. 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.

8. I am currently a Visiting Scholar at the American Enterprise Institute, where my publications focus on the demographic and coalitional aspects of American Politics.

9. 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.

10. 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.

11. 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.

12. 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 as well as the Fall of 2021. In the springs of 2020, 2021 and 2022, 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.

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 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.

15. 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.

16. 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.

17. 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.

18. 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.

19. 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.

20. I authored an expert report in *Smith v. Perrera*, No. 55 of 2019 (Belize). In that case 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.

21. 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.

22. 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 are pending in original action before the Supreme Court of Ohio but did not involve live testimony.

23. I also filed an expert report in *North Carolina League of Women Voters v. Hall*, 21 CVS 015426, was accepted as an expert witness and was allowed to testify. This case involved the claimed political gerrymandering of state legislative and congressional maps.

24. I served as one of two special masters appointed by the Supreme Court of Virginia to redraw the districts that will elect the Commonwealth of Virginia's representatives to the House of Delegates, state Senate, and U.S. Congress.

25. I also currently serve as one of two voting rights act experts to counsel for the Arizona Independent Redistricting Commission.

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”) and summarize its relevant features for the Court. A true and correct copy of the map is attached as Appendix 2.

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

32. Using the shapefiles, I created an “adjacency matrix,” which lists all of the precincts within a district and which precincts border them. I was then able to confirm that all of the precincts do border at least one other precinct within the same district, and that the districts are therefore contiguous.

EQUALITY OF POPULATION

33. The census counts form the basis for the apportionment of congressional districts. *See* 2 U.S.C. § 2a. According to the 2020 census, Pennsylvania has a population of 13,002,700. Pennsylvania is entitled to 17 Congressional Districts. To ensure that districts are as close to equally populated as possible, there should be five districts with 764,864 residents and 12 with 764,865 in an ideal map.

34. Courts do allow mapmakers some discretion when drawing congressional districts, so long as those mapmakers can demonstrate that such discretion was exercised in pursuit of legitimate interests. However, the Proposed Map does not rely upon that discretion.

As demonstrated in Table 1, the Proposed Map includes five districts with 764,864 residents and 12 with 764,865.

Table 1: Evaluation of Equal Population Criteria, Proposed PA Districts

District	Population	Deviation
1	764,865	0
2	764,865	0
3	764,865	0
4	764,865	0
5	764,864	-1
6	764,865	0
7	764,865	0
8	764,864	-1
9	764,865	0
10	764,865	0
11	764,865	0
12	764,865	0
13	764,865	0
14	764,865	0
15	764,864	-1
16	764,864	-1
17	764,864	-1

COMPACTNESS

35. 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.

36. 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 Jnl. 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.

37. 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.

38. 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.

39. The Reock, Polsby-Popper, and Schwartzberg scores are described in Table 2.

Table 2: Evaluation of Compactness Measures, Proposed Map

District	Reock	Polsby-Popper	Schwartzberg
1	0.343	0.494	0.703
2	0.397	0.374	0.612
3	0.492	0.311	0.558
4	0.437	0.442	0.664
5	0.418	0.400	0.633
6	0.417	0.229	0.478
7	0.390	0.434	0.659
8	0.441	0.368	0.606
9	0.516	0.345	0.587
10	0.367	0.470	0.686
11	0.428	0.364	0.603
12	0.485	0.562	0.750
13	0.434	0.419	0.647
14	0.380	0.359	0.599
15	0.554	0.446	0.668
16	0.443	0.321	0.567
17	0.571	0.379	0.616

40. One drawback of these measures is that there is no clear definition of when a district becomes non-compact, and scores for districts that most lay observers would consider quite compact can nevertheless deviate significantly from a “perfect” district. For example, a square has a Reock score of 0.64, but a square district would likely be considered compact

from the perspective of most people. Rather than attempting to draw an arbitrary line to separate “compact” from “non-compact,” I have instead compared the compactness of the current map to the compactness of the enacted map in Table 3.

Table 3: Comparison of Compactness Measures
Proposed Map and Existing Map

Measure	Proposed Map	Existing Map
Reock		
Mean	0.4419	0.4280
Median	0.4335	0.4101
Minimum	0.3432	0.3243
Polsby-Popper		
Mean	0.3951	0.3356
Median	0.3791	0.3244
Minimum	0.2289	0.1808
Schwartzberg		
Mean	0.6256	0.5754
Median	0.6157	0.5695
Minimum	0.4784	0.4252

41. The Proposed Map compares favorably to the map that was approved by the Supreme Court of Pennsylvania across all three measures. The least compact district in the Proposed Map is more compact than the least compact district in the existing map, regardless of metric employed. The median (that is, the middle) district in the Proposed Map is more compact than the median district in the existing map, regardless of the metric employed. The average district in the Proposed Map is also more compact than the average district in the existing map, regardless of the metric employed.

SPLITS OF POLITICAL SUBDIVISIONS

42. 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

43. 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.

44. 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. *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 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).

45. 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.

46. 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

VOTING RIGHTS ACT CONSIDERATIONS

47. The Voting Rights Act of 1965, as amended (VRA), requires the creation of districts that have the ability to elect the candidate of choice of a compact minority population where that population can comprise a majority of a district and where voting is

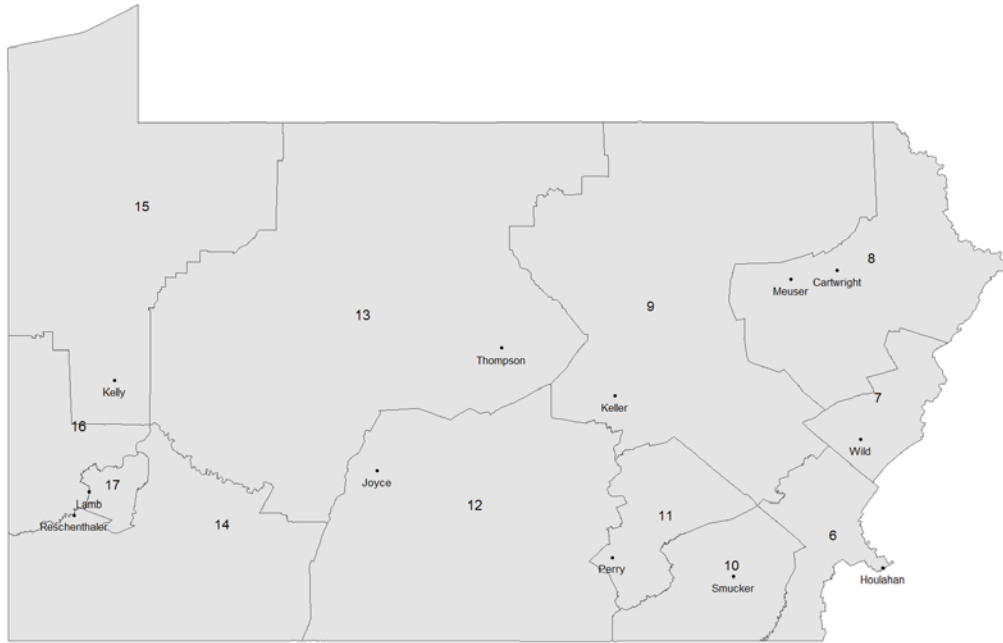
racially polarized. This report does not purport to conduct a racially polarized voting analysis, and thus does not make claims as to whether a district is required by the VRA. It does, however, note that, as with the current plan, there is at least one district that is consistent with the VRA. Black voters comprise a majority of the Voting Age Population (“VAP”) in Congressional District 3. In addition, Black voters would be well-positioned to elect the candidate of their choice in Congressional District 2, where minority groups together comprise almost 65% of the VAP, but where Black voters comprise a plurality of the non-white VAP.

INCUMBENCY

48. 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.

49. 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

50. 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.

51. 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.

52. 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.

53. 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.

54. Table 6 illustrates the Republican vote share in various districts.

Table 6: Election Results, Proposed Map			
District	Trump Share	2020 Republican Share	2016-2020 Republican Share
1	48.5%	49.3%	48.6%
2	20.4%	19.8%	17.5%
3	10.7%	11.0%	10.0%
4	35.4%	36.8%	37.7%
5	38.4%	41.2%	42.1%
6	47.7%	49.1%	49.2%
7	47.6%	48.0%	47.4%
8	54.9%	53.0%	51.2%
9	68.4%	67.9%	65.7%
10	60.6%	62.5%	61.5%
11	53.8%	55.1%	54.2%
12	70.5%	71.4%	69.5%
13	67.9%	67.2%	63.4%
14	65.6%	63.7%	60.5%
15	61.1%	61.0%	59.0%
16	52.4%	51.7%	50.4%
17	33.9%	32.8%	31.5%

55. Republican generally have performed well in districts 8 through 16, while Democrats have done well in districts 1 through 7 and 17. In short, Republicans have had an advantage in nine districts, while Democrats have had an advantage in eight.

56. We can attempt to translate these advantages to partisan fairness metrics. Here I reference two metrics: mean-median and the efficiency gap.

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. Table 7 gives the mean-median and efficiency gap scores for both the existing plan and the proposed plan.

Metric	Map	Biden/Trump Only	2020 Elections	2016-2020 Elections
Efficiency Gap	Proposed Map	0.036	0.030	0.056
Efficiency Gap	Existing Map	-0.010	-0.016	-0.041
Mean-Median	Proposed Map	0.030	0.020	0.022
Mean-Median	Existing Map	0.007	-0.004	0.002

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, both the existing court-selected map and the Proposed Map all 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 .021, did not “unduly favor” one party or the other. The mean-median gaps in the Proposed Map are of a similar magnitude. Further, the largest efficiency gap present here of 5.6 percent does not exceed the 7.5 percent by plaintiffs in the *Common Cause v. Rucho* (the “efficiency gap” case that eventually made its way to the Supreme Court of the United States) 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).

GOVERNOR’S MAP

62. I have also been asked by counsel to analyze the Governor’s Congressional District Map Proposal, available at <https://www.governor.pa.gov/congressional-districts-map-proposals/#governors-map>.

63. I have conducted much of my analysis of the governor’s map in Dave’s Redistricting App, which is the native format in which the governor presented the data. It should be noted that utilization of different geographic projections can result in slightly different findings.

64. Like the Proposed Map, the Governor’s Map is contiguous, and contains minimum population deviations. It also contains at least one minority ability-to-elect district.

65. However, the Governor’s Map is less compact across virtually every measure than the Proposed Map and is less compact than the existing map in multiple instances.

Table 8: Comparison of Compactness Measures

Proposed Map, Existing Map, and Governor's Map

Measure	Proposed Map	Existing Map	Governor Map
Reock			
Mean	0.4419	0.4280	0.4013
Median	0.4335	0.4101	0.3964
Minimum	0.3432	0.3243	0.2033
Polsby-Popper			
Mean	0.3950	0.3355	0.3838
Median	0.3790	0.3244	0.3936
Minimum	0.2288	0.1807	0.2208
Schwartzberg			
Mean	0.6256	0.5754	0.3838
Median	0.6157	0.5695	0.3936
Minimum	0.4784	0.4251	0.2208

66. The Governor’s Map also contains numerous gratuitous county splits. While the Proposed Map splits 15 counties 16 times, the Governor’s Map splits 16 counties 19 times. In addition to a three-way split in Philadelphia County, which is required by federal equal population requirements, this map features a three-way split of Berks County, as well as a three-way split of Montgomery County. It also contains two instances of multiple traversals, in Westmoreland County and Northumberland County.

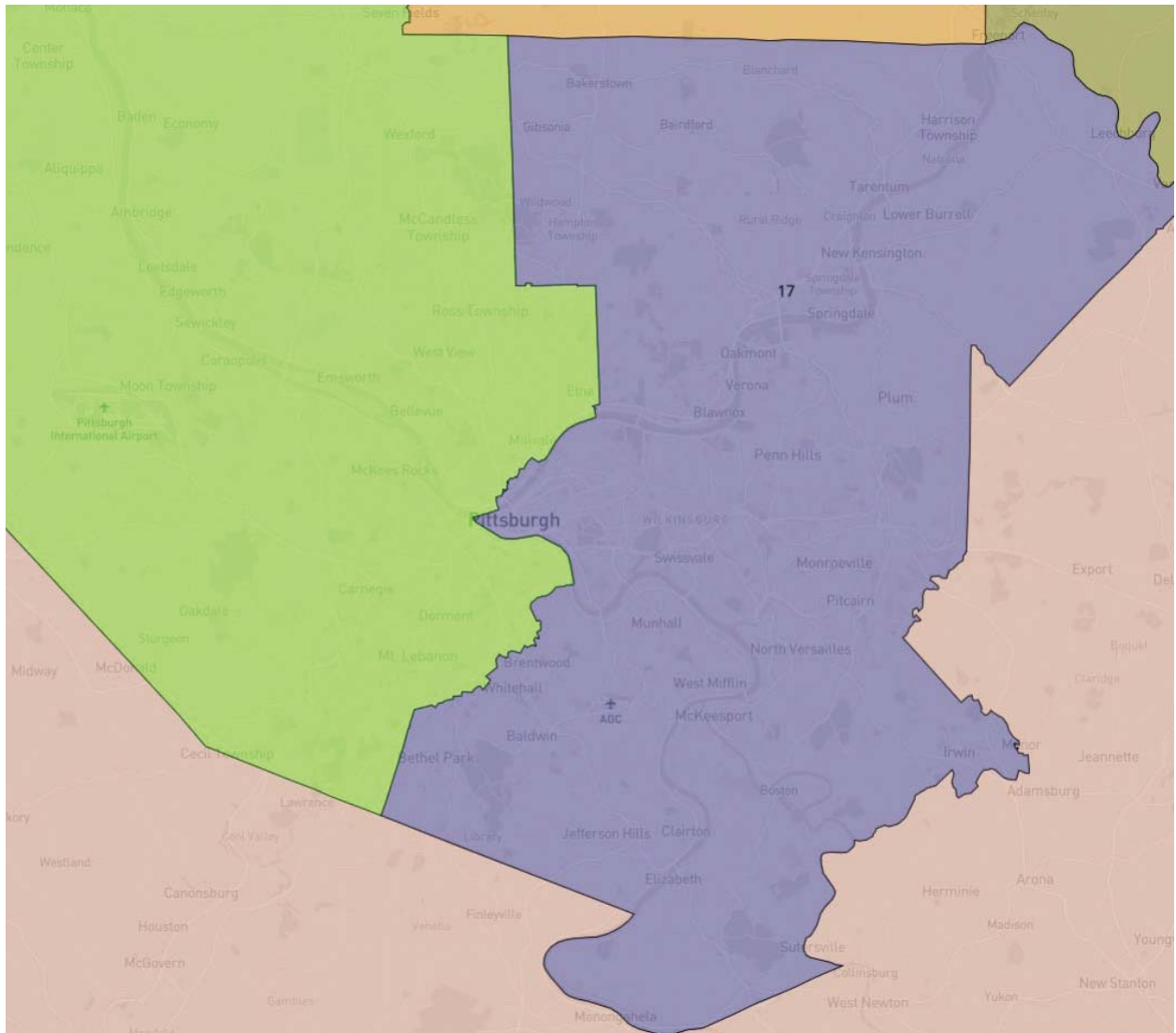
67. In addition, the Governor’s Map splits Bucks County for the first time in 150 years, and pairs Montgomery County with a county other than Philadelphia or Bucks for the first time since the 1860s.

68. The Governor’s Map also splits the City of Pittsburgh, something the existing map and Proposed Map both avoid.

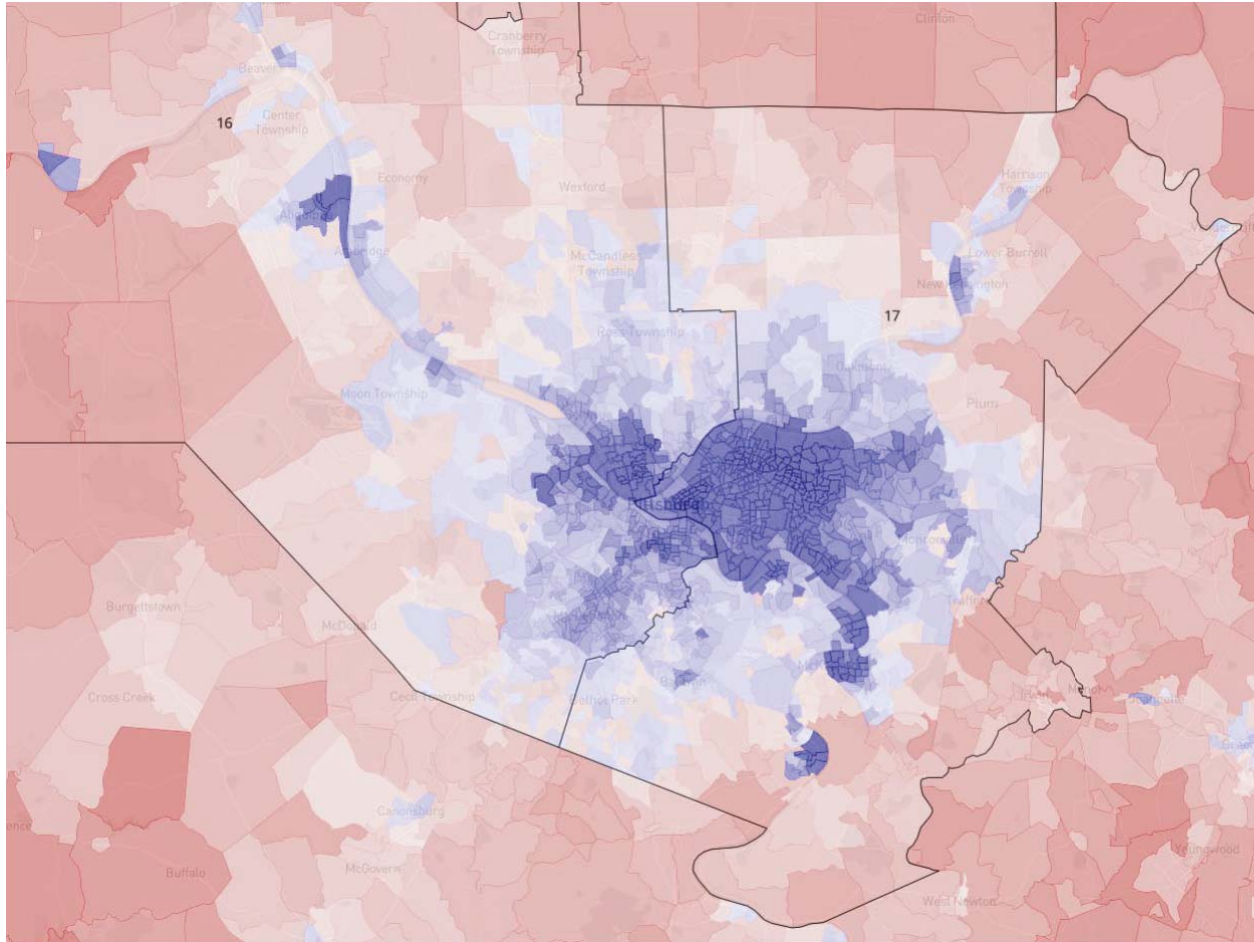
69. The Governor’s Map does perform well on partisanship metrics, although in most instances it is more biased than the existing map.

Metric	Map	Biden/Trump Only	2020 Elections	2016-2020 Elections
Efficiency Gap	Proposed Map	0.036	0.030	0.056
Efficiency Gap	Existing Map	-0.010	-0.016	-0.041
Efficiency Gap	Governor's Map	-0.029	-0.035	-0.010
Mean-Median	Proposed Map	0.030	0.020	0.022
Mean-Median	Existing Map	0.007	-0.004	0.002
Mean-Median	Governor's Map	-0.018	-0.011	0.003

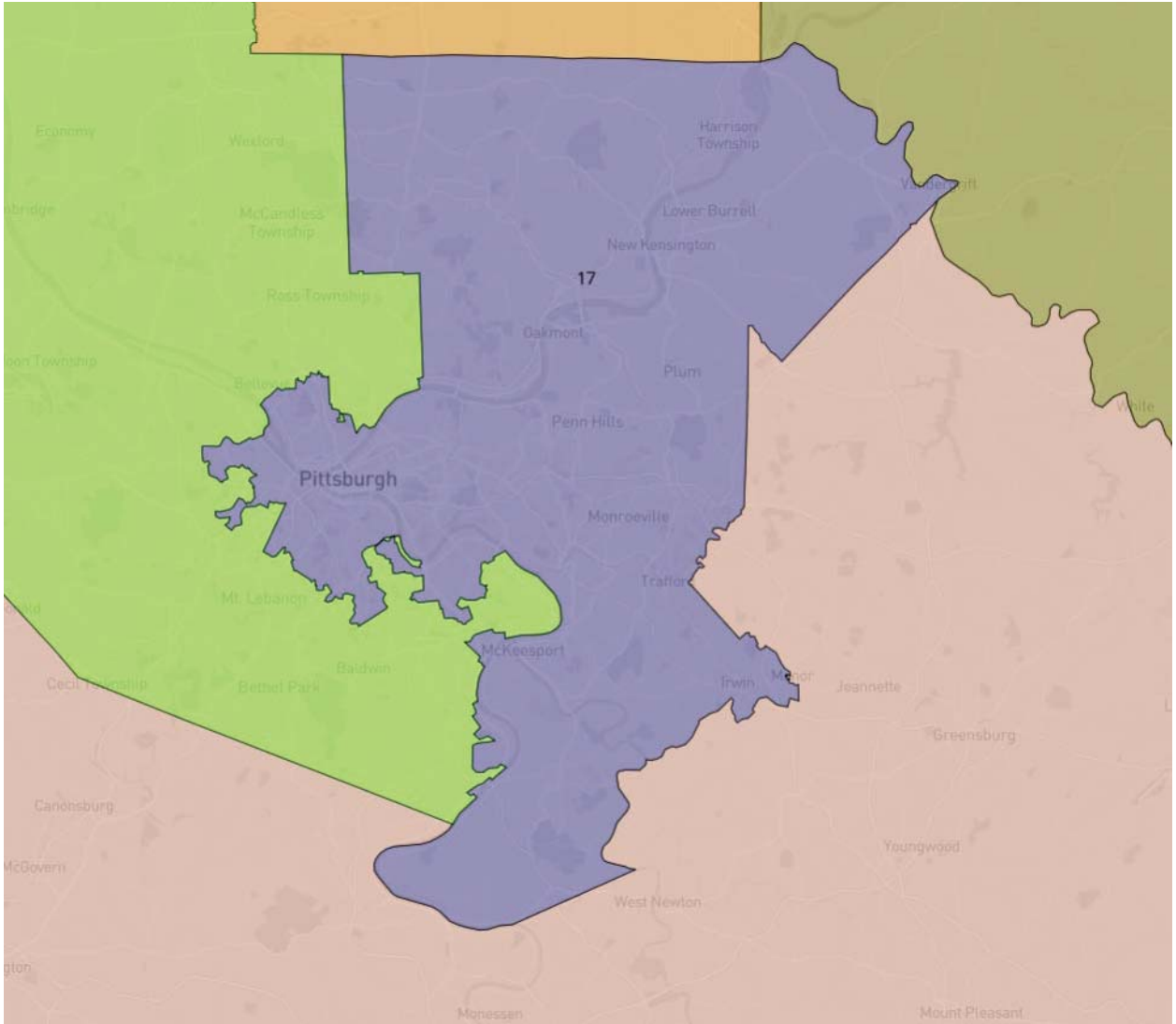
70. However, it appears to do so by subordinating traditional redistricting criteria to partisan considerations. Consider the Pittsburgh area, which is split like this in the map:



71. The motivation behind the split can be seen by taking the district lines and laying them over precinct lines. Here, the precinct lines are color coded by their composite partisanship from 2016 to 2020.

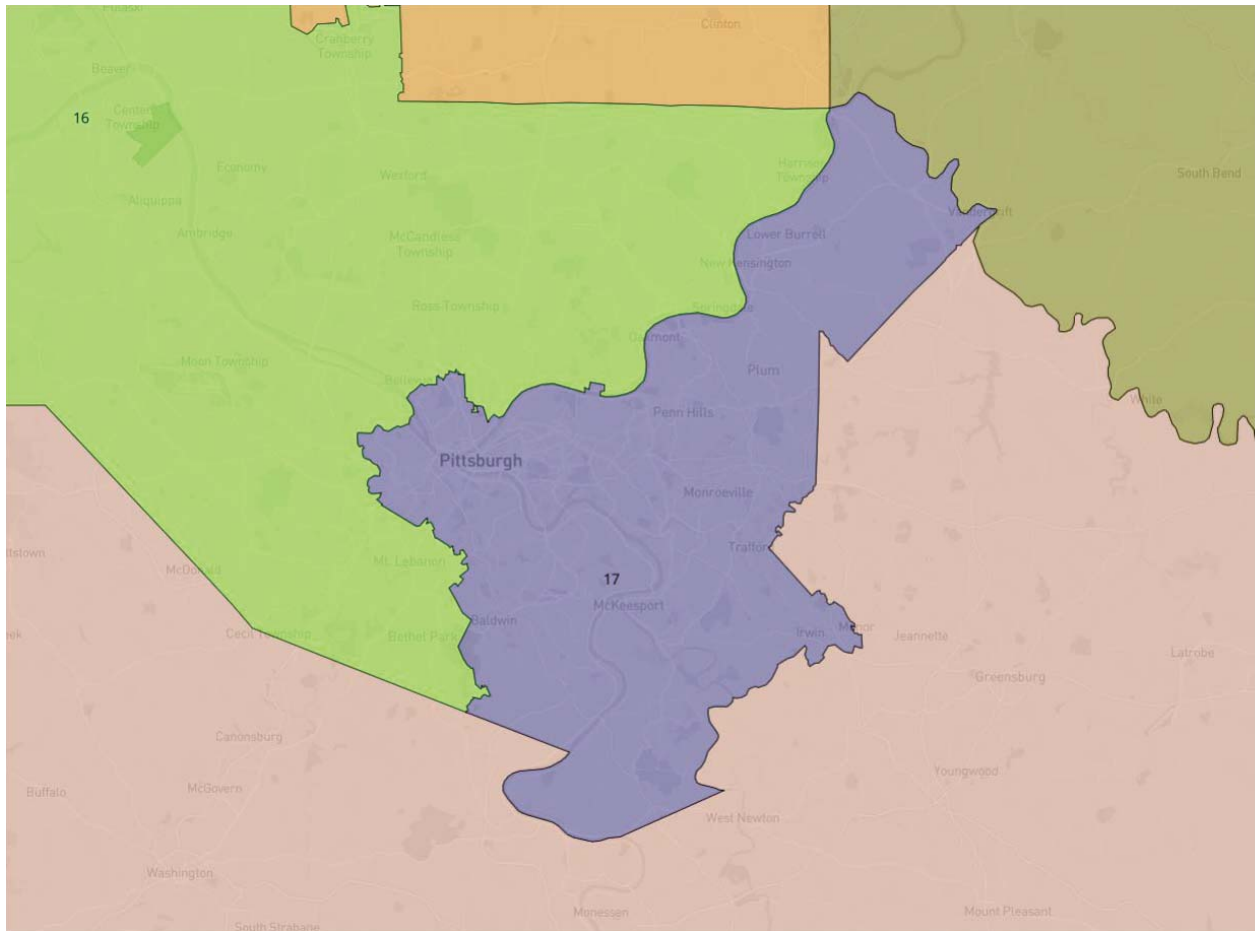


72. But if we keep the City of Pittsburgh whole, the 16th now has to add an additional 120,000 residents. Even drawing them mostly from the more Democratic locales to the South of Pittsburgh has a significant impact on the partisanship of the 16th, which now leans Democratic by only a point.

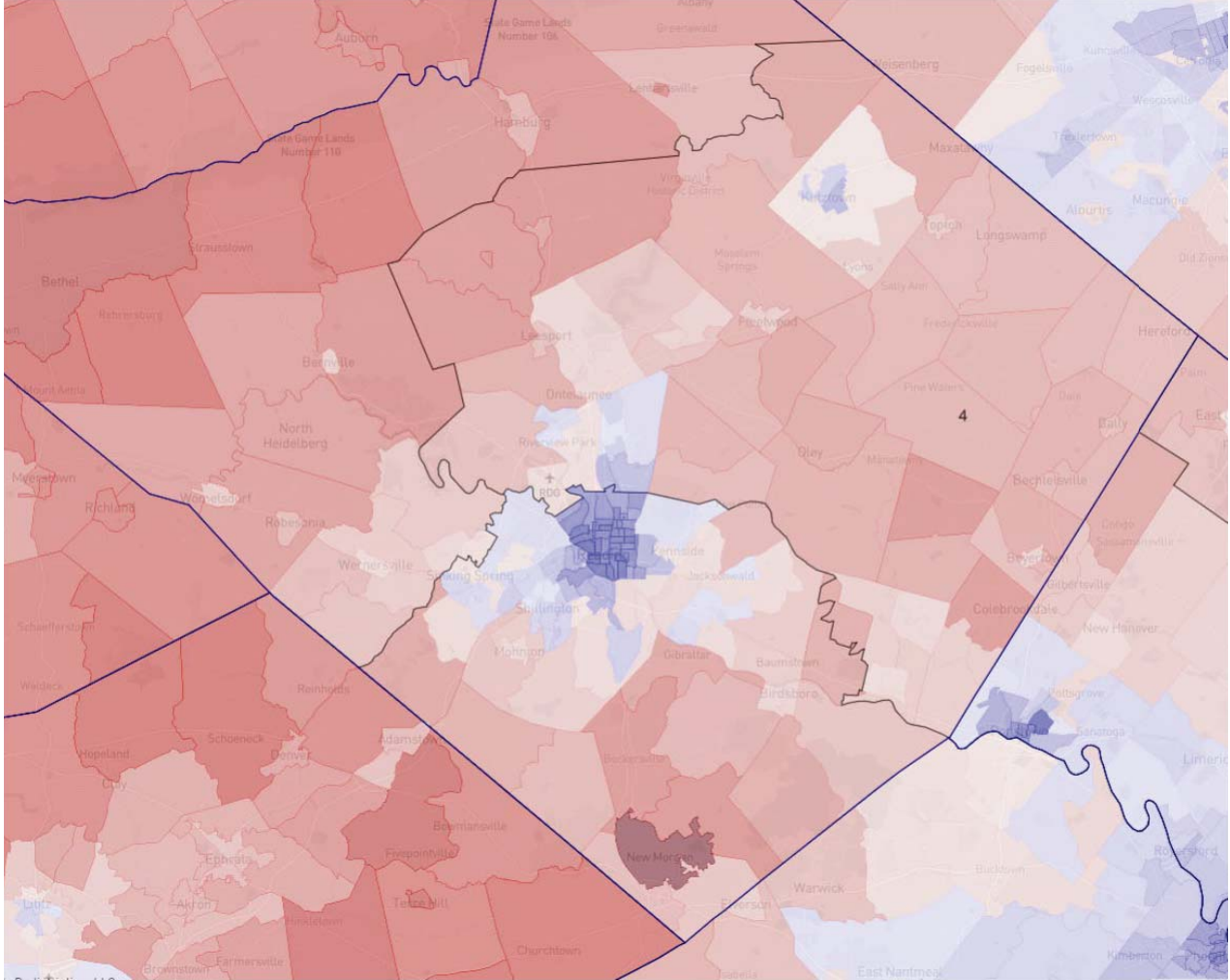


73. This version of the 17th is admittedly less compact than the original, but recall that we chose to place the southern suburbs in the 16th in an attempt to minimize the partisan impact. If instead we place some of the areas north of the Allegheny River in the 17th, we end up with a more compact version that keeps Pittsburgh intact. However, the 16th is now evenly split between the parties. One could also push the 17th further to the southeast, perhaps adding more of the northern suburbs to the 17th. The result would be another compact 17th district, but the 16th would still be split evenly between the parties. Eliminating even one of the two protrusions into

Westmoreland County would likely make the 17th even more Republican. In other words, the true purpose served by splitting Pittsburgh in half is likely the achievement of partisan ends.



74. We observe similar effects in the three-way split of Berks and Montgomery counties. Splitting Montgomery County three ways is what allows the 4th to push well into Berks County like a lengthy strip of bacon, taking in some of the most heavily Republican areas of the



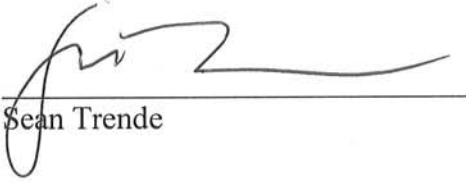
75. Indeed, there are only 11 precincts in Berks County that lean Democratic that are not also included in the 6th District.

76. One side effect of the three-way split of Montgomery County is that current representative for the 4th district is places in the same district as the current representative of the 5th, creating a double bunked incumbent. It is difficult to see what justifications there are for these moves, other than a desire to increase Democratic strength in the 6th; placing Lower Merion back in the 4th would push the 5th into more Democratic-leaning areas of Chester County, and would then push the 6th further into Berks County.

77. In other words, the Governor's Map is less compact than both the Existing Map and the Proposed Map and creates more county splits. Moreover, it seems to do so in an attempt to shore up Democratic incumbents as much as possible.

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

Signed on: January 24, 2022, at Delaware County, Ohio, United States of America



Sean Trende

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.

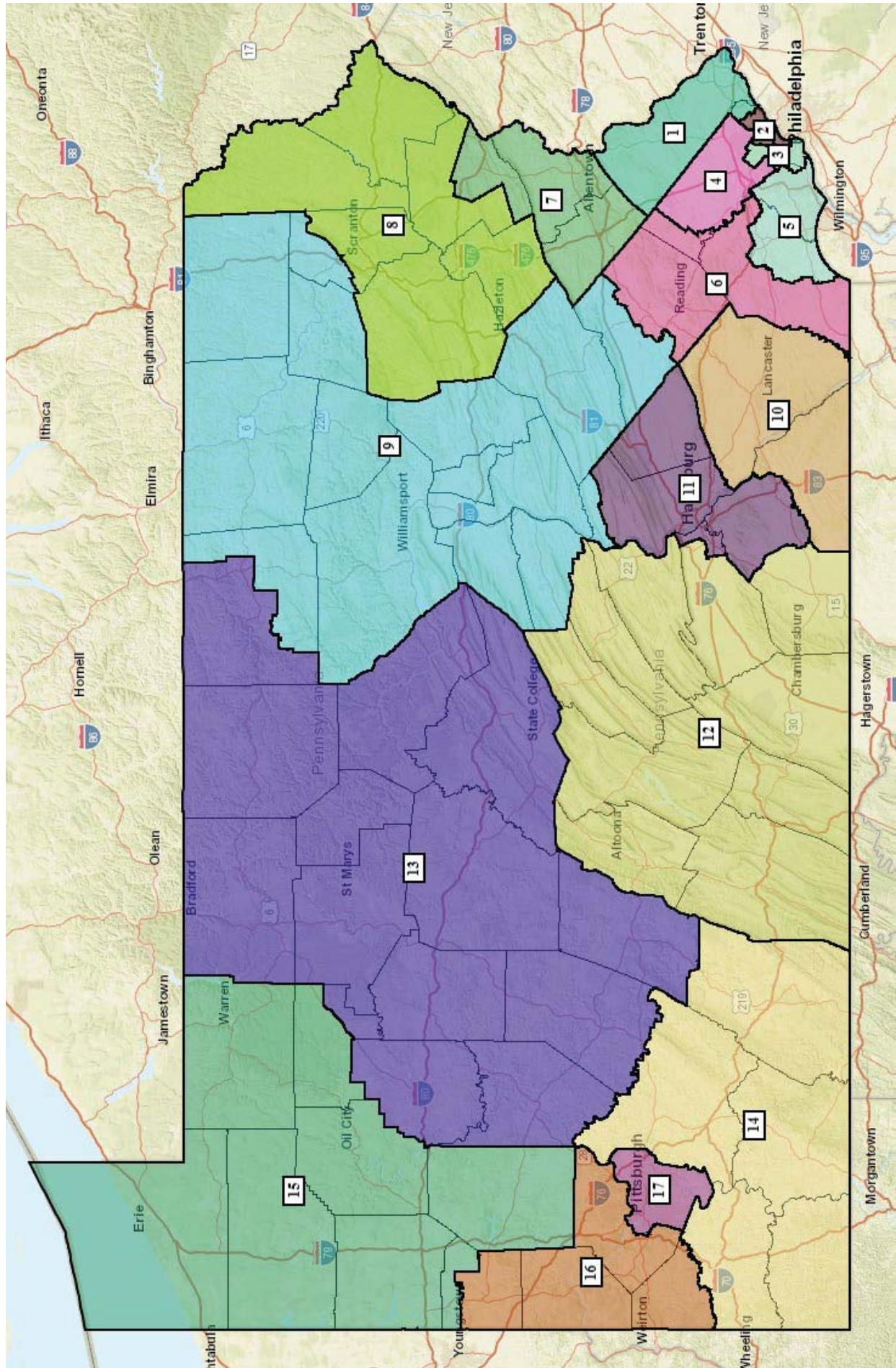
Introduction to American Politics, The Ohio State University, Autumn 2018, 2019, 2020, Spring 2018.

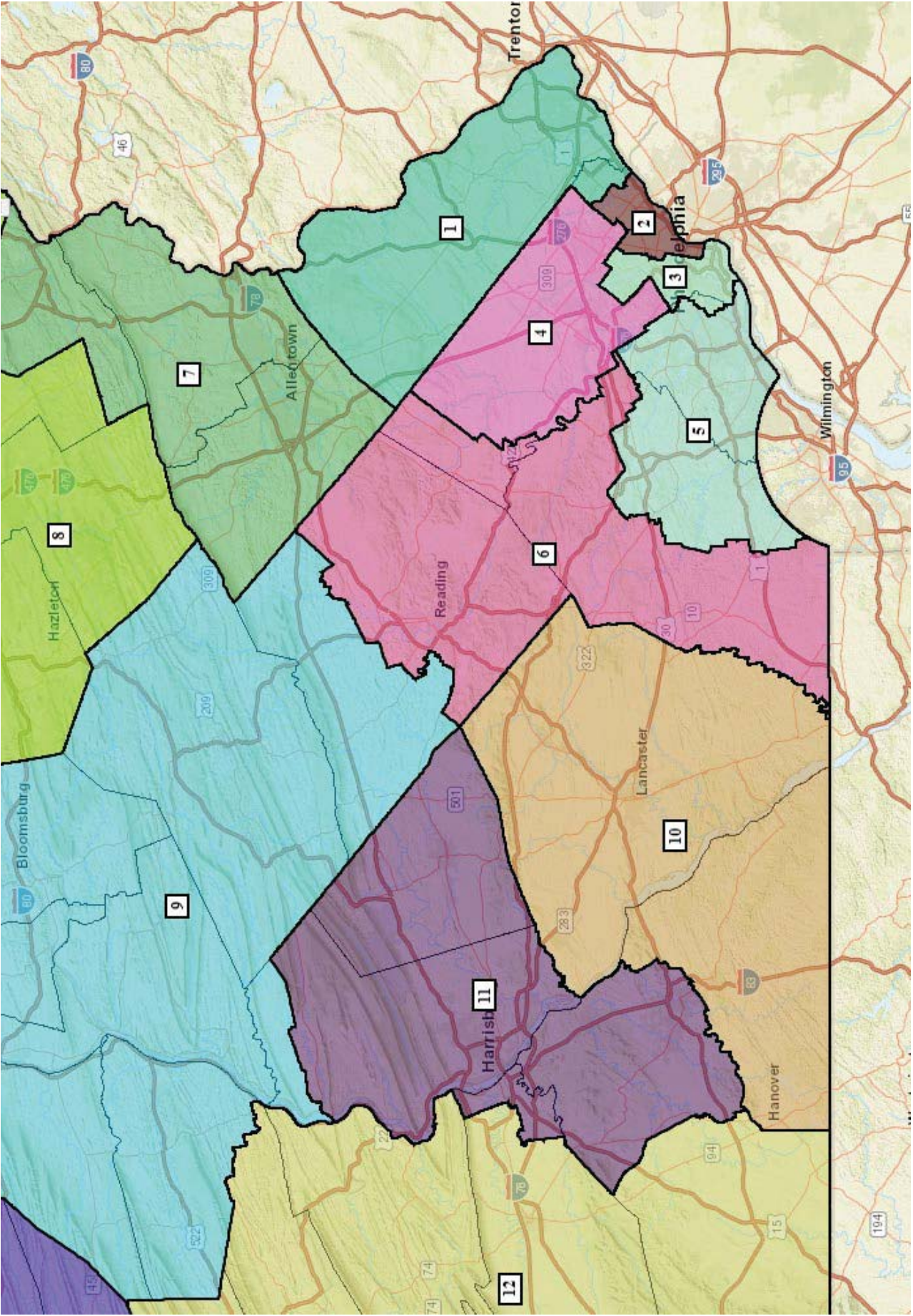
Political Participation and Voting Behavior, Spring 2020, Spring 2021.

REAL CLEAR POLITICS COLUMNS

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

Appendix 2





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 count relies upon the word count of the word processing software used to prepare this brief.

GALLAGHER GIANCOLA LLC

Dated: January 24, 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: January 24, 2022

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

PROOF OF SERVICE

I hereby certify that on January 24, 2022, I served the foregoing document upon the persons and in the manner indicated below, which service satisfies the requirements of Pa.R.A.P. 121:

Service by PACFile eService as follows:

All counsel of record

GALLAGHER GIANCOLA LLC

Dated: January 24, 2022

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