Pennsylvania

Proportional and Competitive Good Governance Plans

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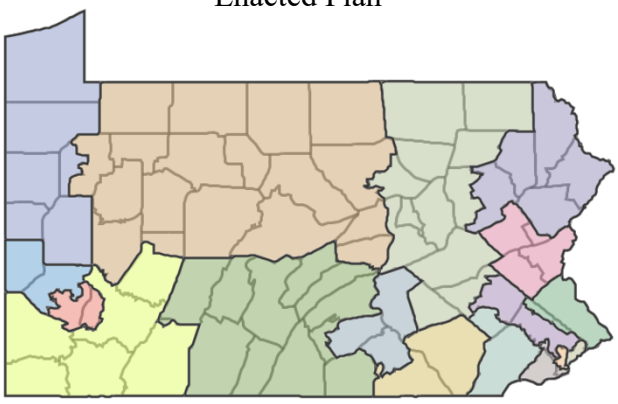
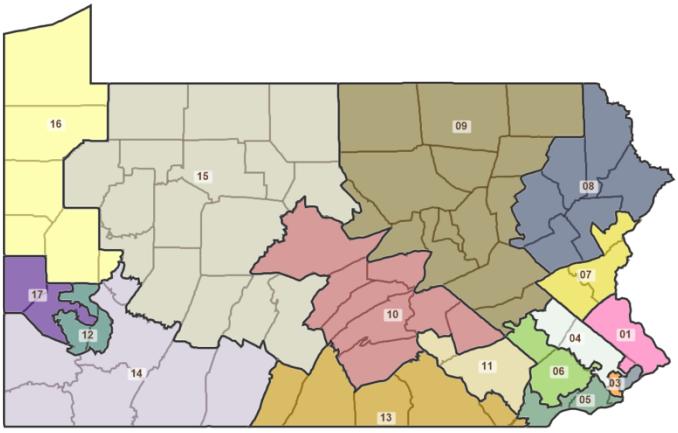
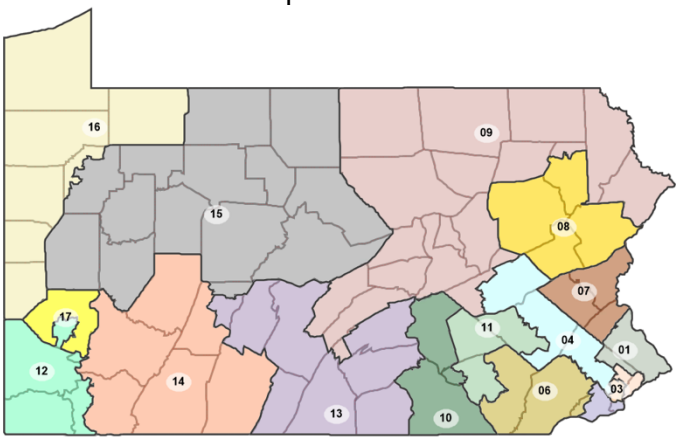
Enacted Plan



Proportional Plan



Competitive Plan



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Introduction

Pennsylvania lost one congressional district, falling from 18 to 17, following the 2020 census. Amidst partisan conflict, the republican legislature and democrat governor could not pass a congressional map, prompting judicial intervention. The Pennsylvania Supreme Court once again stepped into the political thicket, as they did in 2018, and selected a plan. While this plan is currently in litigation, now being reviewed by a three-judge panel, it is the presumptive map for the 2022 elections and beyond.

The Supreme Court plan (the Carter map) is a least-change map built off Pennsylvania's 2018 congressional districts. According to partisan analysis from Planscore, it produces eleven safe districts: five blue, and six red. The six remaining districts include three that lean republican and three that lean democrat. The map succeeds in producing a relatively fair map amid Pennsylvania's difficult partisan geography. In so doing, it outperforms many competing maps on partisan fairness grounds.

Map 1: Carter Plan, Planscore Partisanship Analysis

This paper presents two alternative maps. Both maps strive for a fair allocation of seats between democrats and republicans. Because Pennsylvania is a battleground state, with a Cook Political Index of R+2, these maps endeavor to evenly split seats between democrats and republicans. These maps do so while pursuing neutral good governance principles, with a special emphasis on County and County Subdivision splits. These maps differ, however, in their theory of 'partisan fairness.' The first map pursues proportional representation. By maximizing the number of safe republican and democrat districts, this map is insulated against 'waves' and will produce the most consistent congressional results. Under this theory of fairness, the number of representatives from each party should hew closely to the prevailing partisan lean of the state.

The second map pursues competitive districts. By maximizing the number of competitive districts, the map sacrifices consistency in results for responsive elections. Under this theory of fairness, competitive districts force representatives to account for the political beliefs of all their constituents, not just citizens that vote in their party's primary. This may select for more moderate representatives or ensure that representatives are fully engaged in pressing local issues. A detailed account of these trade-offs is beyond the scope of this paper.

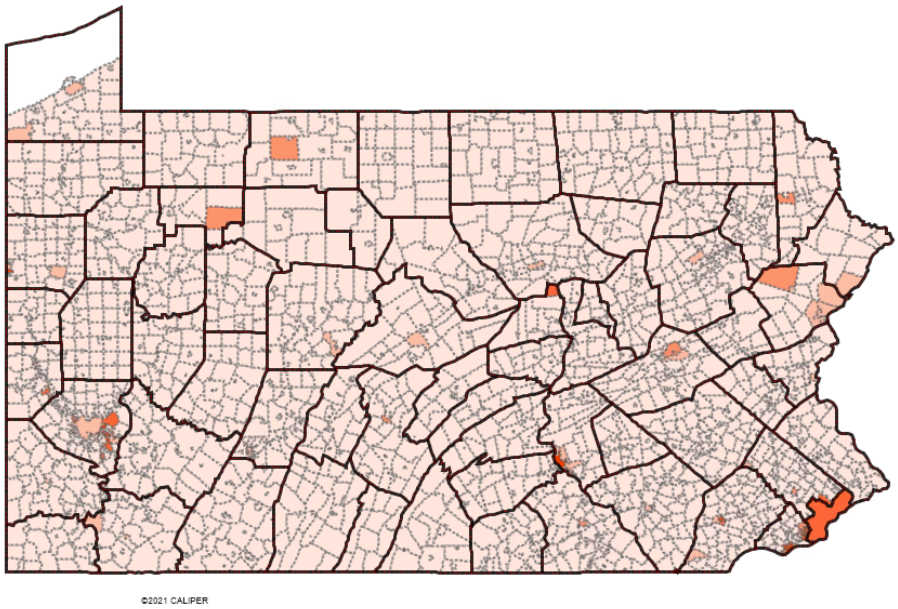
These maps principally differ from each other, and from the Carter map, in how they divvy up Philadelphia, the suburbs of Philadelphia, Pittsburgh, and Northeastern Pennsylvania. These differences are discussed in more detail later. Neither plan considers the location of incumbents.

Demographics, Partisanship, and Geography

Pennsylvania has a population of 13,002,700 of which roughly 10 million are of voting age. Pennsylvania's modest population growth, 2.3% in the past 10 years, has fallen behind the rest of the country. As a result, Pennsylvania lost a congressional district this reapportionment cycle. The ideal congressional district population is 764,865.

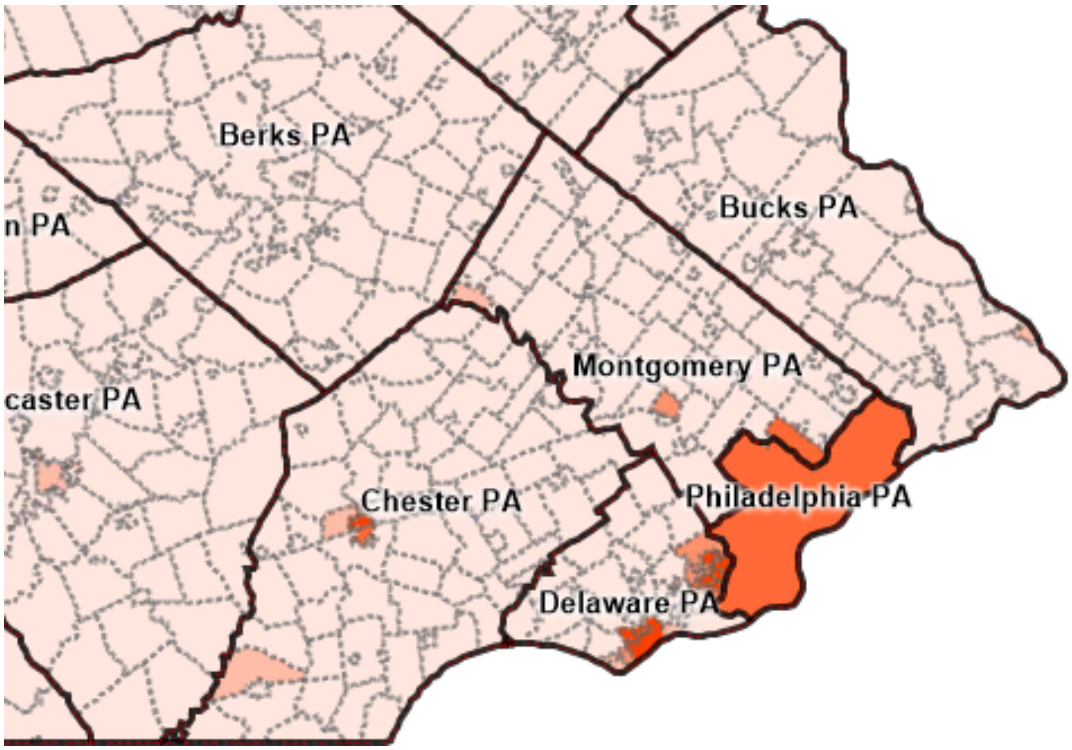
Pennsylvania's population is 73.5% White, 12.7% Black, 8.1% Hispanic, and 4.6% Asian. The black population is heavily concentrated in the Philadelphia area. 41% of the state's black population lives in Philadelphia County, while another 15% live in the surrounding counties of Bucks, Montgomery, and Delaware. Philadelphia County is typically home to one majority-black district. While it is impossible to craft a second majority-black district in the region, it is possible to draw an additional minority-opportunity district. Another 11% of the Black population lives in Alleghany County. With a black population of 189,000, it is impossible to draw a majority black district in the Pittsburgh region.

Map 2: Pennsylvania, Proportion of Black Residents by County Subdivision



With only a handful of exceptions, black Pennsylvanians are clustered in the Philadelphia, and Pittsburgh regions. There are small black populations scattered across the state, but none are large enough to form a majority-black district.

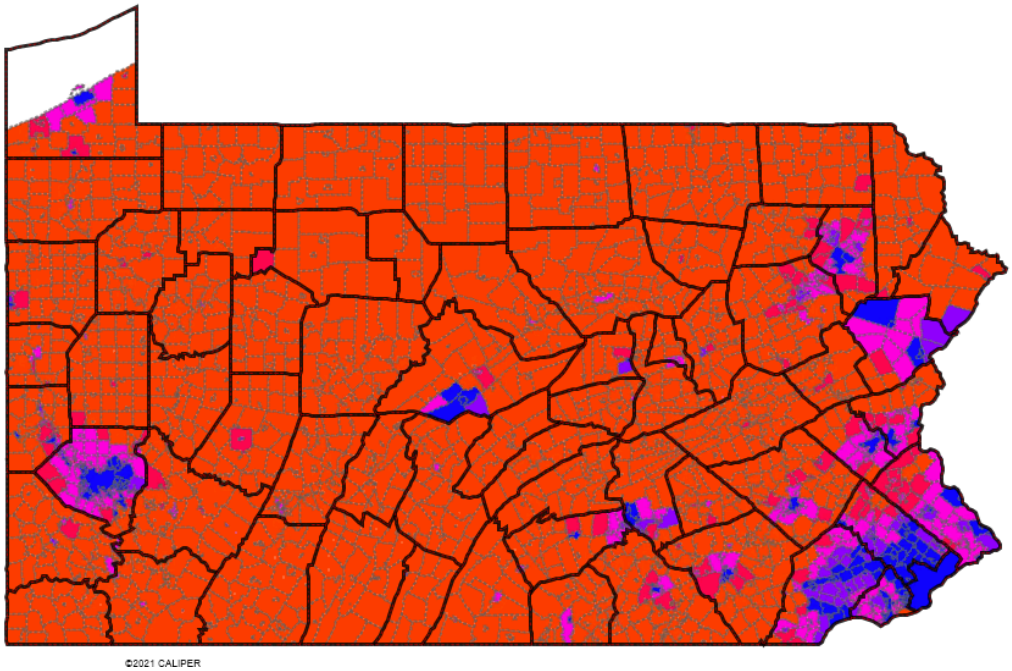
Map 3: Philadelphia Region, Proportion of Black Residents by County Subdivision



Philadelphia, Delaware, and Montgomery Counties all have county subdivisions with appreciable black populations

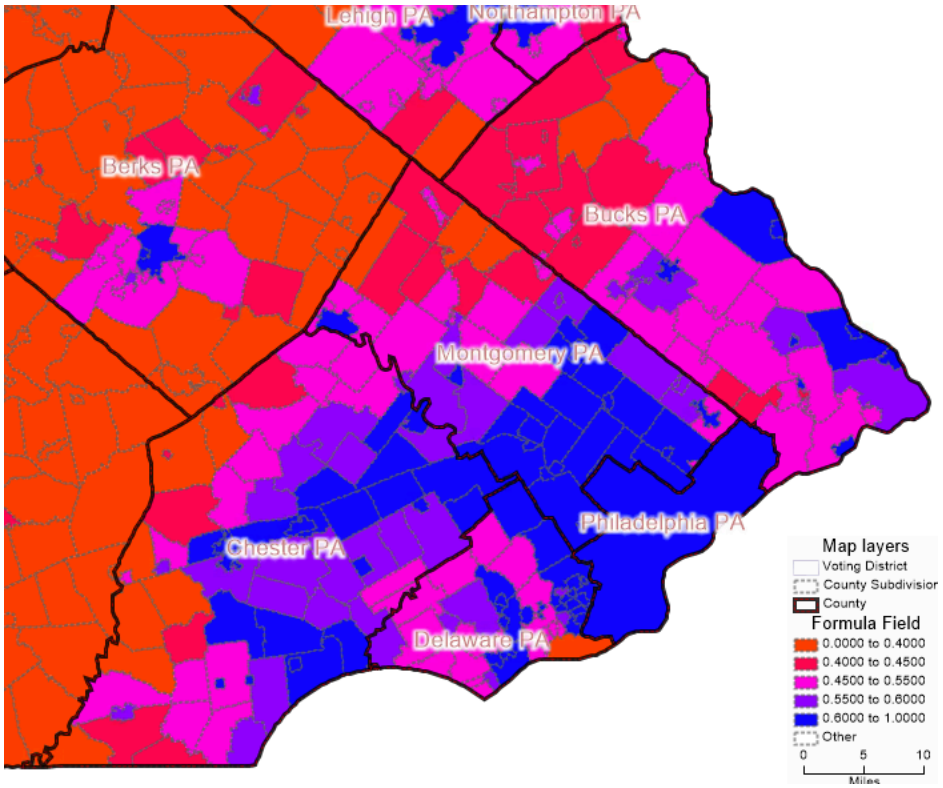
Similarly, democrats are heavily concentrated in the Philadelphia and Pittsburgh regions. 44% of Biden's votes in the state came from the Philadelphia region (Philadelphia, Delaware, Chester, Montgomery, and Bucks Counties). A further 12% came from Alleghany County. In sum, more than half of Pennsylvania's democrats live in just 6 of Pennsylvania's 67 counties. These partisan dynamics constitute a natural packing of democrats. That democrats are packed into small geographic areas, on the borders of the state, and in very few counties makes it difficult to produce maps that accurately reflect Pennsylvania's partisan lean without abandoning conventional redistricting criteria.

Map 4: Pennsylvania, Proportion of Biden Voters by County Subdivision



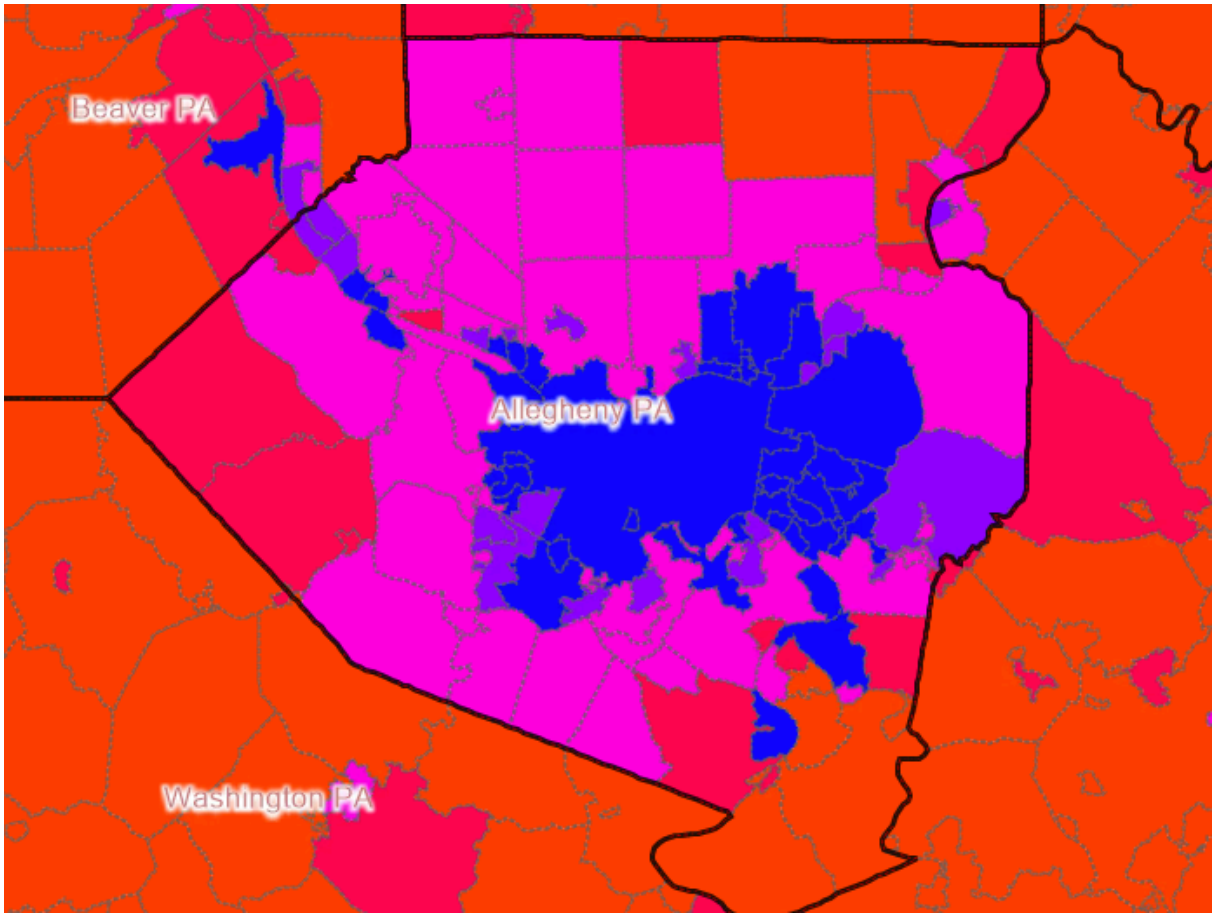
Pittsburgh and Philadelphia regions have a high concentration of democrats. Some isolated blue regions – including Harrisburg, Lancaster, Reading, Scranton, Allentown, State College, and Stroudsburg – exist outside of these metro areas.

Map 5: Philadelphia Region, Proportion of Biden Voters by County Subdivision



Philadelphia County is the most liberal county in the state, with 81% of voters casting a ballot for Biden in 2020. Montgomery, Delaware, and Chester Counties also have substantial liberal leans.

Map 6: Pittsburgh Region, Proportion of Biden Voters by County Subdivision



The city of Pittsburgh is a liberal stronghold, with 78% of residents voting for Biden in 2020. Surrounding suburbs also have a notable liberal lean. In 2020, 60% of Alleghany County votes were cast for Biden

Legal Background

A. State Requirements

The constitution of Pennsylvania requires the congressional reapportionment process to abide by three neutral criteria. Districts must 1) have equal population among districts, 2) be compact and contiguous, and 3) respect "the boundaries of existing political subdivisions contained therein, such that the district divides as few of those subdivisions as possible."[1] These criteria serve as the "'floor' of protection for an individual against the dilution of his or her vote."[2] Not pursuing these traditional principles may be evidence that the people's power to select the representative of their choice was diluted,[3] in contravention of the "free and equal" clause of the Pennsylvania constitution.[4] The 2010 congressional map, for example, was found to unconstitutionally subordinate these criteria "to extraneous considerations such as gerrymandering for unfair partisan political advantage," and was ruled unconstitutional.[5]

Yet these provisions are merely the '*floor*' of constitutional protections enshrined in the free and equal clause.[6] The Pennsylvania Supreme Court intimated in *League of Women Voters* that even maps that abide by these criteria may still violate the free and equal clause if they unfairly dilute votes. While sidestepping the issue, the court suggested that analytical measures of (partisan) dilution – including 'efficiency gap' analysis – may be used to determine whether votes were unconstitutionally diluted.

Accordingly, both of my proposed maps are drawn to be equal population, to avoid political subdivision splits, and to be contiguous and compact. Constitutional prohibitions on

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[1] Pa. Const. art. II, § 16
[2] *League of Women Voters v. Commonwealth*, 645 Pa. 1, 122 (2018)
[3] *Id.* at 115
[4] Pa. Const. art. I, § 5
[5] *League of Women Voters*, 645 Pa. at 122
[6] *Id.*

splitting political subdivisions refer to "county, city, incorporated town, borough, township, [and] ward[s]."[7] For this reason, these maps were crafted to avoid *county subdivision* splits, not (as is typical in reapportionment) to avoid *voting district* splits. Analytics of these maps, discussed below, reflect this change. Further, while the court has not settled on a single measure of vote dilution, these maps were drawn to limit partisan efficiency gap.

B. Federal Requirements

In addition to state requirements, Pennsylvanian districts must abide by federal statutory and constitutional regulations. Much like the Pennsylvania constitution, districts must have roughly equal population – a protection stemming from the equal protection clause of the 14th amendment.[8] Modest deviations are only permissible when pursuing other traditional districting principles, including respect for political subdivisions, or compact and contiguous districts.[9]

Similarly, when race is used as the predominant factor in crafting a district, the equal protection clause is presumptively triggered.[10] Such districts are subject to strict scrutiny and can only be saved by a "compelling state interest" where the use of race is "narrowly tailored to that interest."[11] The Supreme Court has long assumed that compliance with the Voting Rights Act is a compelling state interest and has allowed compliant districts to stand.[12] The Voting Rights Act compels the production of majority-minority districts when a racial minority group is 1) "sufficiently numerous and compact to form a majority in a single-member district," 2) "politically cohesive," and 3) the "majority votes sufficiently as a bloc to enable it … usually to

[7] Pa. Const. art. II, § 16
[8] *Reynolds v. Sims*, 377 U.S. 533 (1964)
[9] *Karcher v. Daggett*, 462 U.S. 725 (1983)
[10] *Miller v. Johnson*, 515 U.S. 900 (1995)
[11] *Id.* at 904
[12] *Shaw v. Hunt*, 517 U.S. 899 (1996)

defeat the minority's preferred candidate."[13] VRA districts must also have a history of discrimination that align with the Senate Report of 1982's factors.[14] As discussed below, I was mindful of potential VRA districts while crafting these plans.

[13] *Thornburg v. Gingles*, 478 U.S. 30, 51 (1986)
[14] *Id.*

Plan Metrics

A. Partisan Analysis

Both plans succeed in their goals. Planscore indicates that the Proportional map produces 11 safe districts (5 blue, 6 red), identical to the Carter plan. The Proportional map also tends to make swing districts safer than under the Carter map. For example, PA-08, the district housing Scranton, shifts from R+4 to R+8. Similarly, the partisan lean of PA-01 and 17 shift two points in favor of democrats. While still battleground districts (with net leans of D+4), these changes insulate representatives from short-term changes in the polity. Further, this map achieves this goal while improving the partisan efficiency gap – producing an efficiency gap of 1.2% compared to the 1.8% in the Carter map.

The Competitive map, conversely, produces 11 competitive districts. The resultant map is much more competitive than the Carter map, which produces 6 competitive districts. However, this map slightly increases the partisan efficiency gap – increasing from 1.8% (Carter) to 3.7%.

B. Neutral Districting Factors

Both plans also achieve their political objectives without subordinating neutral districting factors, unlike the 2010 map.[15]

The Proportional map splits 12 counties (a total of 18 times), while only splitting 15 county subdivisions. Similarly, the Competitive map splits 13 counties (a total of 17 times), while only splitting 16 county subdivisions.

These county splits approximate the Carter plan, which splits 14 counties a total of 17 times. However, both proposed plans have fewer county subdivision splits than the Carter plan, which splits 20 county subdivisions.

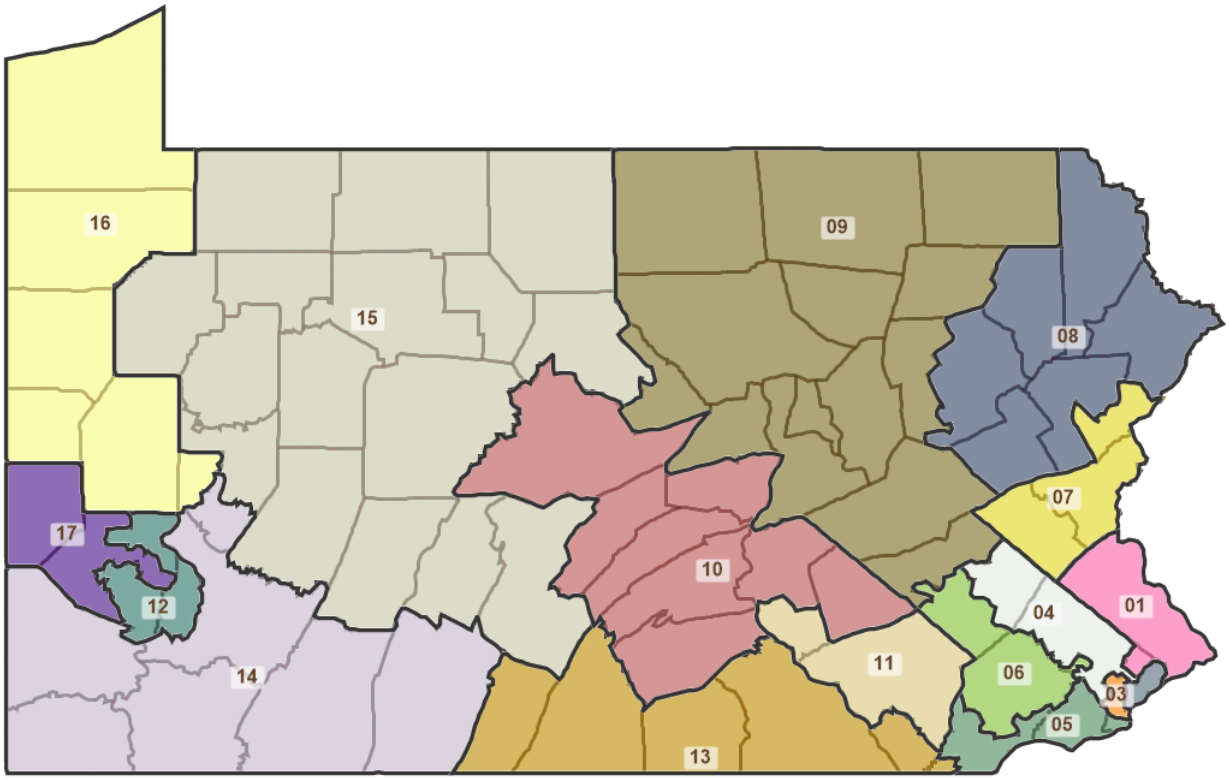
[15] *League of Women Voters*, 645 Pa. at 817

Both maps are contiguous and have similar compactness scores to the Carter plan.

Discussion of Plans

A. Proportional Plan

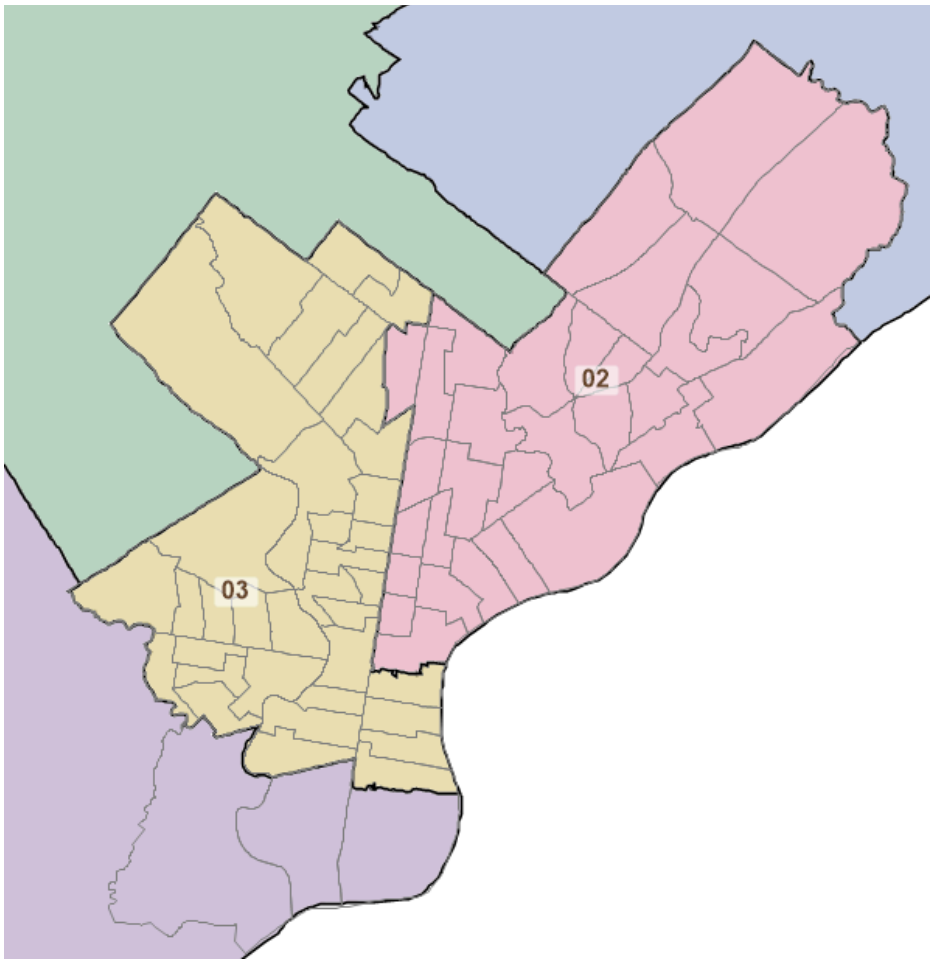
Map 7: Proportional Plan



There is a tension, particularly in the Philadelphia region, between building a fair partisan map and developing safe districts. Maximizing the number of safe districts without regard to partisan fairness risks unfairly packing democrats into already safe districts, while maximizing fairness may prevent a plan from developing safe districts. Given natural packing in the Philadelphia suburbs, I prioritized not packing democrats. Avoiding packing allowed me to use excess democrats to build *safer* competitive districts than in other maps. These decisions are discussed throughout.

i. Philadelphia County (PA-02, 03)

Map 8: Proportional Map, Philadelphia County w/ Ward Lines



PA-02 and PA-03 are split East to West along PA-611

Philadelphia County has a population of more than 1.6 million, more than two times the population of a congressional district. Accordingly, Philadelphia County must be split into at least three districts. The county is also overwhelmingly liberal, going D+63 in the 2020 election. Most maps place two congressional districts (PA-02 and 03) entirely within Philadelphia County. Excess population (of roughly 100,000) is traditionally directed into PA-05, Delaware County. Given the concentration of democrats in Philadelphia and Delaware Counties, these districts are safe seats for democrats. This approach packs liberal Philadelphia voters into PA-02 and PA-03, but also unquestionably avoids unnecessary county splits. Given controversies around splitting Pittsburgh (discussed below), any decision *not* to produce two districts that sit entirely within

Philadelphia County may be optically untenable. Unsurprisingly, this approach is followed by most plans – including the Carter and 2018 plans. To avoid controversy, I also chose to fit two districts entirely within Philadelphia County.

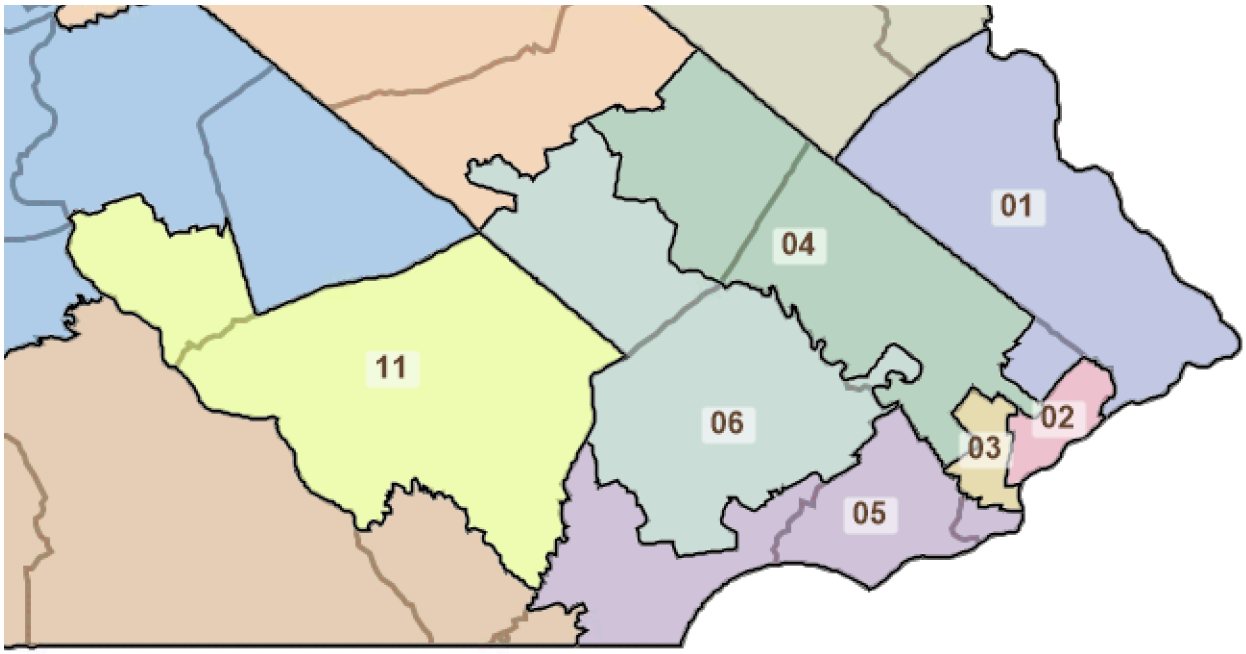
This plan, like the Carter map, splits PA-02 and 03 East and West, generally following PA-611 (a state highway) and (related) wardship lines. However, PA-02 jumps across PA-611 in Northern Philadelphia.

It is unclear whether the VRA demands a majority-black district in Philadelphia. The black population is clearly large and compact, satisfying the first *Gingles* prong. Nonetheless, the political cohesion of the black population and whether non-black voters would otherwise prevent black voters from electing their candidate of choice, are beyond the scope of this paper. To avoid retrogression, I produced a majority-black district (PA-03) in Philadelphia County. In this map, PA-03 has an NH Black CVAP of 53.6%. This approximates the NH Black CVAP (55.2%) of the Carter map and is presumably high enough to perform.

In this map, PA-02 is also (narrowly) majority-minority. The non-white CVAP (56%) is 2 points higher than in the Carter plan and will likely have considerable influence on politics within the district. I increased the minority representation of PA-02 by moving a majority black ward into PA-02 (in Western Philadelphia) and ceding a majority white ward to PA-03 (in Southern Philadelphia).

ii. Philadelphia Suburbs (PA-01, 05, 04, 06, 11)

Map 9: Proportional map, Philadelphia Region



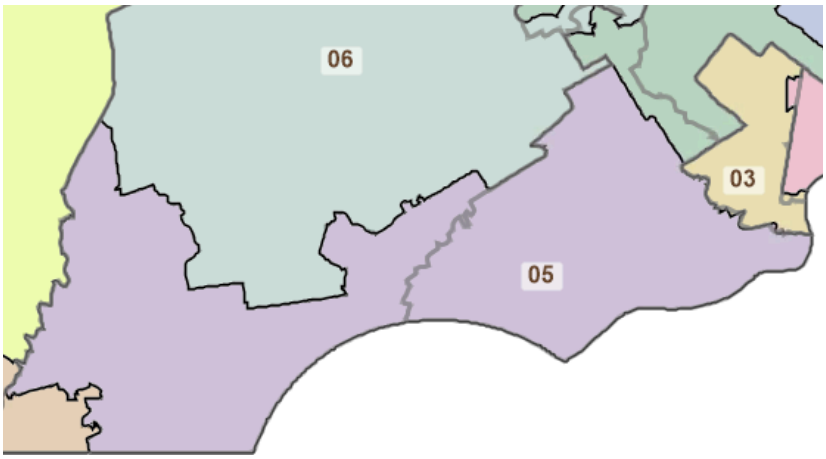
Bucks County has a population of 646,000 and is evenly split between democrat and republican voters. The county was D+4 in 2020 and D+1 in 2016. I chose to keep Bucks County intact, a key concern of Republican lawmakers and attorneys.[16]

Maps that preserve Bucks County could either choose to add democrats or republicans to avoid a competitive seat. This map adds democrats. Of the three adjoining counties (Philadelphia, Montgomery, and Lehigh) I targeted Montgomery. Cutting into Philadelphia County is possible but could disrupt the partisan lean of other districts (including PA-05 and PA-06) and would likely shift the boundary between PA-02 and 03 away from PA-611, a natural break between the districts. Cutting into Lehigh is also possible but captured voters would not be heavily liberal, leaving PA-01 a toss-up district. Additionally, this would disrupt the Lehigh Valley (Lehigh and Northampton Counties) community of interest, which are often built into the same district. Accordingly, I chose to pull voters from Montgomery County – a large, and very

[16] See *Brief in Support of Special Master's Report and Exceptions to Special Master's Report by Guy Reschenthaler, Jeffrey Varner, Tom Marino, Ryan Costello, and Bud Shuster* at 38

liberal, county. PA-01 picks up roughly 100,000 Montgomery residents who skew democrat. While the county remains competitive, the partisan lean shifts to D+4 (Planscore predicted vote share).

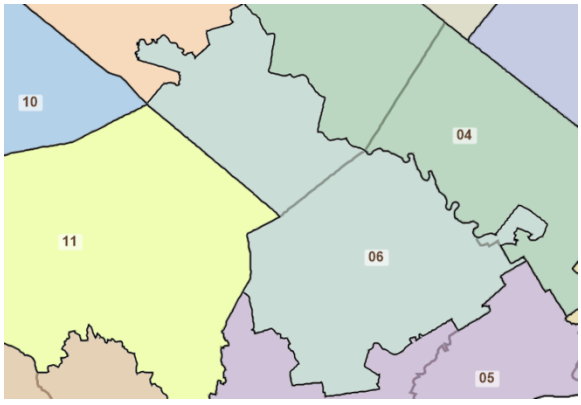
Map 10: Proposed PA-05 Boundaries vs Carter Map



Carter map boundaries in grey, proposed boundaries in black

PA-05 encompasses the Southern tip of Philadelphia, all of Delaware, and the Southern half of Chester. Delaware County and the Southern tip of Philadelphia are liberal strongholds, going D+28 in the 2020 election. While the Carter plan extends PA-05 into Montgomery County, adding more liberal voters (D+48 in 2020), this plan extends into Southern Chester County. In so doing, PA-05 adds relatively conservative voters and avoids packing democrats. PA-05 is a safe democrat district in both maps, but the proposed map frees up Montgomery democrats for other districts.

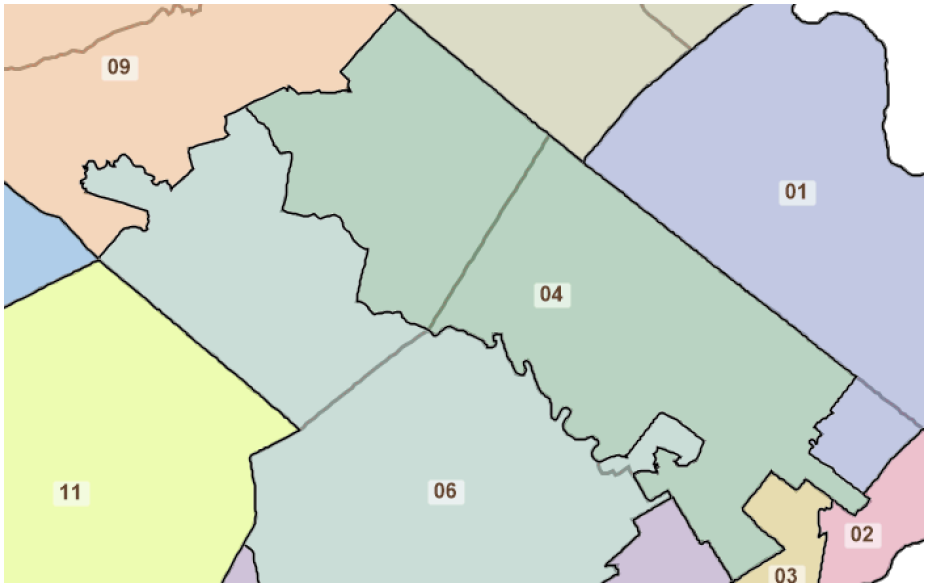
Map 11: Proposed PA-06 Boundaries



PA-06 encompasses the remainder of Chester, a portion of Berks, and includes a small appendage into Montgomery County. The portion of Chester County that is left over from PA-05 is very liberal (D+20 in 2020) and accounts for roughly 450,000 people. To pick up the remaining 300,000 residents to achieve perfect population, PA-06 can extend into Montgomery, Lancaster, or Berks. Pulling population from Montgomery would pack democrats, and it is difficult to pull 300,000 people from Lancaster County without cannibalizing sacrificing PA-06's blue lean. Accordingly, I chose to extend PA-06 into Berks County to grab moderate voters (D+4 in 2020). While the resultant district leaned democrat, I decided to extend the district into Montgomery to pick up liberal voters and make the district safer. The resultant district has a partisan lean of D+10 (Planscore predicted vote share). Of course, the extension into Montgomery County is not strictly necessary. Without the Montgomery appendage, PA-06 may still be a safe district.

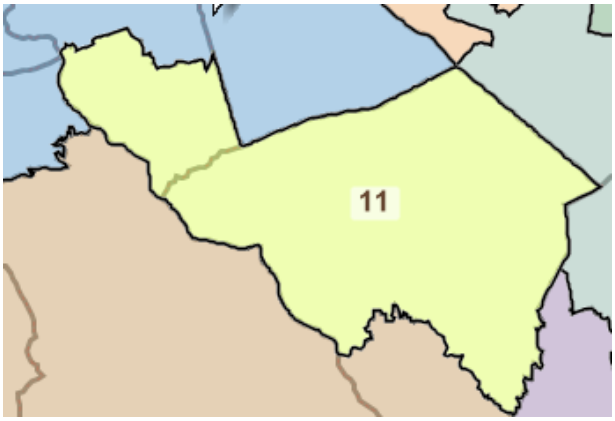
To note, any appendages into Montgomery from Chester will look odd because county subdivisions on the border of Montgomery are all oddly shaped. This appendage includes three complete county subdivisions, and a portion of a fourth to achieve perfect population equality.

Map 12: Boundaries of PA-04



PA-04 covers the remainder of Montgomery County, and a portion of Berks County. No significant strategic decisions went into this district. Montgomery County is large and liberal enough that, barring significant encroachment into the county, PA-04 will always be a safe district for democrats. As described above, Montgomery was used to increase the democrat voting share of surrounding competitive districts.

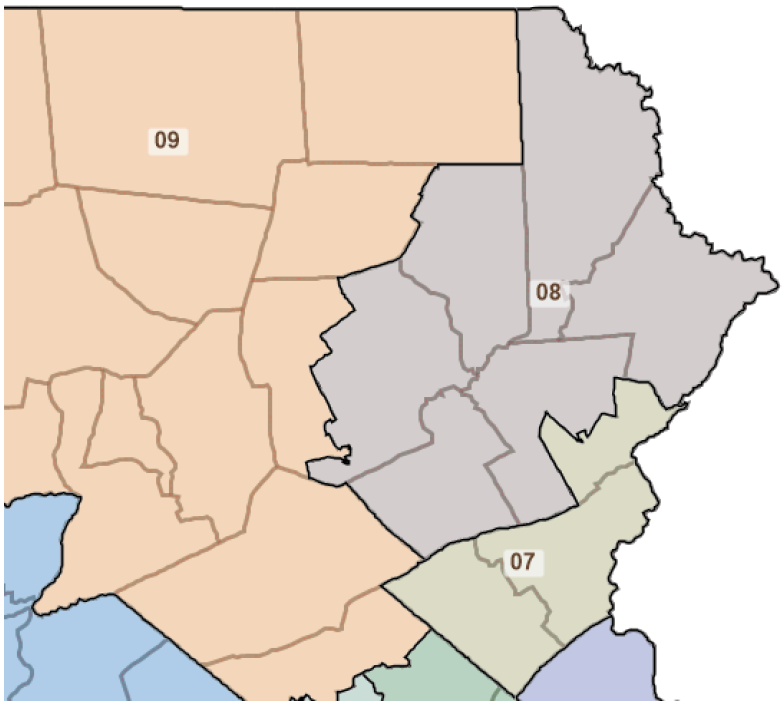
Map 13: Boundaries of PA-11



Finally, PA-11 combines most of Lancaster County with the Southern half of Dauphin County. This district combines the cities of Lancaster and Harrisburg to produce a competitive district (R+4 Planscore predicted vote share). Of course, if this plan prioritized safe districts *over* partisan fairness, the cities of Lancaster and Harrisburg could have been separated – likely producing two safe republican districts. However, I chose to combine the two liberal cities to avoid diluting democrats.

iii. Northeastern Pennsylvania (PA-07, 08)

Map 14: Northeastern Pennsylvania

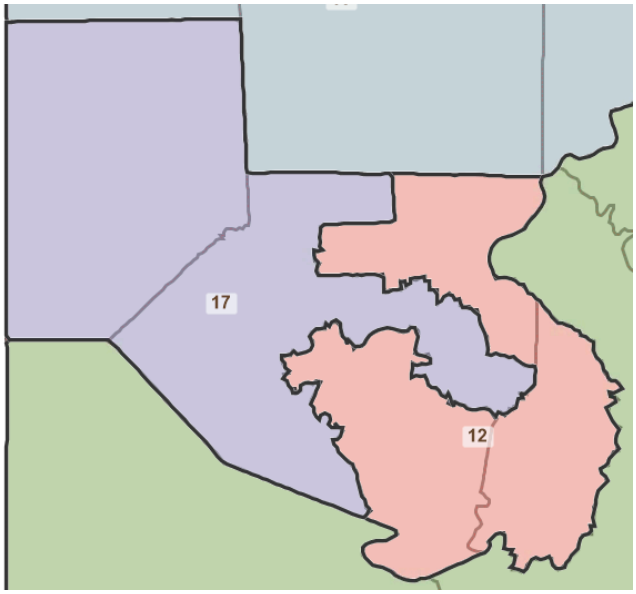


PA-07 preserves the natural Lehigh Valley community of interest by encompassing the entirety of Lehigh and Northampton Counties. Together, Lehigh and Northampton are slightly under target population and have marginal partisan lean. I chose to extend PA-07 into Southeastern Monroe County, which includes Stroudsburg, to achieve population equality for two reasons. First, this allowed me to avoid splitting Bucks County. Second, Southeastern Monroe is relatively liberal. Even though PA-07 did not need much more population, this moved PA-07 from D+0 to D+2 (Planscore predicted vote share). This also removed democrats from PA-08, allowing that district to be a safer republican seat.

PA-08 contains the rest of Monroe, all of Carbon, Pike, Wayne, Lackawanna, and half of Luzerne. Luzerne County is split to reach population equality. The resultant district is R+8 (Planscore predicted vote share), aided by PA-07's expansion into relatively liberal regions of Monroe.

iv. Pittsburgh Region (PA-12, 17)

Map 15: Pittsburgh Region



One of the most contentious decisions in Pennsylvania's redistricting process is whether to split the city of Pittsburgh. On the one hand, splitting the city would disrupt a critical political subdivision and divide a large community of interest. On the other, Pittsburgh is large (300,000 residents) and very liberal (D+57 in 2020). Without splitting Pittsburgh, maps run the risk of packing democrats in one district. Nonetheless, given prevailing interests in good governance, and that splitting Pittsburgh was a key concern among GOP attorneys, I chose not to split the city.[17] However, with a population of 1.25 million, all plans must split Alleghany County. I split Alleghany County into two districts.

PA-12 took the entire city of Pittsburgh. To avoid packing democrats, PA-12 ceded most of the Pittsburgh suburbs, which have a meaningful democrat voting base, to PA-17. PA-12 retains most of Eastern Alleghany and reaches target population by extending into Western Westmoreland. It has a partisan lean of D+14 (Planscore predicted vote share). PA-17, for its

[17] See *Brief in Support of Special Master's Report and Exceptions to Special Master's Report by Guy Reschenthaler, Jeffrey Varner, Tom Marino, Ryan Costello, and Bud Shuster* at 38

part, after receiving most of Pittsburgh's suburbs, could extend into any of the surrounding counties to reach target population. I chose to extend into Beaver County, the most liberal of the surrounding counties, to produce a safer democrat district. The resultant district has a partisan lean of D+4 (Planscore predicted vote share). Notably, PA-17 has a stronger partisan lean than the Carter plan because it captures more of the Pittsburgh suburbs.

All told, the Pittsburgh region generates two democrat districts, one safe and one lean. While the districts are oddly shaped, they are no more so than those in the Carter plan. Of course, this plan could be criticized for not producing a district that is entirely contained within Alleghany County. Yet doing so would needlessly pack democrats and would not reduce the total number of county splits.

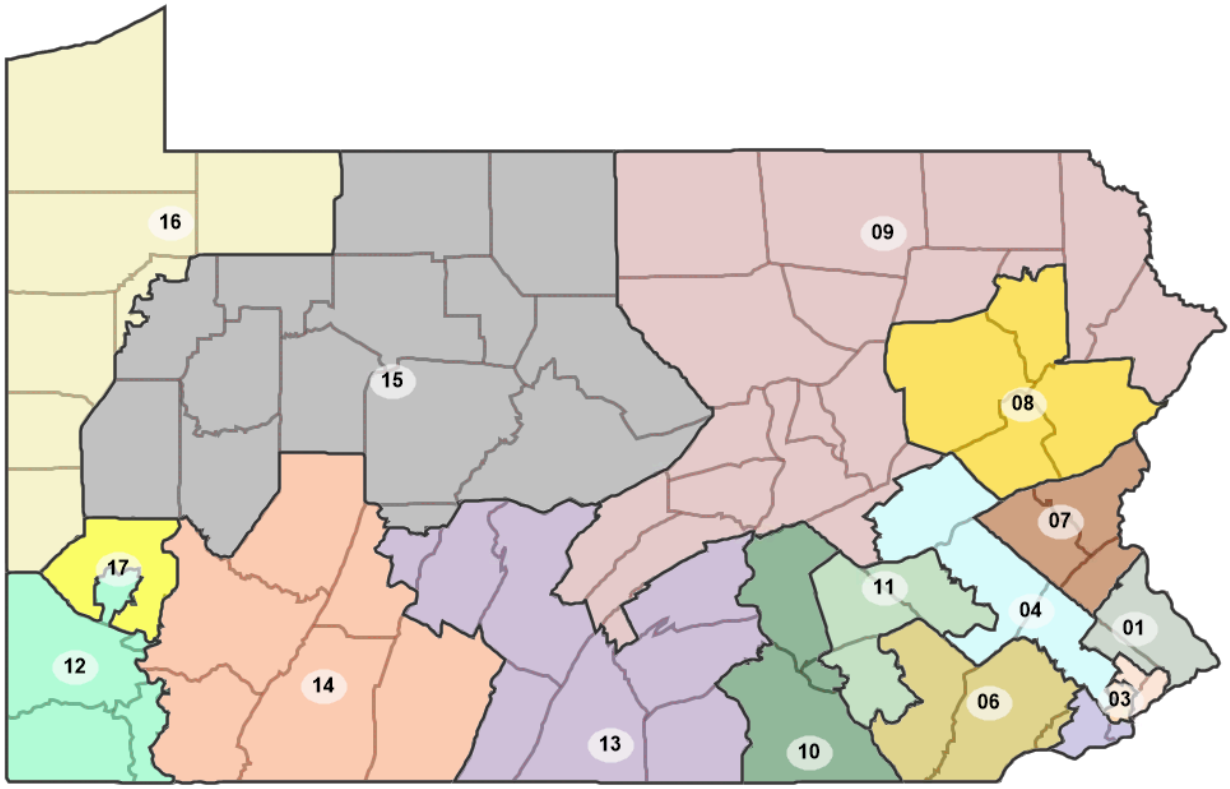
Alleghany County again raises the tension between producing safe districts and producing a fair map. A map that was pursuing safe districts above all else could have packed Pittsburgh and its liberal suburbs into one district. The Pittsburgh district would be a safe democrat seat, and the other Alleghany County would be safe republican. I, again, chose not to produce safe districts at the expense of partisan fairness.

v. Rural Pennsylvania (PA-09, 10, 13, 14, 15, 16)

The remaining districts are all safe republican seats. Given republicans' natural geographic advantages in the state, these districts are safe republican seats no matter how I apportioned them. I made no major partisan decisions while crafting these districts. However, I sought to build compact districts, avoided unnecessary county splits, and split as few people from the rest of their county as possible.

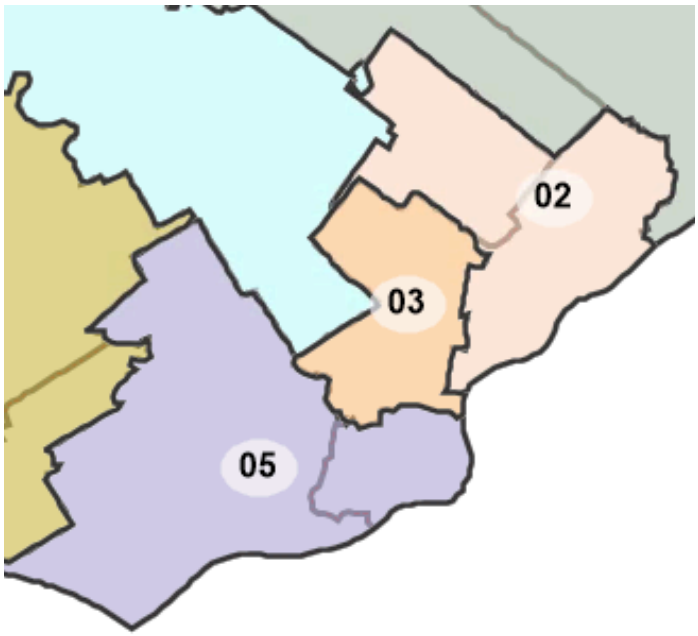
B. Competitive Plan

Map 16: Competitive Map



i. Philadelphia County (PA-02, 03)

Map 17: Philadelphia County

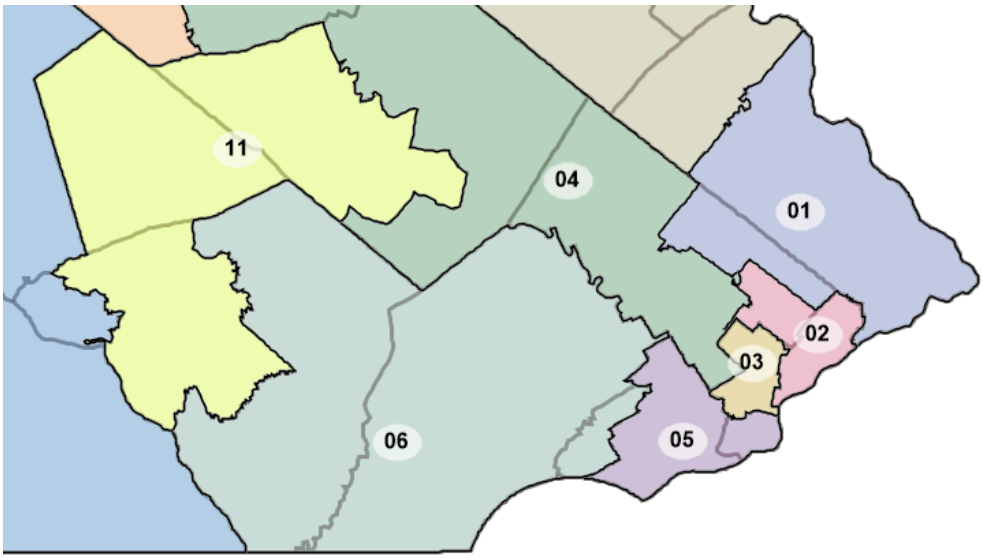


As discussed above, most plans choose to enclose PA-02 and 03 entirely within Philadelphia County. However, some plans experiment with other methods of dividing Philadelphia. For example, the Gressman plan extends PA-02 into Bucks County to avoid packing democrats. My proposed plan also extends PA-02's borders beyond Philadelphia County, grabbing parts of Montgomery County. In so doing, PA-03, 05, and 06 shift East (discussed in greater detail below).

With PA-02's boundary shifting East, PA-03's demographics change. Under this plan, PA-03's black population has grown – from 55.2% to 60.0%. Given that PA-03 was a performing district under the 2018 plan, this district will also perform. However, this district likely has a higher black population than it needs to perform. As such, it may be criticized for packing the Philadelphia black population. PA-02 is also no longer a majority-minority district, with a non-white CVAP of only 43%.

ii. Philadelphia Suburbs (PA-01, 05, 04, 06, 11)

Map 18: Philadelphia Suburbs



PA-05 captures the Southern tip of Philadelphia and the majority of Delaware County. As described above, PA-05 is shifted East compared to the Carter and 2018 plans. This Eastward

shift means that, unlike the Carter plan, PA-05 does not need to capture Montgomery residents and leaves a portion of Delaware County unclaimed. The district is, as in most maps, safe for democrats.

Chester is large (500,000) and liberal (D+17 in 2020). In most maps, including this one, PA-06 captures all of Chester County. In the Carter plan, PA-06 reaches perfect population by extending into Berks County, capturing 200,000 residents. The resultant district has a D+10 partisan lean. Instead, I make PA-06 competitive by extending into Lancaster County to capture republican voters (but leaving the city of Lancaster untouched). It also captures a portion of Delaware County. The district is a toss-up, with a partisan lean of D+2 (Planscore predicted vote share).

PA-11 captures most of the remaining population in Lancaster County, including the relatively liberal population in the city of Lancaster and surrounding areas. It then captures all of Lebanon (R+30 in 2020) and a portion of Montgomery County (D+2 in 2020). Because the liberal population in Lancaster city was preserved, this district is also competitive, with a partisan lean of R+6 (Planscore predicted vote share).

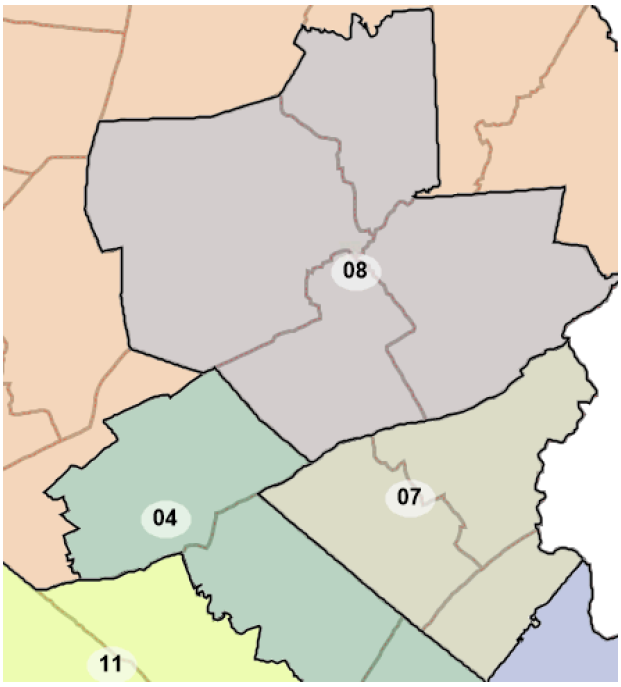
Unlike the Proportional and Carter plans, this plan splits Bucks County. While this is controversial, I felt it was necessary to maximize competitiveness. As I will discuss below, extending PA-07 into Northern Bucks County ensures a more competitive district. As a result, PA-01 captures more of Montgomery County than it does in the Proportional or Carter maps. The district is competitive, but less so than other maps, with a partisan lean of D+6 (Planscore, predicted vote share).

Finally, PA-04 retains the remainder of Montgomery County, which is heavily liberal (D+22 in 2020). The district extends North to capture the remainder of Berks and a portion of

Schuylkill. Because both counties are conservative, and portions of Montgomery have been subsumed by other districts, PA-04 becomes competitive at D+4 (Planscore predicted vote share).

iii. Northeastern Pennsylvania (PA-07, 08)

Map 19: Northeastern Pennsylvania, Competitive Map

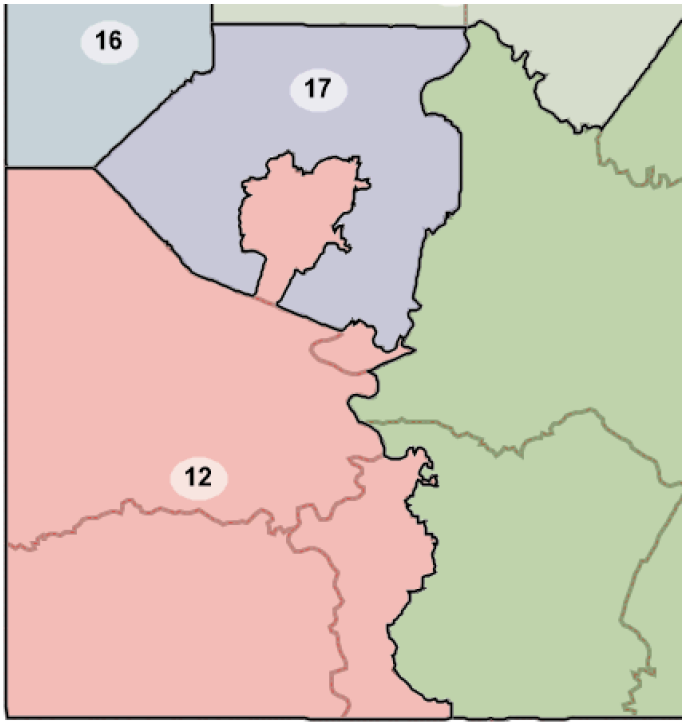


As in the Proportional map, this map preserves the Lehigh valley (Lehigh and Northampton Counties) within PA-07. To reach target population, PA-07 needs an additional 75,000 residents. To do so, this district expands into Northern Bucks County. Because Lehigh and Northampton have a slight democrat lean, and because Northern Bucks is conservative, the resultant district is competitive, with a lean of R+2 (Planscore predicted vote share).

PA-08 captures all of Monroe, Carbon, Luzerne, and most of Lackawanna. While Luzerne and Carbon are conservative, Monroe and Lackawanna lean liberal. As a result, the district remains competitive with a lean of R+4 (Planscore predicted vote share).

iv. Pittsburgh Region (PA-12, 17)

Map 20: Pittsburgh Region, Competitive map



As in the Proportional plan, this map avoids splitting the city of Pittsburgh for good governance reasons. PA-12 captures Pittsburgh. To offset the large liberal population in Pittsburgh, the district extends South to capture all of Washington and Greene, and a portion of Fayette. Even with these adjustments, PA-12 retains a strong liberal lean (D+10 Planscore predicted vote share).

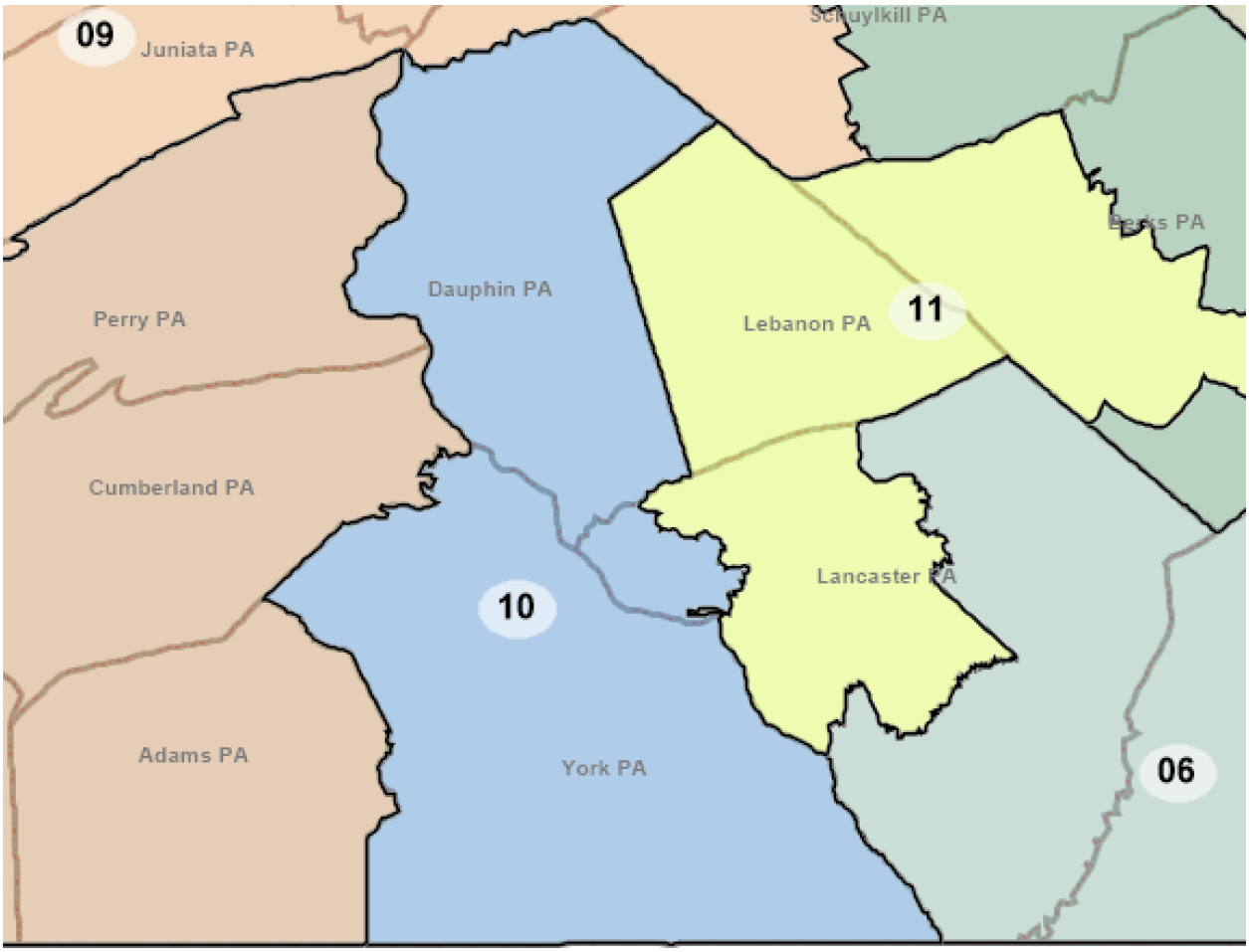
PA-17 captures the remainder of Alleghany County. While the immediate suburbs of Pittsburgh are liberal, other parts of Alleghany are conservative. As a result, the district is competitive, with a modest lean for democrats (D+4 Planscore predicted vote share).

v. Rural Pennsylvania (PA-09, 10, 13, 14, 15, 16)

Unlike the Proportional map, this map produces an arguably competitive district in rural Pennsylvania. PA-10 encompasses all of Dauphin, York, and part of Lancaster Counties, thereby

combining liberal populations in the cities of York and Harrisburg. Planscore indicates that this district, while a strong Republican lean (R+10), could be flipped by Democrats.

Map 21: PA-10



Conclusion

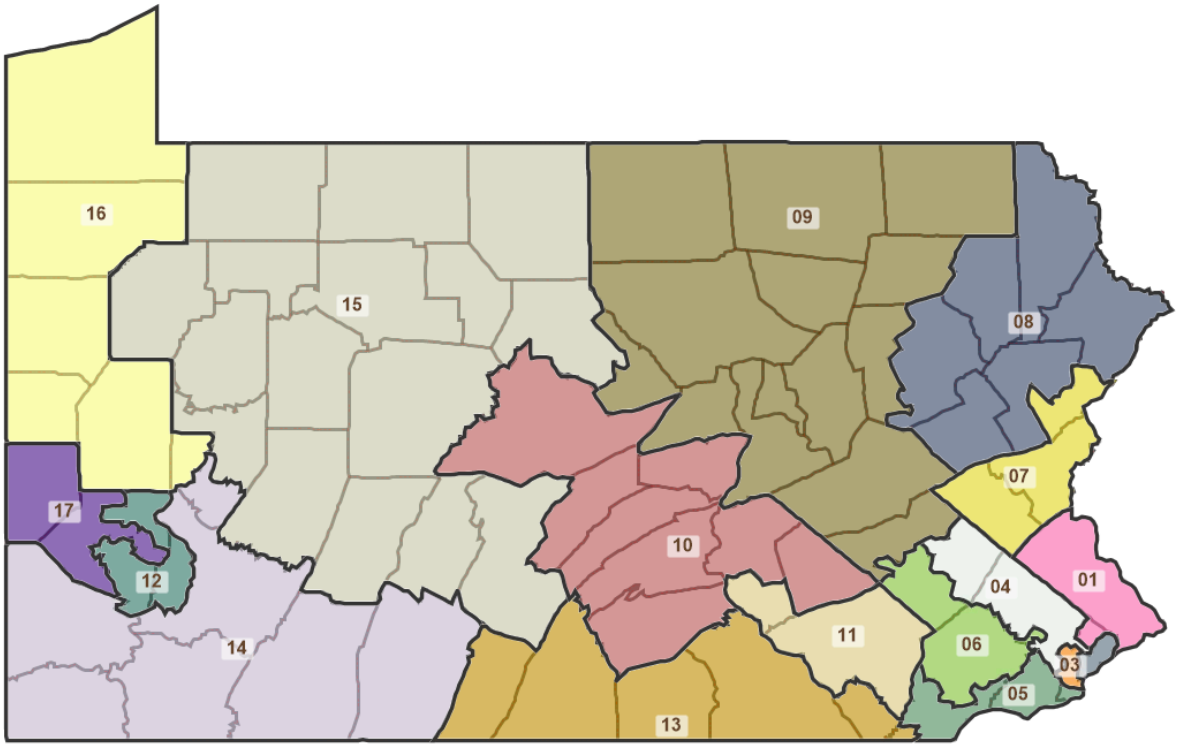
Pennsylvania's partisan geography makes it difficult to craft fair congressional maps. Democrats are naturally packed in a handful of cities and counties. Republicans, on the other hand, are dispersed across most of the state. Yet, these difficulties do not make it impossible to craft fair maps. Maps can be made that achieve goals of fairness, while not subordinating traditional districting processes – as my proposed maps illustrate.

The Carter plan was faithful to these, at times competing, goals. It produced a relatively fair map that avoided needless county splits and was sufficiently compact. Nonetheless, the Carter map is not the *only* available plan that balances these goals.

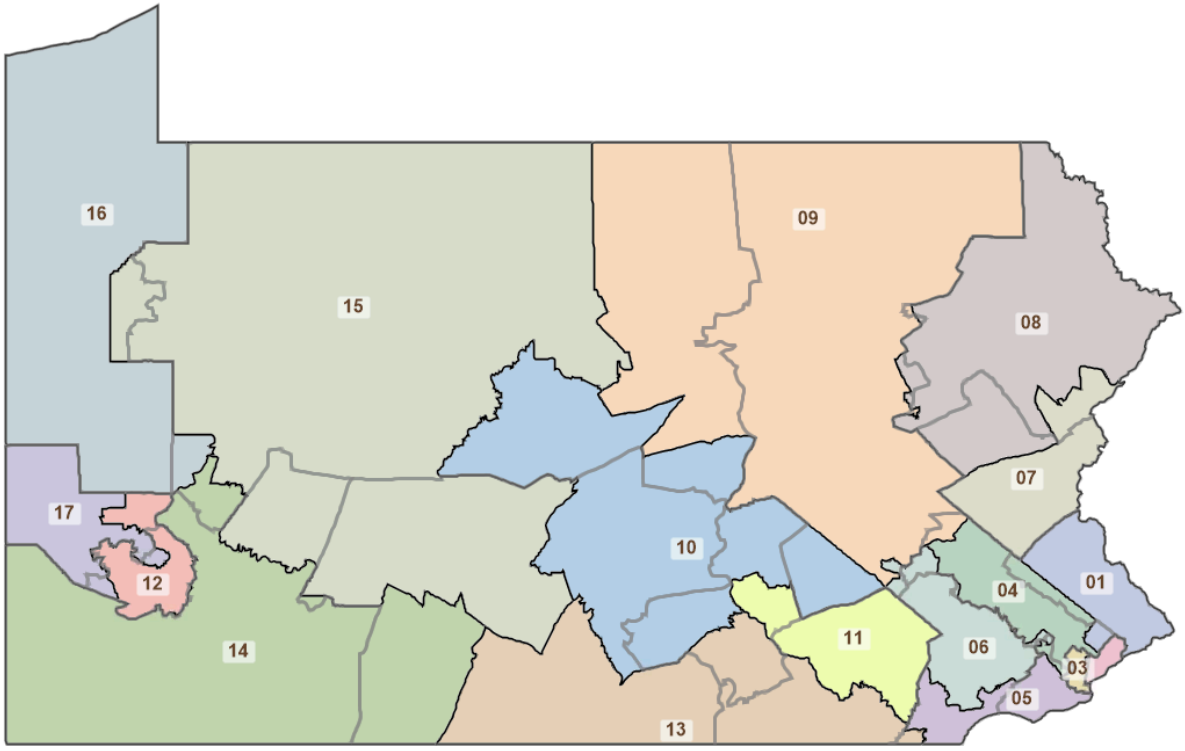
Appendix

Appendix 1: Detailed Plan Images, Proportional Map

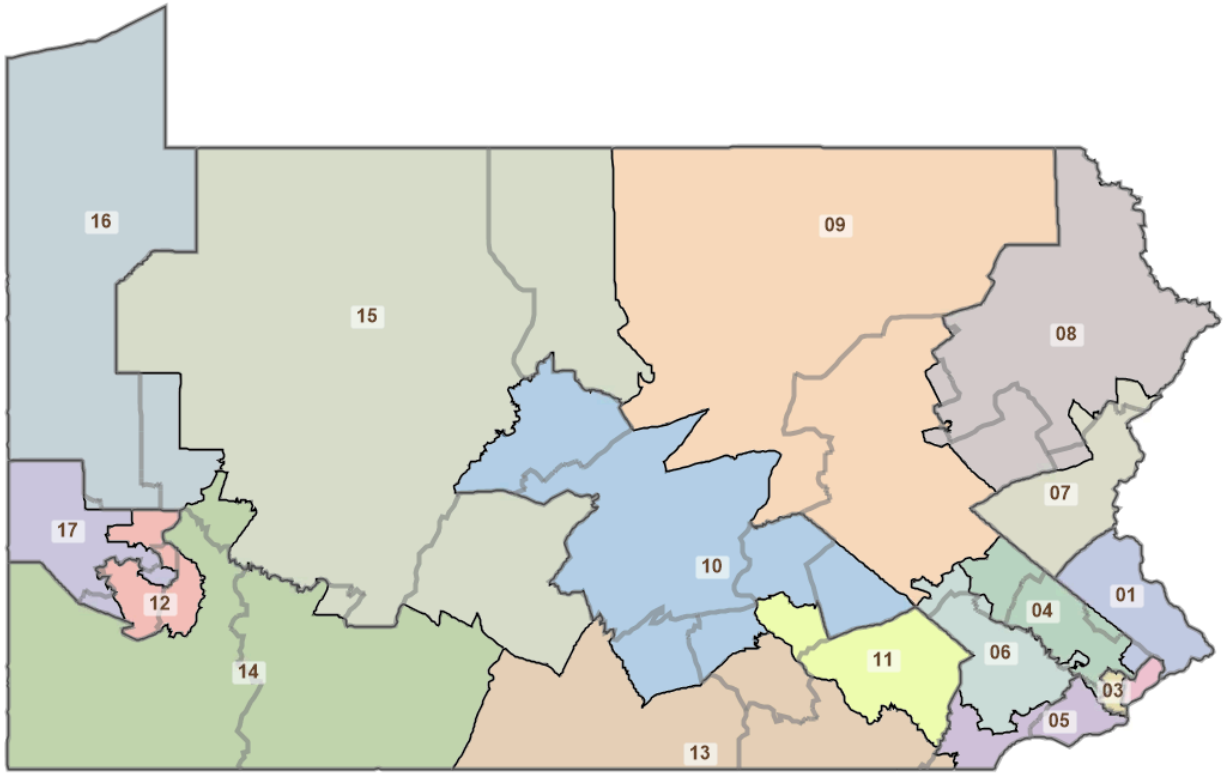
Complete Plan w/ County Lines



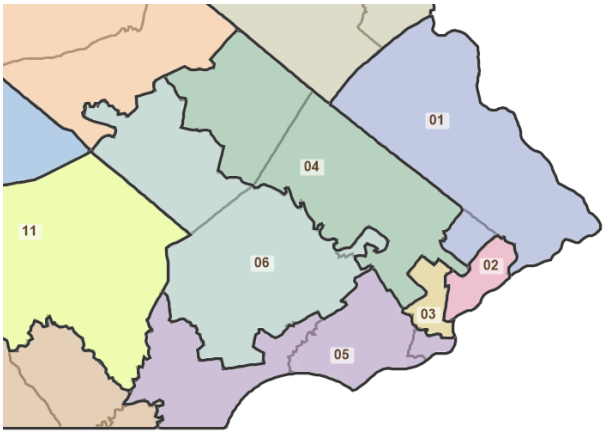
Comparison w/ Carter



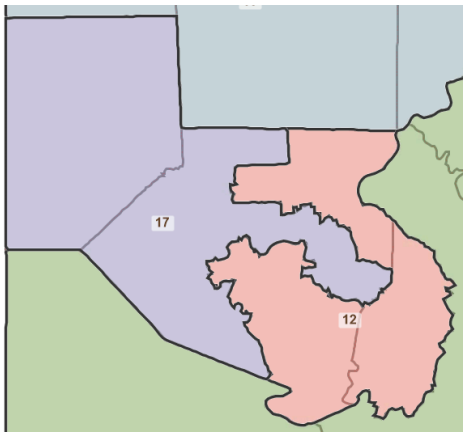
Comparison w/ 2018



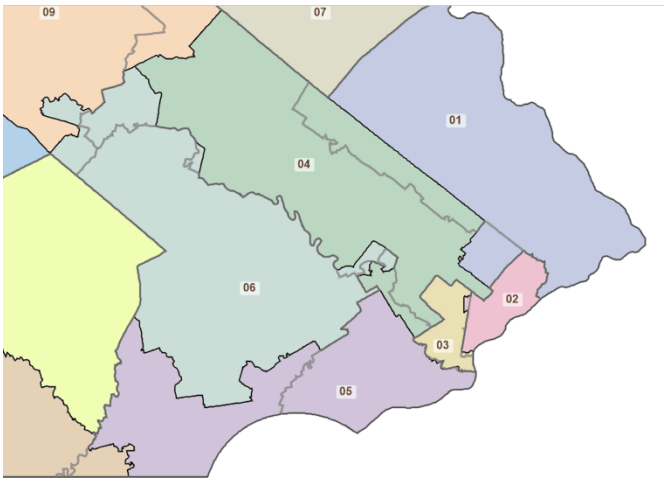
Philadelphia Region w/ County



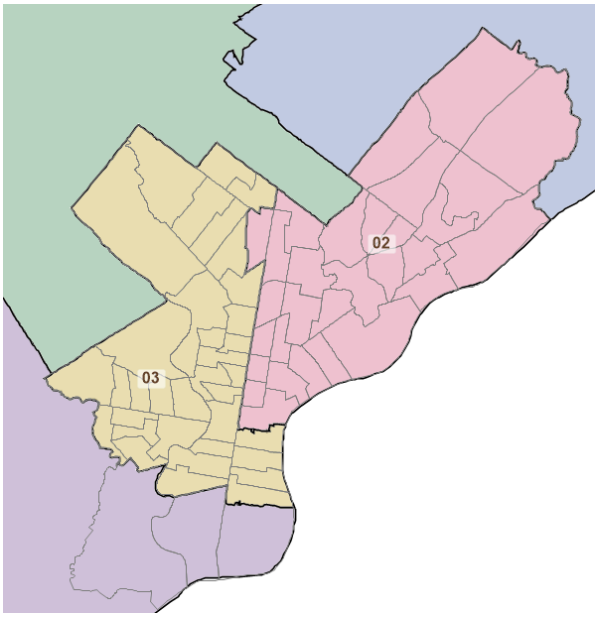
Pittsburgh Region w/ County



Philadelphia Region w/ Carter Lines

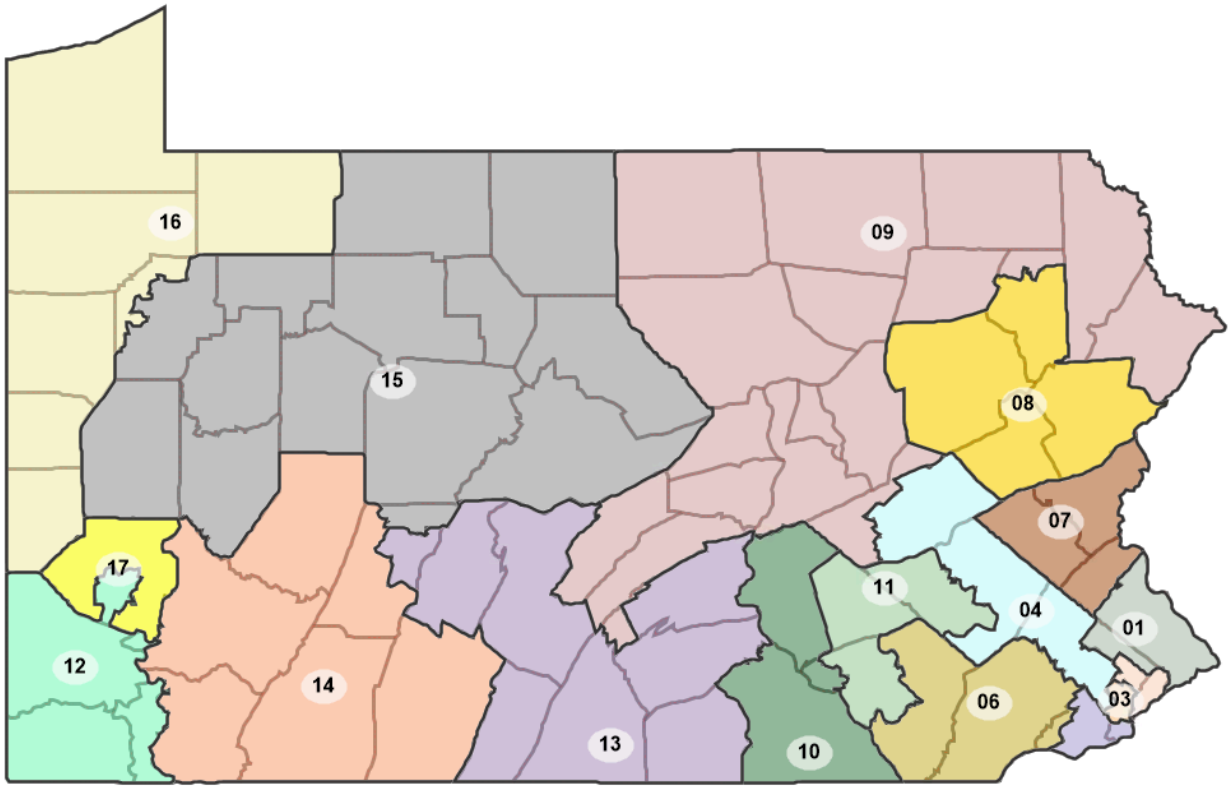


Philadelphia County w/ Wards

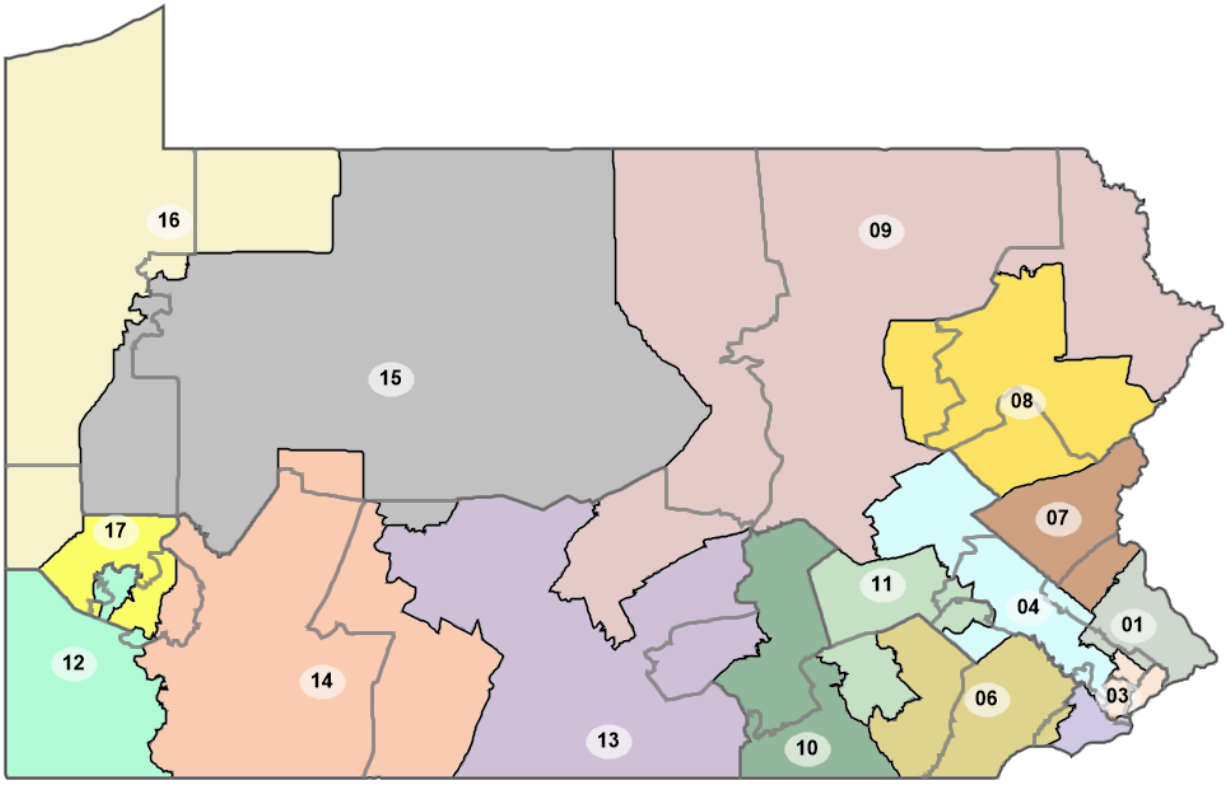


Appendix 2: Detailed Plan Images, Competitive Map

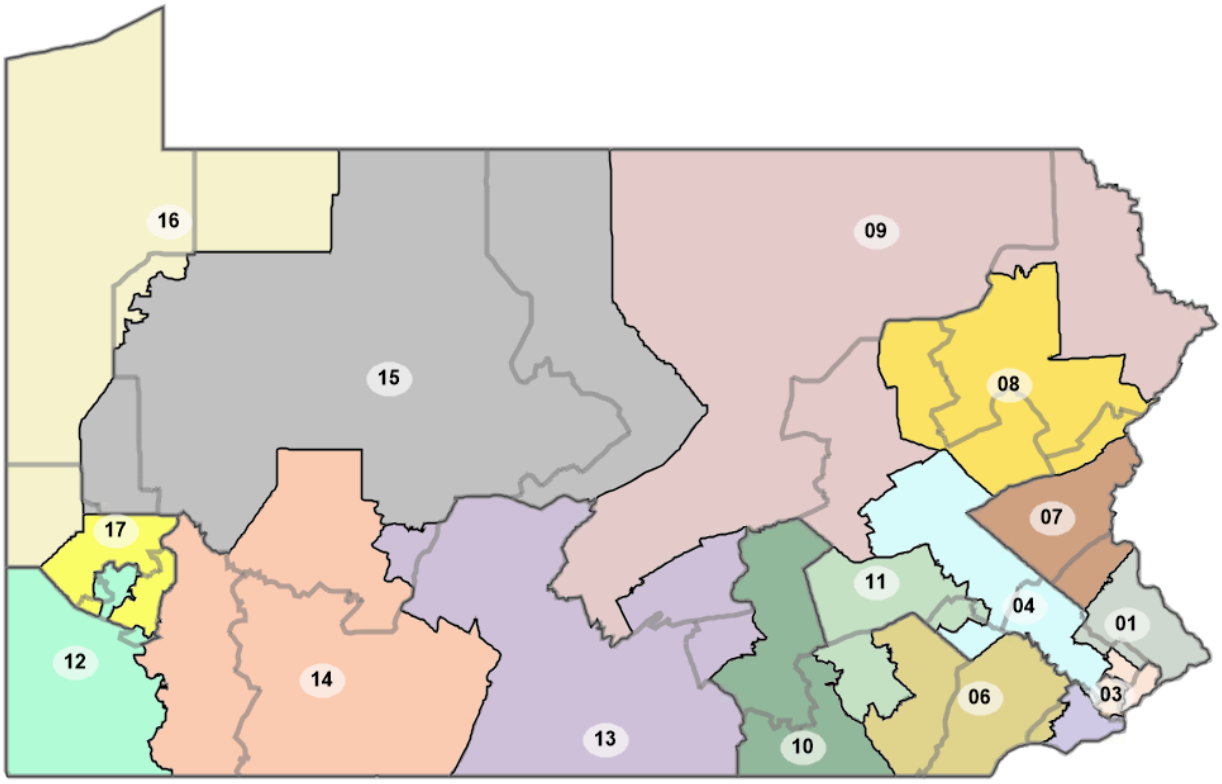
Complete Map w/ County Lines



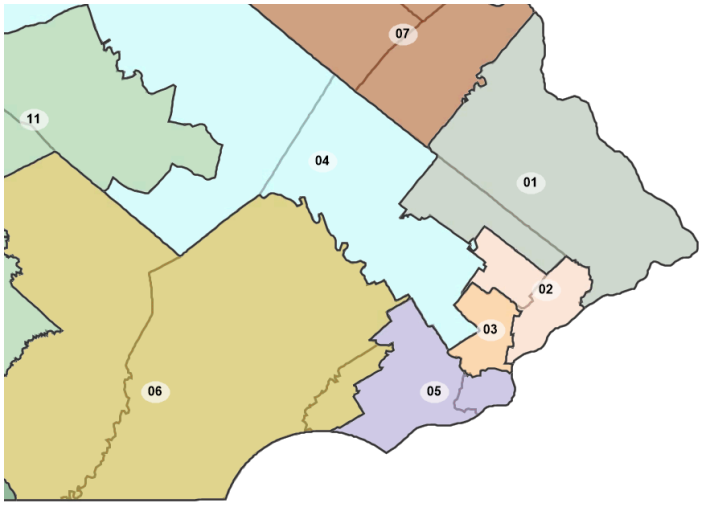
Comparison w/ Carter



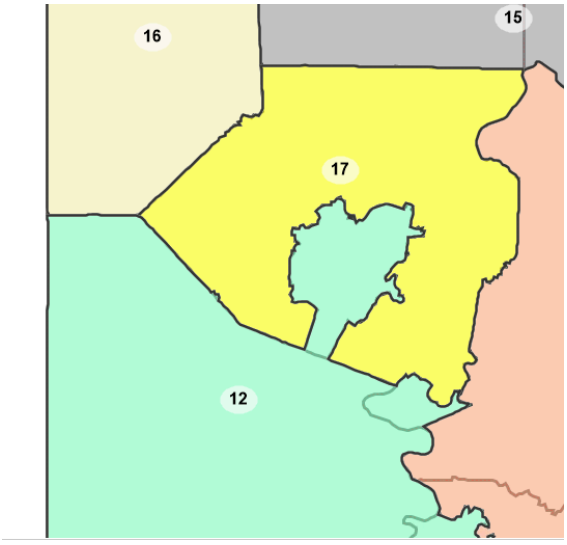
Comparison w/ 2018



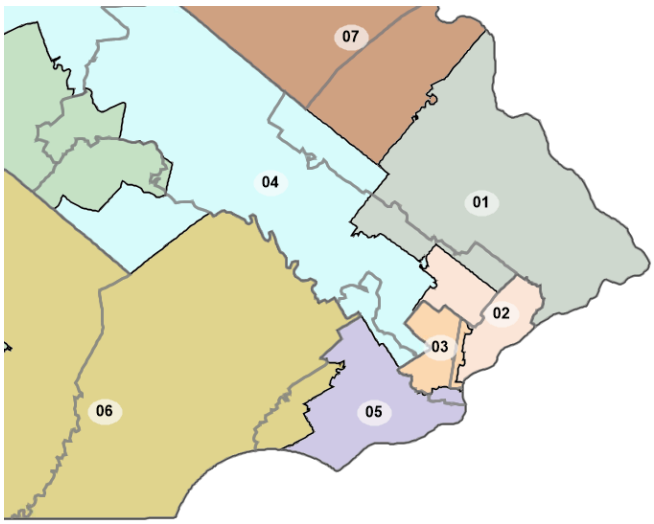
Philadelphia Region w/ County Lines



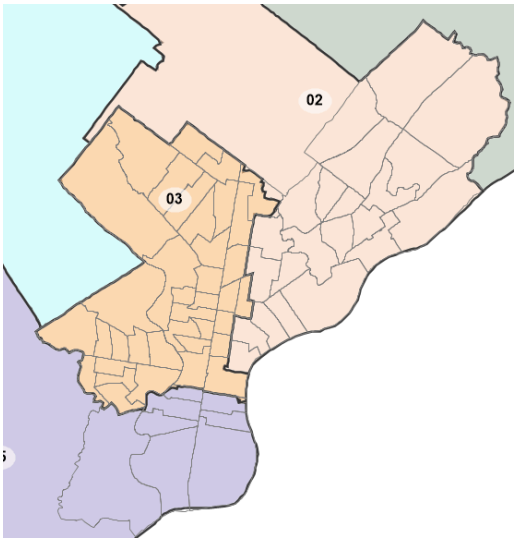
Pittsburgh w/ County Lines



Philadelphia Region w/ Carter Lines

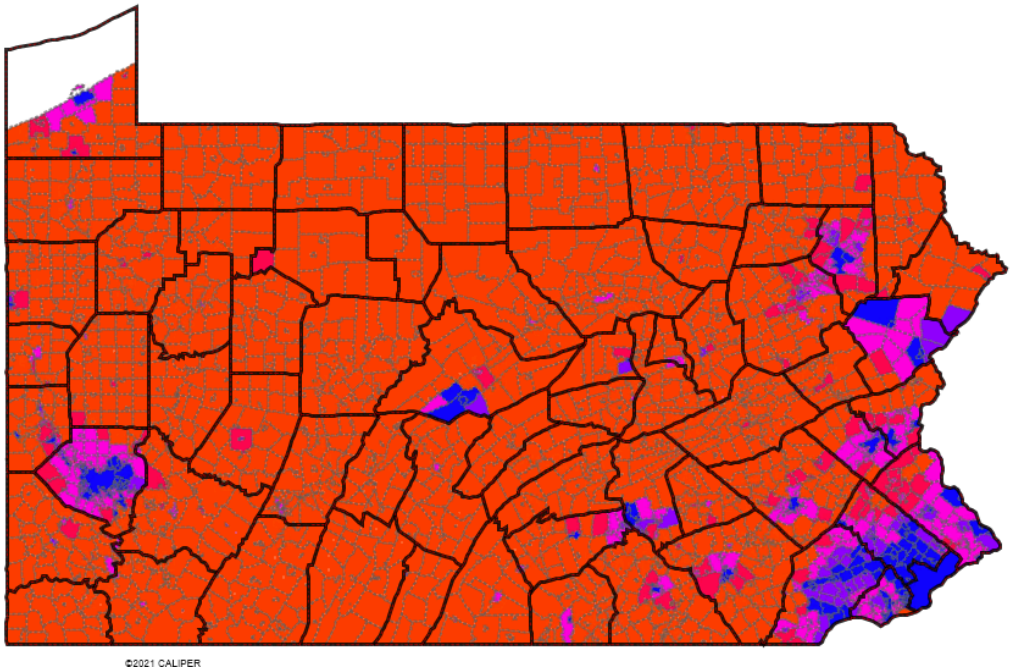


Philadelphia Region w/ Wards

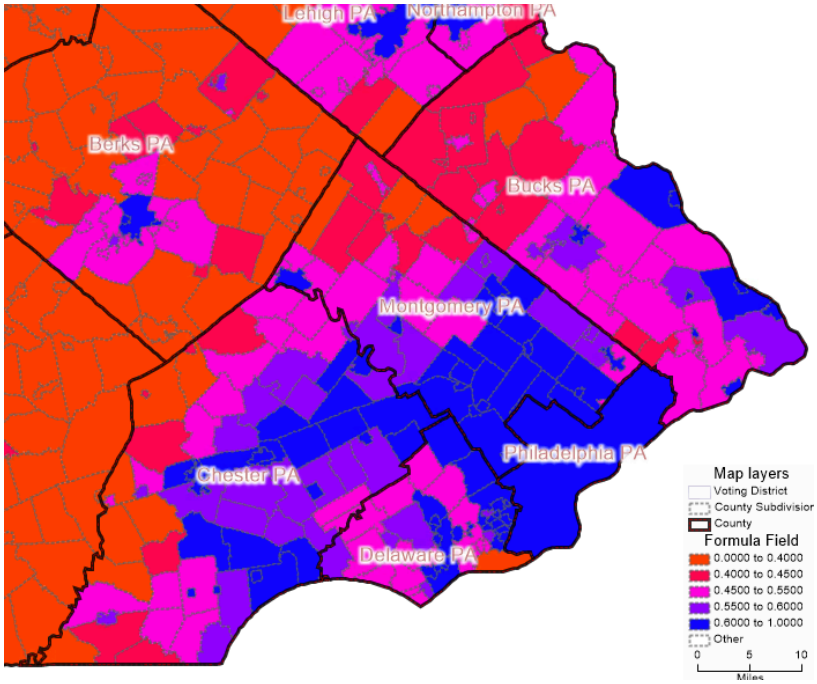


Appendix 3: Partisan Lean

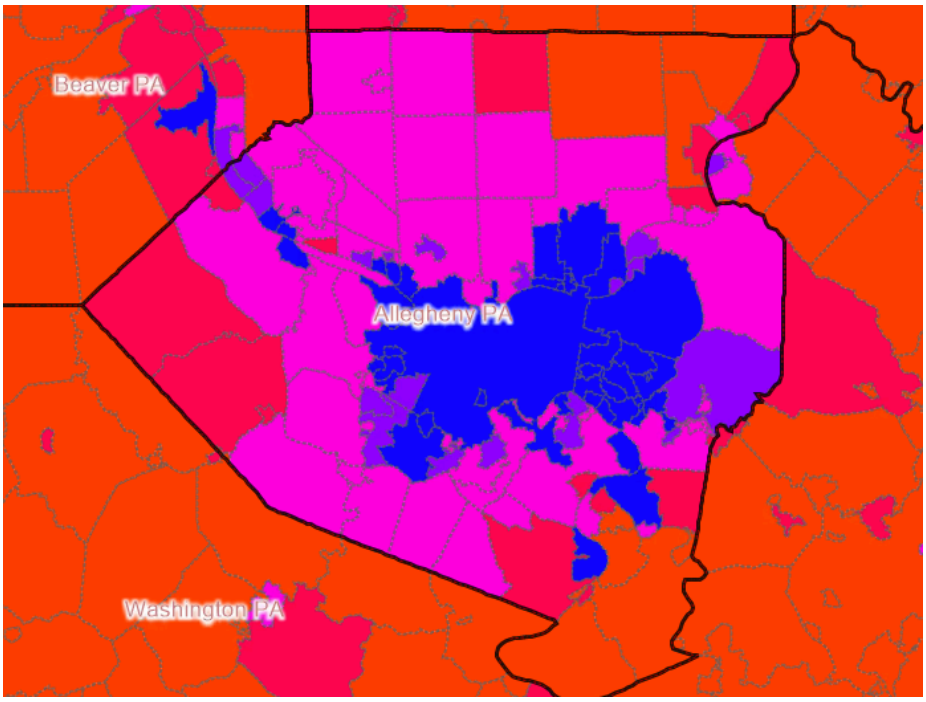
Pennsylvania 2020 Biden Vote Share, by County Subdivision



Philadelphia Area, 2020 Biden Vote Share, by County Subdivision

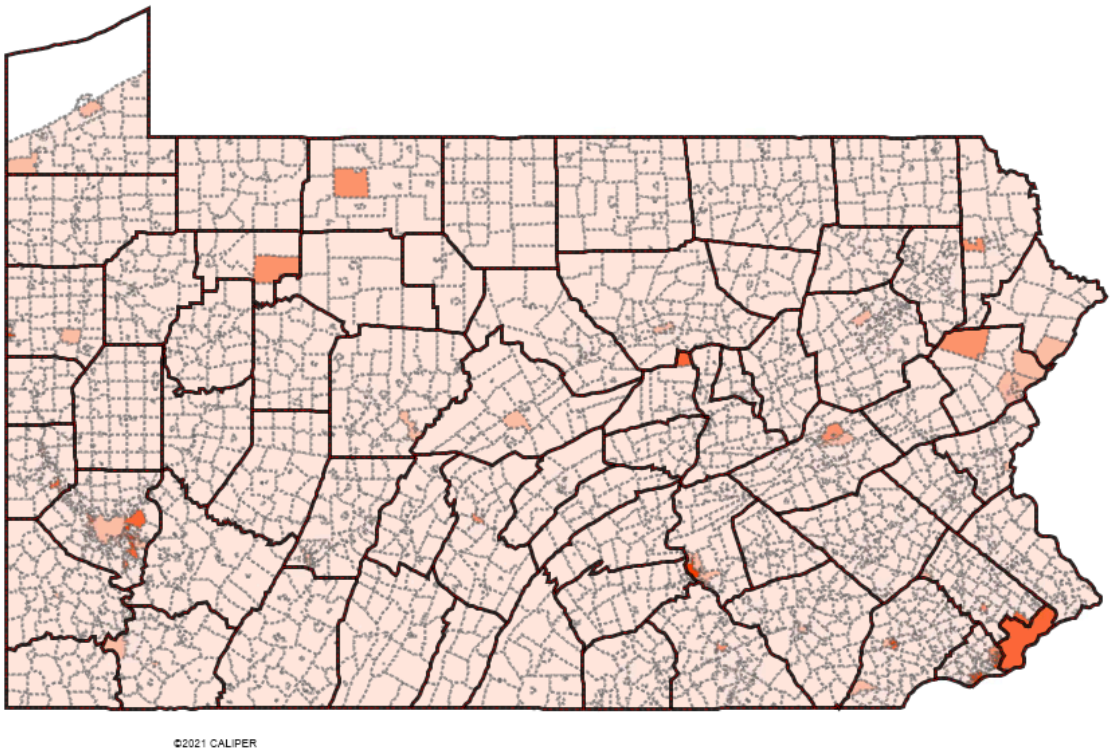


Alleghany County, 2020 Biden Vote Share, by County Subdivision

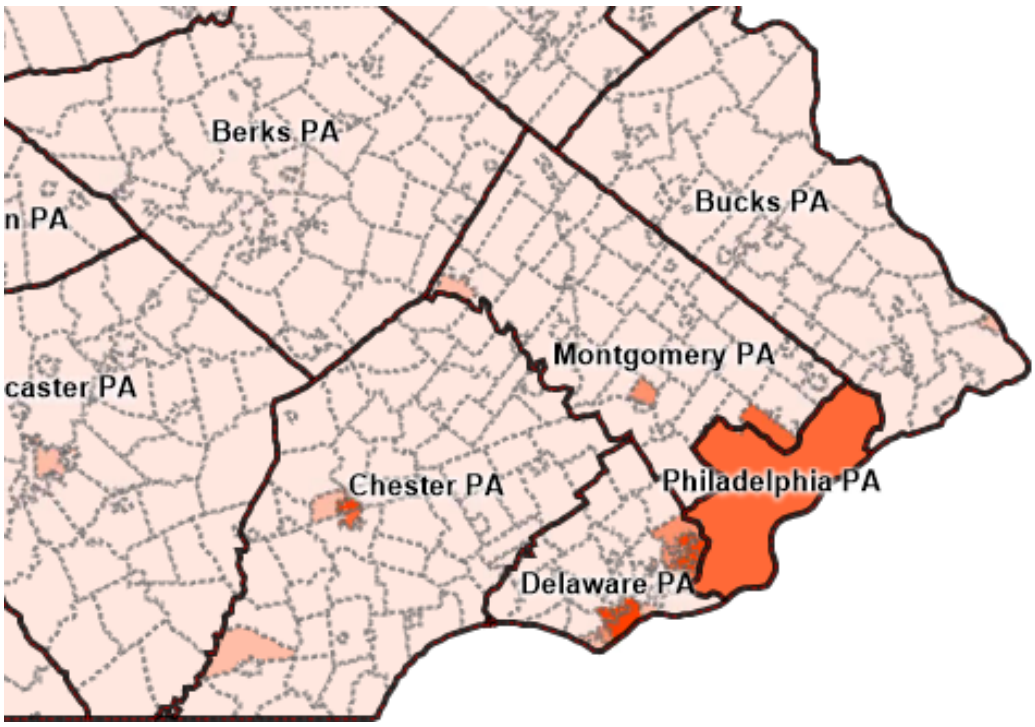


Appendix 4: Racial Data

Proportion of Black Residents by County Subdivision



Philadelphia Region, Proportion of Black Residents by County Subdivision



Appendix 5: Compactness Reports

Proportional Map, Compactness Report

Number of cut edges: 6,366

	Reock	Schwartzberg	Alternate Schwartzberg	Polsby-Popper	Population Polygon	Area/Convex Hull	Population Circle	Ehrenburg	Perimeter	Length-Width
Sum	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5,108.32	N/A
Min	0.22	1.47	1.55	0.13	0.33	0.57	0.25	0.19	N/A	1.58
Max	0.56	2.53	2.77	0.41	0.91	0.84	0.77	0.50	N/A	89.69
Mean	0.39	1.84	1.96	0.28	0.71	0.75	0.47	0.35	N/A	19.15
Std. Dev.	0.09	0.28	0.32	0.08	0.16	0.07	0.17	0.09	N/A	27.04

Competitive Map, Compactness Report

Number of cut edges: 5,833

	Reock	Schwartzberg	Alternate Schwartzberg	Polsby-Popper	Population Polygon	Area/Convex Hull	Population Circle	Ehrenburg	Perimeter	Length-Width
Sum	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4,897.62	N/A
Min	0.28	1.42	1.48	0.19	0.43	0.65	0.12	0.17	N/A	0.10
Max	0.64	2.25	2.31	0.46	0.99	0.84	0.77	0.58	N/A	57.46
Mean	0.46	1.74	1.84	0.31	0.73	0.75	0.49	0.37	N/A	15.63
Std. Dev.	0.09	0.25	0.27	0.09	0.14	0.08	0.17	0.12	N/A	19.20

Carter Map, Compactness Report

Number of cut edges: 5,926

	Reock	Schwartzberg	Alternate Schwartzberg	Polsby-Popper	Population Polygon	Area/Convex Hull	Population Circle	Ehrenburg	Perimeter	Length-Width
Sum	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4,608.12	N/A
Min	0.27	1.42	1.53	0.17	0.35	0.68	0.22	0.23	N/A	0.29
Max	0.63	2.29	2.41	0.43	0.92	0.88	0.79	0.57	N/A	80.35
Mean	0.46	1.70	1.81	0.32	0.73	0.78	0.52	0.38	N/A	18.36
Std. Dev.	0.09	0.24	0.26	0.08	0.17	0.06	0.19	0.10	N/A	23.23

Appendix 6: Political Subdivision Splits

Proportional Map, Political Subdivision Splits

County
Cases where an area is split among 2 Districts: 6
Cases where an area is split among 3 Districts: 6
County Subdivision
Cases where an area is split among 2 Districts: 14
Cases where an area is split among 3 Districts: 1

Competitive Map, Political Subdivision Splits

County
Cases where an area is split among 2 Districts: 9
Cases where an area is split among 3 Districts: 4
County Subdivision
Cases where an area is split among 2 Districts: 15
Cases where an area is split among 3 Districts: 1

Carter Map, Political Subdivision Splits

County
Cases where an area is split among 2 Districts: 11
Cases where an area is split among 3 Districts: 3
County Subdivision
Cases where an area is split among 2 Districts: 19
Cases where an area is split among 3 Districts: 1

Appendix 7: Planscore Partisan Analysis

Proportional Map, Planscore Analysis

District	Candidate Scenario	Pop. 2020	Hispanic CVAP 2019	Non-Hisp. Black CVAP 2019	Non-Hisp. Asian CVAP 2019	Non-Hisp. Native CVAP 2019	Chance of 1+ Flips†	Chance of Democratic Win	Predicted Vote Shares	Biden (D) 2020	Trump (R) 2020
1	Open Seat	764,864	3.4%	4.6%	3.9%	0.3%	Yes	64%	52% D / 48% R	250,910	213,260
2	Open Seat	764,865	20.3%	28.3%	6.7%	0.4%	No	>99%	65% D / 35% R	220,964	86,934
3	Open Seat	764,865	4.0%	53.6%	4.8%	0.4%	No	>99%	79% D / 21% R	358,491	36,703
4	Open Seat	764,865	2.9%	7.3%	5.2%	0.2%	No	89%	57% D / 43% R	272,657	181,810
5	Open Seat	764,864	3.3%	20.4%	4.2%	0.3%	No	95%	59% D / 41% R	266,309	157,203
6	Open Seat	764,865	10.4%	7.8%	3.0%	0.3%	Yes	85%	55% D / 45% R	232,247	166,118
7	Open Seat	764,863	14.5%	6.2%	2.5%	0.3%	Yes	59%	51% D / 49% R	204,915	184,052
8	Open Seat	764,863	6.8%	4.8%	1.2%	0.4%	Yes	24%	46% D / 54% R	175,872	206,066
9	Open Seat	764,865	2.3%	2.6%	0.6%	0.5%	No	2%	35% D / 65% R	114,976	264,816
10	Open Seat	764,864	3.8%	2.8%	1.9%	0.3%	No	7%	41% D / 59% R	151,731	238,000
11	Open Seat	764,865	8.1%	9.0%	2.4%	0.3%	Yes	35%	48% D / 52% R	184,232	198,724
12	Open Seat	764,865	1.7%	13.8%	2.0%	0.3%	No	89%	57% D / 43% R	254,023	169,577
13	Open Seat	764,865	4.2%	4.3%	1.0%	0.4%	No	3%	38% D / 62% R	134,138	259,687
14	Open Seat	764,865	1.0%	3.2%	0.5%	0.4%	No	2%	37% D / 63% R	135,213	277,435
15	Open Seat	764,866	1.2%	2.5%	0.5%	0.4%	No	1%	33% D / 67% R	106,203	282,998
16	Open Seat	764,866	1.7%	4.2%	0.8%	0.4%	No	8%	42% D / 58% R	158,506	243,828
17	Open Seat	764,865	1.2%	8.0%	1.7%	0.3%	Yes	61%	52% D / 48% R	239,088	211,233

Competitive Map, Planscore Analysis

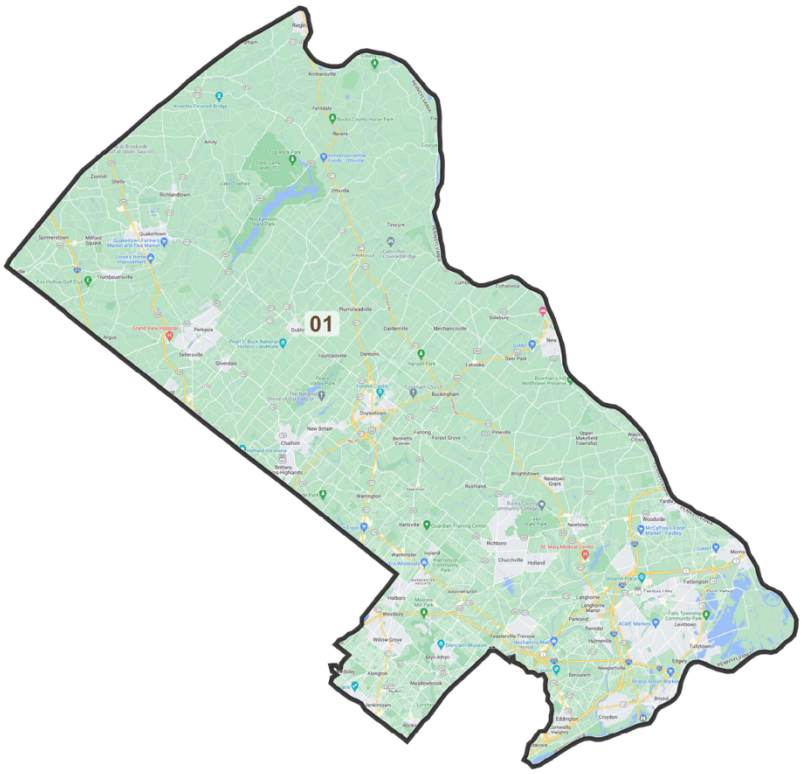
District	Candidate Scenario	Pop. 2020	Hispanic CVAP 2019	Non-Hisp. Black CVAP 2019	Non-Hisp. Asian CVAP 2019	Non-Hisp. Native CVAP 2019	Chance of 1+ Flips†	Chance of Democratic Win	Predicted Vote Shares	Biden (D) 2020	Trump (R) 2020
1	Open Seat	764,865	3.5%	4.4%	5.3%	0.3%	Yes	69%	53% D / 47% R	253,956	210,106
2	Open Seat	764,864	16.4%	19.4%	6.4%	0.4%	No	99%	63% D / 37% R	234,447	107,481
3	Open Seat	764,865	7.2%	60.0%	3.9%	0.3%	No	>99%	80% D / 20% R	349,828	27,512
4	Open Seat	764,865	3.2%	6.7%	3.2%	0.2%	Yes	62%	52% D / 48% R	225,643	198,395
5	Open Seat	764,864	3.6%	24.2%	5.7%	0.4%	No	98%	63% D / 37% R	285,238	130,200
6	Open Seat	764,865	3.6%	5.0%	2.9%	0.3%	Yes	54%	51% D / 49% R	218,373	202,315
7	Open Seat	764,865	13.3%	5.1%	2.4%	0.3%	Yes	51%	50% D / 50% R	203,781	193,172
8	Open Seat	764,864	7.4%	5.4%	1.4%	0.4%	Yes	31%	48% D / 52% R	178,950	195,855
9	Open Seat	764,865	2.6%	2.8%	0.6%	0.5%	No	2%	35% D / 65% R	116,712	268,162
10	Open Seat	764,865	5.4%	9.6%	1.8%	0.4%	Yes	18%	45% D / 55% R	171,382	221,496
11	Open Seat	764,865	14.7%	4.8%	1.8%	0.3%	Yes	30%	47% D / 53% R	175,238	196,953
12	Open Seat	764,864	1.8%	11.3%	2.0%	0.4%	Yes	85%	55% D / 45% R	244,415	174,220
13	Open Seat	764,863	2.4%	3.1%	1.4%	0.4%	No	3%	38% D / 62% R	135,366	266,255
14	Open Seat	764,865	1.0%	2.8%	0.6%	0.3%	No	2%	36% D / 64% R	131,690	283,677
15	Open Seat	764,873	1.5%	2.3%	1.0%	0.4%	No	3%	37% D / 63% R	130,349	266,320
16	Open Seat	764,865	1.7%	5.2%	0.7%	0.4%	No	10%	43% D / 57% R	163,292	233,152
17	Open Seat	764,866	1.2%	10.4%	1.7%	0.2%	Yes	68%	52% D / 48% R	241,817	203,175

Carter Map, Planscore Analysis

District	Candidate Scenario	Pop. 2020	Hispanic CVAP 2019	Non-Hisp. Black CVAP 2019	Non-Hisp. Asian CVAP 2019	Non-Hisp. Native CVAP 2019	Chance of 1+ Flips†	Chance of Democratic Win	Predicted Vote Shares	Biden (D) 2020	Trump (R) 2020
1	Open Seat	764,866	3.4%	3.8%	4.6%	0.3%	Yes	57%	51% D / 49% R	241,483	219,851
2	Open Seat	764,865	20.5%	25.7%	7.0%	0.4%	No	>99%	67% D / 33% R	221,337	88,108
3	Open Seat	764,864	4.0%	55.2%	4.6%	0.4%	No	>99%	83% D / 17% R	357,631	36,689
4	Open Seat	764,865	3.5%	7.9%	4.1%	0.2%	No	94%	57% D / 43% R	269,164	182,693
5	Open Seat	764,866	3.2%	22.8%	4.8%	0.3%	No	>99%	63% D / 37% R	276,142	140,493
6	Open Seat	764,864	9.7%	6.3%	2.8%	0.3%	Yes	87%	55% D / 45% R	235,148	174,182
7	Open Seat	764,865	13.4%	5.1%	2.3%	0.3%	Yes	40%	49% D / 51% R	197,119	194,663
8	Open Seat	764,866	7.9%	5.7%	1.5%	0.4%	Yes	32%	48% D / 52% R	183,188	194,268
9	Open Seat	764,864	3.5%	2.5%	0.7%	0.4%	No	<1%	33% D / 67% R	119,965	261,273
10	Open Seat	764,864	5.7%	10.1%	2.5%	0.4%	Yes	29%	47% D / 53% R	188,632	205,148
11	Open Seat	764,864	6.4%	3.3%	1.5%	0.3%	No	1%	40% D / 60% R	153,328	237,725
12	Open Seat	764,864	1.7%	14.2%	2.1%	0.3%	No	94%	58% D / 42% R	255,322	169,618
13	Open Seat	764,864	1.8%	2.6%	0.6%	0.4%	No	<1%	29% D / 71% R	107,196	288,119
14	Open Seat	764,866	1.1%	3.4%	0.6%	0.4%	No	<1%	36% D / 64% R	138,881	268,680
15	Open Seat	764,872	1.7%	2.5%	1.0%	0.5%	No	<1%	33% D / 67% R	119,504	263,061
16	Open Seat	764,865	1.7%	4.2%	0.8%	0.4%	No	2%	40% D / 60% R	158,729	242,666
17	Open Seat	764,864	1.2%	7.6%	1.6%	0.3%	Yes	61%	51% D / 49% R	237,707	211,205

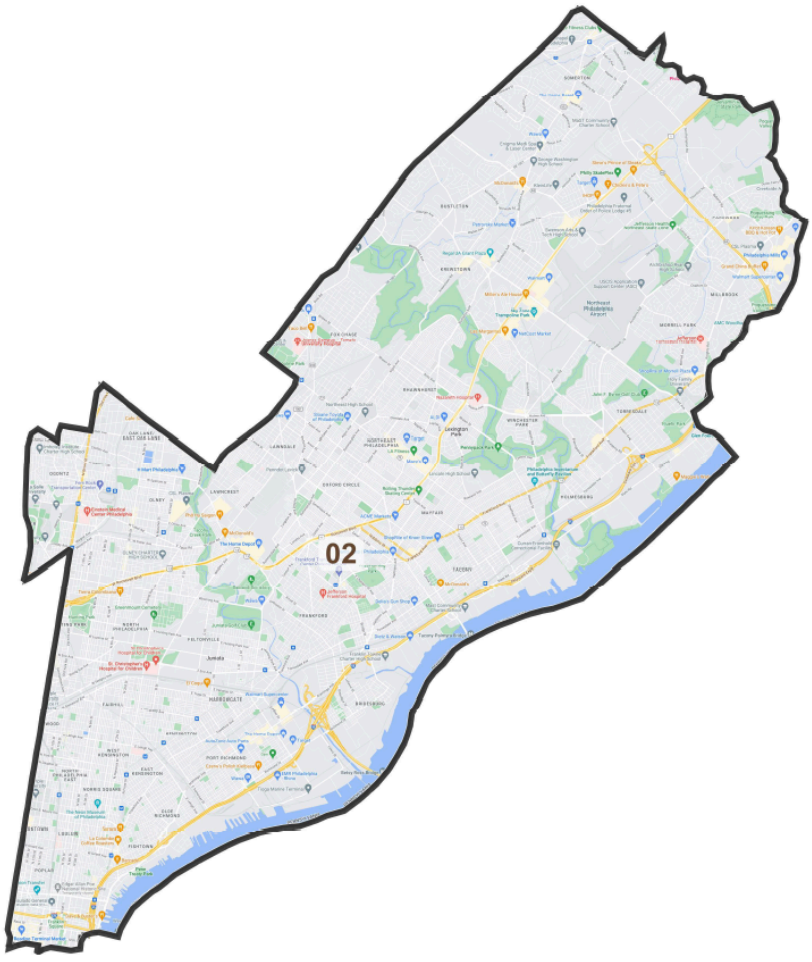
Appendix 8: Individual Districts, Proportional Map

District: 01



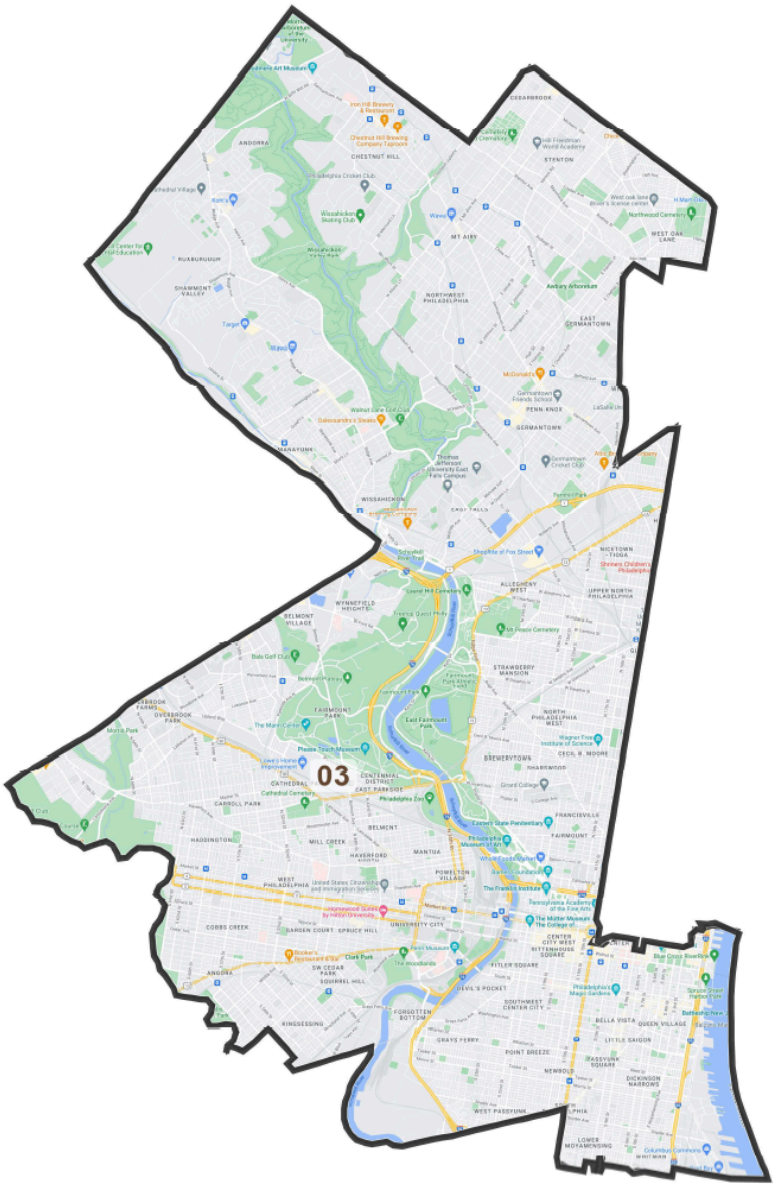
Field	Value
District	01
Population	764864
Deviation	-1
% Deviation	-0%
Polsby Popper	0.41
% D 20_Pres	53.49%
% R 20_Pres	45.46%
% NH White CVAP 19	87.55%
% NH Black CVAP 19	4.64%
% NH Asian CVAP 19	3.93%
% H CVAP 19	3.4%
% AP_Blk	6.18%
% White	81.15%

District: 02



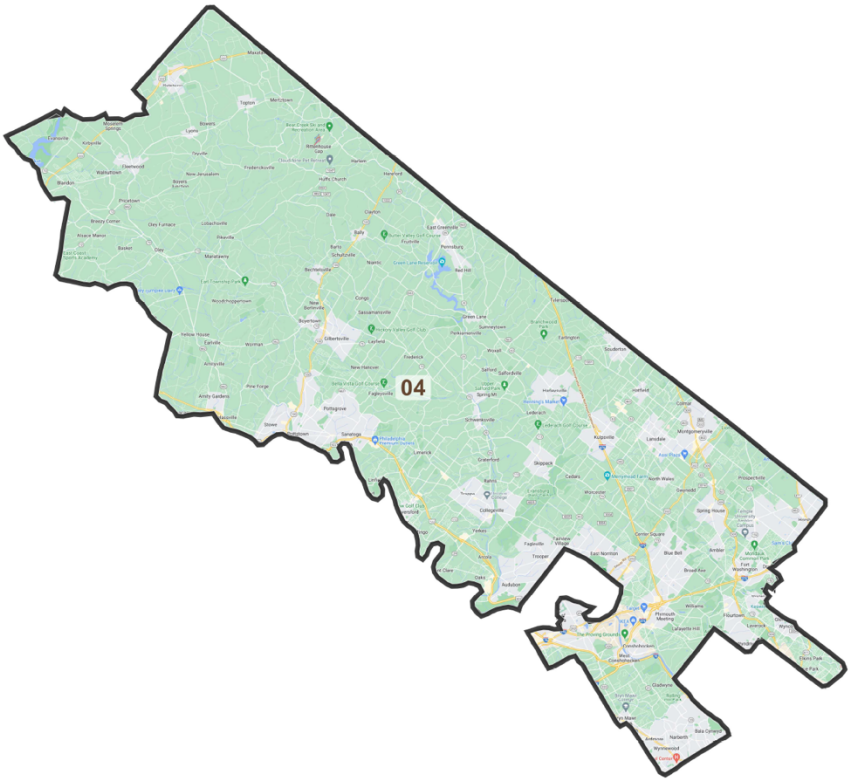
Field	Value
District	02
Population	764865
Deviation	0
% Deviation	0%
Polsby Popper	0.41
% D 20_Pres	71.24%
% R 20_Pres	28.03%
% NH White CVAP 19	43.7%
% NH Black CVAP 19	28.26%
% NH Asian CVAP 19	6.72%
% H CVAP 19	20.32%
% AP_Blk	30.51%
% White	38.73%

District: 03



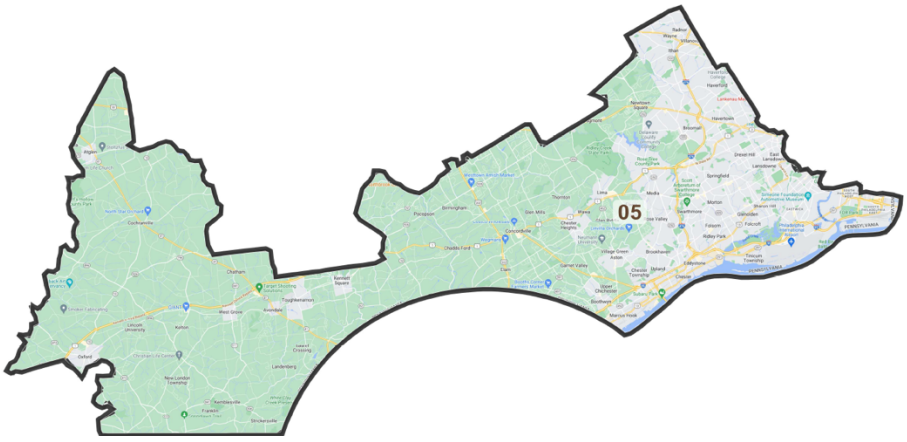
Field	Value
District	03
Population	764865
Deviation	0
% Deviation	0%
Polsby Popper	0.29
% D 20_Pres	90.15%
% R 20_Pres	9.23%
% NH White CVAP 19	36.54%
% NH Black CVAP 19	53.6%
% NH Asian CVAP 19	4.8%
% H CVAP 19	4.04%
% AP_Blk	52.32%
% White	34.47%

District: 04



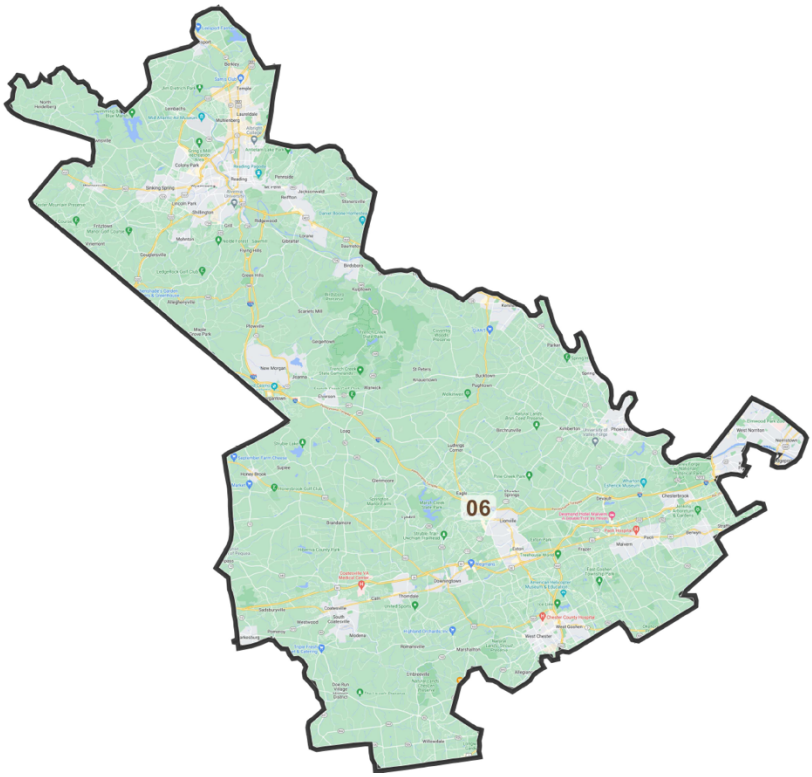
Field	Value
District	04
Population	764865
Deviation	0
% Deviation	0%
Polsby Popper	0.26
% D 20_Pres	59.35%
% R 20_Pres	39.58%
% NH White CVAP 19	84.15%
% NH Black CVAP 19	7.27%
% NH Asian CVAP 19	5.19%
% H CVAP 19	2.88%
% AP_Blk	9.09%
% White	77.1%

District: 05



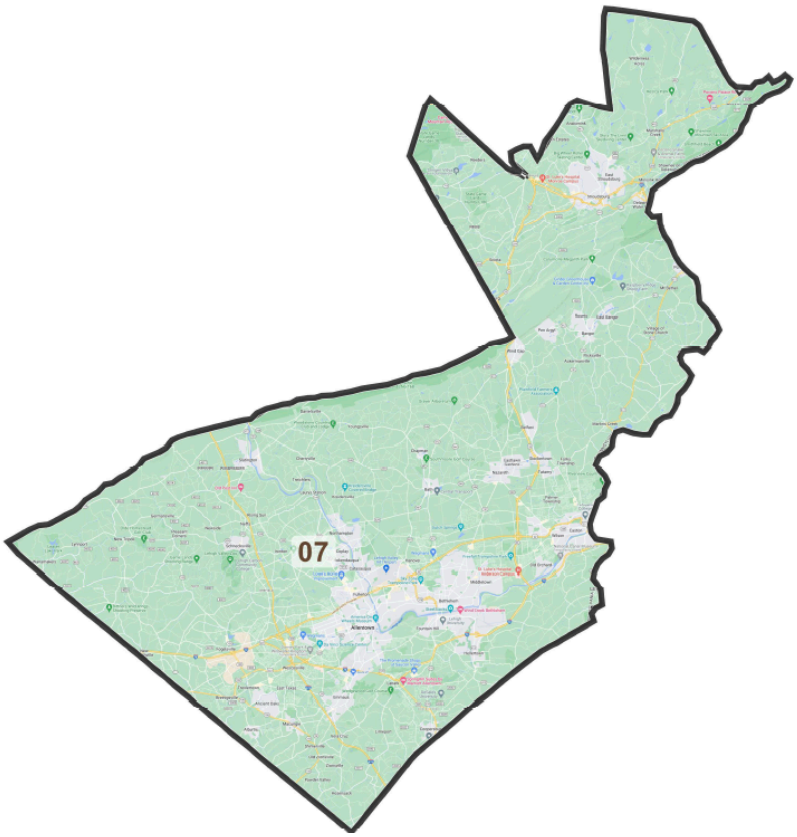
Field	Value
District	05
Population	764864
Deviation	-1
% Deviation	-0%
Polsby Popper	0.17
% D 20_Pres	62.32%
% R 20_Pres	36.79%
% NH White CVAP 19	71.37%
% NH Black CVAP 19	20.42%
% NH Asian CVAP 19	4.17%
% H CVAP 19	3.32%
% AP_Blk	24.32%
% White	62.52%

District: 06



Field	Value
District	06
Population	764865
Deviation	0
% Deviation	0%
Polsby Popper	0.22
% D 20_Pres	57.6%
% R 20_Pres	41.2%
% NH White CVAP 19	78.22%
% NH Black CVAP 19	7.85%
% NH Asian CVAP 19	3.02%
% H CVAP 19	10.36%
% AP_Blk	9.93%
% White	69.24%

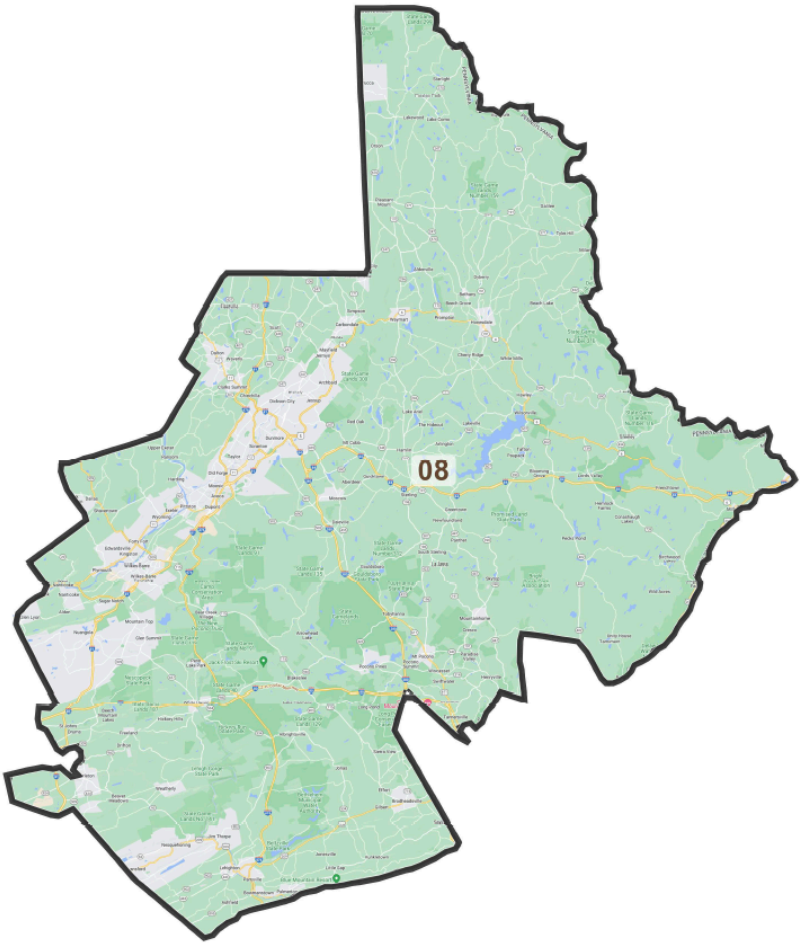
District: 07



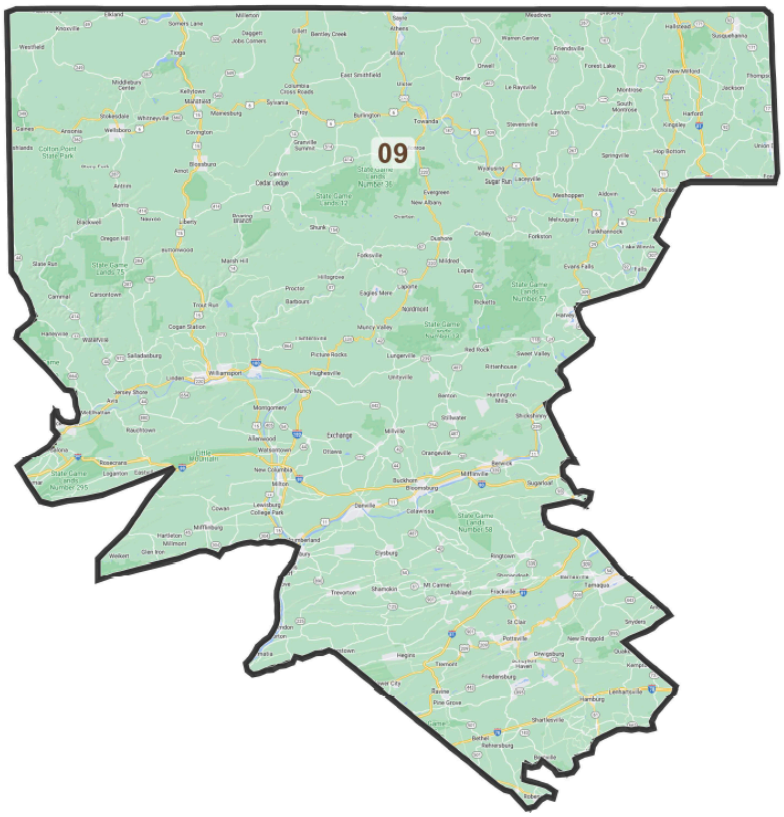
Field	Value
District	07
Population	764863
Deviation	-2
% Deviation	-0%
Polsby Popper	0.32
% D 20_Pres	52.06%
% R 20_Pres	46.76%
% NH White CVAP 19	76.29%
% NH Black CVAP 19	6.17%
% NH Asian CVAP 19	2.48%
% H CVAP 19	14.5%
% AP_Blk	10.3%
% White	69.51%

District: 08

Field	Value
District	08
Population	764863
Deviation	-2
% Deviation	-0%
Polsby Popper	0.32
% D 20_Pres	45.57%
% R 20_Pres	53.4%
% NH White CVAP 19	86.69%
% NH Black CVAP 19	4.76%
% NH Asian CVAP 19	1.23%
% H CVAP 19	6.77%
% AP_Blk	7.39%
% White	80.19%

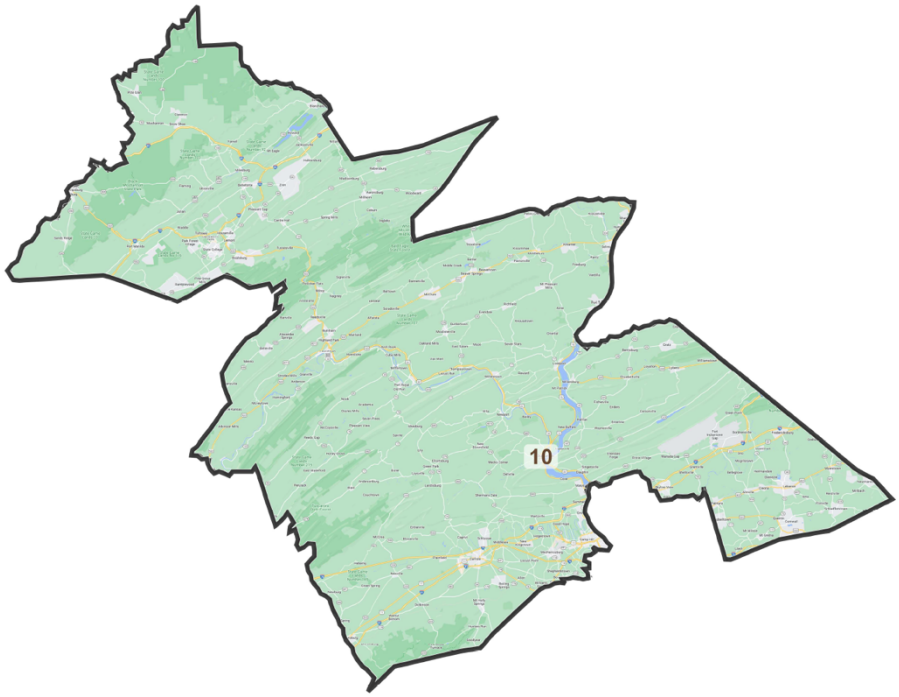


District: 09



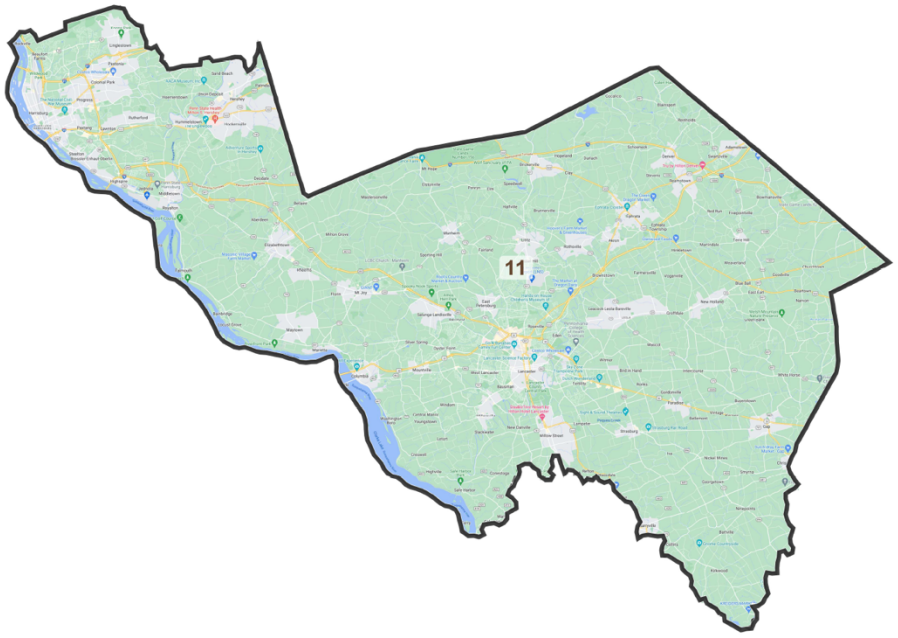
Field	Value
District	09
Population	764865
Deviation	0
% Deviation	0%
Polsby Popper	0.32
% D 20_Pres	29.83%
% R 20_Pres	68.7%
% NH White CVAP 19	93.91%
% NH Black CVAP 19	2.61%
% NH Asian CVAP 19	0.59%
% H CVAP 19	2.34%
% AP_Blk	3.5%
% White	90.48%

District: 10



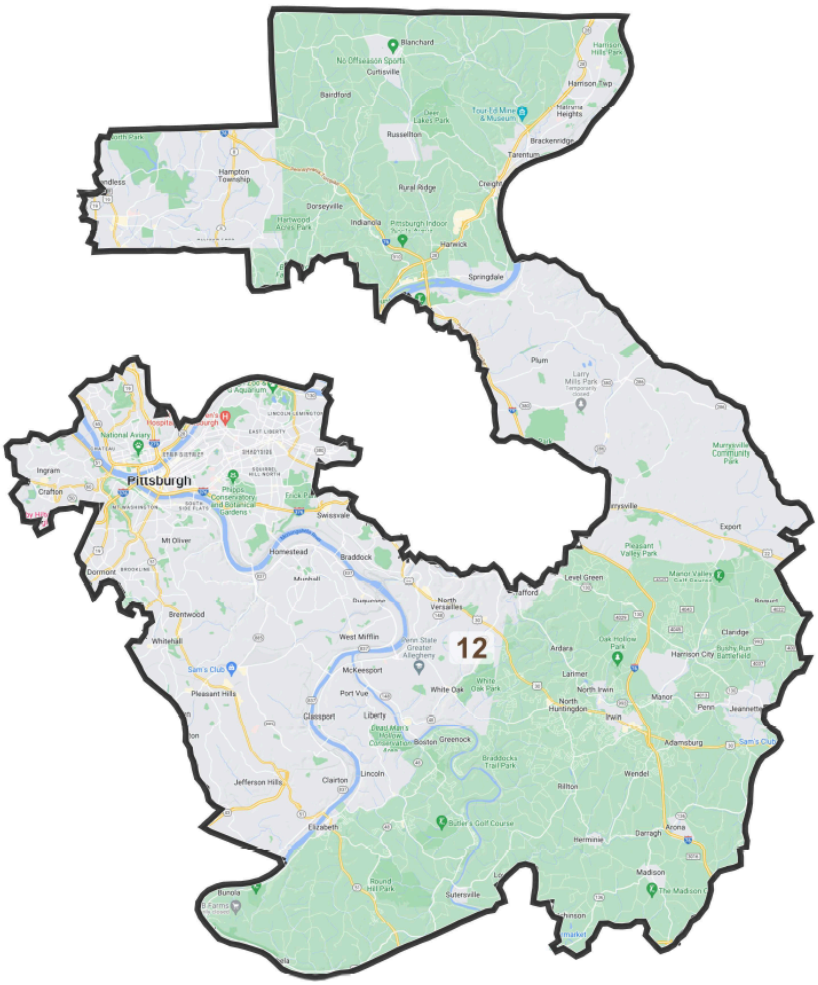
Field	Value
District	10
Population	764864
Deviation	-1
% Deviation	-0%
Polsby Popper	0.19
% D 20_Pres	38.38%
% R 20_Pres	60.21%
% NH White CVAP 19	91.07%
% NH Black CVAP 19	2.82%
% NH Asian CVAP 19	1.9%
% H CVAP 19	3.75%
% AP_Blk	4.04%
% White	85.73%

District: 11



Field	Value
District	11
Population	764865
Deviation	0
% Deviation	0%
Polsby Popper	0.31
% D 20_Pres	47.41%
% R 20_Pres	51.14%
% NH White CVAP 19	79.98%
% NH Black CVAP 19	9.02%
% NH Asian CVAP 19	2.35%
% H CVAP 19	8.12%
% AP_Blk	11.92%
% White	73.79%

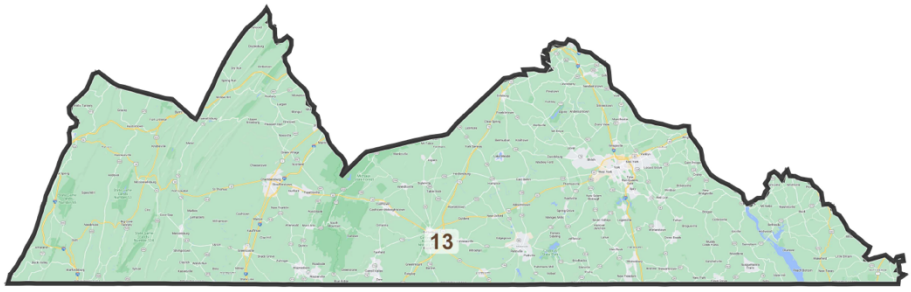
District: 12



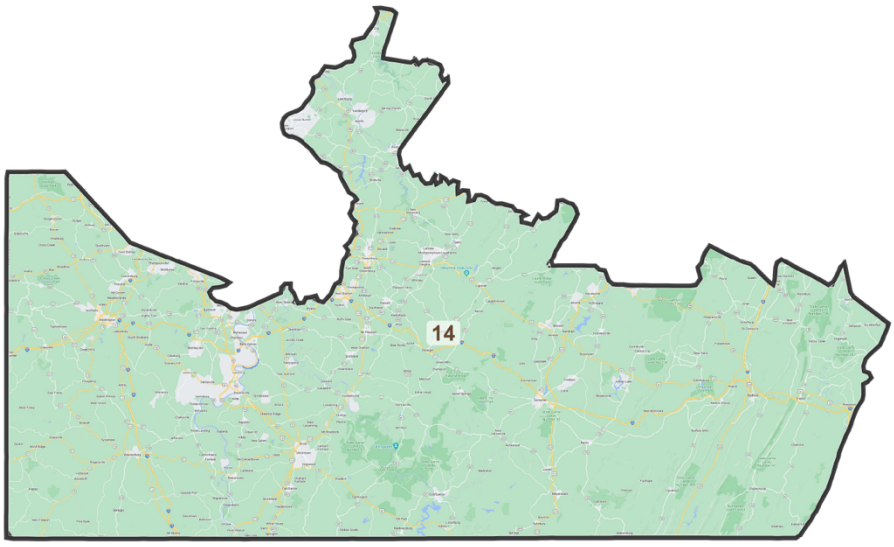
Field	Value
District	12
Population	764865
Deviation	0
% Deviation	0%
Polsby Popper	0.13
% D 20_Pres	59.29%
% R 20_Pres	39.58%
% NH White CVAP 19	81.69%
% NH Black CVAP 19	13.81%
% NH Asian CVAP 19	2.01%
% H CVAP 19	1.72%
% AP_Blk	16.86%
% White	74.47%

District: 13

Field	Value
District	13
Population	764865
Deviation	0
% Deviation	0%
Polsby Popper	0.24
% D 20_Pres	33.56%
% R 20_Pres	64.98%
% NH White CVAP 19	89.97%
% NH Black CVAP 19	4.25%
% NH Asian CVAP 19	0.99%
% H CVAP 19	4.17%
% AP_Blk	6.3%
% White	84.2%

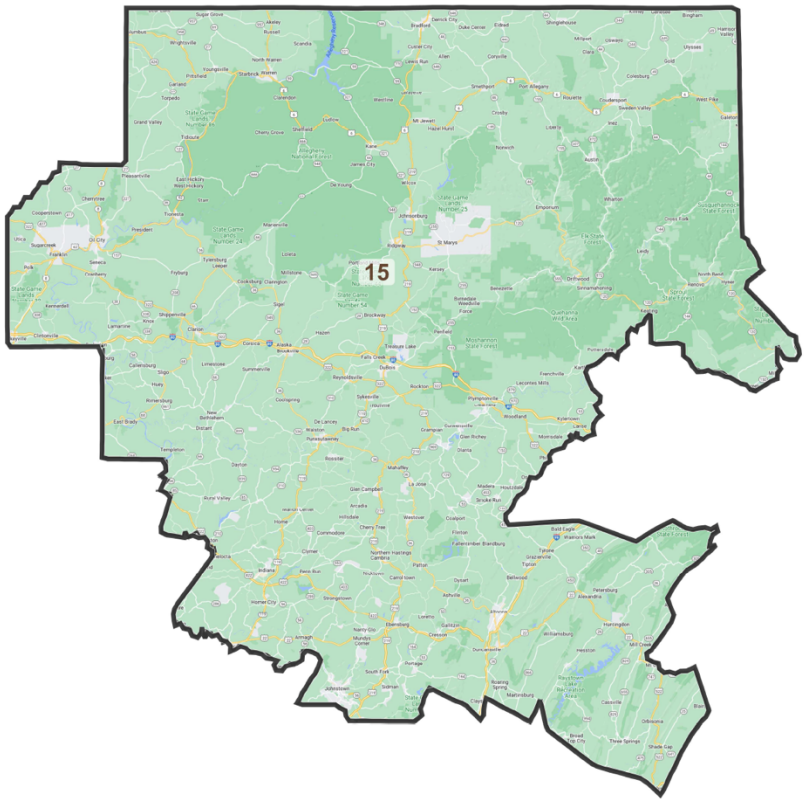


District: 14



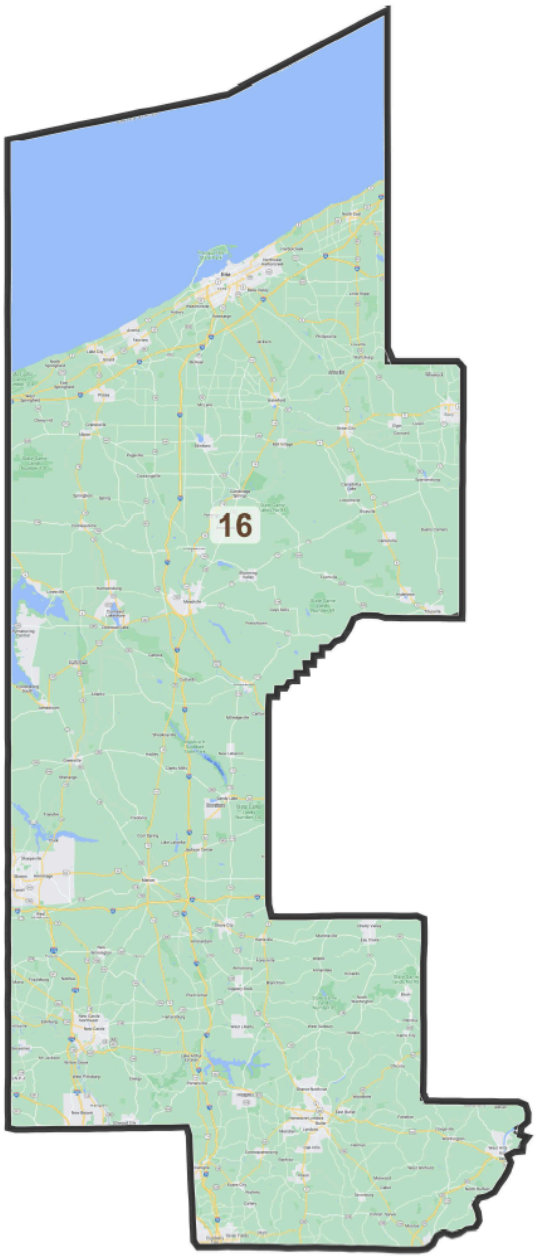
Field	Value
District	14
Population	764865
Deviation	0
% Deviation	0%
Polsby Popper	0.26
% D 20_Pres	32.42%
% R 20_Pres	66.53%
% NH White CVAP 19	94.66%
% NH Black CVAP 19	3.21%
% NH Asian CVAP 19	0.55%
% H CVAP 19	1.01%
% AP_Blk	4.33%
% White	91.29%

District: 15



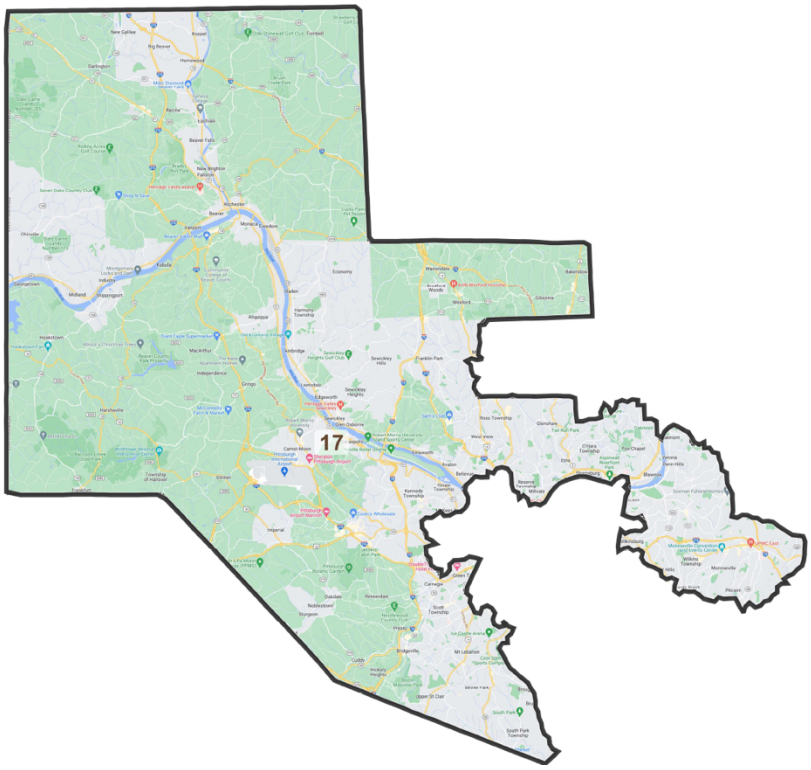
Field	Value
District	15
Population	764866
Deviation	1
% Deviation	0%
Polsby Popper	0.28
% D 20_Pres	26.95%
% R 20_Pres	71.81%
% NH White CVAP 19	95.26%
% NH Black CVAP 19	2.54%
% NH Asian CVAP 19	0.46%
% H CVAP 19	1.17%
% AP_Blk	3.31%
% White	92.52%

District: 16



Field	Value
District	16
Population	764866
Deviation	1
% Deviation	0%
Polsby Popper	0.37
% D 20_Pres	38.89%
% R 20_Pres	59.82%
% NH White CVAP 19	92.76%
% NH Black CVAP 19	4.23%
% NH Asian CVAP 19	0.8%
% H CVAP 19	1.67%
% AP_Blk	6.02%
% White	87.89%

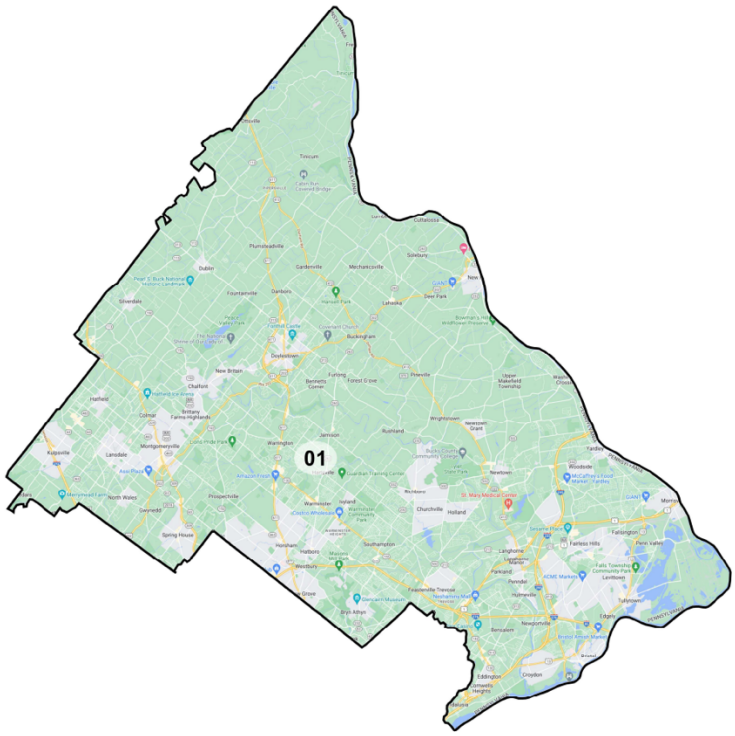
District: 17



Field	Value
District	17
Population	764865
Deviation	0
% Deviation	0%
Polsby Popper	0.2
% D 20_Pres	52.45%
% R 20_Pres	46.34%
% NH White CVAP 19	88.41%
% NH Black CVAP 19	7.98%
% NH Asian CVAP 19	1.73%
% H CVAP 19	1.25%
% AP_Blk	10.06%
% White	81.55%

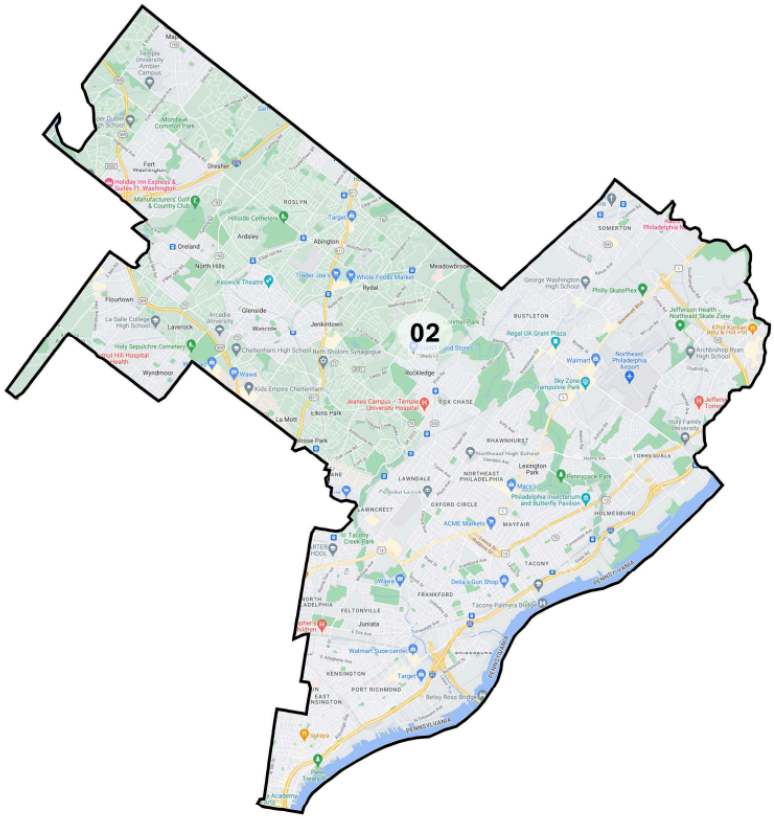
Appendix 9: Individual Districts, Competitive Map

District: 01



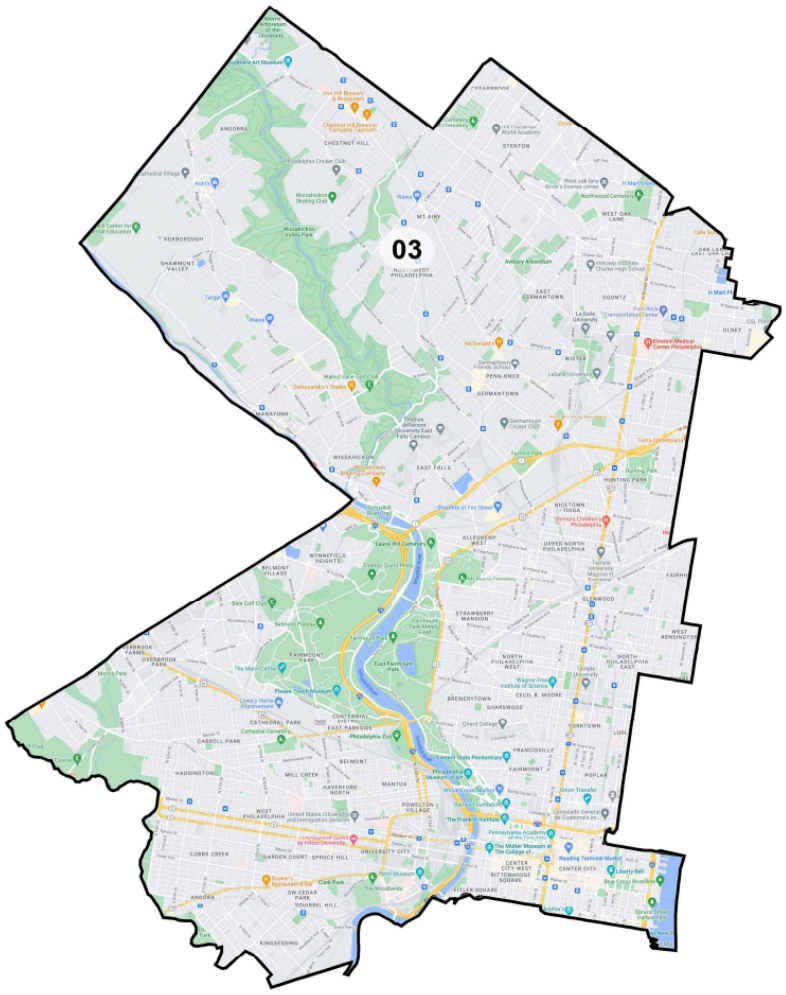
Field	Value
District	01
Deviation	0
% Deviation	0%
% D 20_Pres	54.17%
% R 20_Pres	44.82%
Total CVAP 19	560218.41
% NH CVAP 19	96.54%
% NH White CVAP 19	86.29%
% NH Black CVAP 19	4.44%
% NH Asian CVAP 19	5.32%
% H CVAP 19	3.47%
% AP_Blk	5.88%
% White	79.31%

District: 02



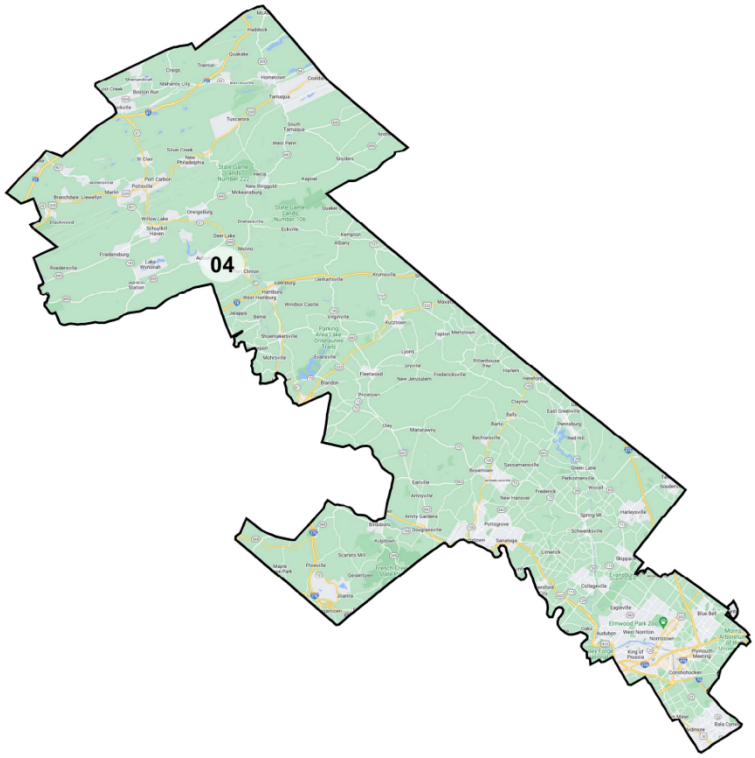
Field	Value
District	02
Deviation	-1
% Deviation	-0%
% D 20_Pres	68.02%
% R 20_Pres	31.18%
Total CVAP 19	523916.82
% NH CVAP 19	83.61%
% NH White CVAP 19	57.03%
% NH Black CVAP 19	19.36%
% NH Asian CVAP 19	6.38%
% H CVAP 19	16.38%
% AP_Blk	22.95%
% White	49.47%

District: 03



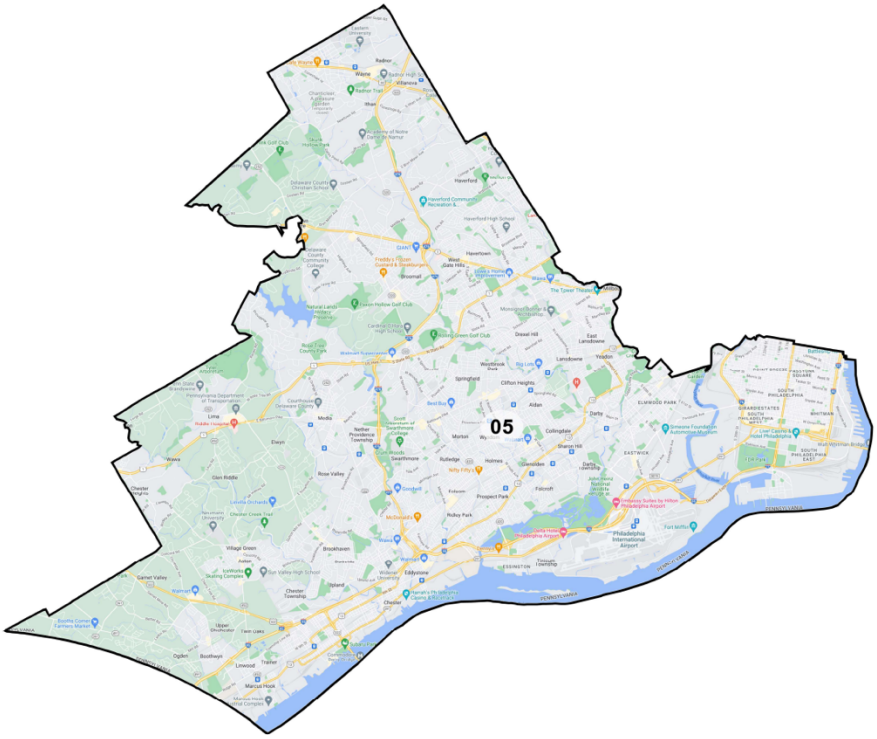
Field	Value
District	03
Deviation	0
% Deviation	0%
% D 20_Pres	92.16%
% R 20_Pres	7.25%
Total CVAP 19	564570.49
% NH CVAP 19	92.83%
% NH White CVAP 19	27.73%
% NH Black CVAP 19	59.99%
% NH Asian CVAP 19	3.92%
% H CVAP 19	7.17%
% AP_Blk	59.43%
% White	26.94%

District: 04



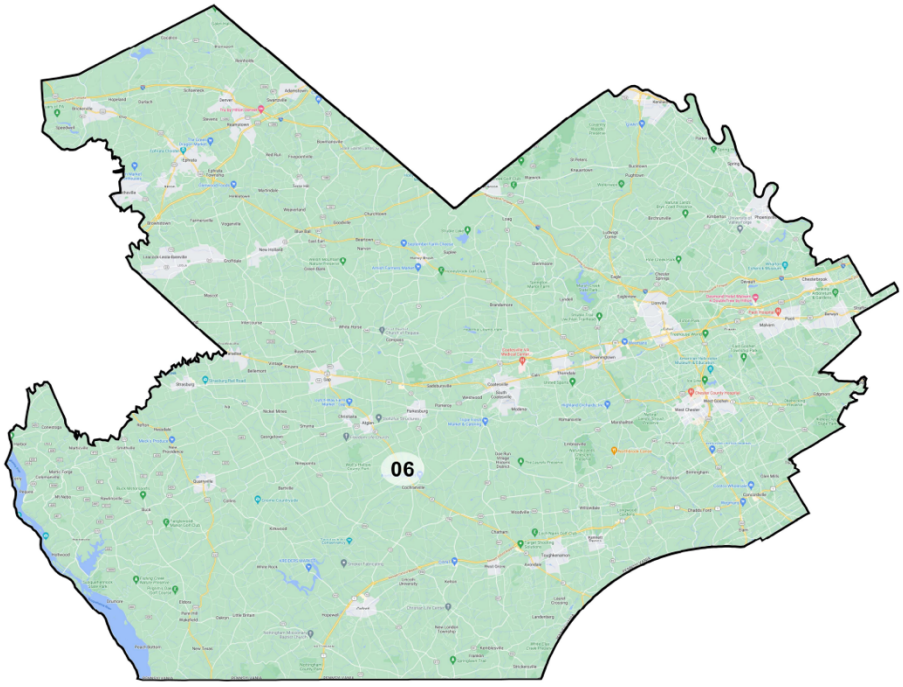
Field	Value
District	04
Deviation	0
% Deviation	0%
% D 20_Pres	52.58%
% R 20_Pres	46.23%
Total CVAP 19	564147.37
% NH CVAP 19	96.84%
% NH White CVAP 19	86.53%
% NH Black CVAP 19	6.7%
% NH Asian CVAP 19	3.19%
% H CVAP 19	3.16%
% AP_Blk	8.15%
% White	79.4%

District: 05



Field	Value
District	05
Deviation	-1
% Deviation	-0%
% D 20_Pres	68.09%
% R 20_Pres	31.08%
Total CVAP 19	548067.70
% NH CVAP 19	96.42%
% NH White CVAP 19	65.8%
% NH Black CVAP 19	24.19%
% NH Asian CVAP 19	5.67%
% H CVAP 19	3.57%
% AP_Blk	27.69%
% White	57.42%

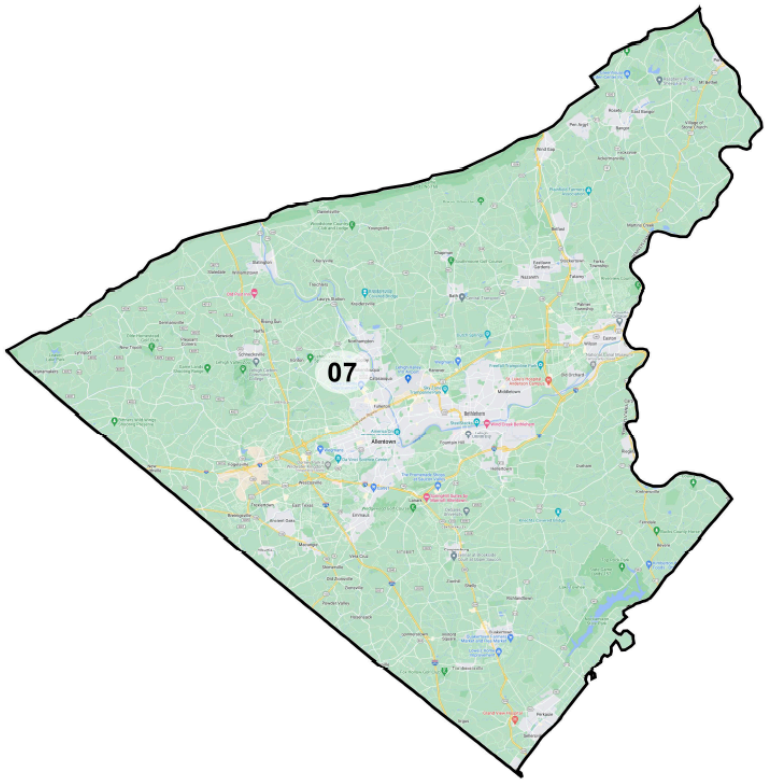
District: 06



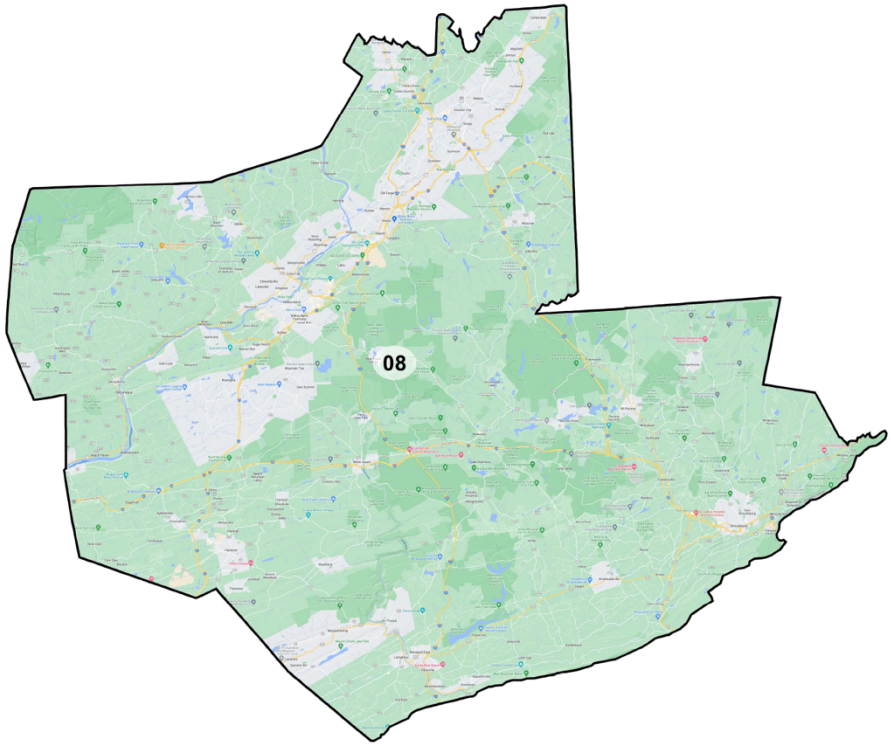
Field	Value
District	06
Deviation	0
% Deviation	0%
% D 20_Pres	51.29%
% R 20_Pres	47.52%
Total CVAP 19	541567.34
% NH CVAP 19	96.42%
% NH White CVAP 19	88.05%
% NH Black CVAP 19	4.98%
% NH Asian CVAP 19	2.9%
% H CVAP 19	3.58%
% AP_Blk	5.62%
% White	81.08%

District: 07

Field	Value
District	07
Deviation	0
% Deviation	0%
% D 20_Pres	50.72%
% R 20_Pres	48.08%
Total CVAP 19	557079.41
% NH CVAP 19	86.67%
% NH White CVAP 19	78.73%
% NH Black CVAP 19	5.06%
% NH Asian CVAP 19	2.39%
% H CVAP 19	13.32%
% AP_Blk	8.63%
% White	72.16%

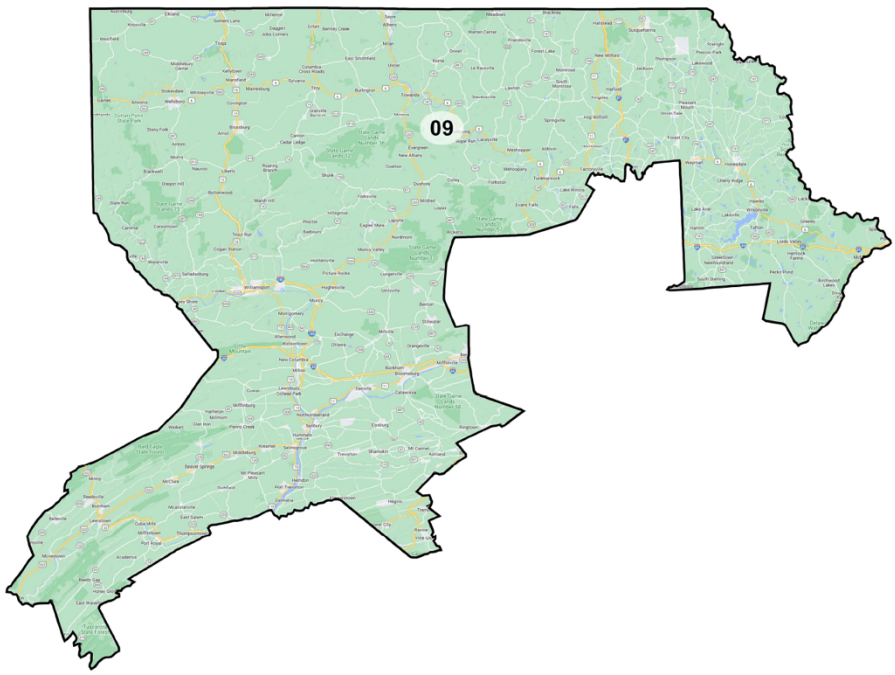


District: 08



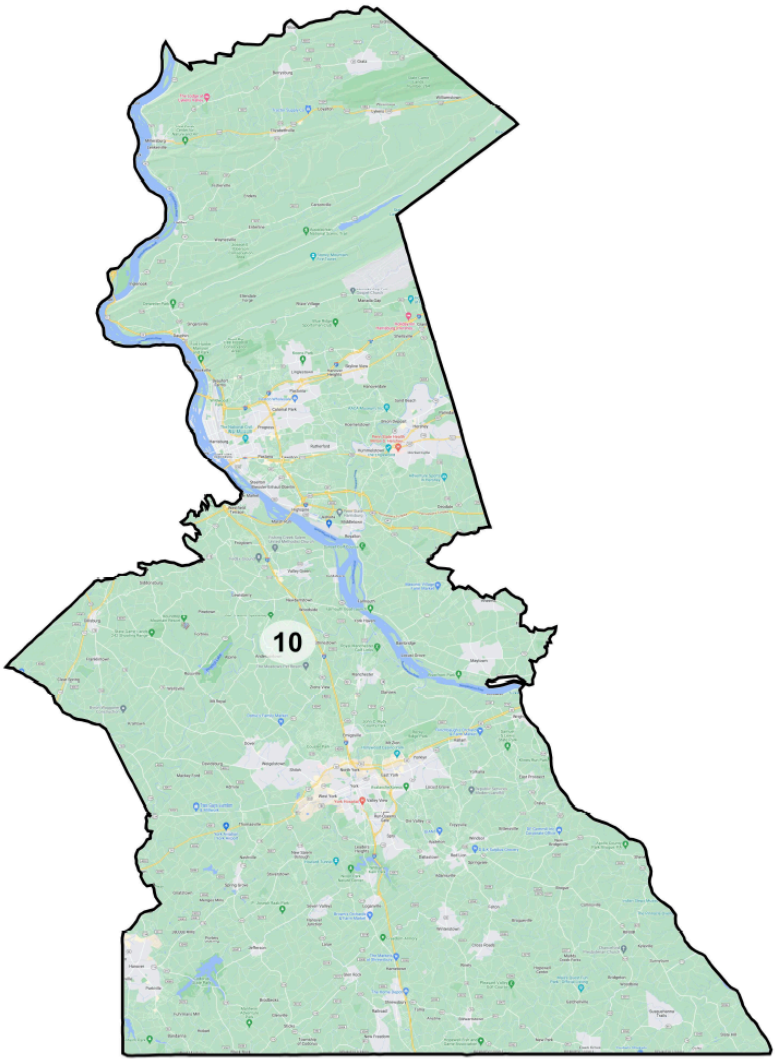
Field	Value
District	08
Deviation	-1
% Deviation	-0%
% D 20_Pres	47.24%
% R 20_Pres	51.7%
Total CVAP 19	581097.65
% NH CVAP 19	92.59%
% NH White CVAP 19	85.29%
% NH Black CVAP 19	5.36%
% NH Asian CVAP 19	1.42%
% H CVAP 19	7.41%
% AP_Blk	8.61%
% White	77.98%

District: 09



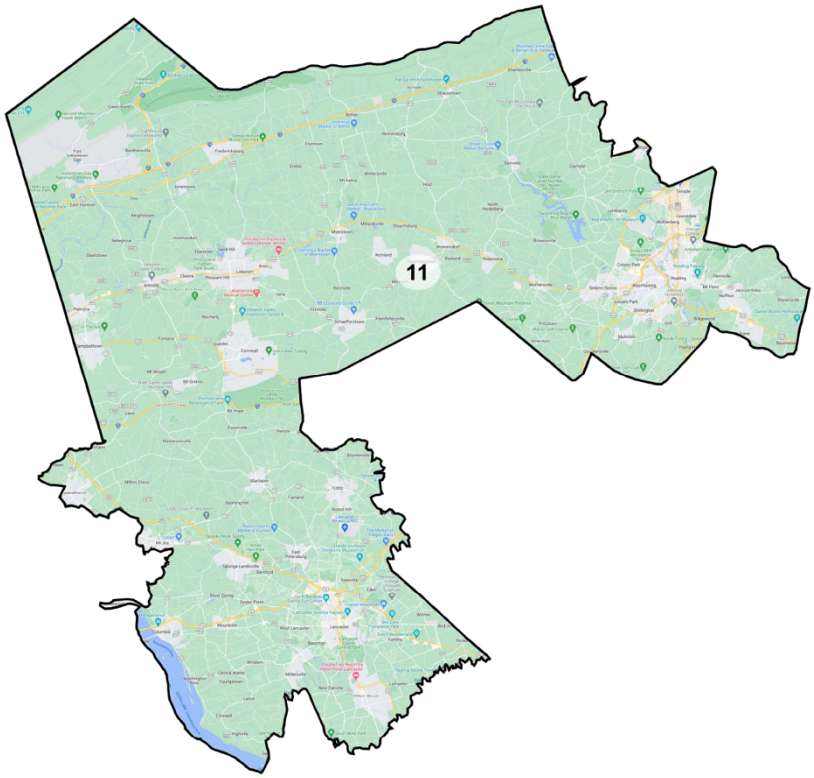
Field	Value
District	09
Deviation	0
% Deviation	0%
% D 20_Pres	29.91%
% R 20_Pres	68.71%
Total CVAP 19	614720.52
% NH CVAP 19	97.42%
% NH White CVAP 19	93.43%
% NH Black CVAP 19	2.77%
% NH Asian CVAP 19	0.61%
% H CVAP 19	2.57%
% AP_Blk	3.64%
% White	90.57%

District: 10



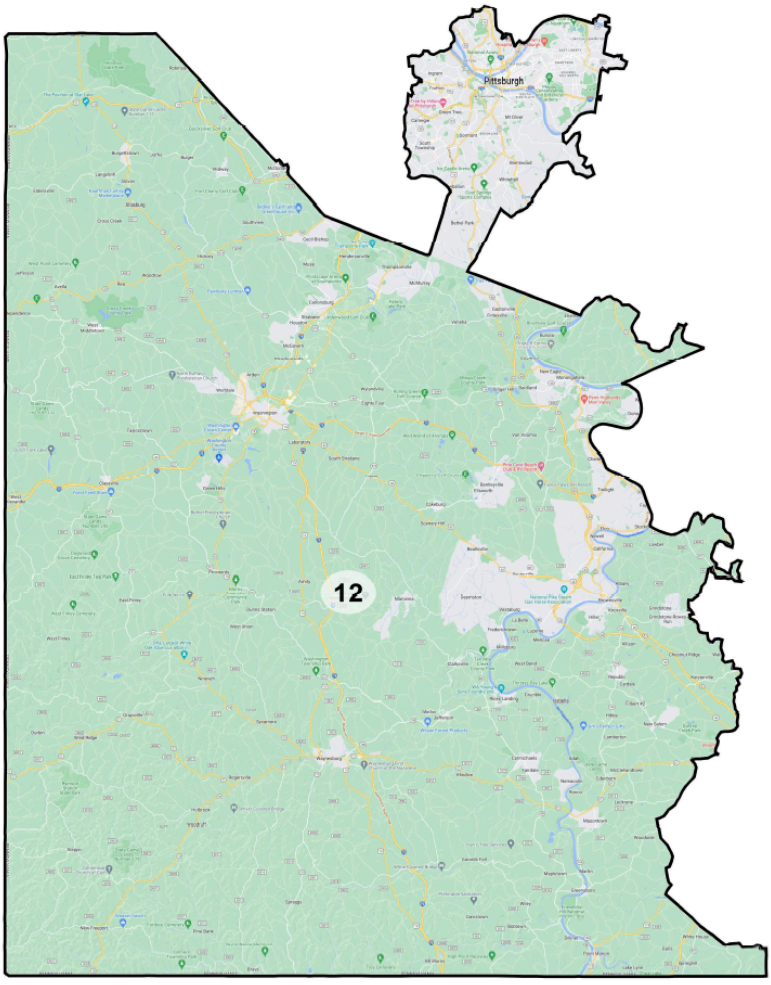
Field	Value
District	10
Deviation	0
% Deviation	0%
% D 20_Pres	42.99%
% R 20_Pres	55.56%
Total CVAP 19	559625.98
% NH CVAP 19	94.56%
% NH White CVAP 19	82.46%
% NH Black CVAP 19	9.65%
% NH Asian CVAP 19	1.85%
% H CVAP 19	5.44%
% AP_Blk	12.8%
% White	75.08%

District: 11



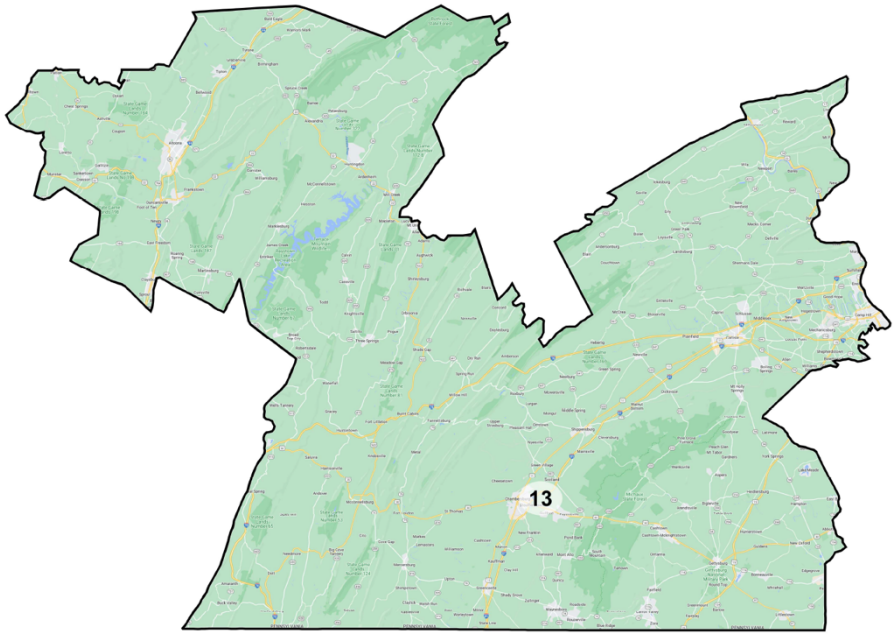
Field	Value
District	11
Deviation	0
% Deviation	0%
% D 20_Pres	46.41%
% R 20_Pres	52.16%
Total CVAP 19	546244.33
% NH CVAP 19	85.29%
% NH White CVAP 19	78.24%
% NH Black CVAP 19	4.77%
% NH Asian CVAP 19	1.78%
% H CVAP 19	14.71%
% AP_Blk	7.95%
% White	72.16%

District: 12



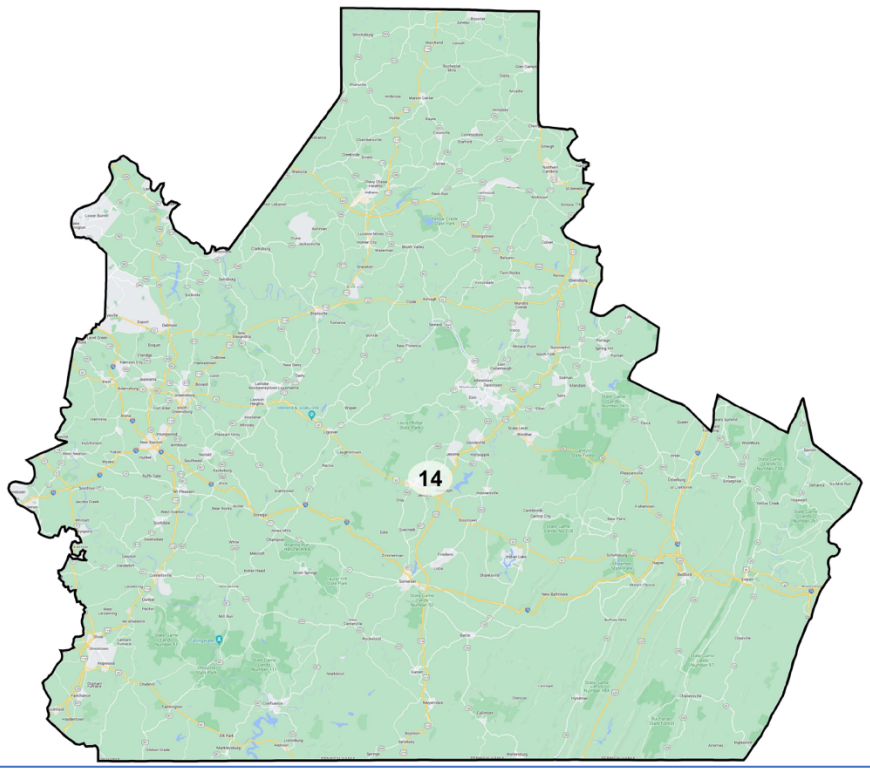
Field	Value
District	12
Deviation	-1
% Deviation	-0%
% D 20_Pres	57.74%
% R 20_Pres	41.16%
Total CVAP 19	596329.39
% NH CVAP 19	98.23%
% NH White CVAP 19	84.15%
% NH Black CVAP 19	11.29%
% NH Asian CVAP 19	2.01%
% H CVAP 19	1.76%
% AP_Blk	13.2%
% White	77.57%

District: 13



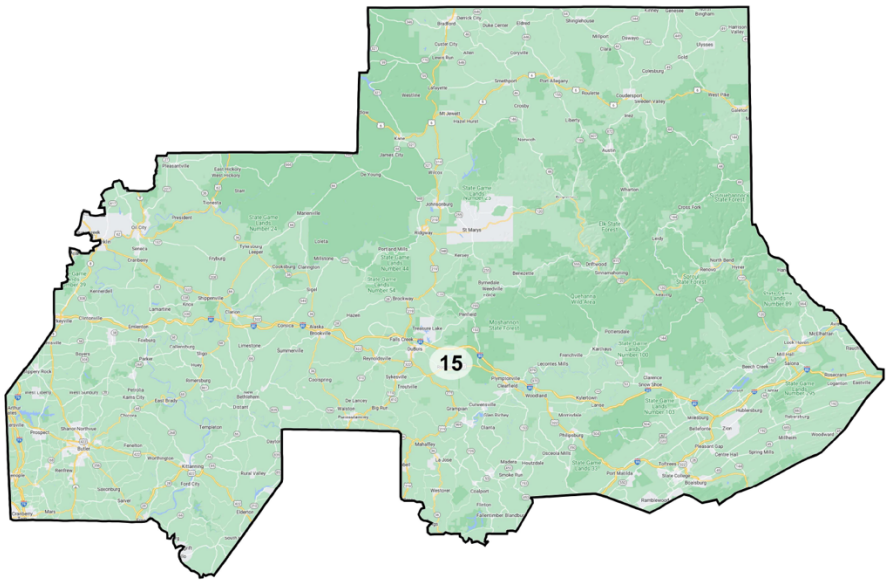
Field	Value
District	13
Deviation	-2
% Deviation	-0%
% D 20_Pres	33.24%
% R 20_Pres	65.38%
Total CVAP 19	585049.16
% NH CVAP 19	97.62%
% NH White CVAP 19	92.53%
% NH Black CVAP 19	3.13%
% NH Asian CVAP 19	1.36%
% H CVAP 19	2.38%
% AP_Blk	4.41%
% White	87.34%

District: 14



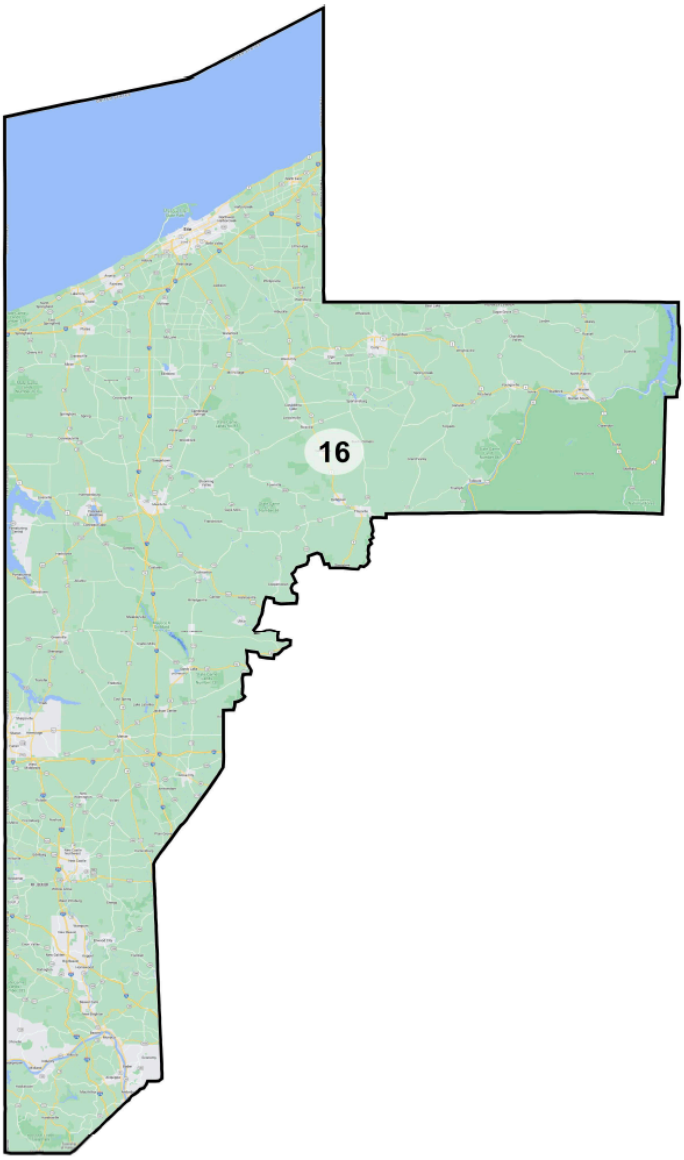
Field	Value
District	14
Deviation	0
% Deviation	0%
% D 20_Pres	31.37%
% R 20_Pres	67.58%
Total CVAP 19	618899.93
% NH CVAP 19	99.01%
% NH White CVAP 19	95.19%
% NH Black CVAP 19	2.75%
% NH Asian CVAP 19	0.6%
% H CVAP 19	1%
% AP_Blk	4.12%
% White	91.62%

District: 15



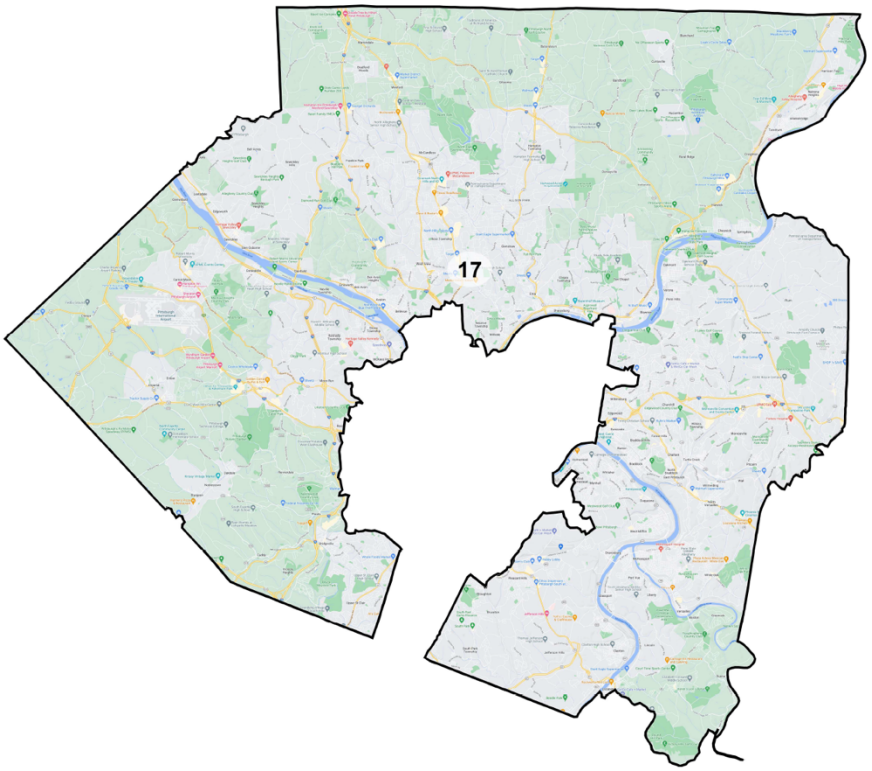
Field	Value
District	15
Deviation	0
% Deviation	0%
% D 20_Pres	32.43%
% R 20_Pres	66.25%
Total CVAP 19	608634.86
% NH CVAP 19	98.53%
% NH White CVAP 19	94.69%
% NH Black CVAP 19	2.27%
% NH Asian CVAP 19	1.05%
% H CVAP 19	1.47%
% AP_Blk	2.51%
% White	91.26%

District: 16



Field	Value
District	16
Deviation	0
% Deviation	0%
% D 20_Pres	40.64%
% R 20_Pres	58.03%
Total CVAP 19	605512.04
% NH CVAP 19	98.3%
% NH White CVAP 19	91.81%
% NH Black CVAP 19	5.21%
% NH Asian CVAP 19	0.67%
% H CVAP 19	1.7%
% AP_Blk	7.45%
% White	86.55%

District: 17



Field	Value
District	17
Deviation	1
% Deviation	0%
% D 20_Pres	53.71%
% R 20_Pres	45.12%
Total CVAP 19	582725.38
% NH CVAP 19	98.75%
% NH White CVAP 19	85.95%
% NH Black CVAP 19	10.43%
% NH Asian CVAP 19	1.7%
% H CVAP 19	1.24%
% AP_Blk	13.33%
% White	78.92%