Expert Report of Jonathan Cervas

Driver et al. v. Houston County, GA et al, 5:25-cv-00025 (M.D Ga.)
Wednesday, December 24, 2025

1. Introduction and Executive Summary

1. My name is Jonathan Cervas. I am an Assistant Teaching Professor at Carnegie Mellon University, where I teach courses in constitutional law, American politics, quantitative methods, and voting rights and representation.

2. I, Jonathan Cervas, have prepared this report at the request of Plaintiff's Counsel ("Counsel") in the above captioned case, *Driver et al. v. Houston County, GA et al*. A copy of my curriculum vitae is attached to this report as Appendix A.

3. I have been retained by Plaintiffs as an expert consultant and, potentially, as an expert witness, and to provide Voting Rights Act and related analysis for Houston County, Georgia.

4. Counsel for the Plaintiffs have asked me to consider the population and demography in Houston County, Georgia, and to determine whether the minority population in the county is sufficiently numerous and geographically compact to allow for the creation of single member district plan ("Gingles I") configurations that will satisfy the requirements of *Thornburg v Gingles*, 478 US 30 (1986).

5. Counsel for the Plaintiffs have asked me to determine if other electoral systems (non-single member district electoral rules) could provide Black voters in Houston County an equal opportunity to elect candidates of their choice.

6. Counsel has asked me to prepare both four district and five district electoral plans.

2. Preliminary Conclusions

7. Based on my expertise, and my analysis of current demographics as provided by the US Census, I conclude that the Black population in Houston County, Georgia is sufficiently numerous and geographically compact as to allow for the creation of one majority minority district out of either four or five.

8. A majority minority district can be drawn for either the four or five-district plan without relying on racial or partisan data.

9. The Georgia legislature has already enacted a plan for the Board of Education ("BOE plan") that creates one out of five districts with a single race Black majority VAP.

10. I additionally find that, should the state choose to continue an at-large voting system in Houston County, the voting rules "Cumulative Vote" and "Rank Choice Voting" mathematically would allow Black voters an equal opportunity to elect candidates of their choice.

3. Qualifications

11. I am an Assistant Teaching Professor at Carnegie Mellon University (CMU). I currently teach courses for the Carnegie Mellon Institute for Strategy and Technology, which houses the university's undergraduate and master's degree-granting political science programs. I am also an uncompensated Research Associate of the non-profit Electoral Innovation Lab, which is affiliated with the non-partisan Princeton Gerrymandering Project at Princeton University.

12. I teach a wide range of courses at CMU, including U.S. Constitutional Law; the American Politics Graduate Seminar (also offered to undergraduates as Advanced Topics in American Politics); Regression Analysis for Political Science II (graduate); American Political Divides and Great Debates; Democracy's Data; and Representation and Voting Rights (formerly Representation and Redistricting).

13. Several of these courses emphasize applied analysis of democratic institutions and electoral systems. In Representation and Voting Rights, students learn how to design legally compliant legislative maps and rigorously evaluate them using statutory and constitutional criteria. In Democracy's Data, coursework focuses on hands-on quantitative analysis, including the evaluation of redistricting plans, surname analysis, racial polarization analysis, and related methods central to contemporary voting rights research.

14. I received my undergraduate degree at the University of Nevada Las Vegas and my graduate degrees at the University of California Irvine. My 2020 doctoral dissertation is titled "A Quantitative Assessment of the Electoral College, 1790-2020." As my curriculum vitae, attached as Appendix C, shows, I've published eleven peer-reviewed scholarly articles on topics related to political institutions, elections, redistricting, and voting rules. My work has been published in journals that specialize in political science, geography, economics, and law. These include the *Proceedings of the National Academy of Arts and Sciences*, *Presidential Studies Quarterly*, *Social Science Quarterly*, *Political Geography*, *Public Choice*, *Election Law Journal*, *Stanford Journal of Civil Rights & Civil Liberties*, and *PS: Political Science and Politics*. I have been invited to give talks to Princeton University, the University of Houston, and the National Conference of State Legislatures, and others. As part of my service commitment to the discipline of political science, I have served as a referee for the *American Journal of Political Science*, *Political Geography*, *Election Law Journal*, *Public Choice*, and *Political Research Quarterly*.

15. I have applied experience in redistricting, including recent work for state courts and redistricting commissions. In *Clarke v. Wisconsin Elections Commission* No. 2023AP1399-OA (Wisc. 2023), the Wisconsin Supreme Court appointed me and Dr. Bernard Grofman as co-consultants to assist in evaluating remedial State Senate and Assembly plans. Dr. Grofman and I evaluated the parties' proposed remedial redistricting plans and produced a report with recommendations to the court. The state later enacted one of the plans we evaluated.

16. In *Harkenrider v. Hochul*, E2022-0116CV (N.Y. Sup. Ct. 2022), Justice Patrick McAllister of a New York Supreme Court (trial court) retained me as "special master to prepare and draw a new neutral, non-partisan Congressional map" upon ruling that the state's enacted plan was

unconstitutional. In affirming that ruling, the New York Court of Appeals expanded my scope of work to include drawing a new, neutral redistricting plan for the State Senate. I prepared the congressional and senatorial maps, both of which were approved by the court and implemented in the 2022 election cycle.

17. In 2021, I was retained by the bipartisan Pennsylvania Legislative Reapportionment Commission to provide consulting services related to the Pennsylvania State House and Senate districts for elections held between 2022 and 2030. My work supported multiple aspects of the reapportionment process, including the development and evaluation of the legislative maps. The commission adopted the final maps by a bipartisan vote, and the Pennsylvania Supreme Court unanimously affirmed the plan in March 2022.

18. I have also assisted court-appointed special masters in federal redistricting matters, including *Wright v. Sumter County Board of Elections and Registration* 1:14-CV-42 (M.D. Ga. 2015), *Bethune-Hill v. Virginia State Board of Elections*, 3:14cv852 (E.D. Va. 2018), and *Navajo Nation v. San Juan County, Utah*, No. 2:12-cv-00039 (D. Utah 2015).

19. In *Wright v. Sumter County*, I assisted Prof. Grofman in preparing a special master report. In that work, I drew remedial maps and prepared data analysis. For that report, I used voter addresses to Geolocated them and demonstrated that Black voters were far less likely to vote elections that did not coincide with other major elections. The court adopted the map Prof. Grofman offered and changed the date of the election based on the analysis that I prepared. The 11th Circuit Appeals Court upheld that decision.

20. I have also served as an expert witness in voting rights and redistricting litigation. In *New York Communities for Change v. Nassau County*, 602316/2024 (N.Y. Sup. Ct. 2024), I served as an expert witness for the plaintiffs in challenge to Nassau County's redistricting map under the

John R. Lewis Voting Rights Act of New York and the New York Municipal Home Rule Law. I produced two expert reports, was deposed, and provided testimony at trial. In *Wygant v. Lee*, No. 22-0287-IV, I served as an expert witness for the plaintiffs in a case challenging the redistricting maps for the Tennessee General Assembly. I prepared an expert report, including alternative redistricting maps, was deposed, and testified at trial.

21. I am being compensated at a rate of $300 per hour. The opinions in this report are my own, and my compensation does not depend on the results of my analyses, the opinions I provide, or the outcome of the case.

22. A complete summary of my redistricting work and Voting Rights Act experience is attached as part of my CV in Appendix A.

4. Data Relied Upon

23. The primary data source I used for this report and analysis comes from the U.S. Census Bureau. I downloaded population data from the Census Bureau's Application Programming Interface (API) (which allows for data to be downloaded directly into statistical software). I also downloaded geographic data from the Census's "Tiger/Line" website.

24. I also obtained a recent copy of the Houston County voter registration file from Plaintiffs' counsel.

25. To identify the race of voters who did not self-report race in the voter registration file, I applied the peer-reviewed Bayesian Improved Surname Geocoding (BISG) algorithm.

26. I used the U.S. Census Bureau's geocoding tools to assign voters to census blocks. This tool takes an address and returns the geographic coordinates and census block for that address.

27. I used official election results that are publicly available from the Secretary of State.

28. I obtained precinct boundary lines from the Georgia General Assembly's website titled "Legislative and Congressional Reapportionment Office" at https://www.legis.ga.gov/joint-office/reapportionment.

29. I disaggregated election results from precincts to census blocks using the R software tool GEOMANDER, weighted by the voting age population of the census block.

30. I created my illustrative maps in Dave's Redistricting App (DRA). I have used this software to create plans and report numbers in cases where I served as Special Master or Court Consultant, and for other expert reports. I computed data analysis using the R statistical software. I created map images using the website mapshaper.org.

5. Background – Houston County Demographics and Geography

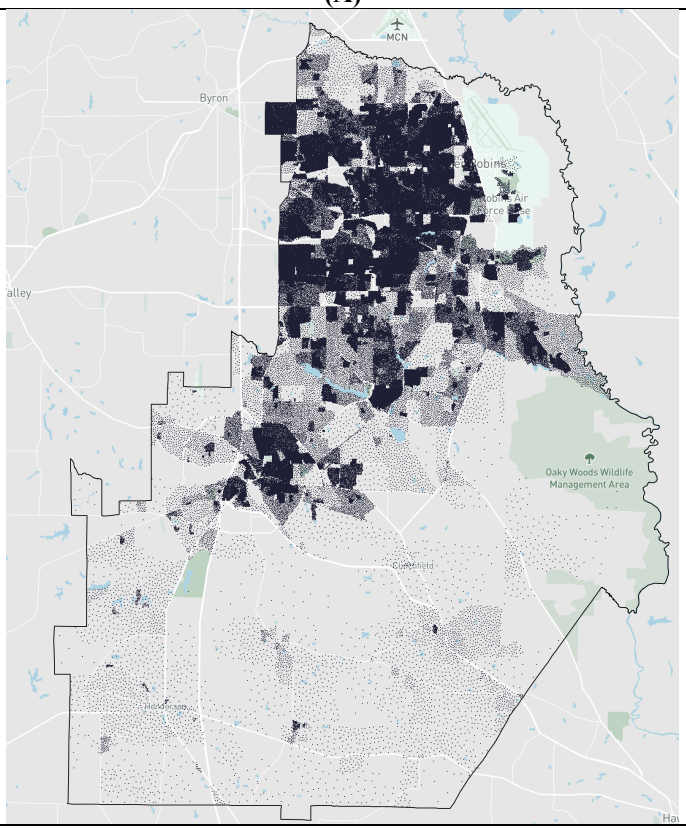
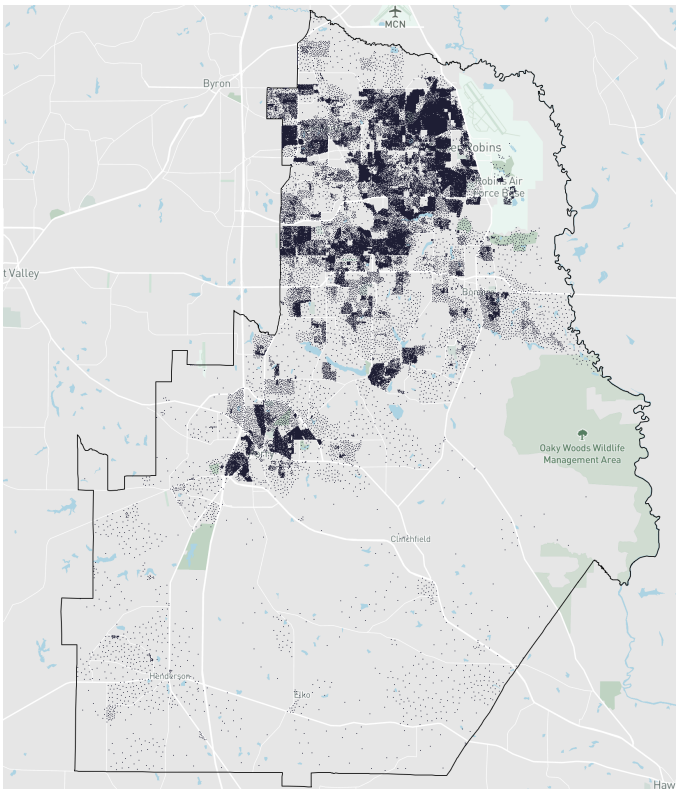
31. Houston County, Georgia is a county which has a 2020 census population of 163,633. The 2020 white population of Houston County is 86,211 (52.7%). The 2020 Black population of Houston County is 56,520 (34.5%) of the total population.[1]

32. The 2020 Voting Age Population ("VAP") is Houston County is 122,118. The 2020 white VAP is 68,018 (55.7%). The 2020 Black VAP is 39,605 (32.4%).

33. Houston County's population is primarily located in the northern portion of the county (See Figure 1 (A). The Black population is more heavily concentrated near the Robins Air Force Base in the north-eastern portion of the county (See Figure 1 (B)).

[1] The term "Black" is used throughout this report to refer to a person who identifies as any part Black, and "White" refers to those who are non-Hispanic white alone, unless noted otherwise.

Figure 1 - Dot Plot (Population Density) of Houston County

Total Population (A)	Black Population (B)
	

Note: Each dot represents one person. Plot A depicts all persons who live in Houston County as of the 2020 census. Plot B depicts all Black voters in the County.

34. As of 2025, there are 13 election precincts, with populations ranging from 1,869 (HEFS-Henderson Fire Station) to 17,798 (WELL-Wellston Center) persons.

35. The voter file (provided by counsel) has this reported racial breakdown:

Table 1 - Racial Breakdown of Voters from Registration

White	Black	Black not of Hispanic Origin	Hispanic/Latino
69,421 (55.5%)	44,795 (35.8%)	21 (0.0%)	4,811 (3.8%)
American Indian/Alaskan Native	**Asian/Pacific Islander**	**Other**	**Unknown**
1,664 (1.3%)	3,768 (3.0%)	483 (0.0%)	185 (0.0%)
Note: These include both "Active" and "Inactive" voters. Data is from 2025. I used surname analysis (BISG) to identify the race of 9,406 individuals where race was not included in the voter registration file.			

6. Elections and Politics

1. Federal & State Elections

36. Federal and statewide elections are generally won by Republican candidates at the county level. Donald Trump won 45,090 votes (55.32%) to Kamala Harris's 35,907 votes (44.05%) in the 2024 general election for president. In the contested 2024 election for Sheriff, the Republican candidate Matthew L. Moulton won more votes than Trump, 47,410 (59.36%) against Democrat Arthur Lee Harris (40.64%, who counsel informs me is the Black candidate of choice).

37. Many other positions for elected office were uncontested, with the Republican nominee winning.

38. For 2022 US Senate, the Republican candidate for US Senate won the most votes. Herschel Junior Walker won 32,239 (54.65%) compared to Raphael Warnock, the incumbent Democrat, who won 25,657 (43.49%). In that same cycle, Republican incumbent Governor Brian Kemp won 34,842 (58.84%) of the vote compared to Democrat Stacey Abrams, who won 23,928 (40.41%) of the vote.

39. The Republican candidate prevailed in every state-wide contested election in 2022 when looking at just Houston County, regardless of whether they won statewide or lost statewide.

2. County Elections

40. In elections where candidates run only in Houston County, Republicans dominate elections. In the November General Election in 2022, Republican Dan Perdue ran unopposed.

41. In the 2022 May Primary election there was a special election held for County Commission (Post 4). The vote totals were markedly lower than elections held in November. The Republican candidate Tal Talton won 17,361 (63.5%) votes while Jackie Rozier won 9,966 (36.5%) votes.

42. In the contest race for County Commission (Post 2), Republican Shane Gottwals won 34,934 (59.8%) and Democrat Tim Riley received 23,514 (40.2%) votes.

43. In the 2024 General Election (November 5, 2024) for Clerk of the Superior Court, Republican Terri L. Childers won 45,168 (56.62%) of the vote, while Democrat Angela Anderson won 34,612 (43.38%) of the vote.

44. In the Sheriff's race, the Republican Matthew L. Moulton won 47,410 (59.4%) votes while Democrat 32,461 (40.6%) votes.

Figure 2 - Election Performance Countywide

	Commission Post 4 (2022 Special)	Commission Post 2 (2022)	Sheriff (2024)	Clerk (2024)
Challenger	17,361 (63.5%)	34,934 (59.8%)	47,410 (59.4%)	45,168 (56.62%)
Black Candidate of Choice[2]	34,612 (43.38%)	23,514 (40.2%)	32,461 (40.6%)	34,612 (43.38%)

3. Election Turnout

45. Turnout by race for the 2022 and 2024 elections reveals that Black voters are a smaller proportion of the electorate than they are in either total population or VAP.

46. In the 2022 General Election (November 8, 2022), 34,871 white voters participated. White voters made up 63.7% of the electorate. 17,230 Black voters cast ballots. Black voters represented 31.5% of the electorate. The rest of the electorate (including those with unknown race) was the remaining 4.8% of the voters.

47. For the 2024 general election (November 5, 2024), turnout increased for both Black and white voters, along with all other voters. 48,862 voters identified as white. These voters were

[2] Counsel has informed me that these are the candidates of choice, based on another expert's analysis of the elections.

61.1% of the electorate. 25,565 voters were Black. These voters made up 32.0% of the electorate. The remaining 7.0% of the electorate was some other race or unknown.

48. In the 2022 Democratic primary (May 24, 2022), 82.1% of the participants were Black and 15.2% were white. In the Republican primary (also held May 24, 2022), 94.1% of the voters were white, while just 2.7% were Black.

49. The 2024 primaries (May 21, 2024) showed similar patterns. In the Democratic primary, Black voters made up 80.8% of the electorate, while white voters were 17.0%. In the Republican primary in 2024, 93.6% of the electorate was white, while Blacks were 3.5%.

7. District Maps for Houston County

50. My map making in this case began where it usually does when I'm asked to draw a map. I began by acquiring census data that provide context about the population. I was also curious as to what nested geographies may exist to provide for neutral boundary lines from political subdivisions or other communities of interest.

51. Because my work began during the government shutdown, it was initially difficult to find census data that would be helpful. US Census Bureau web servers were not operational for an extended period. I was able to locate the census geography file for county subdivisions from other repositories (which I have seen replaced with files downloaded from the Census), which I loaded into GIS software. The county subdivision file identifies three Census County Divisions ("CCDs"): Warner Robins, Perry, and Elko.[3]

[3] CCDs are established in 21 states where minor civil divisions (MCDs) either do not exist or have been unsatisfactory for reporting statistical data. See 2020 Census Participant Statistical Areas Program (PSAP) Quick Reference: Census County Divisions, available at: https://www2.census.gov/geo/pdfs/partnerships/psap/G-660.pdf.

52. I next opened a blank map in Dave's Redistricting App ("DRA"; a free open-source web-based redistricting platform) and created a template for a four-district plan and I added the county subdivision geography file.

53. I did not reference or rely on any racial or partisan data at this point.

54. Once loaded in DRA, I noticed that there was a significant Air Force Base in the northeastern portion of the county. I assumed that this was a significant employer of the area and the surrounding areas might constitute a community of interest. I began by drawing a compact district in that area while maintaining the borders of the county subdivision.

55. I completed a version of this map that was completely race and partisan blind. Only after I completed the drawing did I look at the plan's demographic breakdown in the districts.

56. I completed this task a second time but now creating a five-district plan. Similarly, I use no race or partisan information in the drawing of that plan.

57. The demographic breakdown in both plans revealed that each plan contained a single district where minority voters constituted a majority of the citizen voting age population ("CVAP").[4] No single racial group represented a numeric majority.

58. Having identified districts within these plans where minority voters constituted a majority of the electorate, I checked election results that are built into DRA to determine whether Democrats or Republicans regularly prevailed in those districts. The elections that are in DRA are limited to federal and statewide elections. Using this as a proxy for minority voters of choice (confirmed later by Plaintiffs' counsel from the analysis of another expert), I determined that each of these

[4] Here I relied on the data in DRA, which calculated minority population using a different method and I described above.

districts likely would allow for minority voters to have an equal opportunity to elect candidates of their choice under either a four district or five district electoral scheme.

59. I next made changes to each of these plans to strengthen the Black proportions of the minority districts such as to create single race Black-Majority districts. This certainly would not be a requirement of a legislature to draw such a district for purposes of satisfying the Voting Rights Act (as I show below how that district would perform for Black voters without adjustments), but for the purposes of demonstrating the strictest interpretations of what is required under *Gingles I* (that a single race minority group must constitute a numerical majority in a reasonably configured district), I include these plans as part of this report.

60. Finally, I was able to identify a potentially relevant pre-existing single member plan for Houston County that uses five districts and elects members to the county Board of Education. I imported the shape file for this plan into my redistricting software. To my surprise this plan created a district (District 4) which had a higher Black proportion than any other districts in plans I had drawn.

61. Having now described the process by which I constructed maps for Houston County, I will detail these plans in the section below. I will include colorful maps to the court can easily identify the districts, along with tables with relevant election data for each district.

8. Illustrative Plans

62. The following sections present my set of illustrative plans. I include six total plans, which have a variety of differing characteristics and perform for minority voters in slightly different ways. Three of the plans have five districts each, and three plans have four districts each. Three of the plans contain a single Black-Majority district, and three contain a single Majority-Minority

district. Two of my plans (one four district, and one five district) were drawn completely blind to race or party, which explains why they are not numerically majority Black. But, because of my process for drawing these plans, they are plans that do not predominate racial considerations. I make no alterations to these plans, either for electoral performance or to increase the share of Black voters. Because of this, they perform least well of all the plans I present. Likewise, the four-district plan based on the Board of Education five district plan was drawn to minimally change the districts so that they comply with the 'one person, one vote' requirements of the US Constitution. I did not focus on the racial effects of these changes, and therefore the remaining district is Majority-Minority, but not Black-Majority.

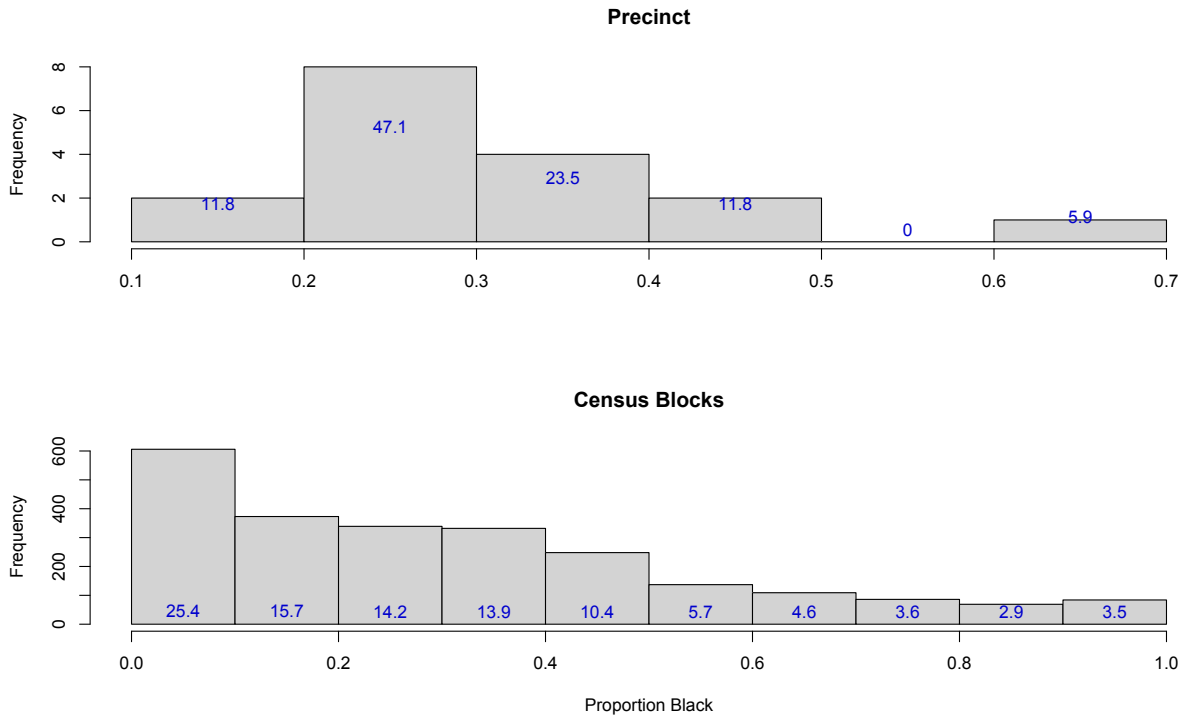
63. For each plan, I will present a table with the district-level population characteristics. The first column in these tables is the district number. The second column is labeled "Total" and is the total 2020 decennial population in that district. Third is the number of non-Hispanic white persons in the district, followed by its percentage. Fifth is the Black population followed by its percentage. The next five columns repeat the previous five, but swap in voting age population.

64. I also provide a performance analysis for each of the plans. I have received precinct-level election results for various elections in Houston County. Using precinct geography files, I disaggregate these results down to census blocks. The method for disaggregation uses a weight to distribute votes proportionately. For the purposes of this report, I weight on voting age population.

65. Because precincts are relatively large and heterogeneous, this method has the effect of creating conservative estimates of the preferences of Black voters. To demonstrate this point, I am providing a set of histograms that compare the Black VAP of precincts with that of census blocks. As can be plainly seen, the modal bin in precincts is those between 20% and 30% Black, whereas for census blocks there is a more uniform distribution, with the mode (almost half as many as for

the precinct mode) between 0 and 10% Black. There are far more census blocks with Black VAP above 50% than there are precincts.

Figure 3 - Histogram of Black VAP in Precincts and Census Blocks



66. After disaggregating election results to the census block, I can aggregate them into illustrative districts to "reconstruct" the election. I present the results of this electoral performance for each plan. Election results are shown from the perspective of Democrats and represent the two-party vote. Therefore, any cell greater than 50% is won by the Democratic candidate, and any election below 50% is won by the Republican candidate.

67. I am including the performance results from four countywide elections in Houston County. These are elections that are held concordantly with elections for County Commission. I included the most recent elections, from 2022 and 2024, since they are the most predictive of future performance.

A. Five District Maps

68. The first set of illustrative maps that I present consist of five districts. Because the total population in Houston County is 163,633, districts should have around 32,726 total persons in them.[5] I draw all my plans to have districts that are approximately equal, avoiding splitting census block groups unless necessary. The first map I present is not one that I drew, but rather one that was enacted by the legislature for use in Board of Education elections but represents a map that could be adopted as remedial Houston County Board of Commission districts. I then present two maps that I drew for the purpose of this report. The first was drawn without any racial or partisan data but instead based on neutral redistricting criteria such as following political subdivision boundaries, drawing compact districts, and keeping together communities of interest (here, the Air Force Base). The next map is one where I was conscience of race but still drew the districts to be relatively compact and continued to follow good government traditional redistricting criteria. As I show below, all three, to vary degrees, represent plans that are viable alternatives to at-large elections, providing Black voters a more equal opportunity to elect candidates of their choice.[6]

1. Board of Education Map (Five Districts) ("BOE 5")

69. The Board of Education Map is the plan that is currently in use for election of five single district members of the county board of elections. The smallest district population is 32,550 and the largest district has a population of 33,090.

[5] Districts should be drawn within a +/-5% range of the ideal population target. For Houston County after the 2020 census implies districts should be between 31,090 and 34,363 total persons.

[6] Even if Black voters were able to elect candidates of their choice in one out of five districts, they would still be at an electoral disadvantage compared with white voters, who would be the numeric majority in four out of five districts (80%) despite only composing 52.7% of the voting age population.

70. District 4 has a Black population of 57.4% and a Black VAP of 53.7%. It includes the Air Force Base and appears as a compact district.

Figure 4 - Map of Board of Elections Plan (Five Districts)

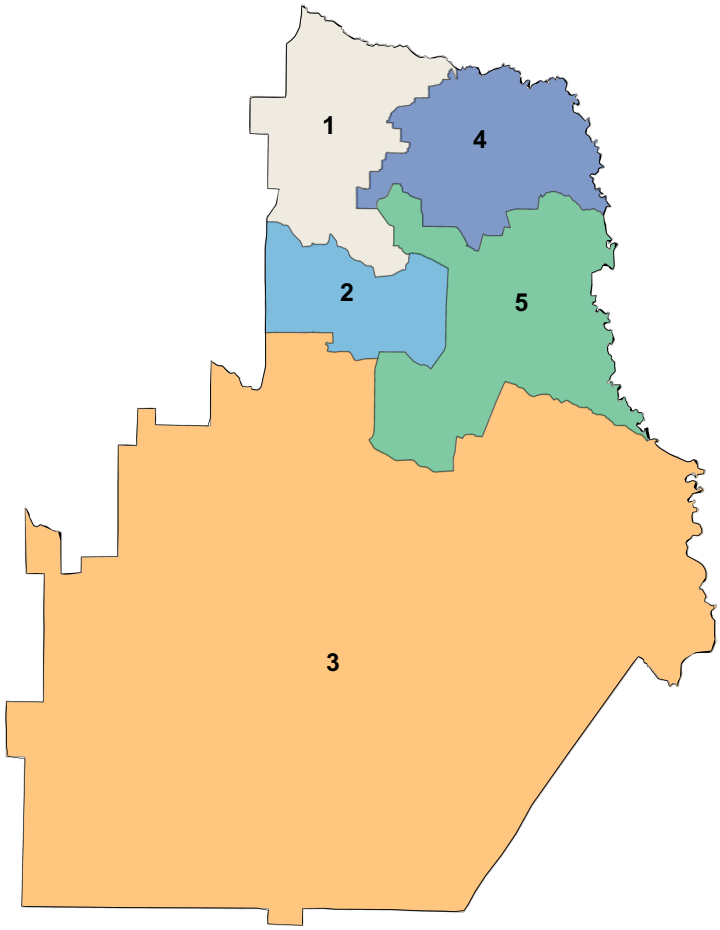


Table 2 - Demographic Data, Board of Education Five District Plan

District	Total	White	% White	Black	% Black	Total VAP	White Vap	% White VAP	Black VAP	% Black VAP
1	32,638	18,009	55.2	9,918	30.4	25,328	14,912	58.9	7,060	27.9
2	32,579	17,783	54.6	9,770	30	23,832	13,562	56.9	6,837	28.7
3	33,090	20,809	62.9	9,481	28.7	24,976	16,147	64.7	6,859	27.5
4	32,550	9,788	30.1	18,699	57.4	23,849	8,218	34.5	12,814	53.7
5	32,776	19,822	60.5	8,652	26.4	24,133	15,179	62.9	6,035	25

Table 3 - Electoral Performance Analysis, Board of Education Five District Plan

District	Sheriff (2024)	Clerk (2024)	Commission Post 2 (2022)	Commission Post 4 (2022 Special)
1	43.6	46.2	42.1	38.3
2	39.9	42.5	39.7	38.3
3	30.9	33.8	30.5	26.3
4	89.3	64.5	62.7	56.3
5	41.9	38.8	36.3	31.9

71. The Black candidate of choice is victorious in all four elections.

72. The Board of Education plan with five districts represents a plan that fully undilute the electoral power of Black voters in Houston County.

2. Cervas Race Blind/Party Blind (Five Districts) ("Cervas Blind 5")

73. I next present the plan I created without reference to racial or partisan data. As I stated above, because I did not rely on any racial data, the district with the highest proportion of minority voters (District 1) is not a numerical Black-Majority, but Black voters are the plurality racial group.

Figure 5 - Map of Cervas Race/Party Blind Plan (Five District)

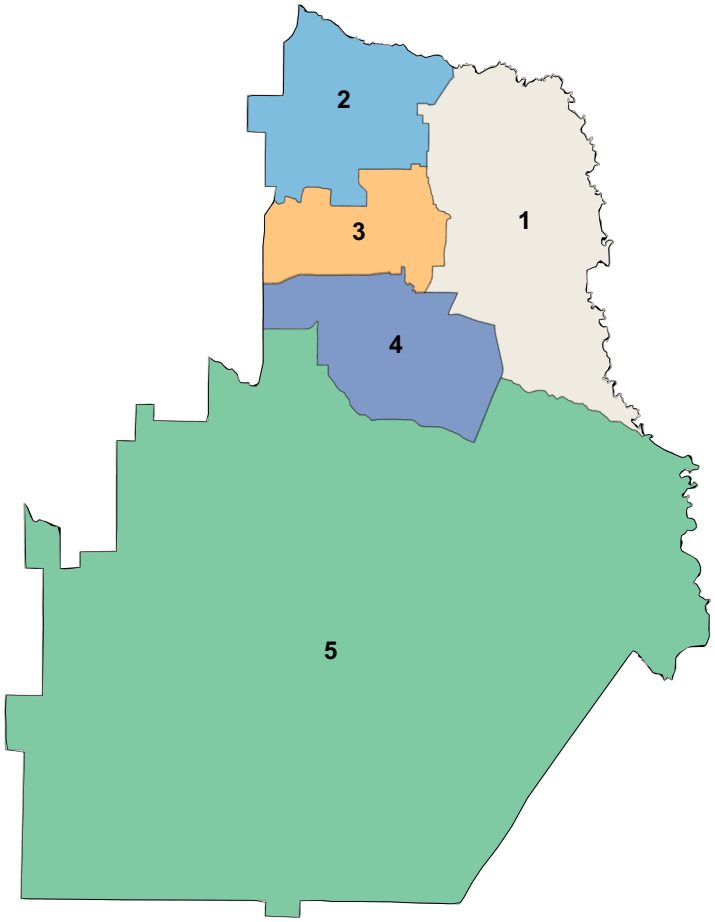


Table 4 - Demographic Data, Cervas Race/Party Blind Five District Plan

District	Total	White	% White	Black	% Black	Total VAP	White Vap	% White VAP	Black VAP	% Black VAP
1	32,580	13,057	40.1	15,216	46.7	23,579	10,290	43.6	10,349	43.9
2	32,677	15,664	47.9	12,645	38.7	25,096	12,961	51.6	9,014	35.9
3	32,836	17,849	54.4	10,201	31.1	25,257	14,649	58	7,227	28.6
4	31,496	18,231	57.9	8,682	27.6	22,598	13,599	60.2	5,932	26.3
5	34,044	21,410	62.9	9,776	28.7	25,588	16,519	64.6	7,083	27.7

74. This plan was drawn completely blind to race and party. I drew it to be composed of compact districts based on the CCD boundaries to the extent possible. I centered a district around

the Air Force Base, both because it likely is an important COI, and because much of the population lives in this part of the county.

75. Black voters are 46.7% of all persons and 43.0% of the voting age population. White voters are 40.1% of the population and 43.6% of the voting age population.

Table 5 - Electoral Performance Analysis, Cervas Blind Five District Plan

District	Sheriff (2024)	Clerk (2024)	Commission Post 2 (2022)	Commission Post 4 (2022 Special)
1	85.3	53.8	49.9	44.5
2	54.3	50.7	46.9	42.2
3	42.1	44.6	41.6	38.6
4	37.3	40	37.1	34.8
5	31.1	33.9	30.5	26.1

76. The Black candidate of choice wins in District 1 in two of the four elections. In the County Commission (Post 2) race in 2022, the candidate loses by only 15 votes (0.1%). Although not the strongest performing district, this plan allows minority candidates to elect candidates of choice at least half the time. It was drawn completely blind to race and party, so small adjustments could improve the electoral performance. I offer this plan to the court as an example of a five-district plan drawn neutrally without requiring any use of race.

3. Cervas Black MMD (Five Districts) (“Cervas MMD 5”)

77. I next present a five-district plan that I that adjusts the race and party blind map above. Though I drew this map in a race conscious way, the plan is still based on traditional redistricting criteria.

Figure 6 - Map of Cervas MMD Plan (Five District)

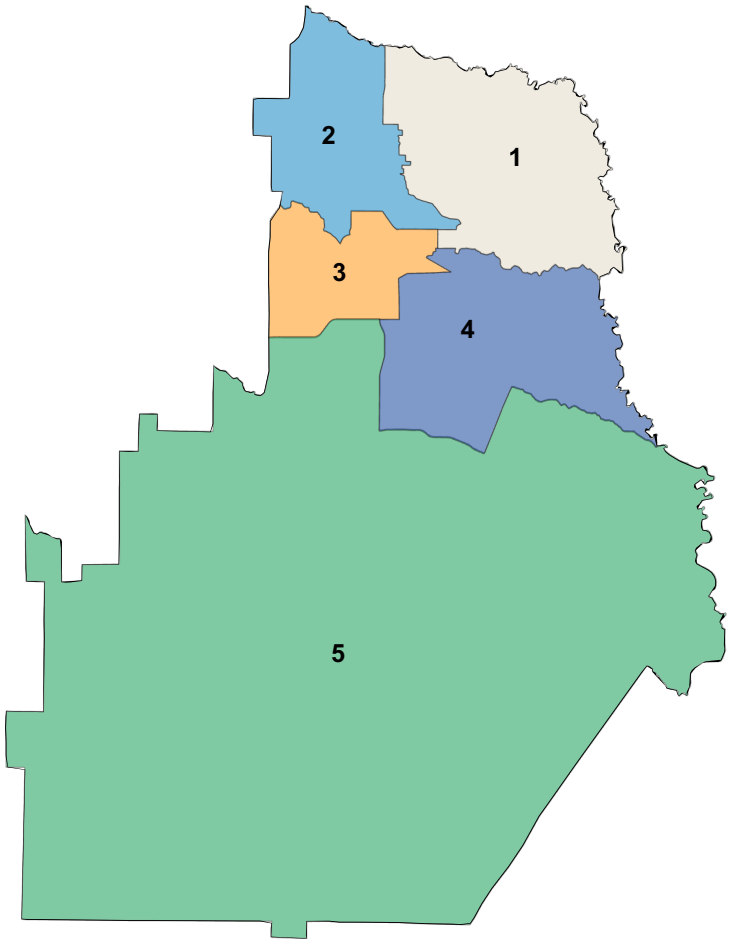


Table 6 - Demographic Data, Cervas Five District Plan with One Black Majority District

District	Total	White	% White	Black	% Black	Total VAP	White Vap	% White VAP	Black VAP	% Black VAP
1	32,268	10,110	31.3	17,874	55.4	23,682	8,444	35.7	12,320	52
2	33,260	17,400	52.3	11,312	34	25,488	14,377	56.4	7,838	30.8
3	32,773	17,697	54	9,682	29.5	24,285	13,723	56.5	6,878	28.3
4	26,846	17,161	63.9	6,466	24.1	19,768	13,073	66.1	4,507	22.8
5	38,486	23,843	62	11,186	29.1	28,895	18,401	63.7	8,062	27.9

78. The plan includes one Black-Majority district (District 1). It has a Black population that 55.4% of the district, and a Black VAP of 52.0%. The white population is 31.3% and the white VAP is 35.7%.

Figure 7 - Electoral Performance Analysis, Cervas MMD Five District Plan

District	Sheriff (2024)	Clerk (2024)	Commission Post 2 (2022)	Commission Post 4 (2022 Special)
1	89.8	64.4	62.6	55.8
2	46.5	49.1	45.3	41
3	40.4	42.9	40	38.4
4	34.1	37.2	34.1	30.8
5	31.4	34.2	31	26.9

79. This plan's Black-Majority district performs in all four of the elections analyzed. In the closest contest, the Black candidate of choice wins 55.8% of the two-party vote.

80. This plan appears to fully ensure Black voters can participate in elections with an undiluted vote.

B. Four District Plans

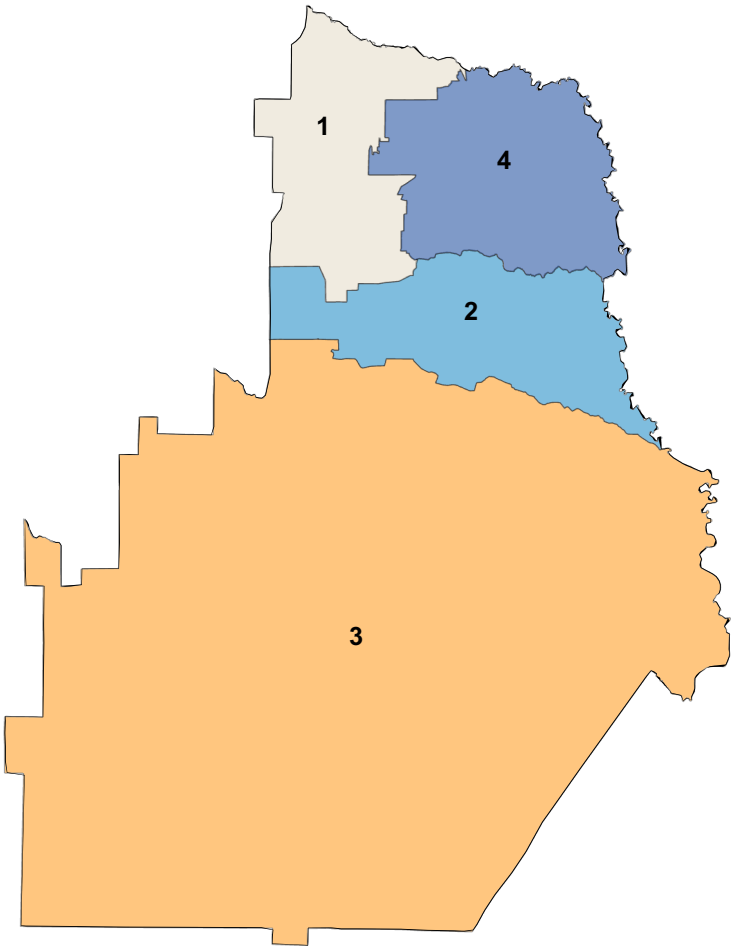
81. The next set of maps create four districts. The Houston County population is 163,633, therefore each district should have approximately 40,908 persons.[7] There are three illustrative maps in this set, one which is based on the Board of Education map described above, one that was drawn blind to race and party, and one that makes adjustments to the race/party blind map to create a numerical Black-Majority district.

[7] The range for districts should be between 38,863 and 42,954 persons.

1. Board of Education-based Map (Four Districts) ("BOE 4")

82. Using the existing Board of Education five district plan as the starting point, I adjusted the district lines to account for the requirement that districts be nearly equal in populations. I did not rely on racial data in making these adjustments.

Figure 8 - Map of Board of Education-based Plan (Four Districts)



83. The result was a four-district plan where one district (District 4) is 50.8% Black and 47.2% Black VAP. This district is 35.7% white and 40.2% white VAP.

Table 7 - Demographic Data, Board of Education-based Four District Plan

District	Total	White	% White	Black	% Black	Total VAP	White Vap	% White VAP	Black VAP	% Black VAP
1	40,235	21,618	53.7	12,922	32.1	30,874	17,675	57.2	9,151	29.6
2	40,450	23,672	58.5	10,969	27.1	29,479	17,908	60.7	7,614	25.8
3	41,830	26,258	62.8	11,734	28.1	31,163	20,128	64.6	8,397	26.9
4	41,118	14,663	35.7	20,895	50.8	30,602	12,307	40.2	14,443	47.2

84. District 4 in this plan elects the Black candidate of choice in all four of the analyzed elections.

Figure 9 - Electoral Performance Analysis, BOE-based Four District Plan

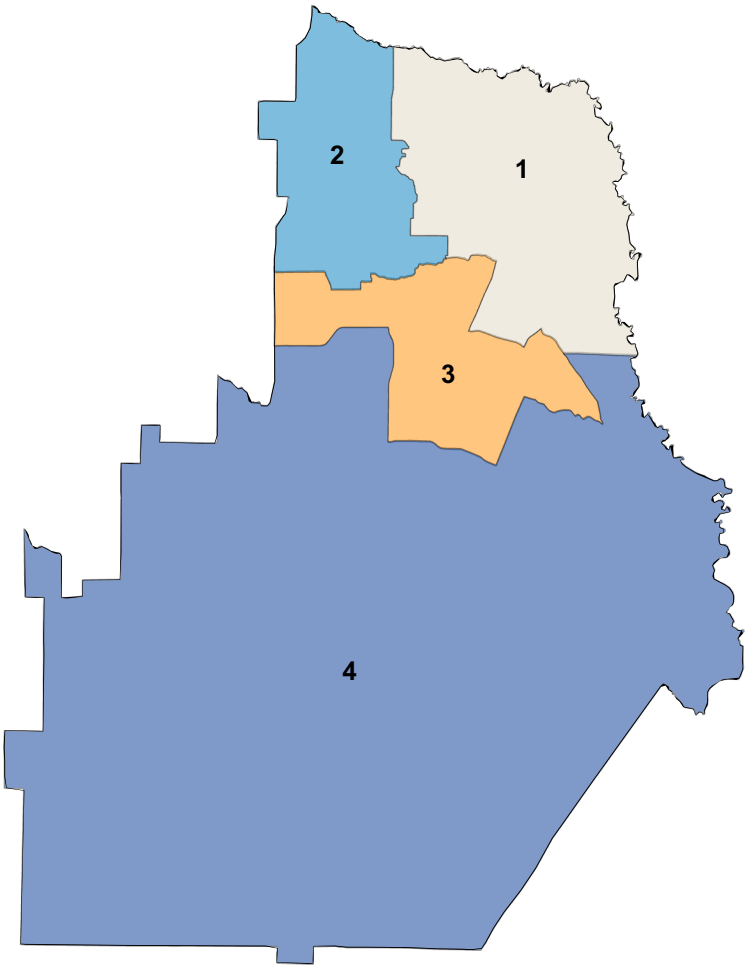
District	Sheriff (2024)	Clerk (2024)	Commission Post 2 (2022)	Commission Post 4 (2022 Special)
1	44	46.6	42.9	39.6
2	36.3	39.1	36.3	33.9
3	31.6	34.5	31	26.7
4	86.7	61.5	59.5	53.1

85. While this plan does not contain a numerical Black Majority VAP district, it is one in which Black voters are able to elect candidates of their choice regularly. The Majority-Minority district is numerically Black Majority on at least one measure, and they can clearly elect candidates of their choice with other minority voters or cross-over white voters.

2. Cervas Race Blind/Party Blind (Four Districts) ("Cervas Blind 4")

86. This was the initial map I drew for this report. As I reported above, I did not rely on or use any racial or partisan data when building this map. I started by drawing a compact district centered on the Air Force Base, then drew a district with the densely populated northern part of the county. I drew District 3 to take in the remaining population of Warner Robins CCD, and District 4 was shaped by anyone not yet assigned a district.

Figure 10 - Map of Cervas Race/Party Blind Plan (Four Districts)



87. This plan does not have any numeric Majority-Black districts but does have a district (District 1) that is 49.3% Black and 45.6% Black VAP. This district has a white population of 37.6% and a white VAP of 42.1%.

Table 8 - Demographic Data, Cervas Race and Party Blind Four District Plan (Cervas Blind 4)

District	Total	White	% White	Black	% Black	Total VAP	White Vap	% White VAP	Black VAP	% Black VAP
1	41,581	15,637	37.6	20,493	49.3	30,977	13,046	42.1	14,141	45.6
2	40,899	21,872	53.5	13,089	32	31,586	18,036	57.1	9,314	29.5
3	40,681	23,377	57.5	11,471	28.2	29,249	17,481	59.8	7,874	26.9
4	40,472	25,325	62.6	11,467	28.3	30,306	19,455	64.2	8,276	27.3

88. In terms of performance, this district allows Black voters to elect the candidate of their choice in three of the four of the elections analyzed. The only election in which the Black candidate of choice comes up short is the 2022 special election. In this election, the candidate narrowly loses. This election was held in May 2022, which is not typical for elections for this body.

Figure 11 - Electoral Performance Analysis, Cervas Blind Four District Plan

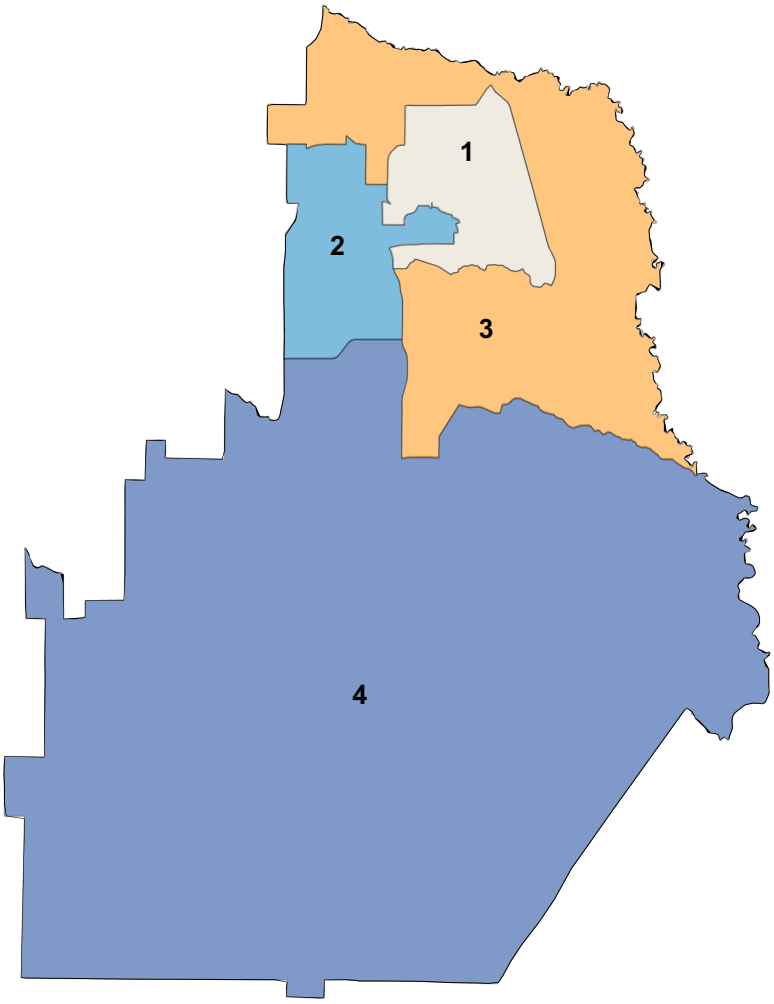
District	Sheriff (2024)	Clerk (2024)	Commission Post 2 (2022)	Commission Post 4 (2022 Special)
1	85.2	58.4	55.3	49.2
2	44.5	47.1	43.4	39.8
3	37.4	40.1	37	34.7
4	31.3	34.2	31.1	27

89. Although this plan does not create any numeric Majority Black districts, it clearly represents a plan in which give Black voters a nearly equal opportunity to elect candidates of their choice. It is drawn based on neutral redistricting criteria and is blind to race and partisanship.

3. Cervas Black MMD (Four Districts) (“Cervas MMD 5”)

90. The final plan I present is one that starts from the previous map but aims to increase the share of Black voters in District 1.

Figure 12 - Map of Cervas MMD Plan (Four Districts)



91. This plan has a district (District 1) in which Black voters make up a majority of the population (53.6%) and a slight majority (50%) of the voting age population. The white population is 33.1% and the white VAP is 37.7%.

Table 9 Demographic Data, Cervas Four District Plan with One Black Majority District

District	Total	White	% White	Black	% Black	Total VAP	White Vap	% White VAP	Black VAP	% Black VAP
1	40,536	13,422	33.1	21,742	53.6	30,058	11,336	37.7	15,019	50
2	40,471	21,923	54.2	11,763	29.1	30,229	17,221	57	8,286	27.4
3	41,626	25,715	61.8	10,993	26.4	31,234	20,125	64.4	7,690	24.6
4	41,000	25,151	61.3	12,022	29.3	30,597	19,336	63.2	8,610	28.1

92. The Black candidate of choice is successful in all four elections.

Figure 13 - Electoral Performance Analysis, Cervas MMD Four District Plan

District	Sheriff (2024)	Clerk (2024)	Commission Post 2 (2022)	Commission Post 4 (2022 Special)
1	86.1	61.4	59.2	53
2	42.3	44.9	41.8	39.6
3	42.6	40.5	37.1	33.7
4	31.5	34.4	31.1	26.9

93. This plan creates a numerically Black-Majority district in which Black candidates of choice are elected every time. This plan satisfies the requirements under Gingles I.

9. Summary of Gingles I conclusions

94. I have presented above six districting plans for Houston County based on the 2020 census. Three of these plans create five-district plans, and three create four-district plans. Three of the six plans create Black-Majority VAP districts, and in these plans the Black candidate of choice is successful in 100% of the contest. The other three plans each contain a Majority Minority district, and the rate of success for Black candidate of choices vary. See Table 10 below for a comparison of electoral performance across plans.

Table 10 - Electoral Performance Summary

	BOE 5	Cervas Blind 5	Cervas MMD 5	BOE 4	Cervas Blind 4	Cervas MMD 4
Sheriff (2024)	✅	✅	✅	✅	✅	✅
Clerk (2024)	✅	✅	✅	✅	✅	✅
Commission Post 2 (2022)	✅	❌	✅	✅	✅	✅
Commission Post 4 (2022 Special)	✅	❌	✅	✅	❌	✅
Rate of Success	**100%**	**50%**	**100%**	**100%**	**75%**	**100%**

10. Alternative Electoral Systems and Voting Rules

95. In this final section of the report, Counsel asked me to analyze the potential for Black voters to have undiluted under alternative electoral systems or voting rules. I will explain and analyze two such systems and show how they would work in Houston County. The two systems are Single Transferable Vote ("STV") and Single Non-Transferable Vote ("SNTV").

96. Plaintiff's counsel has asked me to give an opinion as to whether these alternative remedies would offer Black voters an undiluted vote in Houston County if used in at-large elections.

97. Both systems are semi-proportional and allow smaller, cohesive groups to elect candidates of their choice. Should two or more candidates be elected on the same ballot, I find that Black voters will be able to consistently elect candidates of their choice under either STV or SNTV.

A. Single Transferable Vote

98. In plurality elections voters elect a single candidate from a list, with the winner being the candidate with the most votes (without regard to whether they reach a majority or not). That is,

they select one candidate. Under plurality voting, a candidate wins exactly when she receives more first-preference votes than any other candidate.

99. The intuition of STV is that voters indicate preferences across multiple candidates by ranking them. Candidates are sequentially eliminated when they do not reach voting thresholds. When a voter's preferred candidate is eliminated, their second ranked candidate becomes their choice. STV uses a counting rule where the candidate with the least number of first place votes is eliminated. The winners(s) will be those who remain after elimination for the number of seats available.

100. In multi-seat elections, the bar for winning office is determined by how many positions are available. This benchmark represents the smallest share of the vote that guarantees all seats can be allocated, while making it impossible for any further contenders to also qualify. This rule is formalized in what is known as the Droop quota.

101. If one seat is open, then a cohesive group of 50%+1 can elect their candidate. If there are two seats open, a cohesive group that is at least 33%+1 of the electorate can elect a candidate. If there are three open seats, a group at least 25%+1 of the electorate that is cohesive can elect a candidate.

102. To figure out the minimum number of votes someone needs to win, you take the total number of votes cast, divide it by one more than the number of seats available, and then add one vote. That result is the cutoff needed to be elected.

103. The voter registration file in Houston County (see Table 1) shows that there 125,148 register voters as of 2025. Black voters are 35.8% of all voters, and white voters are 55.5%.

Applying the Droop quota to these numbers, Black voters can elect candidates of their choice so long as at least two candidates will be elected.

104. As my earlier analysis shows, Black turnout in the 2022 General Election showed that they were 31.5% of the electorate. In the 2024 General Election, they were 32.0% of the electorate. Applying the Droop quota to these numbers shows that Black voters who vote cohesively would be able to elect Black candidates of choice if at least three seats were elected in a multi-election contest and have a chance to elect a candidate when there were two seats being elected.

105. STV in at-large elections with multiple seats offers a suitable remedy that enables all voters an equal opportunity to elect candidates of choice.

B. Single Non-Transferable Vote

106. A Single Non-Transferable Vote is a system in which multiple winners will be selected, but voters only cast a single vote. Unlike STV, there is no ranking. It otherwise operates similarly to STV. Like STV, the Droop quota applies for cohesive groups. If a group is sufficiently large, cohesive, and there are multiple candidates, that group can elect candidates of choice.

107. Voters cast a ballot for one candidate. If there are two open seats, then a group that is cohesive and larger than 33%+1 of the electorate can elect a candidate of their choice. The reason is simple, if all voters of the 33%+1 group choose the same candidate, regardless of what any other voter does, they will elect one representative.

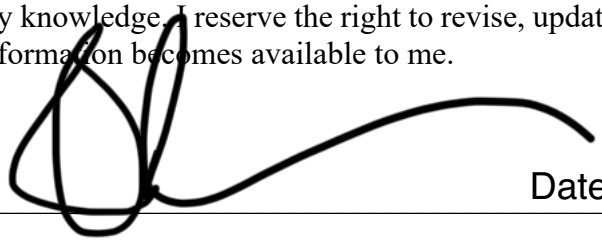
108. For example, if all white voters (67%-1 of all voters) choose Candidate A, and all Black voters choose candidate B (33%+1 of all voters), Candidate A would get 67%-1 vote and Candidate B would get 33%+1, but they would both be elected. If three candidates ran instead of two, and white voters divided evenly between the two, Candidate A would get 34%, Candidate B

would get 33%+1, and Candidate C would get 33%-1. Candidate A and B would be elected. Candidate B is the Black candidate of choice.

109. Single Non-Transferable Vote offers a viable remedy to allow Black voters in Houston County the opportunity to elect candidates of their choice. It operates mathematically identical to STV, though the voting experience is different. Black voters made up 31.5% of the electorate in the 2022 General Election and 32.0% in the 2024 General Election. As long as two or three positions are elected simultaneously, Black voters would have an opportunity to elect candidates of their choice.

* * *

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge. I reserve the right to revise, update, or supplement my opinions as new information becomes available to me.



Date: 12/24/2025

Dr. Jonathan Cervas