

IN THE UNITED STATES DISTRICT COURT  
MIDDLE DISTRICT OF FLORIDA  
TAMPA DIVISION

**KETO NORD HODGES, et al.,**

Plaintiffs,

v.

**KATHLEEN PASSIDOMO, et al.,**

Defendants.

Case No. 8:24-cv-879

EXPERT REPORT OF SEAN P. TRENDE, Ph.D.

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# **1 Expert Qualifications**

## **1.1 Career**

I serve as Senior Elections Analyst for Real Clear Politics. I joined Real Clear Politics in January of 2009 and assumed a fulltime position in March of 2010. Real Clear Politics is a company of approximately 50 employees, with its main 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. Real Clear Politics produces original content, including both data analysis and traditional reporting.

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

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

I am also a Lecturer at The Ohio State University. My courseload is detailed below.

## **1.2 Publications and Speaking Engagements**

I am the author of the 2012 book *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 modern times, noting the fluidity and fragility of the coalitions built by the major political parties and their candidates.

I also 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. My focus was researching the history of and writing descriptions for many of the 2012 districts, including tracing the history of how and why they were drawn the way that they were drawn. Because the 2014 Almanac covers the 2012 elections, analyzing how redistricting was done was crucial to my work. I have also authored a chapter in Dr. Larry Sabato's post-election compendium after every election dating back to 2012.

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 fulfill 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.

### **1.3 Education**

I received my Ph.D. in political science at The Ohio State University in 2023. I passed comprehensive examinations in both Methodology and American Politics. The first chapter of my dissertation involves voting patterns on the Supreme Court from 1900 to 1945; the second chapter involves the application of integrated nested LaPlace approximations to enable the incorporation of spatial statistical analysis in the study of United States elections. The third chapter of the dissertation involves the use of communities of interest in redistricting simulations. In pursuit of this degree, I also earned a Mas-

ter's Degree in Applied Statistics. 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 also earned a B.A. from Yale University in history and political science in 1995, a Juris Doctor from Duke University in 2001, and a Master's Degree in political science from Duke University in 2001.

In the winter of 2018, I taught American Politics and the Mass Media at Ohio Wesleyan University. I taught Introduction to American Politics at The Ohio State University for three semesters from Fall of 2018 to Fall of 2019, and again in Fall of 2021. In the Springs of 2020, 2021, 2022 and 2023, 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. It also covers the Voting Rights Act and racial gerrymandering claims. I also taught survey methodology in Fall of 2022 and Spring of 2024.

## 1.4 Prior Engagements as an Expert

A full copy of all cases in which I have testified or been deposed is included on my C.V., attached as Exhibit 1. In 2021, I served as one of two special masters appointed by the Supreme Court of Virginia to redraw the districts that will elect the Commonwealth's representatives to the House of Delegates, state Senate, and U.S. Congress in the following decade. The Supreme Court of Virginia accepted those maps, which were praised by observers from across the political spectrum.<sup>1</sup>

In 2019, I was appointed as the court's expert by the Supreme Court of Belize.

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<sup>1</sup>See, e.g., *New Voting Maps, and a New Day, for Virginia*, The Washington Post (Jan. 2, 2022), available at <https://www.washingtonpost.com/opinions/2022/01/02/virginia-redistricting-voting-maps-gerrymander/>; Henry Olsen, *Maryland Shows How to do Redistricting Wrong. Virginia Shows How to Do it Right*, The Washington Post (Dec. 9, 2021), available at <https://www.washingtonpost.com/opinions/2021/12/09/maryland-virginia-redistricting/>; Richard Pildes, *Has VA Created a New Model for a Reasonably Non-Partisan Redistricting Process*, Election Law Blog (Dec. 9, 2021), available at <https://electionlawblog.org/?p=126216>.

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.

I served as a Voting Rights Act expert to counsel for the Arizona Independent Redistricting Commission in 2021 and 2022.

## 2 Scope of Work

I have been asked to assess the claims made by Dr. Cory McCartan in his *Expert Report of Cory McCartan, Ph.D*, dated July 1, 2024 (“McCartan Report”). In particular, I was asked to assess his demonstration Districts A, B, and C, with a focus on what I call the “Litigated Districts,” that is, Florida Senate Districts 14, 16, 18, 20, 21 and 23. I was asked to examine their structure under the current Florida Senate Map (“Enacted Map,” “Enacted Plan,” or “Enacted Districts”), as well as any predecessor districts under the map that was in effect in the latter half of the previous decade (“Benchmark Map,” “Benchmark Plan,” or “Benchmark Districts”). I am being compensated at a rate of \$450/hr for writing this report. My compensation is in no way contingent upon the results of my inquiry. All opinions are offered with a reasonable degree of certainty typical of my field.

## 3 Data Used

In addition to documents referenced in this report, I have relied upon:

- The McCartan Report, made available to me through counsel;
- Shapefiles for Dr. McCartan’s Demonstration Maps, made available to me through counsel;

- Block Assignment Files for Dr. McCartan's Demonstration Maps, produced through Dave's Redistricting App.

## 4 Comparison of Enacted Plan to Benchmark Plan

### 4.1 Background

I was first asked to compare the Benchmark Plan to the Enacted Plan in the Tampa area, with particular focus upon the Litigated Districts. These districts (again, districts 14, 16, 18, 20, 21 and 23 in the Enacted Map) are the successor districts to districts 24, 16, 20, 18, 19 and 21, respectively, the Benchmark Map. Before discussing this, however, some background is useful.

According to the decennial census, Florida experienced substantial population growth between 2010 and 2020. In 2010, the population was 18,801,310. In 2020, the population was 21,538,187, a 14.6% increase in population. As a result, the ideal population of a state senate district in Florida grew from 470,033 to 538,455. Because this growth was unevenly distributed across the state, several state senate districts were malapportioned and had to be redrawn.

This was true in the Tampa area. By the close of the 2010s, only Senate District 18 and Senate District 20 were within the population range deemed acceptable under the 14th Amendment to the US Constitution.



Figure 1: Deviations in Litigated Districts

Previous	Census Pop. (2020)	Deviation
16	507,043	−5.8%
18	524,046	−2.7%
19	580,419	7.8%
20	554,516	3.0%
21	587,543	9.1%
24	490,664	−8.9%

## 4.2 Reference Maps

For reference, maps of the Benchmark Districts and Enacted Districts follow:

Figure 2: Benchmark Map, Tampa Area

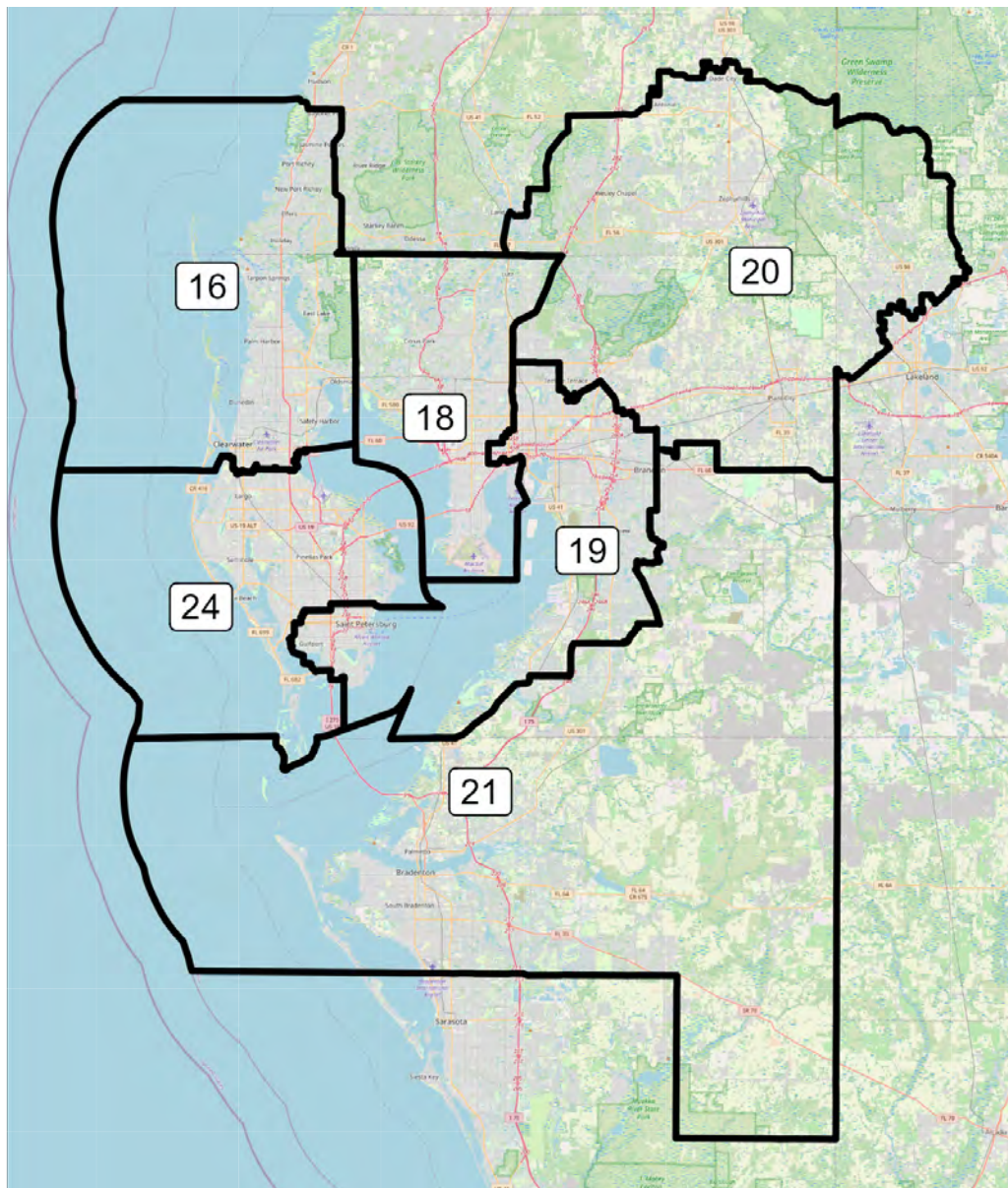
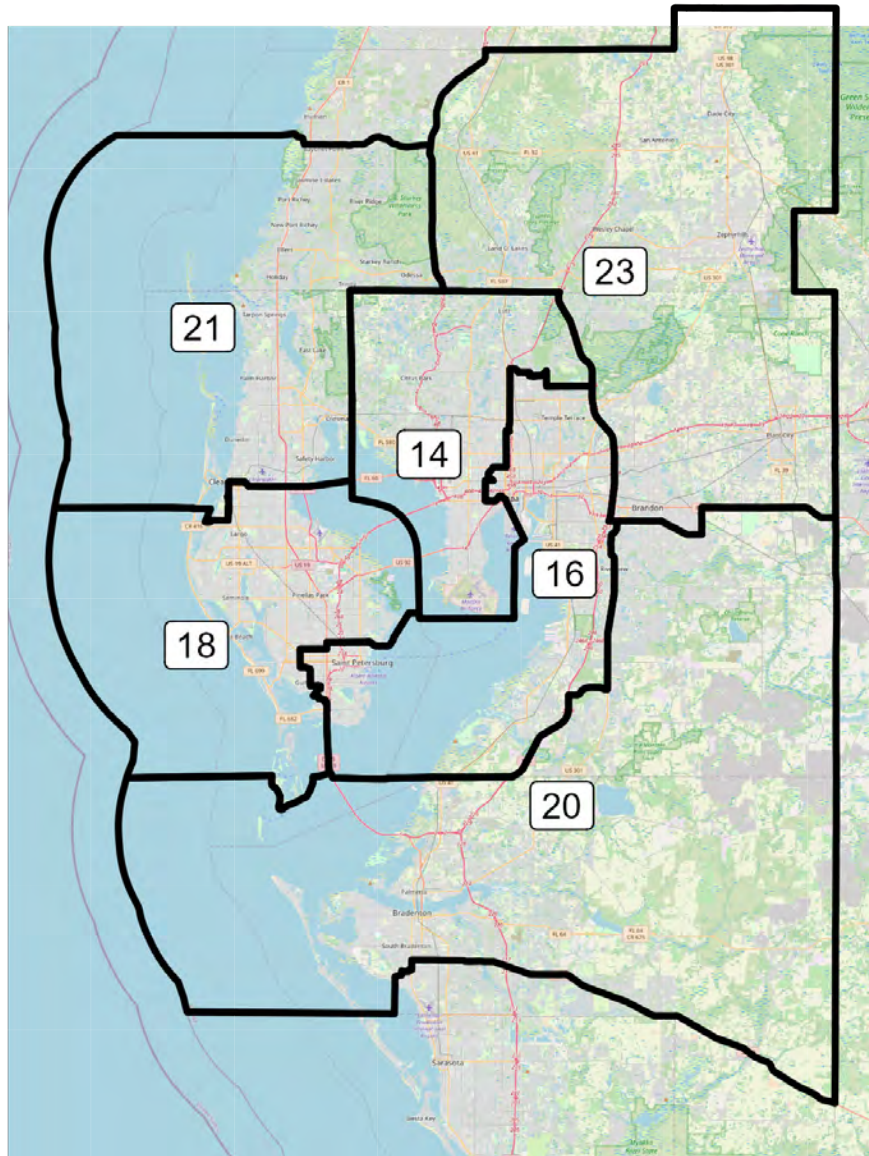


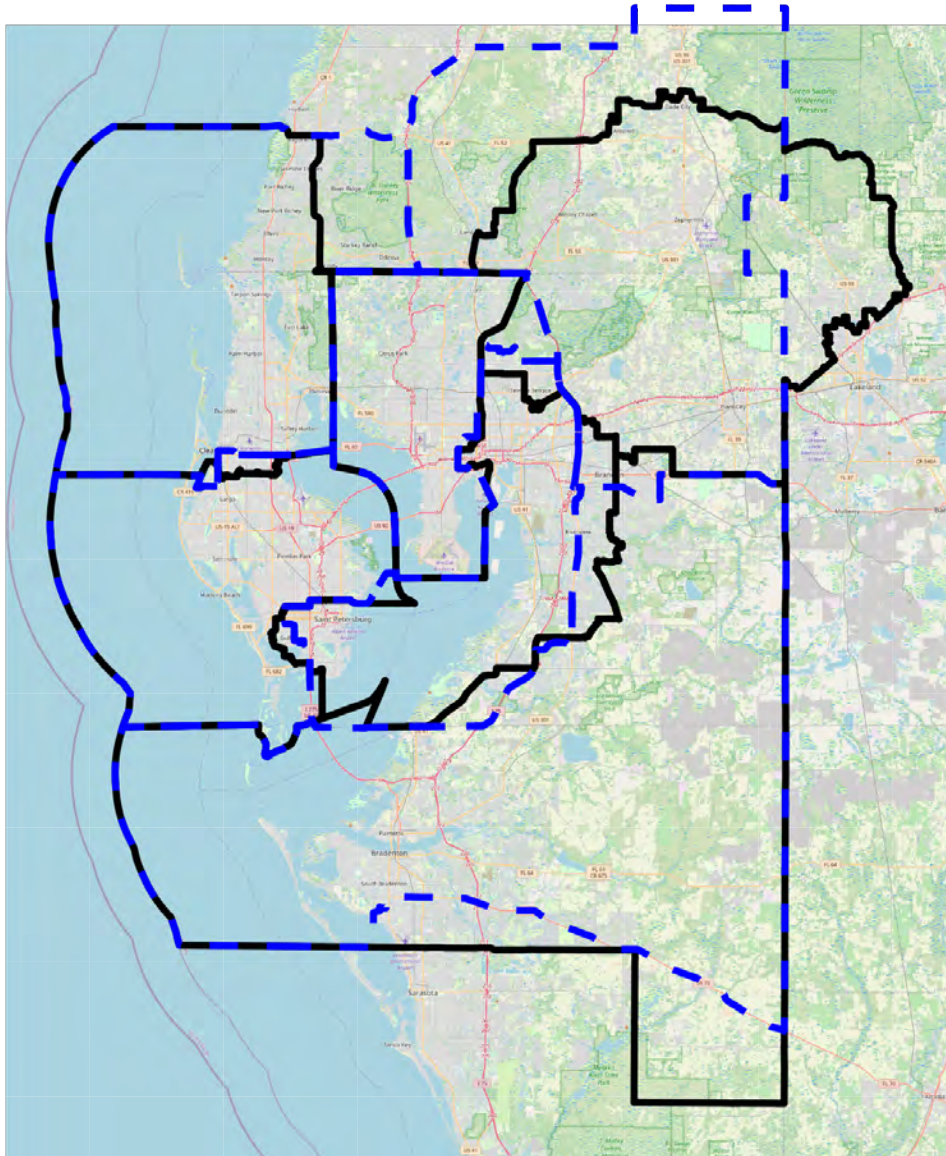
Figure 3: Enacted Map, Tampa Area



Finally, the following map shows the Benchmark Districts with the Enacted Districts overlaid with a dashed blue line. We may note that the boundaries for Benchmark District 20 (Enacted District 23) change significantly. However, Benchmark District 20 lay across three counties. Enacted District 23 reduces this to two. The eastern boundary of Enacted District 23 corresponds to the boundary between Hillsborough and Pasco counties on the one hand, and Polk County on the other hand.



Figure 4: Benchmark Map with Enacted Map overlaid with dashed blue line



### 4.3 Core Retention

I was asked to calculate core retention rates for these districts. Core retention can be calculated different ways. The first way answers the question “what percentage of the previous district is kept together in a subsequent district?” Using this metric, Florida senate districts, on average, retain 74.4% of their cores in the newly formed districts. In

the Tampa area, however, core retention was higher. Districts 16, 18 and 24 in particular retained almost all of their previous cores using this measure. These districts correspond to districts 21, 14, and 18 in the new map.

Figure 5: Core Retention From Benchmark to Enacted Map

<b>Benchmark</b>	<b>% Core Ret.</b>
16	91.8%
18	96.9%
19	70.8%
20	68.0%
21	72.9%
24	98.6%

This approach can sometimes penalize districts that have seen population growth and which therefore need to shed population to comply with one-person-one-vote standards. This leads to the second way to consider core retention. Under this approach we look at the newly drawn districts and inquire as to what portion of those districts existed together previously in a single district. Put differently, if the first approach asks “how well did the previous districts survive intact in the new map,” the second approach asks “how well do the new districts trace back to a previous district”?

Figure 6: Core Retention From Benchmark to Enacted Map

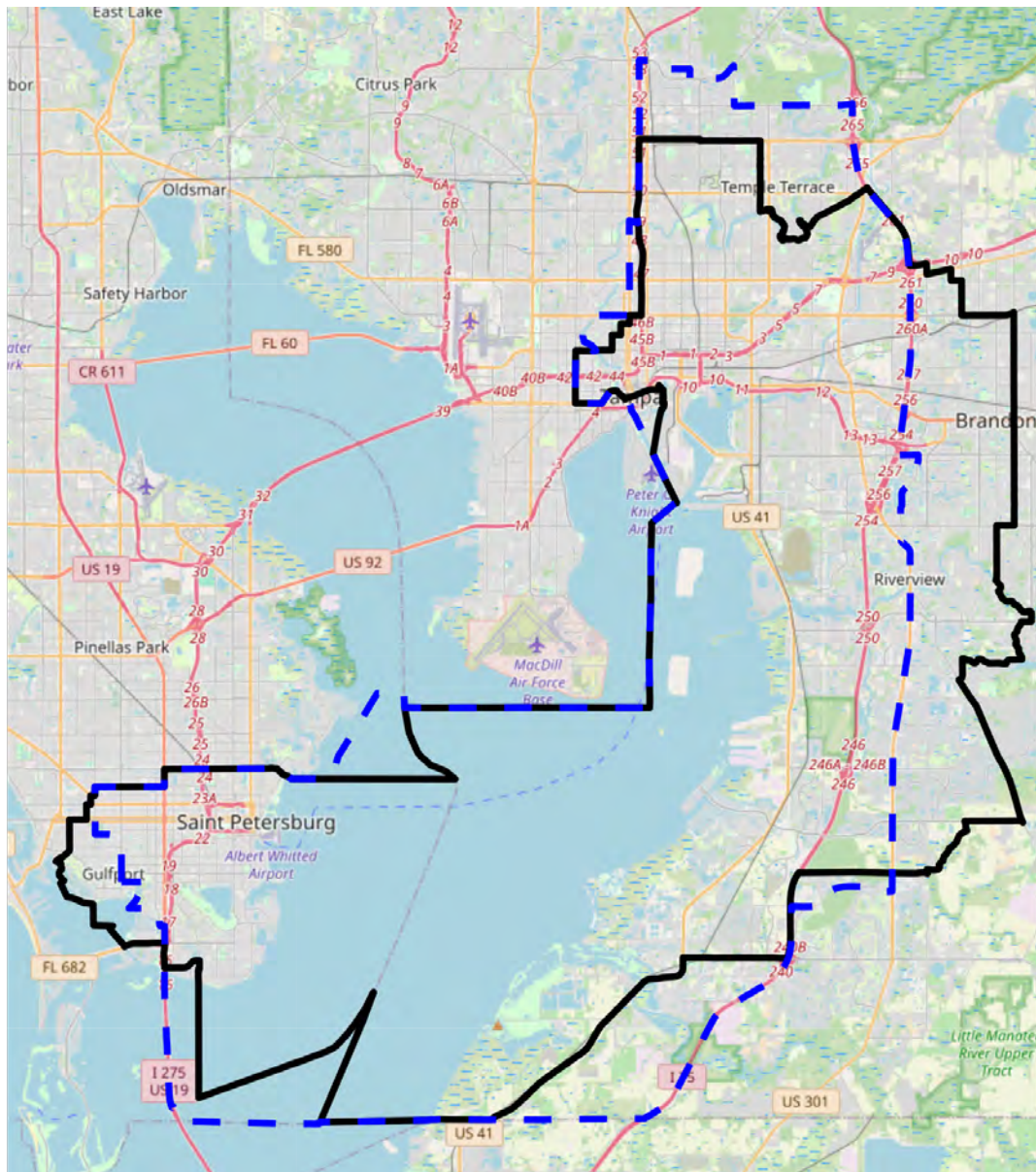
Enacted	% Core Ret.	Benchmark
14	94.8%	18
16	76.7%	19
18	89.2%	24
20	80.1%	21
21	87.0%	16
23	70.3%	20

So, for example, District 14 contains almost all of Benchmark District 18. District 16 contains over three quarters of the Benchmark District 19. The average core retention in Florida using this approach is 74.2%.

#### 4.4 Changes to Benchmark District 19

Finally, I was asked to analyze the changes to District 19, which functionally becomes District 16 in the Enacted Map. We can start by displaying the Benchmark Senate District 19 with Enacted District 16 overlaid in dashed blue lines

Figure 7: Benchmark 19, with Enacted 16 overlaid



In Pinellas County, District 19 sheds 17,160 residents in the southwestern portion of the county. This removes a split in the jurisdictions of Gulfport and Bear Creek, placing them entirely within the 18th District. This portion is 7% BVAP.

In Hillsborough County, the changes are a bit more involved. The district sheds 152,449 residents on the eastern edge of the old district. Here, the district boundary is brought into line with I-75 in the northern portion of the district (near Brandon on the



map), before following U.S. 301 further southward. This portion of the district is 22% BVAP.

The district then adds 12,587 residents in the south by moving the boundary from the Tamiami trail to I-75, while still following the border with Manatee County to the south. This portion is 15.8% BVAP. It also adds 5,767 residents of Sun City Center. This portion is 35.2% BVAP.

In Tampa, the district adds a portion of downtown Tampa and Harbor Island. There are 8,115 residents here, 5.3% of whom are Blacks of voting age. Another 7,867 residents, 16.7% of whom are Blacks of voting age, are added by moving the boundary of the district from I-275 to North Florida Ave./Business Route 41 and the Hillsborough River. Finally, to the north the district adds Temple Terrace (with the exception of a few discontinuous blocks on the east side of I-75) and a portion of University. These 86,345 residents have a BVAP of 27.3%.

Overall, these additions and subtractions do not have a consistent BVAP. They do often seem to correspond to major geopolitical boundaries and roadways.

## 5 Analysis of Dr. McCartan's Maps

### 5.1 The boundaries of the Litigation Districts in Dr. McCartan's maps deviate from geopolitical boundaries at higher rates than their counterparts in the Enacted Map.

Against this background, I was asked to analyze Dr. McCartan's maps for two factors he does not address: core retention and attention to boundaries. Dr. McCartan states in his report that he "attempted to follow major roadways, railways, and natural boundaries such as rivers and the Bay, while avoiding splitting incorporated cities." McCartan Report ¶17. I have no reason to doubt that Dr. McCartan endeavored in good faith to do so.



However, the Florida redistricting website, available at <https://www.floridaredistricting.gov/>, provides a report that details how well a map follows such boundaries. I have run reports on Dr. McCartan's three demonstration maps using this website, as well as on the Enacted Map. Copies of these reports can be found in the accompanying production. Regardless, Dr. McCartan's maps all fare worse than those in the Enacted Map, with District 16 faring considerably worse.

The following table takes the six districts in the region and reproduces how they perform across various boundaries. In other words, in Enacted District 14, 45% of the district lines follow City Boundaries, 48% follow County Boundaries, 19% follow Road Boundaries, and so forth. Of particular interest is the far right column. This shows what percentage of the district boundary deviates from non-GeoPolitical boundaries. That is, this is the percentage of the district's boundary that does not conform to city boundaries, county boundaries, etc. For District 14, the numbers are the same across the maps because Dr. McCartan does not change District 14's boundaries.

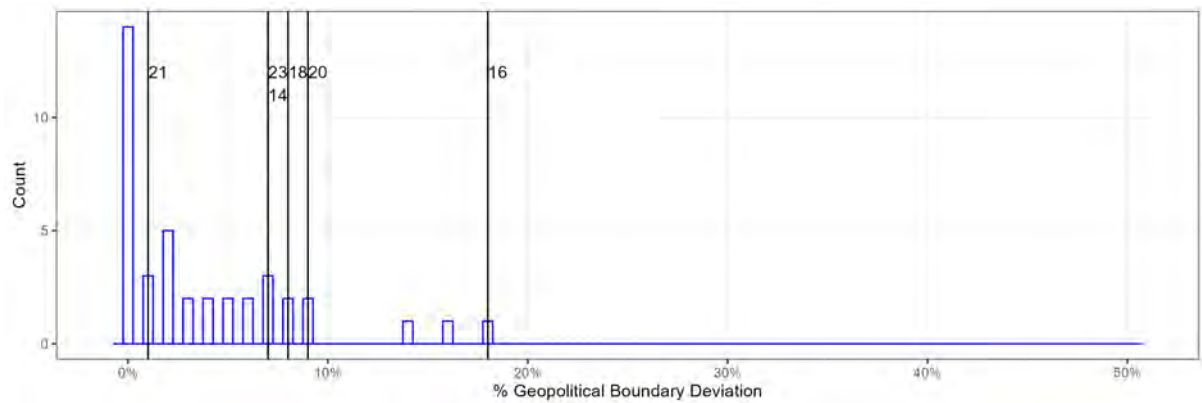
District 16, on the other hand, sees an increase in the percentage of its boundaries that deviate from geopolitical boundaries from 18% in the Enacted Plan to between 41% and 44% in Dr. McCartan's plans. District 20 sees an increase in the percentage of its boundaries that deviate from geopolitical boundaries from 9% to between 12% and 18%. District 21 sees an increase in the percentage of its boundaries that deviate from geopolitical boundaries from 1% to between 10% and 13%. District 23 sees the percentage of its boundaries that deviate from recognized geopolitical boundaries increase from 7% to between 12% and 17%. The only district that sees a decrease (i.e., an improvement) in the percentage of its boundaries that do not correspond to recognized geopolitical boundaries is District 18, which sees a decrease from 8% to between 2% and 3%.

Figure 8: Relationship of District Boundaries to Geo-Political Boundaries, Enacted Map and Maps A-C

Map	District	City Boundaries	County Boundaries	Road Boundaries	Water Boundaries	Rail Boundaries	Non-GeoPolitical Boundaries
Enacted	14	45%	48%	19%	41%	1%	7%
Map A	14	45%	48%	19%	41%	1%	7%
Map B	14	45%	48%	19%	41%	1%	7%
Map C	14	45%	48%	19%	41%	1%	7%
Enacted	16	19%	6%	39%	31%	1%	18%
Map A	16	10%	0%	29%	24%	1%	42%
Map B	16	11%	0%	32%	22%	1%	41%
Map C	16	26%	8%	16%	35%	1%	44%
Enacted	18	24%	52%	16%	71%	0%	8%
Map A	18	30%	67%	11%	87%	0%	2%
Map B	18	30%	66%	11%	86%	0%	3%
Map C	18	30%	66%	11%	86%	0%	3%
Enacted	20	1%	53%	33%	33%	0%	9%
Map A	20	11%	49%	27%	38%	2%	14%
Map B	20	11%	50%	26%	38%	2%	12%
Map C	20	5%	53%	23%	36%	2%	18%
Enacted	21	12%	45%	28%	54%	0%	1%
Map A	21	11%	48%	12%	64%	0%	13%
Map B	21	12%	47%	10%	68%	0%	10%
Map C	21	12%	47%	10%	68%	0%	10%
Enacted	23	5%	58%	46%	3%	0%	7%
Map A	23	4%	53%	34%	5%	3%	17%
Map B	23	4%	54%	36%	46%	0%	14%
Map C	23	4%	54%	36%	6%	2%	12%

Another way to see this is through the histograms below. In this form, a histogram provides counts of things that fall into a particular range. Here, I use the histograms to show the number of districts in the Enacted Map that fall into a particular range for non-conformance to geopolitical boundaries. So, for example, the left-most bar has a height of 14, and the second left-most bar has a height of 3, and the third left-most bar has a height of 5. This means that the Enacted Map contains 14 senate districts where the boundaries do not deviate at all from geopolitical lines, 3 districts where 1% of the

Figure 9: Histogram of Percentage of district boundaries that deviate from geopolitical boundaries; Enacted Map



boundaries deviate from geopolitical lines, and 5 districts where 2% of the boundaries deviate from geopolitical lines.

The vertical lines depict the Litigated Districts in the Enacted Map. This shows that 1% of District 21's boundaries deviate from geopolitical boundaries. 7% of District 14's and District 23's boundaries deviate from geopolitical boundaries, and so on.

The histogram for Map A below functions in much the same way. The bars are identical to what we see above: They are the counts of districts where the boundaries fail to conform to geopolitical boundaries in the Enacted Map at a given rate. The vertical lines, however, represent the Litigated Districts in Demonstration Map A. Two things stand out. First, the vertical lines generally shifted rightward, showing that the Litigated Districts deviate from geopolitical boundaries at a higher rate than the Enacted Map. Second, Dr. McCartan's District 16 deviates from geopolitical boundaries at a higher rate than any of the Enacted Map districts. This is consistent across all three of Dr. McCartan's maps.

Figure 10: Histogram of Percentage of district boundaries that deviate from geopolitical boundaries; Map A

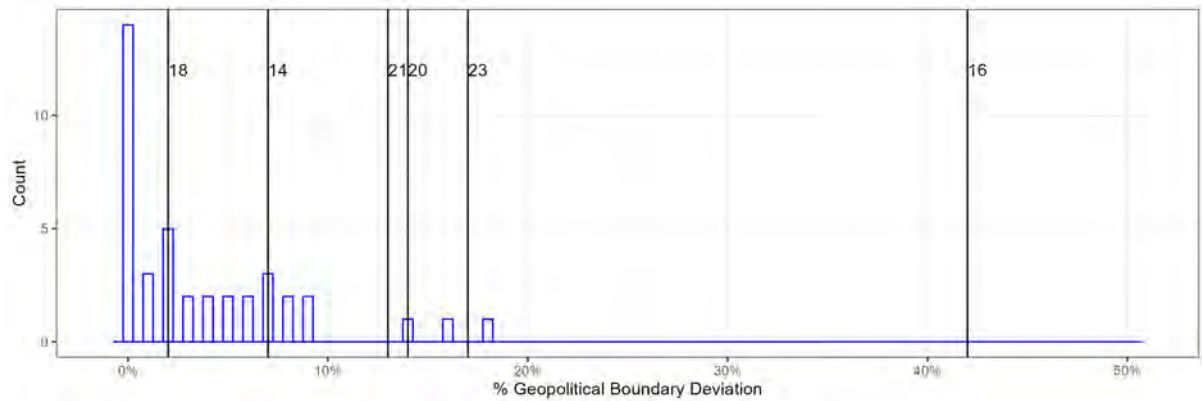


Figure 11: Histogram of Percentage of district boundaries that deviate from geopolitical boundaries; Map B

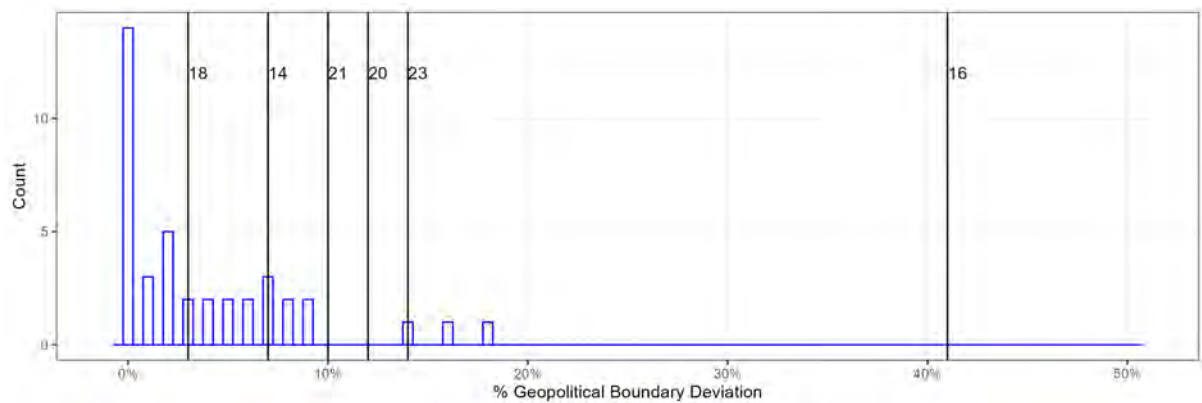
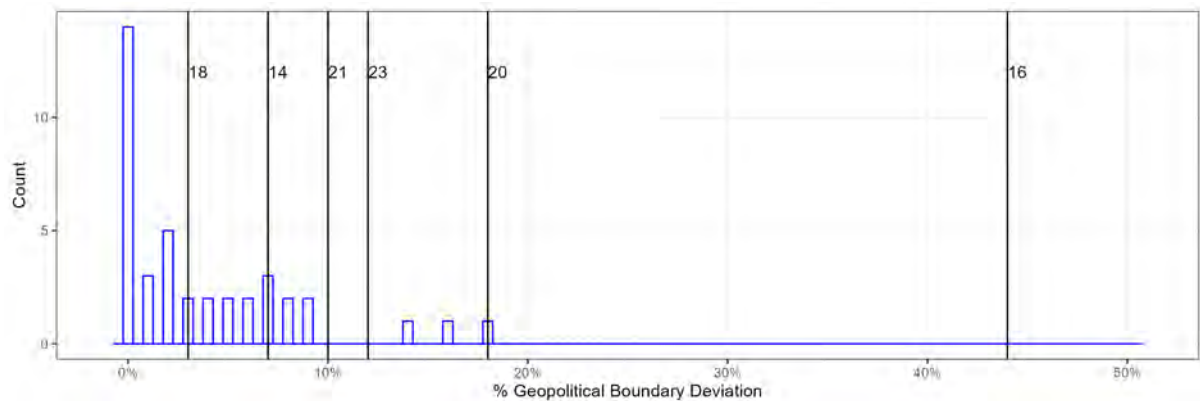


Figure 12: Histogram of Percentage of district boundaries that deviate from geopolitical boundaries; Map C



## 5.2 Dr. McCartan's Maps have lower rates of core retention in the Litigated Districts than the Enacted Maps.

As discussed above, there are two different ways to calculate core retention. The first answers the question “What is the largest population grouping of the previously existing districts kept together in a new district?” Or, if you prefer, this is the extent to which the map dismembers previously existing districts. The second answers the question “What is the largest population grouping in the new district that previously existed together in a single district?” Another way of thinking of this is that it measures the extent to which a map's districts are grounded in a previous map's districts.

In addition to the two different approaches to core retention, we could also use two different comparators for McCartan's Map A. We could either compare it by using the Benchmark Plan as the baseline or by using the Enacted Plan as the baseline. We also may wish to adjust for the fact that Dr. McCartan does not seem to dispute that Enacted District 14 is properly drawn.

Recall that under the first approach, 91.8% the population of District 16 was kept together in a subsequent district. For districts 18, 19, 20, 21 and 24, those percentages were 96.9%, 70.8%, 68%, 72.9% and 98.6%, respectively. The average core retention rate

was 83.2%.

For Dr. McCartan's Map A, 80.6% of the Benchmark Districts for the Litigated Districts are kept together. If we use the Enacted Map as the baseline it is 82.6% if we include District 14 (which Dr. McCartan does not change) and 79.2% if we exclude it. The left chart below shows core retention rates for individual districts from the Benchmark Plan to McCartan Map A. The right chart shows the same using the Enacted Map as the baseline.

Figure 13: Core retention, McCartan Map A, Litigated Districts, Approach 1

<b>Benchmark</b>	<b>% Core Ret.</b>	<b>Enacted</b>	<b>% Core Ret.</b>
16	90.1%	14	100.0%
18	96.9%	16	74.4%
19	69.1%	18	78.6%
20	63.2%	20	85.4%
21	80.3%	21	78.3%
24	83.9%	23	78.9%

(a) Using Benchmark as baseline      (b) Using Enacted as baseline

For Dr. McCartan's Map B, 80.5% of the Benchmark Districts for the Litigated Districts are kept together. If we use the Enacted Map as the baseline it is 82.6% if we include District 14 (which Dr. McCartan does not change) and 79.1% if we exclude it. The left chart below shows core retention rates for individual districts from the Benchmark Plan to McCartan Map A. The right chart shows the same using the Enacted Map as the baseline.

Figure 14: Core retention, McCartan Map B, Litigated Districts, Approach 1

<b>Benchmark</b>	<b>% Core Ret.</b>	<b>Enacted</b>	<b>% Core Ret.</b>
16	90.5%	14	100.0%
18	96.9%	16	74.4%
19	68.6%	18	78.6%
20	62.9%	20	85.0%
21	80.3%	21	78.8%
24	83.9%	23	78.7%

(a) Using Benchmark as baseline (b) Using Enacted as baseline

For Dr. McCartan's Map C, 82% of the Benchmark Districts for the Litigated Districts are kept together. If we use the Enacted Map as the baseline it is 82% if we include District 14 (which Dr. McCartan does not change) and 78.4% if we exclude it. The left chart below shows core retention rates for individual districts from the Benchmark Plan to McCartan Map A. The right chart shows the same using the Enacted Map as the baseline.

Figure 15: Core retention, McCartan Map C, Litigated Districts, Approach 1

<b>Benchmark</b>	<b>% Core Ret.</b>	<b>Enacted</b>	<b>% Core Ret.</b>
16	90.5%	14	100.0%
18	96.9%	16	73.0%
19	70.8%	18	78.6%
20	62.9%	20	82.9%
21	82.0%	21	78.8%
24	83.9%	23	78.7%

(a) Using Benchmark as baseline (b) Using Enacted as baseline

Using the second method for calculating core retention shows much the same. Recall that for the Enacted Map, 94.8% of District 14 is composed of the core of a single previous district. For Districts 16, 18, 20, 21, and 23, the respective numbers are 76.7%, 89.2%, 80.1%, 87% and 70.3%. On average, 83% of the Enacted map's version of the Litigated Districts are composed of the core of a single previous district.

Dr. McCartan's maps fare worse. Using the Benchmark Map as a baseline, Dr. McCartan's Map A has an average core retention rate of 80.8%. Using the Enacted Map, that rate is 82.6% (this includes 100% core retention for District 14, which Dr. McCartan does not change). If we exclude District 14, that rate is 79.2%. A summary table follows:

Figure 16: Core retention, McCartan Map A, Litigated Districts, Approach 2

Enacted	Benchmark	% Core Ret., Benchmark	% Core Ret., Enacted
14	18	94.8%	100.0%
16	19	74.7%	74.2%
18	24	76.4%	79.1%
20	21	88.4%	85.6%
21	16	85.3%	78.3%
23	20	65.0%	78.5%

Using the Benchmark Map as a baseline, Dr. McCartan's Map B has an average core retention rate of 80.7%. Using the Enacted Map, that rate is 82.6% (this includes 100% core retention for District 14, which Dr. McCartan does not change). If we exclude District 14, that rate is 79.1%. A summary table follows:



Figure 17: Core retention, McCartan Map B, Litigated Districts, Approach 2

<b>Enacted</b>	<b>Benchmark</b>	<b>% Core Ret., Benchmark</b>	<b>% Core Ret., Enacted</b>
14	18	94.8%	100.0%
16	19	74.4%	74.5%
18	24	76.4%	79.1%
20	21	87.9%	84.6%
21	16	85.4%	78.4%
23	20	65.2%	78.8%

Using the Benchmark Map as a baseline, Dr. McCartan's Map A has an average core retention rate of 81.3%. Using the Enacted Map, that rate is 82% (this includes 100% core retention for District 14, which Dr. McCartan does not change). If we exclude District 14, that rate is 78.4%. A summary table follows:

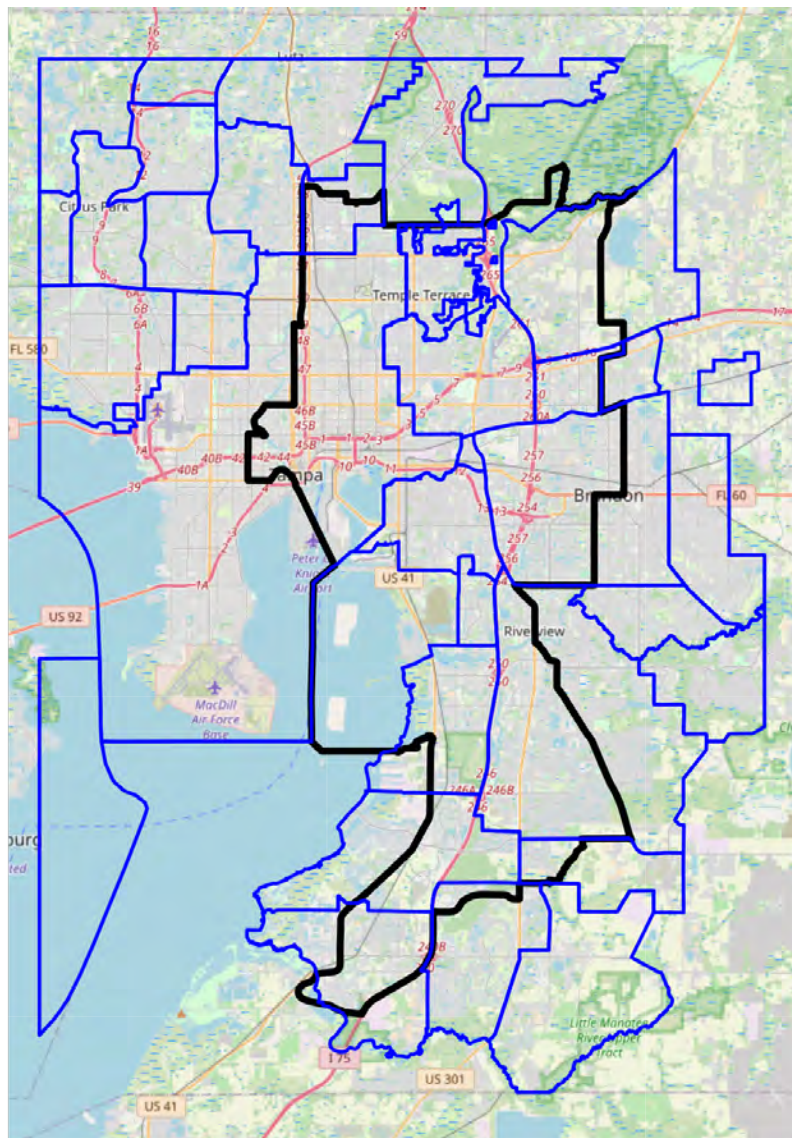
Figure 18: Core retention, McCartan Map C, Litigated Districts, Approach 2

<b>Enacted</b>	<b>Benchmark</b>	<b>% Core Ret., Benchmark</b>	<b>% Core Ret., Enacted</b>
14	18	94.8%	100.0%
16	19	76.3%	72.6%
18	24	76.4%	79.1%
20	21	90.3%	83.1%
21	16	85.4%	78.4%
23	20	65.2%	78.8%

### **5.3 Dr. McCartan's maps split additional municipal boundaries**

The following maps shows Dr. McCartan's Map A with municipal boundaries for the area are overlaid here with blue dashed lines. We start with Map A, which contains an appendage to the south that does not appear to correspond to any municipal boundaries. Instead, it cuts Gibsonton, Apollo Beach, Ruskin, Sun City Center, Balm and Riverview. The Enacted Map does not split Gibsonton, Apollo Beach, or Balm. Notably, while the eastern border of District 16 in the Enacted Map generally follows U.S. 301, Dr. McCartan's version does not. The boundary analysis above suggests that it instead follows secondary roads and side streets.

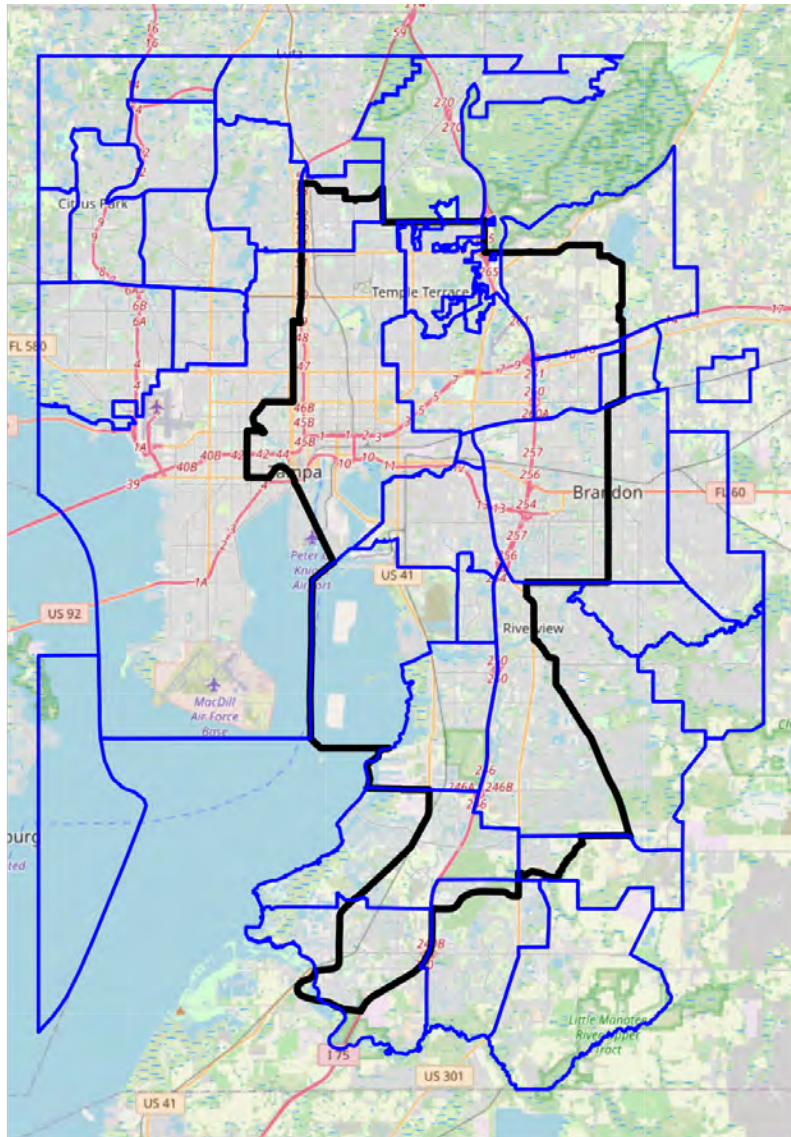
Figure 19: Map A, District 16, with municipal borders overlaid in blue



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Map B's boundary does conform to the borders of Gibsonton, but deviates further from the borders of Balm. Dr. McCartan's map also trisects Ruskin. In the northern portion of the district, the Enacted Map splits Brandon. Dr. McCartan's map introduces a split of Thonotosassa as well.

Figure 20: Map B, District 16, with municipal borders overlaid in blue

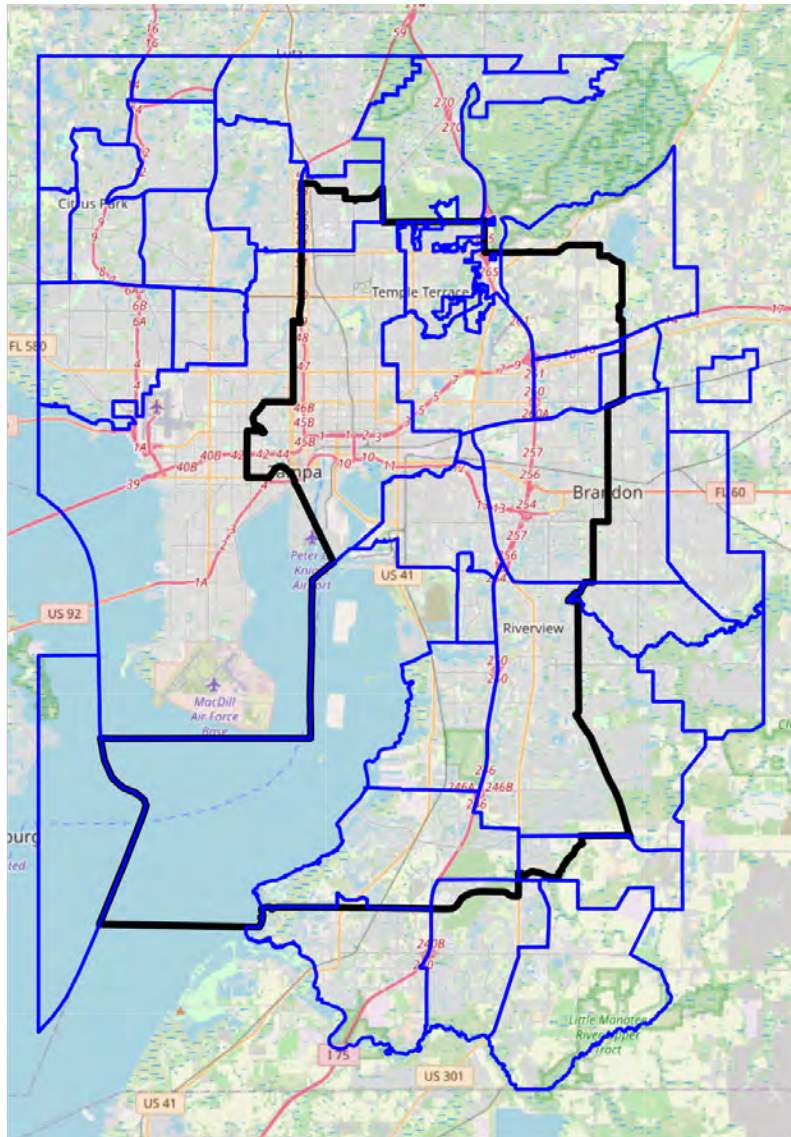


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Map C eliminates the southern appendage, but still splits Balm. In the north it maintains the split from Map A of Thonotosassa, but adds a new municipal split, this time of Mango.



Figure 21: Map C, District 16, with municipal borders overlaid in blue



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#### 5.4 Dr. McCartan's maps show indicia of drawing heavily upon race.

The proper scope of how much a map drawer may rely upon racial data when seeking to draw illustrative districts under Section 2 of the Voting Rights Act is a tricky one, and one that in my view is ultimately one for lawyers to fight about and for factfinders

to decide. For purposes of this report, the aim is to examine Dr. McCartan's districts in more detail to provide the Court with useful information about the relationship between race and Dr. McCartan's district lines.

To put global perspective on this, we can create an estimate of the absolute highest BVAP that can be achieved in Hillsborough County (excluding the precincts in District 14), irrespective of any reliance upon traditional redistricting considerations, including contiguity, through the following approach: Select the precinct in Hillsborough County (excluding the precincts in District 14) with the highest BVAP, and record the total population, voting age population, and black voting age population. Then, select the precinct in Hillsborough County with the second-highest BVAP, and add in the total population, voting age population, and black voting age population. Repeat this process of adding in the available precinct with the highest BVAP until the lowest acceptable total population for a Senate district in Florida is achieved.

If we follow this process, we end up with a "district" with a BVAP of 33.5%. Again, these precincts are not necessarily even contiguous; they simply are a collection of precincts that are acceptable for one-person-one-vote purposes. The BVAPs of Dr. McCartan's District 16 for Maps A and B are both 30.8%. For Map C it is 30%. In other words, Dr. McCartan's districts approach the highest BVAP possible for a collection of precincts in Hillsborough County if one were to ignore all redistricting considerations beyond population equality. The Enacted Map, which plaintiffs claim is an unconstitutional racial gerrymander, is further away from the theoretical maximum in Pinellas and Hillsborough counties of 40% BVAP.

#### **5.4.1 Choropleth Maps**

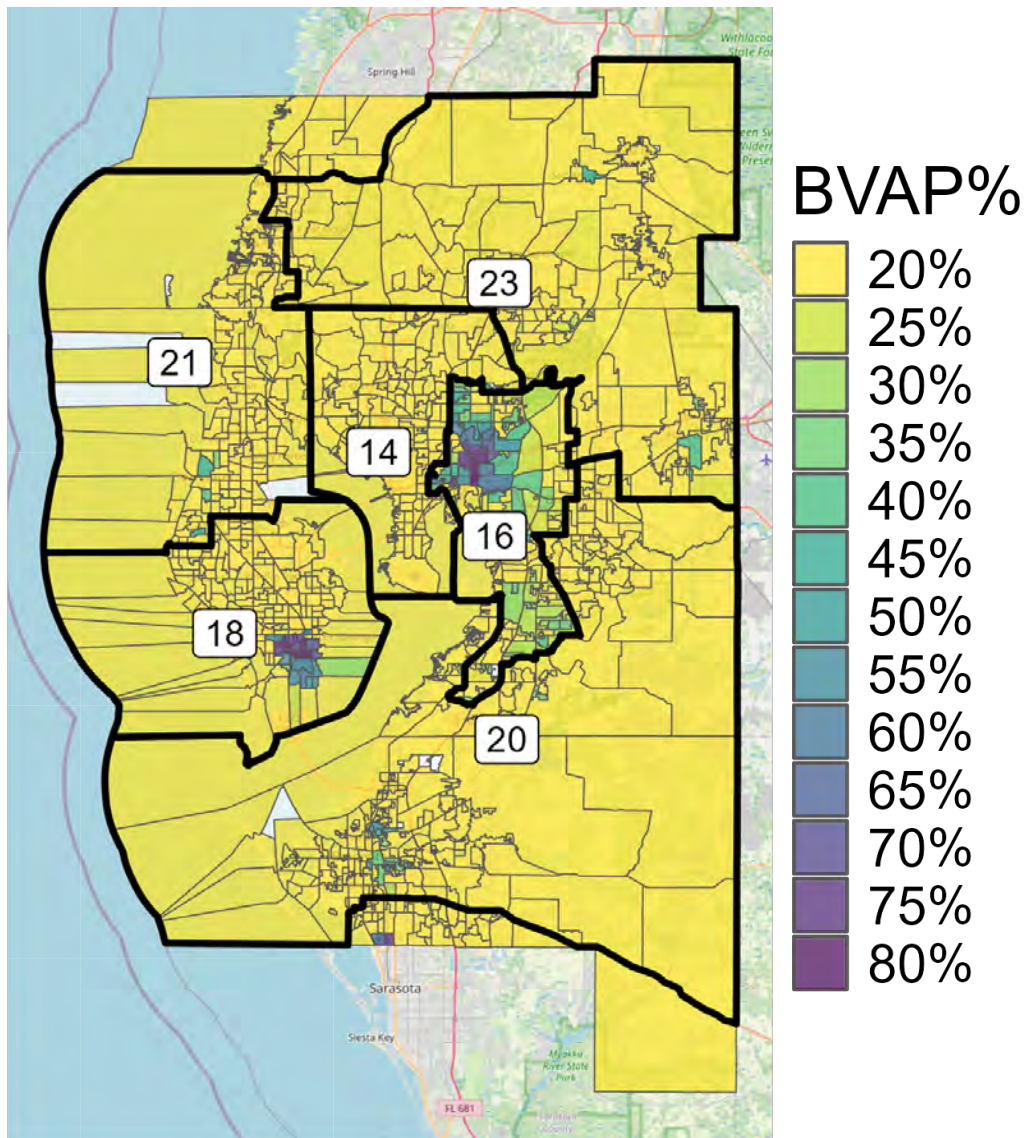
To assist the Court, I have produced the following choropleth maps. A choropleth map is the name for a type of map with which many people are familiar: it takes an areal unit (here, precincts) and fills them by some numeric unit (here, percent BVAP). The following three maps are choropleth maps that illustrate Dr. McCartan's versions

of the Disputed Districts. Because Dr. McCartan draws his maps at the precinct level, I have included the precinct lines. They are shaded by percent BVAP. As I typically do in these cases, I truncated the BVAPs. That is to say, a 5% BVAP precinct will be depicted the same as a 20% BVAP precinct. The reason for this is straightforward: when talking about race and line drawing (or politics), what happens in 90% or 95% Black/Democratic precincts is typically not that illuminating; it is the choices made with more closely matched precincts that matter. Allowing the color scheme to run from 0% to 100% can overwhelm the color scheme and obscure what we might see from a more granular analysis of the precinct data. I use the viridis color scheme because it prints out well on black-and-white printers and because it is readable by colorblind reviewers (such as myself).

Note that all three maps are similar. Much of this is downstream of the constraints Dr. McCartan places upon himself. By refusing to cross Tampa or Hillsborough bays, District 18 must be drawn in a cluster at the southern tip of the Pinellas peninsula. Because he also freezes District 14, District 21's contours are largely predetermined, especially if the goal is to draw compact districts. That then forces District 23 to take in the remainder of the available precincts in Pasco County, and some version of the precincts in northeastern Hillsborough County. That leaves Districts 16 and 20 as districts that can truly be drawn with wide latitude. I note that the current District 14 is a majority White BVAP district that currently sends a Republican to the state senate. I will leave it to the lawyers to fight about and judges to decide the implications of that for Dr. McCartan's decision to freeze the district.

A common theme in Dr. McCartan's maps is that the Black communities in St. Petersburg and Tampa are split between Districts 18 and 16.

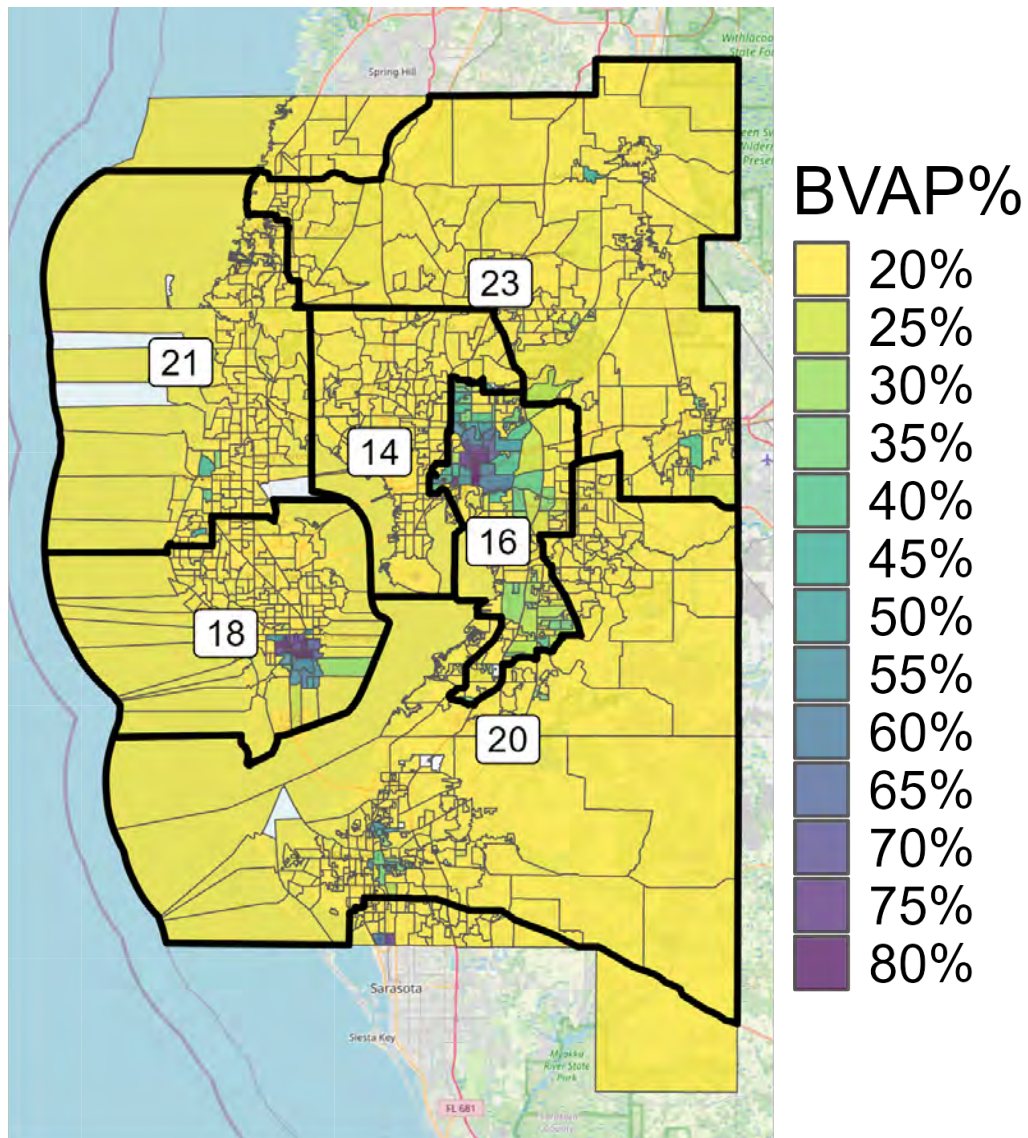
Figure 22: Map A, with precincts shaded by BVAP



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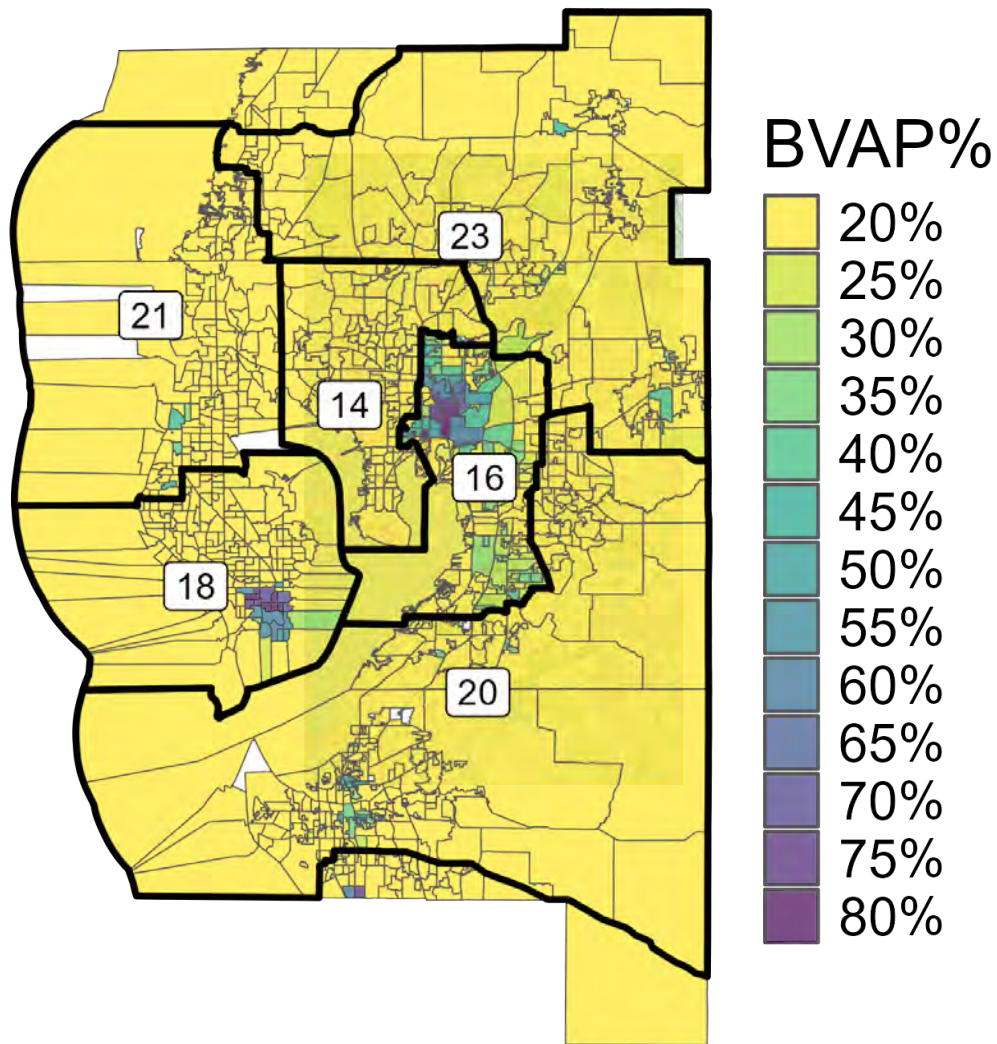


Figure 23: Map B, with precincts shaded by BVAP



© OpenStreetMap contributors

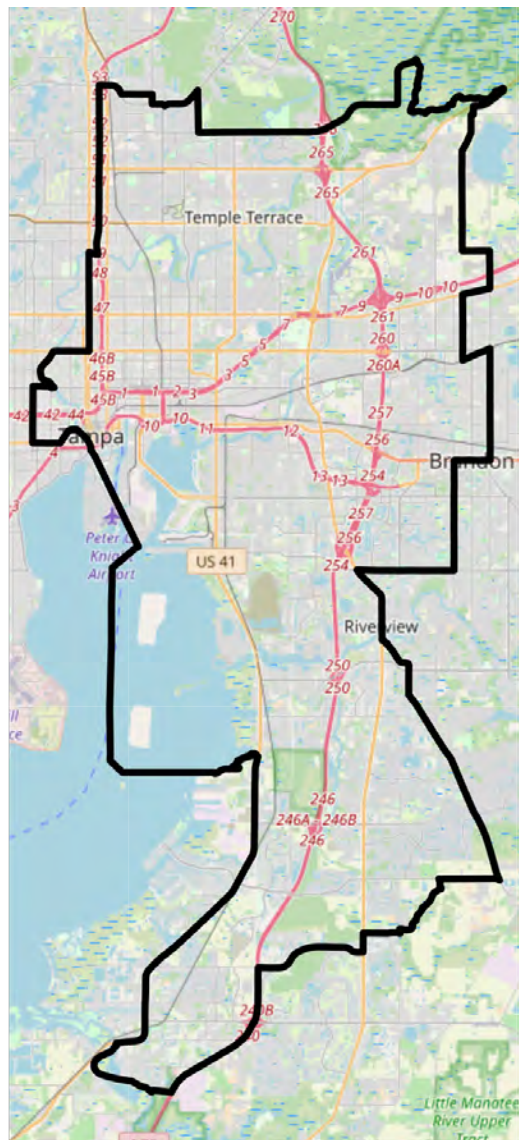
Figure 24: Map C, with precincts shaded by BVAP



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The remainder of this section will focus on Dr. McCartan's version of District 16. The following map shows an outline of Map A's version of District 16 against a street map.

Figure 25: Map A, District 16

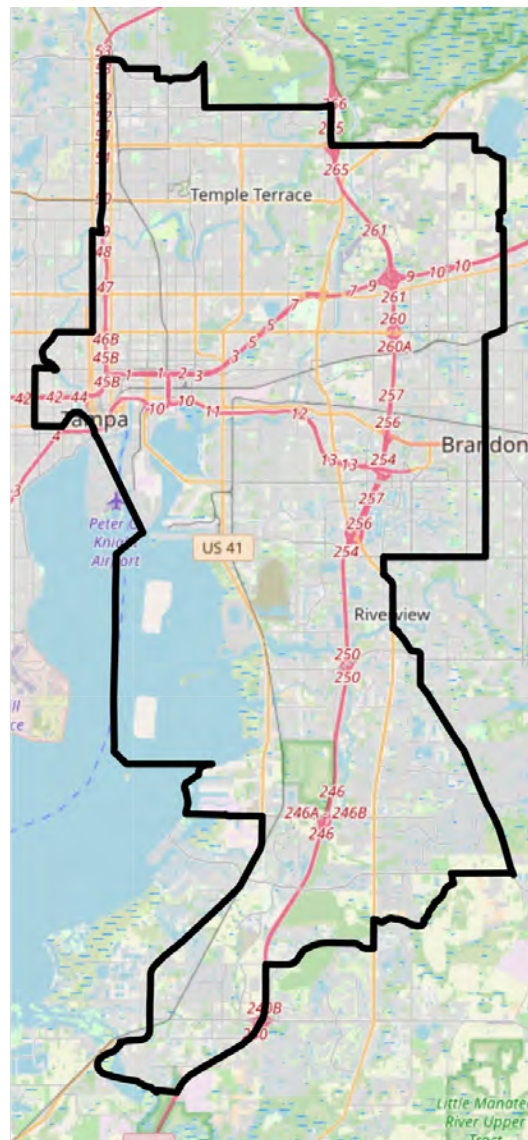


© OpenStreetMap contributors

One of the prominent features of the map is that it includes an appendage to the south that does not appear to correspond to a major street or coastline, except for short stretches. Map B has a similar configuration along the southern boundary.



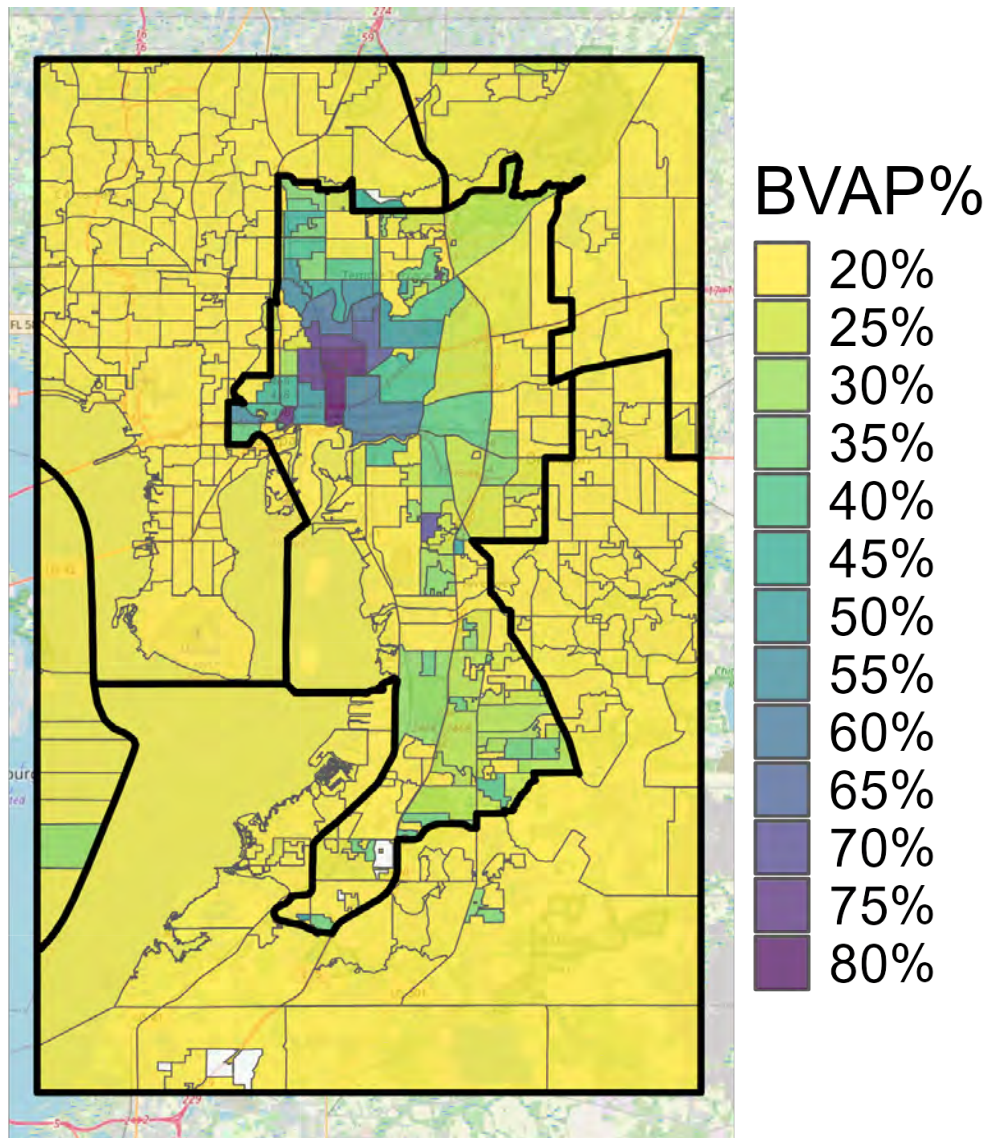
Figure 26: Map B, District 16



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We now turn more directly to the use of race for drawing districts. The following map is similar to the choropleth maps above, but is cropped to allow more careful inspection of District 16.

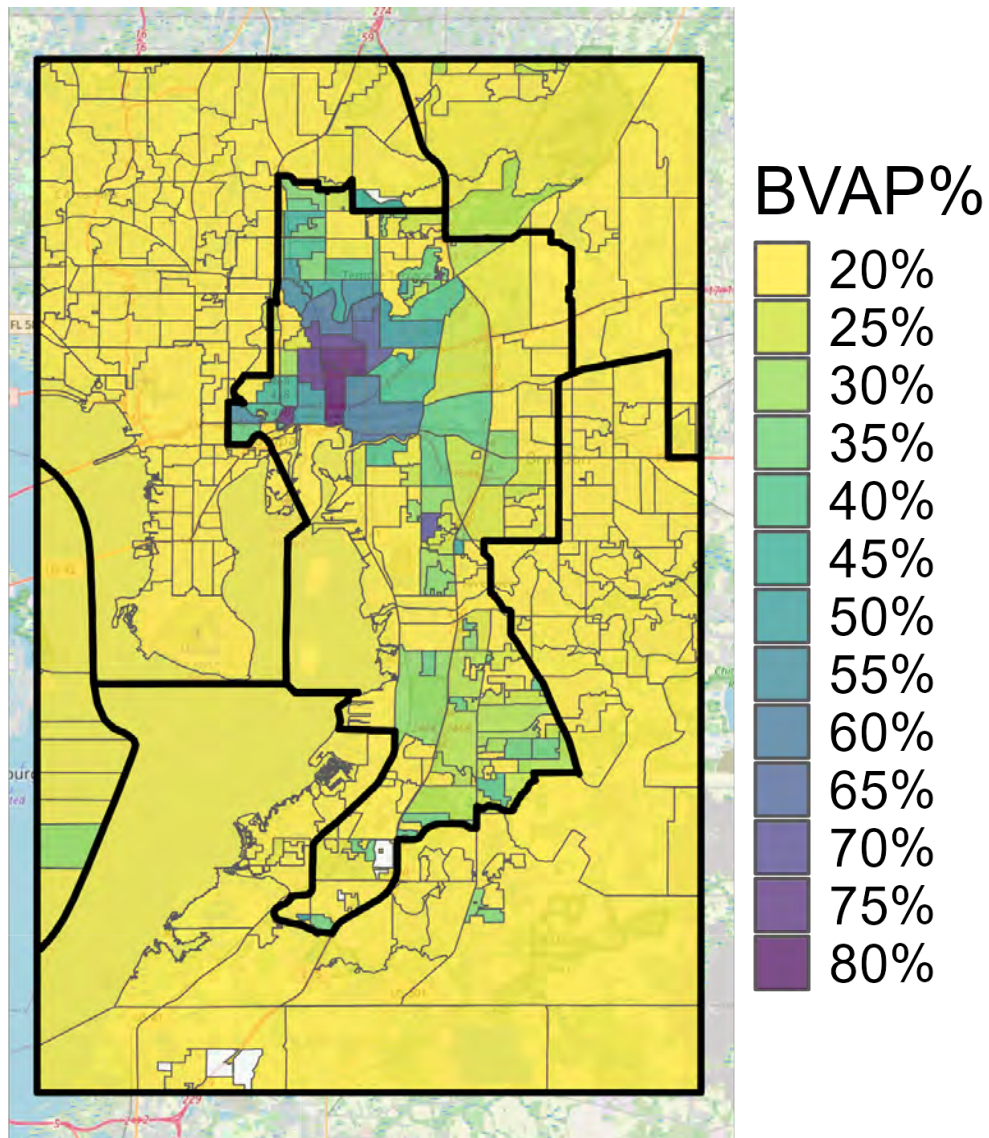
Figure 27: Map A, District 16, with precincts shaded by BVAP



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When you look at this, one can see how closely the boundaries adhere to the geographic contours of the Black population of Hillsborough County. While there are heavily White precincts contained within the district's borders, which is inevitable given equal population concerns, there are not many even moderately Black precincts outside of the district's borders. The same is true for Map B.

Figure 28: Map B, District 16, with precincts shaded by BVAP

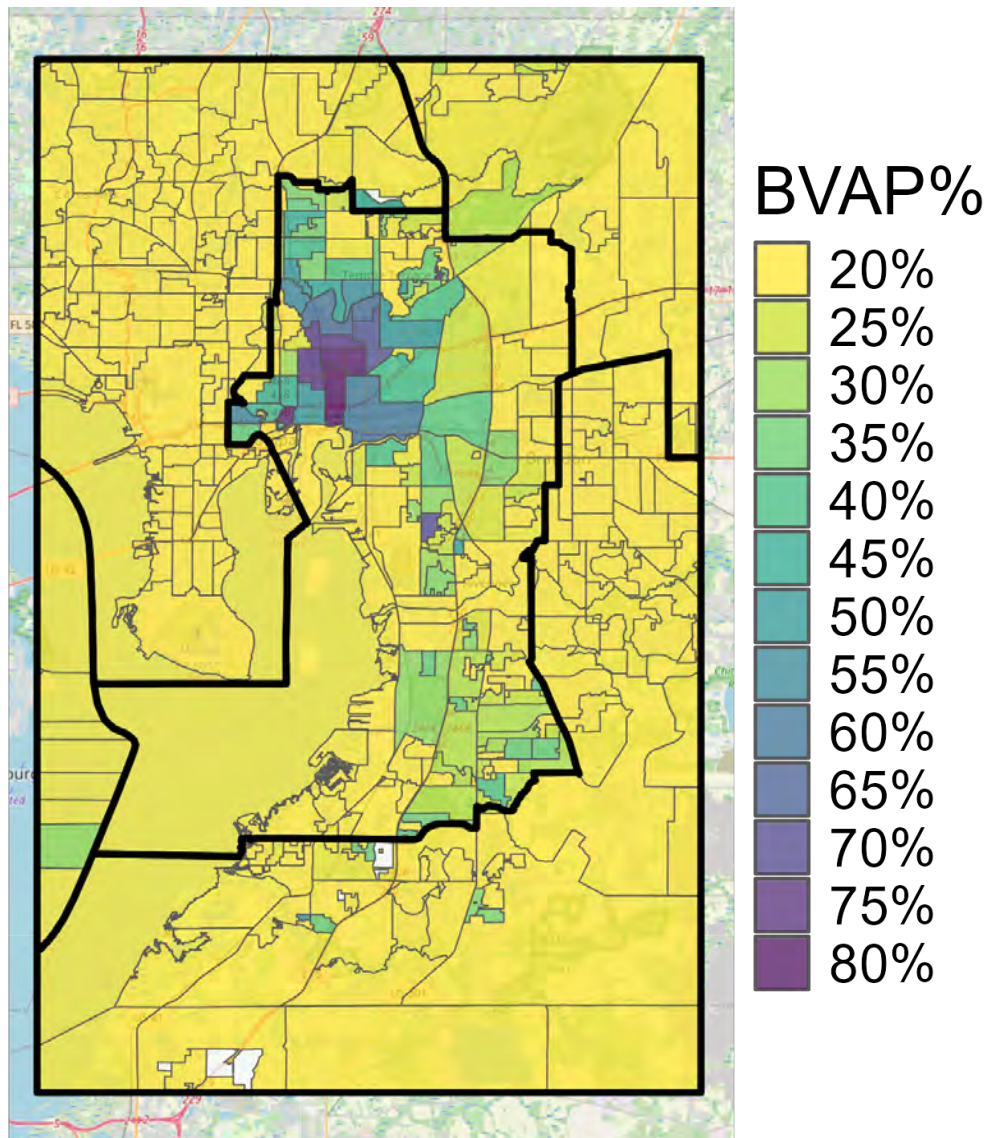


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It is true for Map C as well.



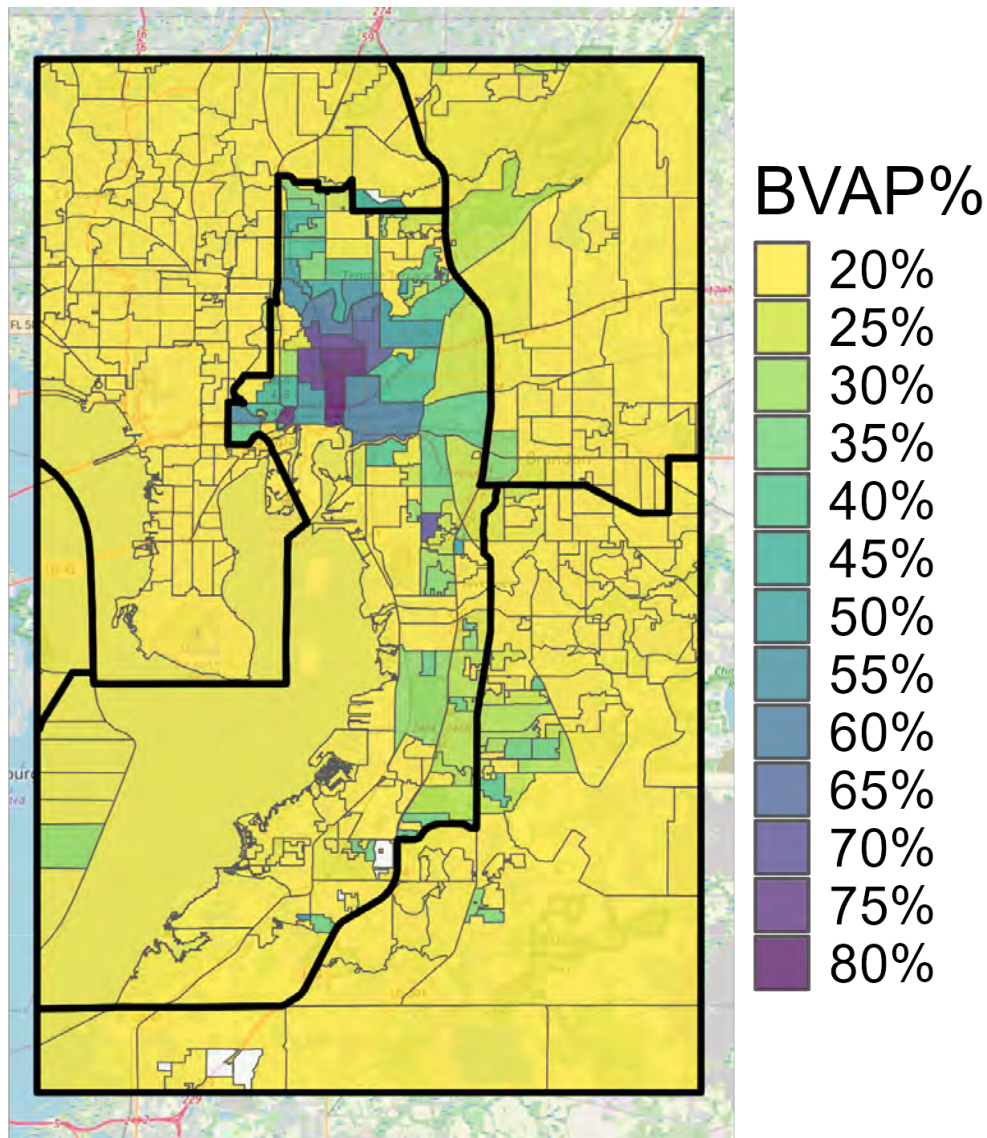
Figure 29: Map C, District 16, with precincts shaded by BVAP



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Compare this to the Enacted Map, which leaves a large number of relatively high BVAP precincts “on the table” to the east of U.S. 301. These precincts are available to a would-be racial gerrymanderer, as they lie on the boundary and as heavily White precincts on the southern end of the district or in Pinellas County could be jettisoned to bring up the BVAP number.

Figure 30: Enacted Map, District 16, with precincts shaded by BVAP



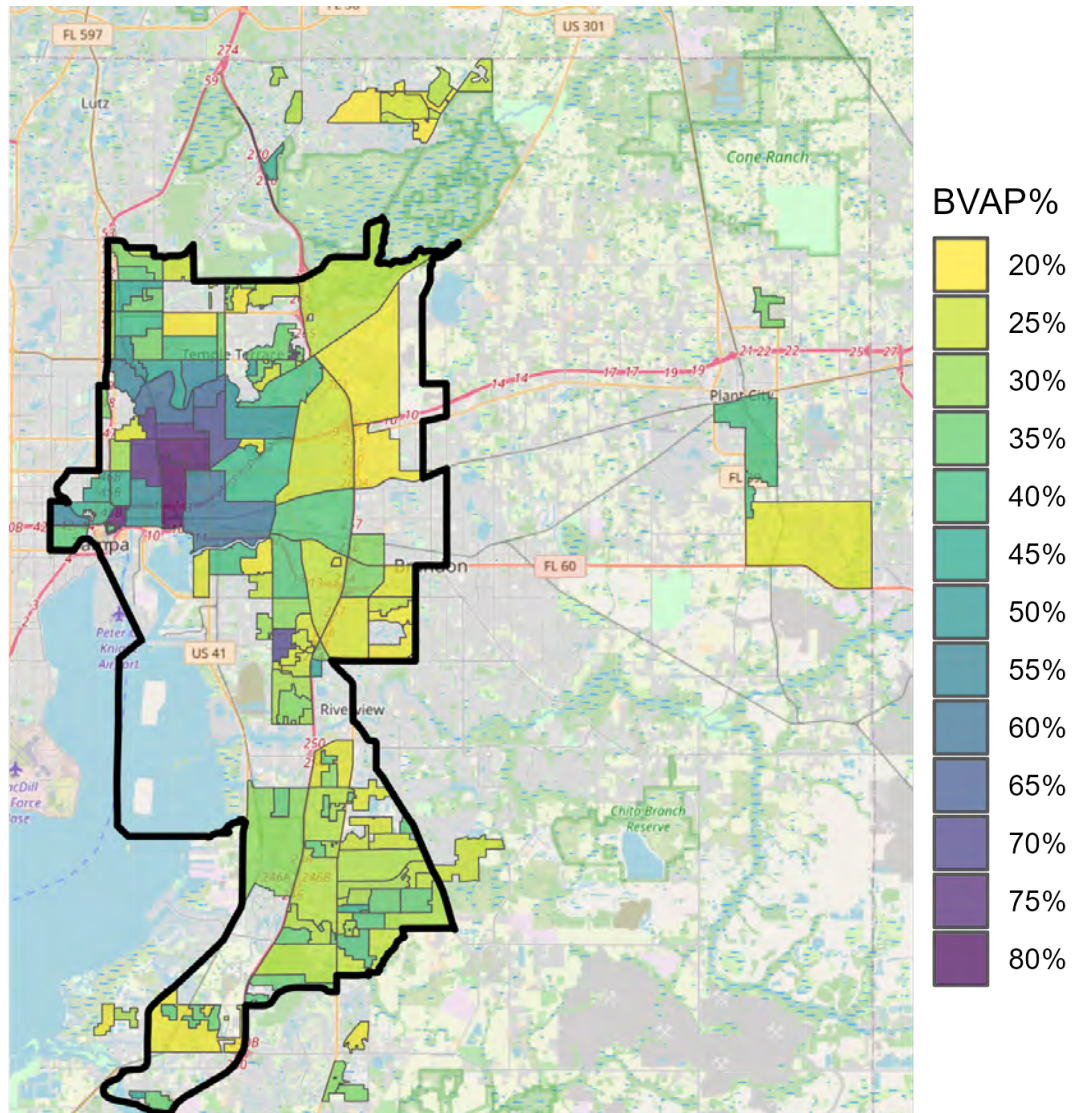
© OpenStreetMap contributors

We can also depict the precincts in Hillsborough County, but only show the precincts with BVAPs above 20%. Doing so drives home that Dr. McCartan is selecting his precincts on the basis of race with surgical precision, while the Enacted Map does not. We already know that Map A takes in almost every available precinct with a BVAP above 20% in Hillsborough County, but when we look at the map from this angle, we can see that the precincts it does not take in are generally far away from the district



boundary. In other words, incorporating more than a handful of these precincts would likely require substantial reconfiguring of the map.

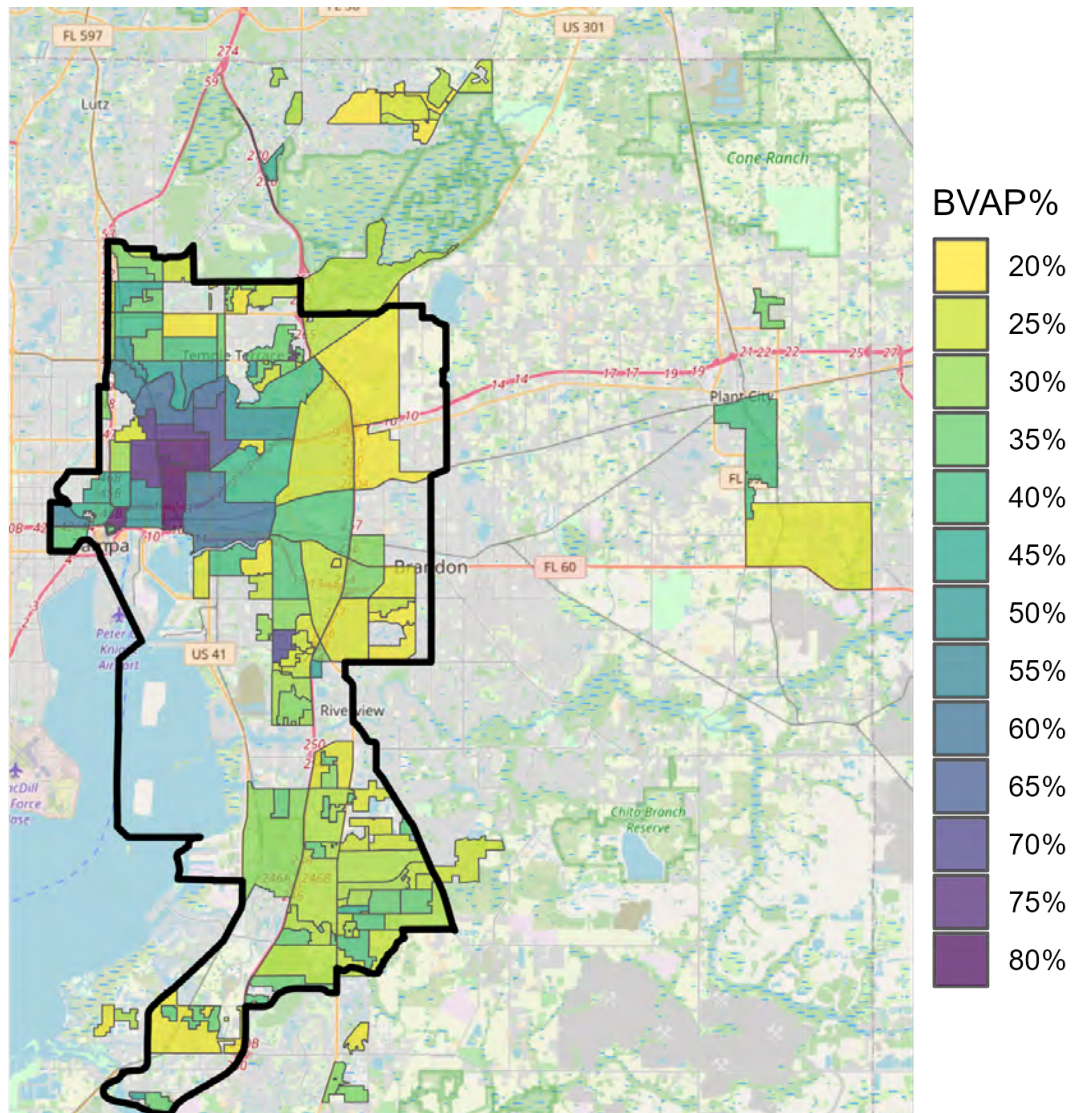
Figure 31: Map A, District 16, with Hillsborough County precincts with BVAPs in excess of 20%



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The same is true for Map B:

Figure 32: Map B, District 16, with Hillsborough County precincts with BVAPs in excess of 20%

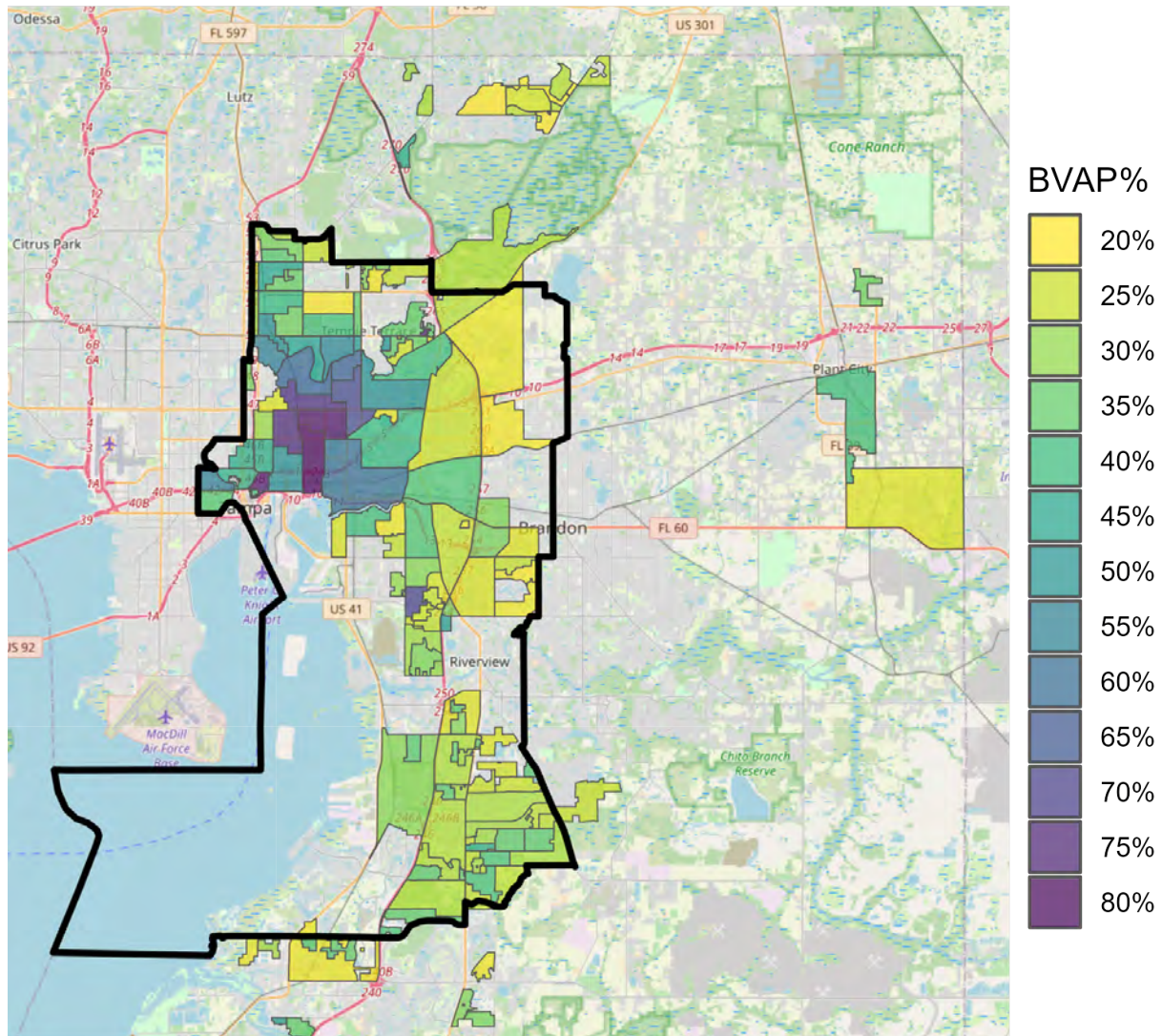


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Map C is less extreme, but it still leaves very few high BVAP precincts “on the table.”



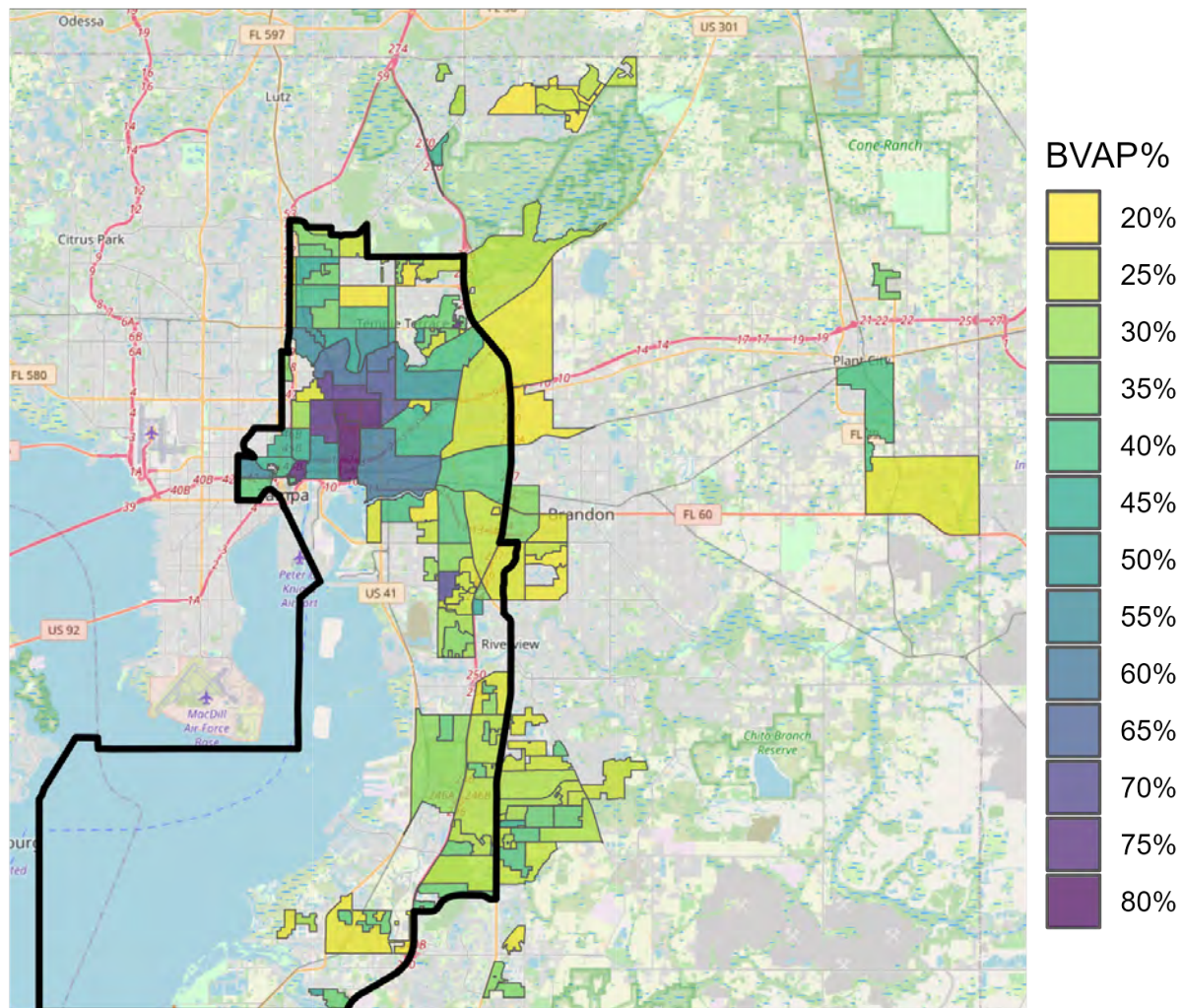
Figure 33: Map C, District 16, with Hillsborough County precincts with BVAPs in excess of 20%



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Compare this with the Enacted Map, which mostly follows U.S. 301 and ends up excluding a large number of available precincts with reasonably high BVAPs as a result. If the way this map is drawn suggests that race predominated in the drawing of the map, then race seems to have predominated in the drawing of the McCartan maps as well.

Figure 34: Enacted Map, District 16, with Hillsborough County precincts with BVAPs in excess of 20%



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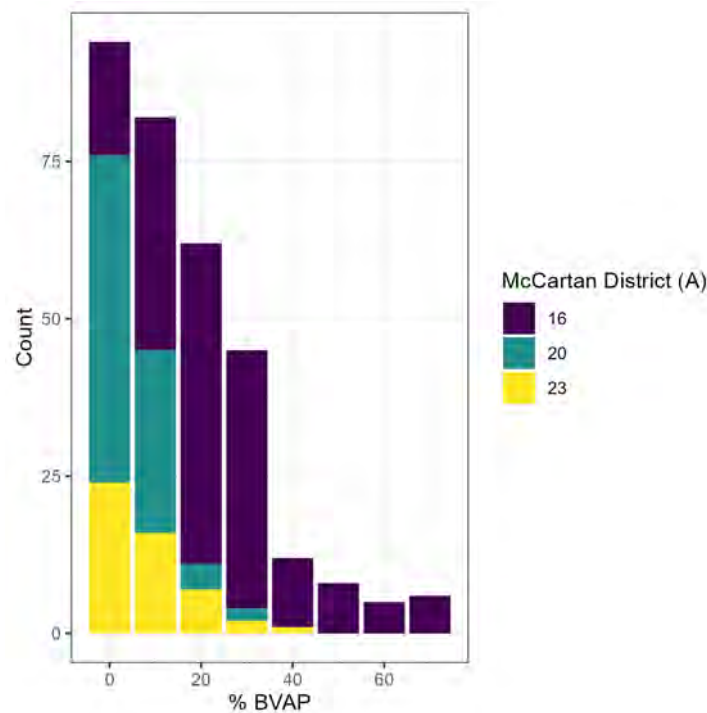
#### 5.4.2 Histograms

To illustrate this with more precision, consider the following stacked histograms. These show count of the precincts in Hillsborough County, exclusive of District 14, that are assigned to Districts 23, 20 and 16, sorted by BVAP. The x-axis should be read as a floor, so the left-most bin covers precincts that are between 0% and 10% BVAP; the

second set covers precincts that are between 10% and 20% BVAP, and so forth.

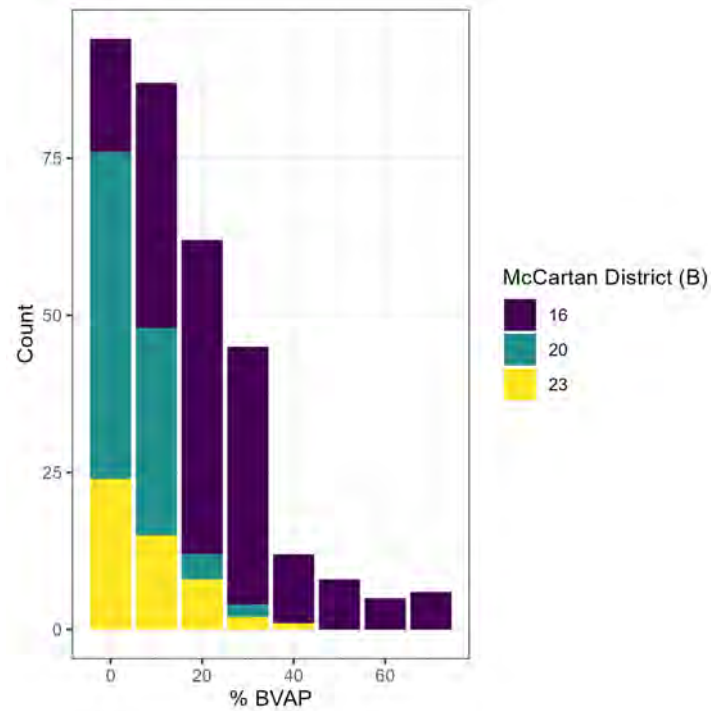
As you can see, all of the majority Black precincts, and almost all of the precincts that are 30% or higher BVAP, are placed within District 16. As the precincts become increasingly heavily White, they are more likely to be placed in District 20 or District 23.

Figure 35: Distribution of Hillsborough County Precincts, by BVAP, Map A



The same is true for Map B:

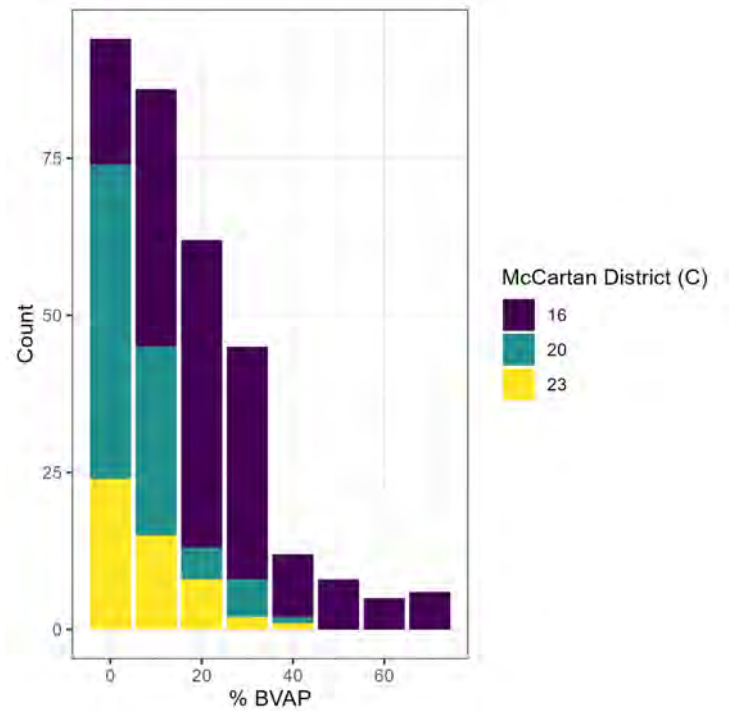
Figure 36: Distribution of Hillsborough County Precincts, by BVAP, Map B



The same is true for Map C:

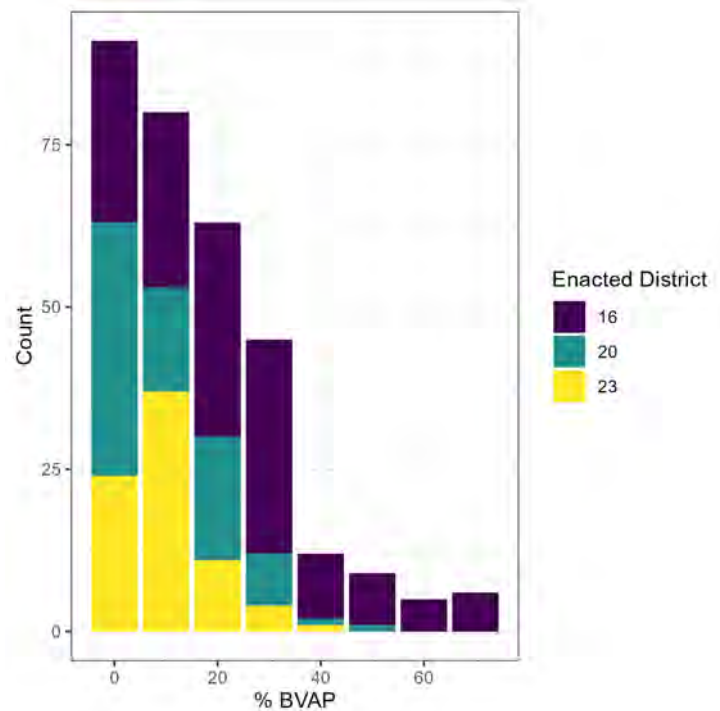


Figure 37: Distribution of Hillsborough County Precincts, by BVAP, Map C



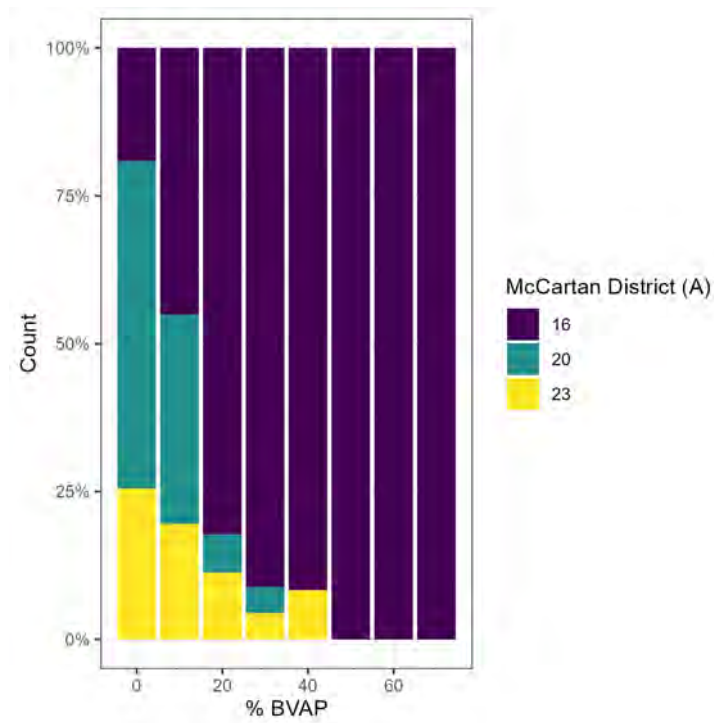
Compare this, then, to the Enacted District 16, which plaintiffs characterize as a racial gerrymander. While it is not uniformly sorted, we can see some majority-Black precincts placed in District 20, as well as some 40% Black precincts.

Figure 38: Distribution of Hillsborough County Precincts, by BVAP, Enacted Map



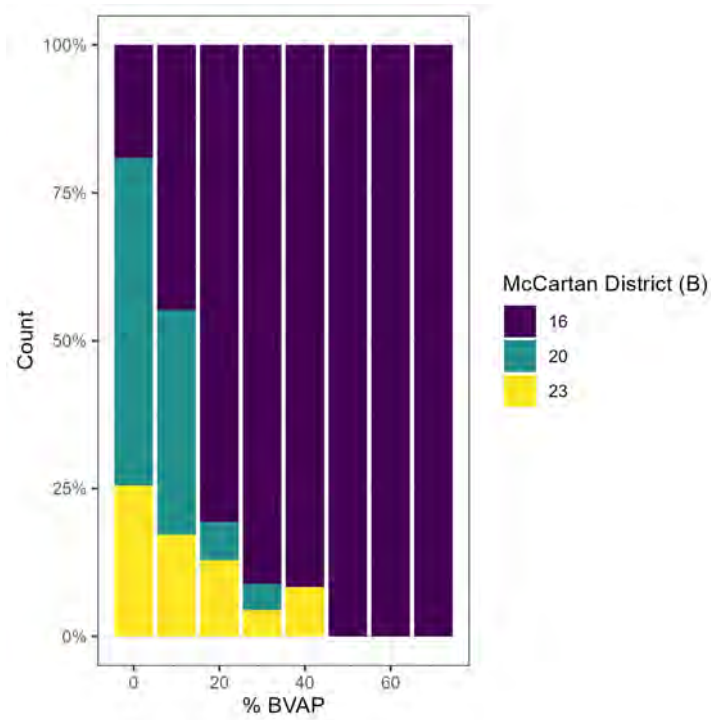
We can see the difference more directly with a stacked barplot. This is a way of depicting the *percentage* of precincts in a map distributed to each district. So, for example, in Map A (depicted below), the 50%, 60% and 70% Black precincts are entirely placed within District 16, along with the lion's share of 20%, 30% and 40% Black precincts.

Figure 39: Stacked Barplot of Distribution of Precincts in Hillsborough County, by BVAP, Map A



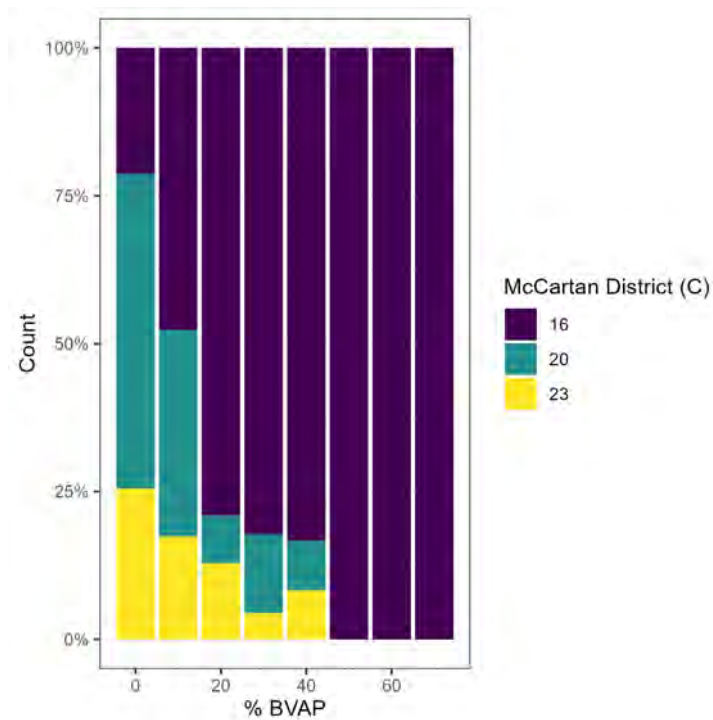
Map B is much the same:

Figure 40: Stacked Barplot of Distribution of Precincts in Hillsborough County, by BVAP, Map B



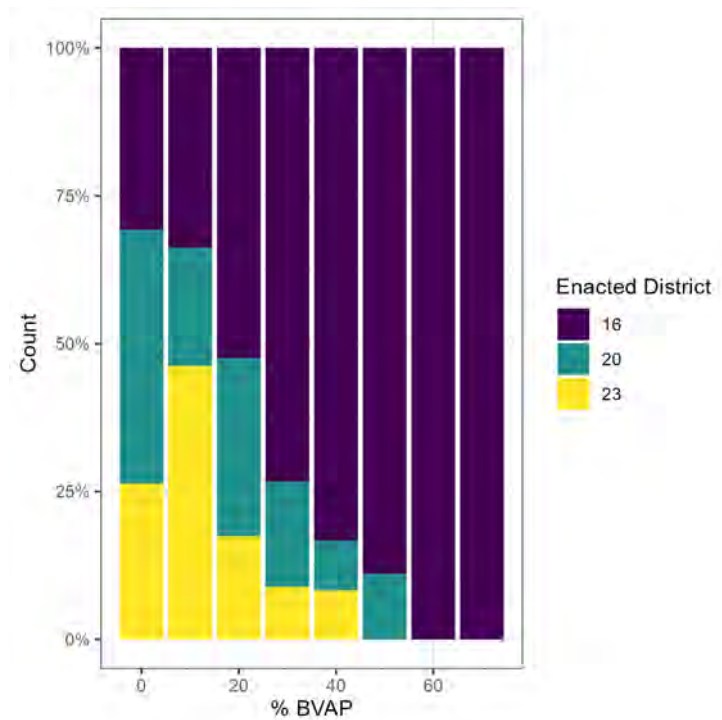
As is Map C:

Figure 41: Stacked Barplot of Distribution of Precincts in Hillsborough County, by BVAP, Map C



Compare this to the Enacted Map, which sees a larger share of the almost entirely White precincts placed within District 16, and a larger share of the 20%, 30%, 40% and 50% BVAP precincts placed in other districts.

Figure 42: Stacked Barplot of Distribution of Precincts in Hillsborough County, by BVAP, Enacted Map



## 6 Conclusion

The Litigated Districts demonstrate an interest in core retention. The changes made from Benchmark District 19 to Enacted District 16 do not show strong indicia of racial motivation. On the other hand, Dr. McCartan's maps deviate from Florida geo-political boundaries at a higher rate than the Enacted Map, have lower rates of core retention than the Enacted Map, split additional municipalities, and do show strong indicia of racial motivation in the drawing of the lines.



I declare under penalty of perjury under the laws of the State of Ohio that the foregoing is true and correct to the best of my knowledge and belief. Executed on 9 September, 2024 in Delaware, Ohio.

*Sean Trende*

---

Sean P. Trende

## **7 Exhibit 1 – Sean Trende C.V.**

**SEAN P. TRENDE**

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strende@realclearpolitics.com

**EDUCATION**

Ph.D., The Ohio State University, Political Science, 2023. Dissertation titled *Application of Spatial Analysis to Contemporary Problems in Political Science*, September 2023.

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, 2010-present.

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

Visiting Scholar, American Enterprise Institute, 2018-present.

## BOOKS AND BOOK CHAPTERS

Larry J. Sabato, ed., *The Red Ripple*, Ch. 15 (2023).

Larry J. Sabato, ed., *A Return to Normalcy?: The 2020 Election that (Almost) Broke America* Ch. 13 (2021).

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 AND/OR DEPOSITIONS

*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).

*Ohio Organizing Collaborative, et al v. Ohio Redistricting Commission, et al*, No. 2021-1210 (Ohio) (political gerrymandering).

*NCLCV v. Hall*, No. 21-CVS-15426 (N.C. Sup. Ct.) (political gerrymandering).

*Szeliga v. Lamone*, Case No. C-02-CV-21-001816 (Md. Cir. Ct.) (political gerrymandering).

*Montana Democratic Party v. Jacobsen*, DV-56-2021-451 (Mont. Dist. Ct.) (early voting; ballot collection).

*Carter v. Chapman*, No. 464 M.D. 2021 (Pa.) (map drawing; amicus).

*NAACP v. McMaster*, No. 3:21-cv-03302 (D.S.C.) (racial gerrymandering).

*Graham v. Adams*, No. 22-CI-00047 (Ky. Cir. Ct.) (political gerrymandering).

*Harkenrider v. Hochul*, No. E2022-0116CV (N.Y. Sup. Ct.) (political gerrymandering).

*LULAC v. Abbott*, Case No. 3:21-cv-00259 (W.D. Tex.) (racial/political gerrymandering/VRA).

*Moore et al., v. Lee, et al.*, (Tenn. 20th Dist.) (state constitutional compliance).

*Agee et al. v. Benson, et al.*, (W.D. Mich.) (racial gerrymandering/VRA).

*Faatz, et al. v. Ashcroft, et al.*, (Cir. Ct. Mo.) (state constitutional compliance).

*Coca, et al. v. City of Dodge City, et al.*, Case No. 6:22-cv-01274-EFM-RES (D. Kan.) (VRA).

*Milligan v. Allen*, Case No. 2:21-cv-01530-AMM (N.D. Ala.) (VRA).

*Nairne v. Ardoin*, NO. 22-178-SDD-SDJ (M.D. La.) (VRA).

*Robinson v. Ardoin*, NO. 22-211-SDD-SDJ (M.D. La.) (VRA).

*Republican Party v. Oliver*, No. D-506-CV-2022-00041 (N.M. Cir. Ct. (Lea County)) (political gerrymandering).

*Palmer v. Hobbs*, Case No. 3:22-CV-5035-RSL (W.D. Wash) (VRA; remedial phase only).

*Clarke v. Evers*, No. 2023AP001399-OA (Wisc.) (Political gerrymandering; remedial phase only).

*Stone v. Allen*, No. 2:21-cv-1531-AMM (N.D. Ala.) (VRA).

*Milligan v. Allen*, No. 2:21-cv-01530-AMM (S.D. Ala.) (VRA).

## 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, Autumns 2018, 2019, 2020, Spring 2018.

Political Participation and Voting Behavior, Springs 2020, 2021, 2022, 2023.

Survey Methodology, Fall 2022, Spring 2024.

## **PUBLICATIONS**

James G. Gimpel, Andrew Reeves, & Sean Trende, “Reconsidering Bellwether Locations in U.S. Presidential Elections,” *Pres. Stud. Q.* (2022) (forthcoming, available online at <http://doi.org/10.1111/psq.12793>).

## **REAL CLEAR POLITICS COLUMNS**

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