STATE 2

Expert Report of Thomas M. Bryan
Expert in Demography for the
Louisiana Attorney General

Robinson v. Ardoin

and

Galmon v. Ardoin

April 29, 2022

EXPERT REPORT OF THOMAS M. BRYAN

I, Thomas M. Bryan, affirm the conclusions I express in this report are provided to a reasonable degree of professional certainty.

EXPERT QUALIFICATIONS

I am an expert in demography with more than 30 years of experience. Described more fully below, I have been retained by the Louisiana Attorney General's office as an expert to provide redistricting analysis related to State Congressional, State Senate and State Legislative redistricting plans.

I graduated with a Bachelor of Science in History from Portland State University in 1992. I graduated with a Master of Urban Studies (MUS) from Portland State University in 1996, and in 2002 I graduated with a Master in Management and Information Systems (MIS) from George Washington University. Concurrent with earning my Management and Information Systems degree, I earned my Chief Information Officer certification from the GSA[1]

My background and experience with demography, census data and advanced analytics using statistics and population data began in 1996 with an analyst role for the Oregon State Data Center. In 1998 I began working as a statistician for the US Census Bureau in the Population Division – developing population estimates and innovative demographic methods. In 2001 I began my role as a professional demographer for ESRI Business Information Solutions, where I began developing my expertise in Geographic Information Systems (GIS) for population studies. In May 2004 I continued my career as a demographer, data scientist and expert in analytics in continuously advanced corporate roles, including at Altria and Microsoft through 2020.

In 2001 I developed a private demographic consulting firm "BryanGeoDemographics" or "BGD". I founded BGD as a demographic and analytic consultancy to meet the expanding demand for advanced analytic expertise in applied demographic research and analysis. Since then, my consultancy has broadened to include litigation support, state and local redistricting, school redistricting, and municipal infrastructure initiatives. Since 2001, I have undertaken over 150 such engagements in three broad areas:

- state and local redistricting,
- applied demographic studies, and
- school redistricting and municipal infrastructure analysis.

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1 Granted by the General Services Administration (GSA) and the Federal IT Workforce Committee of the CIO Council. http://www.gwu.edu/~mastergw/programs/mis/pr.html.

My background and experience with redistricting began with McKibben Demographics from 2004-2012, when I provided expert demographic and analytic support in over 120 separate school redistricting projects. These engagements involved developing demographic profiles of small areas to assist in building fertility, mortality and migration models used to support long-range population forecasts and infrastructure analysis. Over this time, I informally consulted on districting projects with Dr. Peter Morrison. In 2012 I formally began performing redistricting analytics and continue my collaboration with Dr. Morrison to this day. I have been involved with over 40 significant redistricting projects, serving roles of increasing responsibility from population and statistical analyses to report writing to directly advising and supervising redistricting initiatives. Many of these roles were served in the capacity of performing Gingles analyses, risk assessments and Federal and State Voting Rights Act (VRA) analyses in state and local areas.

In each of those cases, I have personally built, or supervised the building of, one or more databases combining demographic data, local geographic data and election data from sources including the 2000, the 2010 and now 2020 decennial Census. I also innovated the use of the US Census Bureau's statistical technique of "iterative proportional fitting" or "IPF" of the Census Bureau's American Community Survey, and the Census Bureau's Special Tabulation of Citizen Voting Age Population Data to enable the development of districting plans at the Census block level. This method has been presented and accepted in numerous cases we have developed or litigated. These data have also been developed and used in the broader context of case-specific traditional redistricting principles and often alongside other state and local demographic and political data.

In 2012 I began publicly presenting my work at professional conferences. I have developed and publicly presented on measuring effective voting strength, how to develop demographic accounting models, applications of using big data and statistical techniques for measuring minority voting strength – and have developed and led numerous tutorials on redistricting. With the delivery of the 2020 Census, I have presented on new technical challenges of using 2020 Census data and the impact of the Census Bureau's new differential privacy (DP) system. This work culminated with being invited to chair the "Assessing the Quality of the 2020 Census" session of the 2021 Population Association of America meeting, featuring Census Director Ron Jarmin.

I have written professionally and been published since 2004. I am the author of "Population Estimates" and "Internal and Short Distance Migration" in the definitive demographic reference "The Methods and Materials of Demography". In 2015 I joined a group of professional demographers serving as experts in the matter of Evenwel, et al. v. Texas case. In Evenwel I served in a leadership role in writing an Amicus Brief on the use of the American Community Survey (ACS) in measuring and assessing one-person, one vote. In 2019 I co-authored "Redistricting: A Manual for Analysts, Practitioners, and Citizens", and in 2021 I co-authored "The Effect of the Differential Privacy Disclosure Avoidance System Proposed by the Census Bureau on 2020 Census Products".

I have been deposed once in the last four years, in the matter of *Harding v. County of Dallas*, and have testified once, in the matters of *Milligan v. Merrill*, *Thomas v. Merrill* and *Singleton v. Merrill* over Alabama's Congressional redistricting initiatives.

I maintain membership in numerous professional affiliations, including:

- International Association of Applied Demographers (Member and Board of Directors)
- American Statistical Association (Member)
- Population Association of America (Member)
- Southern Demographic Association (Member)

My full CV, including my 30 years of demography experience, is attached as Appendix 5.

I am being compensated at my customary rate of $450/hour. My compensation is not dependent on my conclusions or opinions.

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I. EXECUTIVE SUMMARY

1. I was engaged by the Louisiana Attorney General's office to assess the characteristics of five congressional redistricting plans and to determine:
   a. whether the plans meet the numerosity criteria from the first prong of Gingles[2]; and
   b. if there was evidence that race appeared to predominate in the design of any of the plans.
2. In this report, I explore the demographic definition of minorities and show how different definitions can generate different conclusions about whether a district is a "majority" or not. Using measures of Black alone, Black (by the DOJ VRA definition) and Any Part Black (APB) Voting Age Population – we assess the Enrolled Plan and each of the Plaintiff's four Illustrative Plans in detail. Each of the Plaintiff's Illustrative Plans have two purported Black districts – but whether they are *majority* Black districts depends on which demographic definition of Black is used. As I will show: only by the most generous definition of Black, the any part black (APB) measure, do any of the Illustrative Plans meet the traditional majority minority criteria of over 50% + 1.
3. The Voting Age Population (VAP) by race and ethnicity by district for the Enrolled Plan is shown in **Appendix 1.A**. The Enrolled Plan has one majority Black district (District 2) no matter the definition of Black that is used. The VAP by race and ethnicity for the Robinson Illustrative Plan and the Galmon Illustrative Plans 1-3 are shown in **Appendix 1.B through Appendix 1.E**. Each Plaintiff Illustrative plan has two Black districts: 2 and 5, which could be considered either a minority or a majority Black depending on the demographic definition of Black used.

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[2] Under the Gingles test, plaintiffs must show the existence of three preconditions:

- The racial or language minority group must be "sufficiently large and geographically compact to constitute a majority in a single-member district";
- The minority group is "politically cohesive" (meaning its members tend to vote similarly); and
- The "majority votes sufficiently as a bloc to enable it ...to usually to defeat the minority's preferred candidate."

4. In an effort to determine whether race predominated in the design of each plan – I executed a comprehensive geographic splits analysis. I not only analyzed the number of splits at different levels of geography, but deeply explored the size and type of population that were impacted by them. While the Plaintiff's Illustrative Plans have fewer place splits than the Enrolled Plan, there is evidence that virtually all of the Plaintiff's place splits are made almost surgically along racial lines. This is evident in the larger cities such as Lafayette, New Orleans and Baton Rouge – and smaller cities such as Alexandria and Monroe alike.

5. Based on the surgical, divisive nature of the splits in each of the Plaintiff's Illustrative Plans across Louisiana's places, I conclude that race was the prevailing factor in their design.

II. ASSIGNMENT

6. The Louisiana Attorney General has asked me to independently review and assess the features and characteristics of the Louisiana Congressional HB1 / SB5 Enrolled Redistricting Plan and compare them with each of the Plaintiff's Illustrative Plans, as follows:

   A. HB1 / SB5 Enrolled

   B. Robinson Illustrative Plan

   C. Galmon Illustrative 1 Plan

   D. Galmon Illustrative 2 Plan

   E. Galmon Illustrative 3 Plan

7. In Section III, I review the performance of these different Louisiana congressional redistricting plans with the following metrics:

   A. Demographic characteristics

   B. Geographic splits;

8. In Section IV, I present my conclusions.

9. In forming my opinions, I have considered all materials cited in this report and the appendices. I have also considered some pleadings and other filings in this matter; as well as technical resources such as Morrison & Bryan, Redistricting: A Manual for Analysts, Practitioners, & Citizens (Springer 2019) and the U.S. DOJ, Guidance under Section 2 of the Voting Rights Act, 52 U.S.C. 1301, for redistricting and methods of electing government bodies (Sept. 1, 2021).

10. I reserve the right to further supplement my report and opinions.

III. REDISTRICTING PERFORMANCE

A. Population and Characteristics

11. I began my assessment by examining the population movement in Louisiana between 2010 and 2020 that necessitated the decennial redistricting process. By 2020, the population in Louisiana had departed from where it had originally been drawn at the beginning of the decade. Using the Block Assignment File (also known as a Block Equivalency file) for the Senate Bill 5 - Enrolled - Congress – Hewitt and House Bill 1 - Enrolled - Congress - Schexnayder plans (which are identical) that I procured on or about April 17, 2022 from https://redist.legis.la.gov/HouseSenateBlockEquiv - I joined Census 2020 PL94171 data for each of the Louisiana Census blocks – then summed the total population and population by race and ethnicity data by each of six congressional districts for the existing Louisiana plan and each new plan I was asked to evaluate.

12. The main point of reference for the changes necessitated by redistricting is the total population deviation. For the Louisiana congressional plan is the total 2020 Census population of Louisiana of 4,657,757 divided by six districts – or a "target" population of 776,292.83. In ***Table III.A.1*** the numerical minimum and maximum values (the basis for the calculation of deviation) are shown for each plans. As of 2020, the existing Louisiana congressional plan had a deviation of 88,120. Louisiana District 6 had 816,466 population (+40,173, or +5.2% above target ideal), while District 4 had 728,346 population (-47,947, or -6.2% below target ideal).

13. In looking at the new plans - some have modest numerical deviations, but none of these rise to the point of being a measurable or meaningful percent deviation. As shown in ***Table III.A.1*** the Enrolled (Enacted) Plan has a total population deviation of 65. In the Robinson Illustrative Plan – the deviation is 51, and in each of the subsequent Galmon Illustrative Plans 1-3, the deviations are only 1.

Table III.A.1 Total Population of the Existing Louisiana Congressional Plan, the Enrolled Plan and Plaintiff's Illustrative Plans

District	Existing Louisiana Plan	HB1 / SB5 Enrolled Plan	Robinson Illustrative Plan	Galmon Illustrative Plan 1	Galmon Illustrative Plan 2	Galmon Illustrative Plan 3
1	812,585	776,268	776,286	776,292	776,293	776,293
2	775,292	776,317	776,291	776,293	776,293	776,293
3	785,824	776,275	776,280	776,293	776,293	776,293
4	728,346	776,333	776,280	776,293	776,293	776,293
5	739,244	776,277	776,331	776,293	776,293	776,293
6	816,466	776,287	776,289	776,293	776,292	776,292
Total	**4,657,757**	**4,657,757**	**4,657,757**	**4,657,757**	**4,657,757**	**4,657,757**
Minimim	728,346	776,268	776,280	776,292	776,292	776,292
Target	776,292.8	776,292.8	776,292.8	776,292.8	776,292.8	776,292.8
Maximum	816,466	776,333	776,331	776,293	776,293	776,293
Deviation #	88,120	65	51	1	1	1

14. Next, I refer to the final text of the SB5 Bill here: https://www.legis.la.gov/legis/ViewDocument.aspx?d=1248635. Page 7 of this report provides a population summary of the plan, shown in ***Table III.A.2*** below. The demographic statistics in this report precisely match my analysis of demographic statistics by district generated from the HB1 and SB5 Block Assignment Files (BAF) I downloaded from the https://redist.legis.la.gov/HouseSenateBlockEquiv website – the results of which I show in ***Table III.A.1*** above.

Table III.A.2 Population and Deviations from the Enrolled Plan Statistics Report

Plan: Senate Bill 5 Enrolled

Districts:	# of Members	Actual Population	Ideal Population	Absolute Deviation	Relative Deviation
District 1	1	776,268	776,292	-24	-0.003%
District 2	1	776,317	776,292	25	0.003%
District 3	1	776,275	776,292	-17	-0.002%
District 4	1	776,333	776,292	41	0.005%
District 5	1	776,277	776,292	-15	-0.002%
District 6	1	776,287	776,292	-5	-0.001%
Grand Total:	6	4,657,757	4,657,752		

Ideal Population Per Member:	776292		
Number of Districts for Plan Type:	6		
Range of District Populations:	776,268	to	776,333
Absolute Mean Deviation:	11		
Absolute Range:	-24	to	41
Absolute Overall Range:	65		

Ideal - Actual:	***-5***
Remainder:	***5***
Unassigned Population:	***0***

15. With this analysis in mind, it is concerning that there are two references to the Enrolled Plan's deviations in the Robinson Complaint that are inconsistent. On Page 25 at Para 73, the Robinson Complaint states "Representative Schexnayder asserted that his proposed map was his best effort to achieve population equality. However, the population deviation in H.B. 1 ranges from 29 voters to -17 voters". There is no reference for this claim, and an analysis of the Voting Age Population (VAP) of the Enrolled Plan shows the deviation to be much, much higher than 29 to -17 (a total of 46). In examining **Appendix 1.A HB1 / SB5 Enrolled Plan Voting Age Population**, I note that the minimum VAP of this plan is found in District 3 (with 586,488) and the maximum VAP of this plan is found in District 1 (with 601,559) for a total VAP deviation of 15,111.

16. In the same Robinson Complaint on Page 27 at Para 80, it states "Representative Duplessis pointed out that on equal population, S.B. 5 [had] a deviation of 128 people,". There is no source for this number, but I ascertained from an examination of statistics for the *Engrossed* Plan statistics here: https://www.legis.la.gov/legis/ViewDocument.aspx?d=1245772 that the population deviation for this plan was 128. I assume the *Engrossed* Plan is the plan referred to in this part of the Robinson complaint. The claim is irrelevant at this point, because the Engrossed Plan is not the plan that was enacted.

17. It is also worth noting that the analysis presented in the Plaintiff's expert Mr. Cooper's report does not appear to analyze or report findings based on the official Enrolled Plan either. In Figure 10 "2022 Plan – 2020 Census" of Mr. Cooper's expert report - he presents a demographic summary that he represents as being for the Enacted Plan, and again in

Exhibit H-1 of Mr. Cooper's report, "Population Summary Report, Louisiana Congress -- 2022 Enacted Plan". In comparing the figures from Cooper's tables with an actual, accurate demographic summary of the Enrolled Plan in ***Table III.A.2*** – Mr. Cooper's numbers are categorically different. An exploratory analysis of the demographic statistics from the *Engrossed* (not Enrolled, or the actual Enacted) plan are published here: https://www.legis.la.gov/legis/ViewDocument.aspx?d=1245772. A review of the "Plan Statistics" table at approximately page 9 reveals that the *Engrossed* Plan is the plan that Cooper apparently incorrectly characterizes as the "Enacted Plan" and goes on to analyze and critique at length. This numeric conclusion is corroborated by a visual examination of Cooper's Figure 11 "Louisiana U.S. House -- Enacted 2022 Plan" which reveals numerous geographic inconsistencies with the Enrolled Plan map. The Parishes of Jefferson Davis, Calcasieu and Rapides are clearly split while those parishes of Grant, St. Martin and St. Mary (which are split in the Enrolled Plan) are not.

18. The demographic summaries, illustrative maps and split analyses in Mr. Cooper's report all diverge from the results obtained from a similar analysis of the HB1 / SB5 Enrolled Plan. In order to independently confirm that Mr. Cooper used the Engrossed Plan in his analysis - I developed a series of maps and ran analyses from the other plans based on House and Senate Bill Block Equivalency Files (https://redist.legis.la.gov/HouseSenateBlockEquiv). I found that in fact, the results in Cooper's report are identical to the results obtained across all analyses when using the *Engrossed* Plan – not the actual *Enrolled* Plan.

19. In the following analysis, I assess and compare the population characteristics of the Louisiana HB1 / SB5 Enrolled Plan, the Robinson Illustrative Plan, and the Galmon Illustrative Plans 1, 2 and 3. This analysis includes measures of the total population, the white alone, non-Hispanic population (WNH), Any Part Black (APB), Black alone, non-Hispanic (BNH), all other non-Hispanic (including Asian, Native Hawaiian and Pacific Islander (NHPI), American Indian and Alaskan Native (AIAN), some other race and multi-race), and Hispanic population.

20. The VAP by race and ethnicity by district for the Enrolled Plan is shown in **Appendix 1.A**. The Enrolled Plan has one majority Black district (District 2) no matter the definition of Black that is used. The VAP by race and ethnicity for the Robinson Illustrative Plan and the Galmon Illustrative Plans 1-3 are shown in **Appendix 1.B through Appendix 1.E**. Each has two Black districts: 2 and 5, which are either a minority or a majority depending on the definition you use.

21. In the field of demography, and indeed in redistricting cases, the definition of a population in question is critical. The U.S. Census allows respondents to self-declare their ethnic and racial identification:

> "In order to facilitate enforcement of the Voting Rights Act, the Census Bureau asks each person counted to identify their race and whether they are of Hispanic or Latino origin. Beginning with the 2010 Census (and continuing in 2020) the racial categories available in the Census were: white, Black, American Indian, Asian, Native Hawaiians and other Pacific Islanders, and Some Other Race. Persons of Hispanic or Latino origin might be of any race. Persons were given the opportunity to select more than one race – and that race could be in combination with Hispanic or non-Hispanic origin." [3]

22. The Census Bureau reports some 288 different population counts for each level of Census geography in the country (71 in P1 "Race", 73 in P2 "Hispanic or Latino, and Not Hispanic or Latino by Race", 71 in P3 "Race for the Population 18 Years and Over" and 73 in P4 "Hispanic or Latino, and Not Hispanic or Latino by Race for the Population 18 Years and Over" The result is that the definition of "Black" and other races in Louisiana can be Black alone, or in combination with multiple other races or possibly even also Hispanic and other races. If one adds up the different combination of multiple races, the totals will exceed 100% because of double counting. That is – someone who self-reports that they are Black and Asian could be counted in the total of both groups. This can only be accounted for and adjusted using sophisticated demographic allocation techniques.[4] As shown in **Appendix 1.F,** there are 32 possible Black alone or in combination possibilities. As shown in **Appendix 1.G**, there are 64 possible Black alone or in combination possibilities when divided by Hispanic origin.

23. For the purposes of redistricting, there are multiple definitions of race to consider. The first is race alone. This is the most exclusive definition, excluding minorities from a racial category who are multi-race or of Hispanic origin. This is the definition that has been used historically, prior to the evolution of the multi-race definition in the census.

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[3] "How to Draw Redistricting Plans That Will Stand Up In Court", National Conference of State Legislators (NCSL), January 22, 2011, p. 17.

[4] See for example Ingram, Deborah D.; Parker, Jennifer D.; Schenker, Nathaniel; Weed, James A.; Hamilton, Brady; Arias, Elizabeth; Madans, Jennifer H. (2003) "United States Census 2000 Population with Bridged Race Categories. Vital and Health Statistics. Data Evaluation and Methods Research."

24. The next is what I will refer to as the "DOJ" definition. For the purposes of the Voting Rights Act, the DOJ has provided "Guidance under Section 2 of the Voting Rights Act, 52 U.S.C. 10301, for redistricting and methods of electing government bodies"[5]. This document provides a definition of minority populations that include both race alone and a minority race paired with white, as follows:

> "The Department's initial review will be based upon allocating any response that includes white and one of the five other race categories identified in the response. Thus, the total numbers for "Black/African American," "Asian," "American Indian/Alaska Native," "Native Hawaiian or Other Pacific Islander," and "Some other race" reflect the total of the single-race responses and the multiple responses in which an individual selected a minority race and white race."

The DOJ goes on to say in their guidance:

> "The Department will then move to the second step in its application of the census data by reviewing the other multiple-race category, which is comprised of all multiple-race responses consisting of more than one minority race. Where there are significant numbers of such responses, the Department will, as required by both the OMB guidance and judicial opinions, allocate these responses on an iterative basis to each of the component single-race categories for analysis. Georgia v. Ashcroft, 539 U.S. 461, 473, n.1 (2003)."

Last, the DOJ distinguishes their race from ethnicity classifications:

> As in the past, the Department will analyze Hispanic/Latino persons as a separate minority group for purposes of enforcement of the Voting Rights Act, pursuant to Sections 2, 4(f)(2), and 14(c)(3) of the Act. 52 U.S.C. §§ 10301, 10303(f)(2), 10310(c)(3). The Census asks respondents to answer both the Hispanic origin question and the race question. A Hispanic/Latino tabulation of Census data includes those who respond affirmatively to the Hispanic origin question, irrespective of their response to the race question, e.g., white, a minority race, "some other race" or multiple races. If there are significant numbers of responses in a jurisdiction that self-identify as Hispanic/Latino and one or more minority races (for example, Hispanics/Latinos who list their race as Black/African American), the Department will conduct its initial analysis by allocating those responses to

[5] https://www.justice.gov/opa/press-release/file/1429486/download

the Hispanic/Latino category and then repeat its analysis by allocating those responses to the relevant minority race category.

25. The math of the first step is what I use here for the calculation of "DOJ Black Voting Age Population (VAP)" – that is, Black + white, non-Hispanic. The population that can be considered in the second DOJ step is usually small, but as we will see, is still very important in assessing whether a district meets the 50% + 1 of minority Voting Age Population definition criteria from Gingles.

26. The last race definition is what I refer to as "Any Part" or "All". This definition counts a minority by race alone or in combination with other races (no matter how many other races are mentioned) as well as by Hispanic. Beyond the DOJ definition for example – if someone responds to the census by self-identifying as Black, white, Asian, Native Hawaiian Pacific Islander, American Indian Alaskan Native and "some other" – then by the "Any Part Black" definition they are counted as Black even though it was only one of races reported. For the purposes of the Louisiana analysis - we use this definition to refer to Any Part Black (or "APB"). Again, **Appendices 1.F and 1.G** show all of the combinations and counts of Louisiana Black populations that contribute to this definition.

27. The tables below illustrate that only the Enrolled Plan meets the Gingles numerosity test for VAP under Black alone or the DOJ Black definition. None of the Plaintiff's Illustrative Plans have two districts that meet the Gingle's criteria of majority under the DOJ Black or APB definition. All of the Plaintiff's Illustrative Plans have two majority VAP districts <u>only when using the APB definition</u>.

28. I begin with the detailed percent Black characteristics of the Enrolled HB1 / SB5 Plan in ***Table III.A.3***. District 2 has a Black alone VAP share of 56.34%. With the addition of Black and white population comprising the DOJ definition, that share rises to 57.03% When Any Part Black (APB) is considered – the share rises to 58.65%. Other districts vary from 13.48% to 33.82% APB.

Table III.A.3 HB1 / SB5 Enrolled Plan Black Share of Voting Age Population

HB1 / SB5 Plan	Black Alone	Black DOJ	Any Part Black
1	12.13%	12.49%	13.48%
2	**56.34%**	**57.03%**	**58.65%**
3	23.38%	23.94%	24.63%
4	32.54%	33.09%	33.82%
5	31.82%	32.33%	32.91%
6	22.87%	23.27%	23.86%

29. Next, I detail the percent Black characteristics of the Robinson Illustrative Plan in ***Table III.A.4***.

    a. District 2 only has a Black alone population of 48.73% - not a majority. With the addition of the Black and white population comprising the DOJ definition, that share rises to 49.39% - still not a majority. When Any Part Black (APB) is considered – the share rises to 50.96%, or a majority only when every combination of Black alone or in combination is considered.

    b. District 5 has a Black alone share of 50.63%. With the addition of Black and white population comprising the DOJ definition, that share rises to 51.25% When Any Part Black (APB) is considered – the share rises to 52.05% - all majorities.

Table III.A.4 Robinson Illustrative Plan Black Share of Voting Age Population

Illustrative Plan	Black Alone	Black DOJ	Any Part Black
1	16.84%	17.24%	18.29%
2	**48.73%**	**49.39%**	**50.96%**
3	16.77%	17.29%	17.91%
4	30.76%	31.25%	31.90%
5	**50.63%**	**51.25%**	**52.05%**
6	15.31%	15.68%	16.19%

30. Next, I detail the percent Black characteristics of the Galmon Illustrative 1 Plan in ***Table III.A.5***.

    a. District 2 only has a Black alone VAP share of 47.77% - not a majority. With the addition of Black and white population comprising the DOJ definition, that share rises to 48.41% - also not a majority. When Any Part Black (APB) is considered – the share rises to 50.16%, or a majority only when every combination of Black alone or in combination is considered.

    b. District 5 has a Black alone share of 48.62% - not a majority. With the addition of Black and white population comprising the DOJ definition, that share rises to 49.22% - also not a majority. When Any Part Black (APB) is considered – the share rises to 50.04% - an extremely thin majority.

Table III.A.5 Galmon Illustrative 1 Plan Black Share of Voting Age Population

Illustratuve 1 Plan	Black Alone	Black DOJ	Any Part Black
1	16.95%	17.35%	18.18%
2	**47.77%**	**48.41%**	**50.16%**
3	18.55%	19.10%	19.75%
4	30.68%	31.17%	31.82%
5	**48.62%**	**49.22%**	**50.04%**
6	16.36%	16.74%	17.24%

31. Next, I detail the percent Black characteristics of the Galmon Illustrative 2 Plan in ***Table III.A.6***.

    a. District 2 only has a Black alone VAP share of 48.27% - not a majority. With the addition of Black and white population comprising the DOJ definition, that share rises to 48.92% - also not a majority. When Any Part Black (APB) is considered – the share rises to 50.65%, or a majority only when every combination of Black alone or in combination is considered.

    b. District 5 has a Black alone share of 48.65% - not a majority. With the addition of Black and white population comprising the DOJ definition, that share rises to 49.25% - also not a majority. When Any Part Black (APB) is considered – the share rises to 50.04% - again an extremely thin majority.

Table III.A.6 Galmon Illustrative 2 Plan Black Share of Voting Age Population

Illustrative 2 Plan	Black Alone	Black DOJ	Any Part Black
1	15.29%	15.67%	16.51%
2	**48.27%**	**48.92%**	**50.65%**
3	20.39%	20.93%	21.59%
4	27.52%	28.00%	28.65%
5	**48.65%**	**49.25%**	**50.04%**
6	18.74%	19.14%	19.67%

32. Next, I detail the percent Black characteristics of the Galmon Illustrative 3 Plan in ***Table III.A.7***.

    a. District 2 has a Black alone VAP share of 47.77% - not a majority. With the addition of Black and white population comprising the DOJ definition, that share rises to 48.41% - also not a majority. When Any Part Black (APB) is considered – the share rises to 50.16%, or a majority only when every combination of Black alone or in combination is considered.

b. District 5 has a Total Black Population of 50.23%. With the addition of Black and white population comprising the DOJ definition, that share rises to 50.81%. When Any Part Black (APB) is considered – the share rises to 51.63%.

Table III.A.7 Galmon Illustrative 3 Plan Black Share of Voting Age Population

Illustrative 3 Plan	Black Alone	Black DOJ	Any Part Black
1	17.35%	17.74%	18.52%
2	**47.77%**	**48.41%**	**50.16%**
3	16.82%	17.35%	17.98%
4	31.79%	32.29%	32.96%
5	**50.23%**	**50.81%**	**51.63%**
6	15.14%	15.53%	16.09%

B. District Boundaries, Parish and Place Geographic Splits Analysis.

33. I next turn my attention to the unity of administrative geography in Louisiana. There are three relevant layers of administrative geography in Louisiana, including parishes (the equivalent of counties in other states), places and VTDs - a generic term adopted by the Bureau of the Census to include the wide variety of small polling areas, such as election districts, precincts, or wards, that State and local governments create for the purpose of administering elections. [6]. The Louisiana Redistricting Criteria Joint Rule 21 specifically states (at H.) "All redistricting plans shall respect the established boundaries of parishes, municipalities, and other political subdivisions and natural geography of this state to the extent practicable".

34. The US Census Bureau provides useful details in understanding the number and characteristics of these geographic layers in Louisiana, as follows:[7]

- Parishes: There are 64 county equivalents in Louisiana known as parishes.
- Places: There are 488 places in Louisiana; 304 incorporated places and 184 census designated places (CDPs). The incorporated places consist of 69 cities, 128 towns, and 107 villages.

In addition to these geographies, we analyze 3,540 VTDs acquired from the 2020 Census TIGER program[8].

35. A "splits" analysis would conventionally extend to the number of split pieces of geography and stop there. Numerically fewer splits are *usually* indicative of a better performing plan than one with more splits. However - in the case of Louisiana, the raw counts of splits disguise the true nature and characteristics of the splits of places in all four of the Plaintiff's Illustrative Plans. In each, there is clearly a demographic pattern to the way in which places were split, and the characteristics of the populations in the resulting pieces begged further examination. I begin my analysis with a detailed examination of places, followed by observations about parish splits, concluding with a summary of VTD splits.

36. An examination of the number of place splits by plan in ***Table III.B.1*** shows the Enrolled Plan with 19 place splits. The Robinson Illustrative Plan follows with slightly more at 21, and the Galmon Illustrative Plans 1-3 follow with 13, 16 and 16 place splits respectively. What is significant is *how* each of these plans splits places – when they do.

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[6] https://www2.census.gov/geo/pdfs/reference/GARM/Ch14GARM.pdf

[7] https://www.census.gov/geographies/reference-files/2010/geo/state-local-geo-guides-2010/louisiana.html and current TIGER shapefiles

[8] https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.2020.html

Table III.B.1 Louisiana Place Splits by Plan

Plan	Split	Unsplit
HB1 / SB5 Enrolled	19	285
Robinson Illustrative Plan	21	283
Galmon Illustrative Plan 1	13	291
Galmon Illustrative Plan 2	16	288
Galmon Illustrative Plan 3	16	288

37. In the course of my analysis, I created tables showing not only the number of splits for each plan – but the size and population characteristics of the pieces that result from each place split. In **Appendix 2 Detailed Place Splits Analysis** I show the total population (and share), the white population (and share) and APB population (and share) for each place piece split, by plan.

38. In **Appendix 2.A HB1 / SB5 Enrolled Plan Place Splits** I show the population splits and demographic characteristics for the Enrolled Plan. Using Addis Town as an example – there are 6,700 of the 6,731 of the total population (99.54%) in District 2. Then, there are 3,415 white people (99.74%) and 2,765 Black people (99.74%) in District 2. The small remaining population is in District 6. I would characterize this split as being small and impacting the white and Black population equitably. This equity does not prevail for all cities in the Enrolled Plan though. For example, in Baton Rouge: 34.73% of the total population is in District 2, reflecting a balance of 5.41% of the white population and 57.21% of the Black population.

39. In the following **Appendix 2 Tables 2.B through 2.E** I report the detailed demographic size and impact of the splits incurred by the Plaintiff's Illustrative Plans. While each has fewer splits - an examination of these tables quickly reveals that there are much more significant demographic *impacts* of the splits made by those plans. But how do we quantify *how much more* these Illustrative Plans splits impact and divide the population (particularly by race) than the Enrolled Plan? A useful way for quantifying the degree to which a plan splits administrative geography by race is by measuring how much of a minority population would be in a given piece – if it had an exact same proportionate share as the total population. In demography = this is known as an index of misallocation[9]. For example, using the Galmon Illustrative 3 Plan split of Lafayette as shown in ***Table III.B.2*** below. In this plan, 70% of the total population is in the District 3 split, and 30% of the total

[9] Swanson, D.A. 1981 "Allocation Accuracy in Population Estimates: An Overlooked Criterion with Fiscal Implications." pp. 13-21 in Small Area Population Estimates, Methods and Their Accuracy and New Metropolitan Areas Definitions and Their Impact on the Private and Public Sector, Series GE-41 No.7, U.S. Bureau of the Census.

population is in the District 5 split. If the Black population were distributed evenly around the city, and a split was created randomly, we would expect the Black[10] population to be split the same as the total population. That is - we would expect that 70% of the 39,354 Black population in Lafayette would have ended up in District 3 and 30% of the Black population would have ended up in District 5.

Table III.B.2 Galmon Illustrative 3 Plan – Lafayette Expected Black Population

District	Total Pop	Total Percent	Expected Black Pop	
3	84,924	70.0%	27,536	=39,354 * 70%
5	36,450	30.0%	11,818	=39,354 * 30%

40. Instead, we find that the Black population in Lafayette was split in almost the exact opposite direction of the total population. As shown in ***Table III.B.3***- the Black population of 13,028 (or 33%) is split into District 3, while 26,326 Black population is split into District 5.

Table III.B.3 Galmon Illustrative 3 Plan – Lafayette Actual Black Population

District	Total Pop	Total Percent	Actual Black Pop	Black Pop Percent
3	84,924	70.0%	13,028	33%
5	36,450	30.0%	26,326	67%

41. The outcome, as shown in ***Table III.B.4*** is that in the Galmon Illustrative 3 Plan - 14,508 Blacks have been redistricted and split differently (27,536 expected minus 13,028 actual – or 26,326 actual minus 11,818 expected) in Lafayette than you would expect if the plan had been drawn race-blind. That is, they were demographically misallocated. As I am about to show with a series of maps of race by plan– it can be clearly seen in each of the Plaintiff's Illustrative Plans that the population has *not* been split and distributed equally in Louisiana's places.

[10] Any Part Black (APB)

Table III.B.4 Galmon Illustrative 3 Plan – Lafayette Black Population Difference from Expected

District	Expected Black	Actual Black	Black Pop Difference
3	27,536	13,028	14,508
5	11,818	26,326	-14,508

42. Of course, it would be unusual for there to be *no* differences between the expected and actual splits of minority populations. But we can easily quantify the extent to which different plans deviate by summing these differences between expected and actual for places and parishes for each of these plans. From ***Table III.B.5*** below it can clearly be seen that there are significant differences in the impact of actual versus expected population by plan. The Robinson Illustrative Plan misallocates nearly 40,000 more Blacks than the Enrolled Plan with its splits of places. And the Galmon Plans misallocate 10,011, 13,811 and 20,778 respectively more than the Enrolled Plan.

43. Similarly, the Robinson Illustrative Plan misallocates over 46,000 more Blacks than the Enrolled Plan with its splits of parishes. And the Galmon plans misallocate 43,044, 33,067 and 54,809 respectively more than the Enrolled Plan. There can be no argument that each of the Illustrative Plans act to significantly split the minority Black population from the white population across Louisiana places and parishes.

Table III.B.5 Black Population Difference from Expected by Plan: Louisiana Places and Parishes

Plan	Place	Parish
HB1 / SB5 Enrolled	57,843	132,930
Robinson Illustrative	97,341	179,066
Galmon Illustrative 1	67,854	175,974
Galmon Illustrative 2	71,654	165,997
Galmon Illustrative 3	78,621	187,739

44. To expand on this concept, I created a series of maps showing the splits of Louisiana places and parishes by plan to show first exactly where places were split, then second to visually illustrate the demographics of the pieces that were split. I focus this analysis on Baton Rouge, New Orleans and Lafayette. Metairie CDP was minimally affected, and Shreveport was not affected at all by redistricting – so I do not analyze those. I add an analysis of Alexandria and Monroe to show the patterns I observe were not limited to the biggest places in the state.

45. HB1 / SB5 Enrolled Plan Place Splits: By necessity every decade, the existing Louisiana congressional plan boundaries needed to be updated. The HB1 / SB5 Enrolled Plan appears to be a "least change" approach. In the enrolled map – the changes to the existing plan were generally made away from city cores as seen in **Map Appendix A Louisiana Enrolled HB1 / SB5.** In looking at the new HB1 / SB5 Enrolled boundaries – there appears to be little to no change for New Orleans and Baton Rouge – and Lafayette, Alexandria and Monroe (among other smaller places) are not split at all. **Map Appendix F Baton Rouge Split HB1 / SB5 Enrolled Plan** shows Baton Rouge divided north and south in this plan. This split of the city follows the existing congressional district lines.

46. HB1 / SB5 Enrolled Plan Place Splits by Race: In looking at **Map Appendix AA Baton Rouge HB1 / SB5 Enrolled Plan** we see the historic subdivision of the city with most of the northern part of the city in Black majority minority **District 2.** However – a sizable portion of Black population from the east / northeast corner of the city remains in District 6. Referring to the **Appendix 2.A Detailed Splits Analysis** for the Enrolled plan – I show that nearly 54,000 of the Back residents (approximately 43%) reside in the District 6 portion of the city. As I will show shortly – this is *much more equitably* distributed than in any of the Illustrative Plans. In **Appendix FF New Orleans HB1 / SB5 Enrolled Plan** we see that the city of New Orleans is split by District 1 and District 2. Lafayette, Alexandria and Monroe are not split by the HB1 / SB5 Enrolled Plan.

47. Robinson Illustrative Plan Place Splits: This Illustrative plan departs significantly from the existing congressional district boundaries, as seen in **Map Appendix B Robinson Illustrative Plan**. Significant changes are made to the cores of the three large Louisiana cities. **Map Appendix G Baton Rouge Split** shows Baton Rouge trisected in this plan. **Map Appendix L New Orleans Split** shows the city split in this plan between District 1 and District 2. **Map Appendix P Lafayette** shows the city split almost exactly in half, north and south. **Map Appendix T Alexandria** shows the city split northeast to southwest between District 3 and District 5. And in **Map Appendix X Monroe** shows the city split with a small portion going to District 4 in the northwest with the remaining portion in District 5.

48. Robinson Illustrative Plan Place Splits by Race: In **Appendix BB, Baton Rouge Split by Race** is shown with % Any Part Black (APB) VAP by 2020 Census Block. District 5 appears to almost perfectly cut off the northern half (predominantly Black) part of the city. District 2 cuts off a smaller Black population to the SW. The remaining (predominantly white) part of the city is left to District 6. In looking at **Map Appendix GG New Orleans Existing Plan and Robinson Illustrative Plan**, we can see that the Robinson Illustrative Plan started with the existing congressional boundaries in New Orleans – then expanded them just slightly, capturing additional white population from District 2 – and moving them out of District 2 and into District 1. This appears to be a clear race based shifting of population. Next, looking at Lafayette. As with the division of Baton Rouge, an examination of **Map Appendix HH Lafayette Split by Race** shows the city divided cleanly along racial lines. In **Map Appendix LL Alexandria Split by Race**, it can be plainly seen that the predominantly white portion of the city in the southwest corner in District 3 is nearly perfectly cut off from the remaining, primarily Black part of the city in District 5. And in **Map Appendix PP Monroe Split by Race**, it can be plainly seen that the predominantly white portion of the city in the northwest corner is nearly perfectly cut off in District 4 from the remaining, primarily Black part of the city in District 5.

49. Galmon Illustrative 1 Plan Place Splits : This Illustrative Plan also departs significantly from the existing district boundaries, as seen in **Map Appendix C Galmon Illustrative 1 Plan**. Significant changes are also made to the cores of these three large cities. **Map Appendix H Baton Rouge Split** shows the city roughly split north/south in this plan between District 5 and District 6. **Map Appendix M New Orleans Split** shows the city split in this plan – but this split is unremarkable. It creates a large split piece of geography northeast towards Lake St. Catherine – but this area is relatively unpopulous But as with the Robinson Illustrative plan, **Map Appendix Q Lafayette** shows the city split almost exactly in half north/south. **Map Appendix U Alexandria** shows the city split northeast to southwest between District 4 and District 5. As with the HB1 / SB5 Enrolled Plan – the Galmon Illustrative 1 Plan does not split Monroe.

50. Galmon Illustrative 1 Plan Place Splits by Race: In **Appendix CC, Baton Rouge Split by Race** is shown with % Any Part Black (APB) by 2020 Census Block. As with the Robinson Illustrative Plan - District 5 appears to almost perfectly cut off the northern half (predominantly Black) part of the city. The remaining (predominantly white) part of the city is again left to District 6. As with the division of Baton Rouge, an examination of **Map Appendix II Lafayette Split by Race** shows the city almost perfectly divided cleanly along racial lines, north and south. In **Map Appendix NN Alexandria Split by Race**, it can be plainly seen that the predominantly white portion of the city in the southwest corner in District 3 is nearly perfectly cut off from the remaining, primarily Black part of the city in District 5.

51. Galmon Illustrative 2 Plan Place Splits : This Illustrative Plan also departs significantly from the existing district boundaries, as seen in **Map Appendix D Galmon Illustrative 2 Plan**. Significant changes are also made to the cores of these three large cities. **Map Appendix I Baton Rouge Split** shows the city roughly split north/south in this plan, with refinements beyond Galmon 1 to its southwest border in the downtown area. **Map Appendix N New Orleans Split** shows the city split in this plan – but this split is unremarkable. It creates a large split piece of geography northeast towards Lake St. Catherine – but this area is relatively unpopulous. But as with the Galmon Illustrative 1 Plan, **Map Appendix R Lafayette** shows the city split almost exactly in half north/south – just in a slightly different configuration. **Map Appendix V Alexandria** shows the city split northeast to southwest between District 4 and District 5. And in **Map Appendix Y Monroe** shows the city again split with a small portion going to District 4 with the remaining portion in District 5.

52. Galmon Illustrative 2 Plan Place Splits by Race: In **Appendix DD, Baton Rouge Split by Race** is shown with % Any Part Black (APB) by 2020 Census Block. As with the earlier Galmon Illustrative 1 Plan, District 5 appears to almost perfectly cut off the northern half (predominantly Black) part of the city. The remaining (predominantly white) part of the city is again left to District 6. Unlike the earlier Galmon 1 plan – the map drawer here tightened the downtown border between District 5 and District 6 to almost perfectly segregate Black and white neighborhoods. A close examination shows the line was made and adjusted at the block level for a nearly perfect racial population split. As with the division of Baton Rouge, an examination of **Map Appendix JJ Lafayette Split by Race again** shows the city almost perfectly divided cleanly along racial lines, north and south. In **Map Appendix OO Alexandria Split by Race**, it can be plainly seen that the predominantly white portion of the city in the southwest corner in District 3 is nearly perfectly cut off from the remaining, primarily Black part of the city in District 5. And in **Map Appendix RR Monroe Split by Race**, it can be plainly seen that again the predominantly white portion of the city in the northwest corner is nearly perfectly cut off in District 4 from the remaining, primarily Black part of the city in District 5.

53. Galmon Illustrative 3 Plan Place Splits : This Illustrative Plan also departs significantly from the existing district boundaries, as seen in **Map Appendix E Galmon Illustrative 3 Plan**. Significant changes are also made to the cores of these three large cities. **Map Appendix J Baton Rouge Split** shows the city roughly split north/south in this plan, with refinements to its southwest border in the downtown area beyond Galmon 1. **Map Appendix O New Orleans Split** shows the city split in this plan – but this split is unremarkable. It creates a large split piece of geography northeast towards Lake St. Catherine – but this area is relatively unpopulous But as with the Galmon Illustrative 1 plan, **Map Appendix S Lafayette** shows the city split almost exactly in half north/south. **Map Appendix W Alexandria** shows the city split northeast to southwest between District 3 and District 5. And in **Map Appendix Z Monroe** shows the city again split with a small portion going to District 4 with the remaining portion in District 5.

54. Galmon Illustrative 3 Plan Place Splits by Race: In **Appendix EE, Baton Rouge Split by Race** is shown with % Any Part Black (APB) by 2020 Census Block. As with the earlier Galmon Illustrative 1 Plan, District 5 appears to almost perfectly cut off the northern half (predominantly Black) part of the city. The remaining (predominantly white) part of the city is again left to District 6. Similar to the Galmon 2 plan – the map drawer here tightened the downtown border between District 5 and District 6 to almost perfectly segregate Black and white neighborhoods. A close examination shows the line was made and adjusted at the block level for a nearly perfect racial population split. As with the division of Baton Rouge, an examination of **Map Appendix KK Lafayette Split by Race again** shows the city almost perfectly divided cleanly along racial lines, north and south. In **Map Appendix OO Alexandria Split by Race**, it can be plainly seen that the predominantly white portion of the city in the southwest corner in District 3 is nearly perfectly cut off from the remaining, primarily Black part of the city in District 5. And in **Map Appendix RR Monroe Split by Race**, it can be plainly seen that again the predominantly white portion of the city in the northwest corner is nearly perfectly cut off in District 4 from the remaining, primarily Black part of the city in District 5.

55. An examination of the number of parish splits by plan in ***Table III.B.6*** shows the Enrolled Plan with the most splits – at 15. The Robinson Illustrative plan follows with 14, and the Galmon Illustrative Plans follow with 10, 11 and 10 Parish splits respectively. I have already presented a summary of the differential impact of parish splits in ***Table III.B.5*** above – and my conclusion remains the same here. While there are numerically slightly fewer splits in each of the Plaintiff's Illustrative Plans than the Enrolled Plan – each of those impacts significantly more population by race.

Table III.B.6 Parish Splits by Plan

Plan	Split	Unsplit
HB1 / SB5 Enrolled	15	49
Robinson Illustrative Plan	14	50
Galmon Illustrative Plan 1	10	54
Galmon Illustrative Plan 2	11	53
Galmon Illustrative Plan 3	10	54

56. Finally, I share the splits of VTDs in ***Table III.B.7***. It is intuitive that the Enrolled Plan and the Robinson Illustrative Plans have 1 and 0 splits respectively – given that each plan has a small amount of population deviation. Work does not appear to have been done in either of these plans to split VTDs in order to drive the population deviation from a small, nominal amount to none. By comparison, the Galmon Illustrative 1 through 3 Plans have numerous VTD splits, which explains how each of these plans was able to achieve a minimum population deviation of 1. It is unusual to have this many splits, relative to the number of districts, however. Typically, only one VTD (and sometimes none) would need to be split by district to bring a plan into minimum deviation. The Louisiana Redistricting Criteria Joint Rule 21, states at G.(1) "To the extent practicable, each district within a redistricting plan submitted for consideration shall contain whole election precincts" and at G.(2) "If a VTD must be divided, it shall be divided into as few districts as practicable". My assessment of these VTD splits is that they are likely excessive.

Table III.B.7 VTD Splits by Plan

Plan	Split	Unsplit
HB1 / SB5 Enrolled	1	3,539
Robinson Illustrative Plan	0	3,540
Galmon Illustrative Plan 1	13	3,527
Galmon Illustrative Plan 2	10	3,530
Galmon Illustrative Plan 3	13	3,527

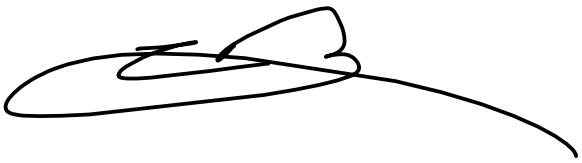
IV. CONCLUSION

57. For the reasons stated in this report and illustrated in the Appendices - I conclude that the Plaintiff's Illustrative Plans fail the voting age population and numerosity requirements for the majority minority districts using the Black alone non-Hispanic category and the DOJ Black formulation. Only when one adds multi-race Black with two up to additional five races in combination do you achieve two majority minority districts with > 50% of Black VAP.

58. My analysis shows that in order to achieve this tenuous result, the Plaintiff's Illustrative Plans have redrawn many of Louisiana's places to maximally divide the Black population from the rest of the population. While the Plaintiff's Illustrative Plans present a slightly smaller number of splits than the Enacted Plan, these smaller numbers belie the nature and character of those splits. In the Plaintiff's Illustrative Plans -the split of the cities in the eastern two thirds of the state and their associated parishes appear to be nearly surgically drawn by racial lines. Splitting these cities to cleave their white and Black populations apart was the only way to create two districts by the APB measure.

* * *

Submitted: April 29, 2022



Thomas M. Bryan

Appendix 1 Demographics

Appendix 2 Detailed Splits Analysis

Appendix 3 Detailed Core Retention Analysis

Appendix 4 Louisiana Maps

Appendix 5 Thomas Bryan Resume

Appendix 1 Demographics

A. HB1 / SB5 Enrolled Plan: Voting Age Population by Race and Ethnicity

District	Total Pop	WNH Pop	APB NH	BNH NH	All Other NH	Hispanic
1	601,559	420,268	81,105	72,977	42,503	65,811
2	600,203	179,129	352,018	338,179	35,854	47,041
3	586,488	392,996	144,434	137,106	28,899	27,487
4	591,095	343,535	199,907	192,343	31,174	24,043
5	597,389	360,144	196,617	190,118	25,558	21,569
6	593,814	386,038	141,688	135,788	34,277	37,711
Grand Total	**3,570,548**	**2,082,110**	**1,115,769**	**1,066,511**	**198,265**	**223,662**

B. Robinson Illustrative Plan: Voting Age Population by Race and Ethnicity

District	Total Pop	WNH Pop	APB NH	BNH Pop	Other NH	Hispanic
1	603,084	394,140	110,315	101,553	42,773	64,618
2	603,764	218,098	307,670	294,198	40,066	51,402
3	586,948	428,229	105,115	98,440	31,630	28,649
4	596,366	357,220	190,267	183,466	31,689	23,991
5	589,193	252,112	306,701	298,337	20,064	18,680
6	591,193	432,311	95,701	90,517	32,043	36,322
Grand Total	**3,570,548**	**2,082,110**	**1,115,769**	**1,066,511**	**198,265**	**223,662**

C. Galmon Illustrative 1 Plan: Voting Age Population by Race and Ethnicity

District	Total Pop	WNH Pop	APB NH	BNH Pop	Other NH	Hispanic
1	599,826	396,685	109,041	101,677	41,193	60,271
2	603,092	225,537	302,513	288,076	37,720	51,759
3	586,519	415,185	115,841	108,807	31,869	30,658
4	596,695	357,357	189,880	183,088	31,611	24,639
5	592,316	260,464	296,402	287,986	23,698	20,168
6	592,100	426,882	102,092	96,877	32,174	36,167
Grand Total	**3,570,548**	**2,082,110**	**1,115,769**	**1,066,511**	**198,265**	**223,662**

D. Galmon Illustrative 2 Plan: Voting Age Population by Race and Ethnicity

District	Total Pop	WNH Pop	APB NH	BNH Pop	Other NH	Hispanic
1	598,980	399,732	98,862	91,591	42,331	65,326
2	606,036	229,831	306,982	292,507	36,913	46,785
3	585,553	406,600	126,424	119,366	29,970	29,617
4	592,745	369,521	169,811	163,140	34,225	25,859
5	593,183	261,385	296,852	288,597	23,038	20,163
6	594,051	415,041	116,838	111,310	31,788	35,912
Grand Total	**3,570,548**	**2,082,110**	**1,115,769**	**1,066,511**	**198,265**	**223,662**

E. Galmon Illustrative 3 Plan: Voting Age Population Characteristics

District	Total Pop	WNH Pop	APB NH	BNH Pop	Other NH	Hispanic
1	599,586	394,484	111,043	104,032	40,627	60,443
2	603,092	225,537	302,513	288,076	37,720	51,759
3	586,927	426,910	105,558	98,724	32,336	28,957
4	597,083	352,454	196,784	189,789	31,104	23,736
5	589,070	249,264	304,153	295,866	22,326	21,614
6	594,790	433,461	95,718	90,024	34,152	37,153
Grand Total	**3,570,548**	**2,082,110**	**1,115,769**	**1,066,511**	**198,265**	**223,662**

F. Louisiana Population with Black Alone and in Combination

P1 Total Pop	#	% of Total
Total:	4,657,757	100.0%
Black or African American alone	1,464,023	31.4%
White; Black or African American	43,631	0.9%
Black or African American; American Indian and Alaska Native	7,332	0.2%
Black or African American; Asian	2,323	0.0%
Black or African American; Native Hawaiian and Other Pacific Islander	419	0.0%
Black or African American; Some Other Race	13,305	0.3%
White; Black or African American; American Indian and Alaska Native	4,955	0.1%
White; Black or African American; Asian	985	0.0%
White; Black or African American; Native Hawaiian and Other Pacific Islander	121	0.0%
White; Black or African American; Some Other Race	2,995	0.1%
Black or African American; American Indian and Alaska Native; Asian	137	0.0%
Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander	40	0.0%
Black or African American; American Indian and Alaska Native; Some Other Race	374	0.0%
Black or African American; Asian; Native Hawaiian and Other Pacific Islander	170	0.0%
Black or African American; Asian; Some Other Race	128	0.0%
Black or African American; Native Hawaiian and Other Pacific Islander; Some Other Race	46	0.0%
White; Black or African American; American Indian and Alaska Native; Asian	339	0.0%
White; Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander	46	0.0%
White; Black or African American; American Indian and Alaska Native; Some Other Race	1,250	0.0%
White; Black or African American; Asian; Native Hawaiian and Other Pacific Islander	64	0.0%
White; Black or African American; Asian; Some Other Race	67	0.0%
White; Black or African American; Native Hawaiian and Other Pacific Islander; Some Other Race	30	0.0%
Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander	38	0.0%
Black or African American; American Indian and Alaska Native; Asian; Some Other Race	21	0.0%
Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander; Some Other Race	1	0.0%
Black or African American; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	47	0.0%
White; Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander	82	0.0%
White; Black or African American; American Indian and Alaska Native; Asian; Some Other Race	95	0.0%
White; Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander; Some Other Race	3	0.0%
White; Black or African American; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	11	0.0%
Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	8	0.0%
White; Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	33	0.0%
Black Alone or In Combination	1,543,119	

G. Louisiana Population with Black Alone and in Combination by Hispanic Origin

P2 Total Pop by Hispanic	#	% of Total		Hispanic (P1 - P2)	% of Total
Not Hispanic or Latino:	4,335,208	93%		322,549	7%
Black or African American alone	1,452,420	31%		11,603	0%
White; Black or African American	41,902	1%		1,729	0%
Black or African American; American Indian and Alaska Native	6,931	0%		401	0%
Black or African American; Asian	2,185	0%		138	0%
Black or African American; Native Hawaiian and Other Pacific Islander	371	0%		48	0%
Black or African American; Some Other Race	6,202	0%		7,103	0%
White; Black or African American; American Indian and Alaska Native	4,341	0%		614	0%
White; Black or African American; Asian	886	0%		99	0%
White; Black or African American; Native Hawaiian and Other Pacific Islander	112	0%		9	0%
White; Black or African American; Some Other Race	1,525	0%		1,470	0%
Black or African American; American Indian and Alaska Native; Asian	119	0%		18	0%
Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander	36	0%		4	0%
Black or African American; American Indian and Alaska Native; Some Other Race	230	0%		144	0%
Black or African American; Asian; Native Hawaiian and Other Pacific Islander	136	0%		34	0%
Black or African American; Asian; Some Other Race	74	0%		54	0%
Black or African American; Native Hawaiian and Other Pacific Islander; Some Other Race	20	0%		26	0%
White; Black or African American; American Indian and Alaska Native; Asian	253	0%		86	0%
White; Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander	37	0%		9	0%
White; Black or African American; American Indian and Alaska Native; Some Other Race	450	0%		800	0%
White; Black or African American; Asian; Native Hawaiian and Other Pacific Islander	49	0%		15	0%
White; Black or African American; Asian; Some Other Race	32	0%		35	0%
White; Black or African American; Native Hawaiian and Other Pacific Islander; Some Other Race	16	0%		14	0%
Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander	26	0%		12	0%
Black or African American; American Indian and Alaska Native; Asian; Some Other Race	18	0%		3	0%
Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander; Some Other Race	0	0%		1	0%
Black or African American; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	41	0%		6	0%
White; Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander	51	0%		31	0%
White; Black or African American; American Indian and Alaska Native; Asian; Some Other Race	48	0%		47	0%
White; Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander; Some Other Race	1	0%		2	0%
White; Black or African American; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	7	0%		4	0%
Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	8	0%		0	0%
White; Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	20	0%		13	0%
Black Alone or In Combination, non-Hispanic and Hispanic	1,518,547			24,572	

Appendix 2 Detailed Place Splits Analysis

A. HB1 / SB5 Enrolled Plan Place Splits

Place Name	District	Total	Total %	white	white %	Black	Black %
Addis town	2	6,700	99.54%	3,415	99.74%	2,765	99.42%
	6	31	0.46%	9	0.26%	16	0.58%
Arnaudville town	3	39	3.87%	29	3.43%	5	3.79%
	4	970	96.13%	816	96.57%	127	96.21%
Baker city	2	3,119	25.04%	535	32.00%	2,509	24.12%
	6	9,336	74.96%	1,137	68.00%	7,893	75.88%
Basile town	3	0	0.00%	0	0.00%	0	0.00%
	4	1,214	100.00%	839	100.00%	275	100.00%
Baton Rouge city	2	79,011	34.73%	4,209	5.41%	72,143	57.21%
	6	148,459	65.27%	73,620	94.59%	53,954	42.79%
Brusly town	2	694	26.92%	398	22.26%	263	42.76%
	6	1,884	73.08%	1,390	77.74%	352	57.24%
Downsville village	4	96	80.00%	81	80.20%	1	100.00%
	5	24	20.00%	20	19.80%	0	0.00%
Eunice city	3	302	3.21%	252	4.63%	31	0.88%
	4	9,120	96.79%	5,196	95.37%	3,487	99.12%
Gonzales city	2	5,972	48.83%	1,629	36.76%	3,674	61.30%
	6	6,259	51.17%	2,803	63.24%	2,319	38.70%
Hammond city	1	3,001	15.32%	1,656	19.29%	1,074	11.58%
	5	16,583	84.68%	6,928	80.71%	8,202	88.42%
Houma city	1	31,448	94.14%	18,120	93.13%	8,428	96.19%
	6	1,958	5.86%	1,336	6.87%	334	3.81%
Kenner city	1	52,353	78.79%	24,540	92.30%	8,513	53.80%
	2	14,095	21.21%	2,046	7.70%	7,311	46.20%
Morgan City city	3	10,449	91.08%	5,855	88.18%	2,696	97.47%
	6	1,023	8.92%	785	11.82%	70	2.53%
New Orleans city	1	48,050	12.51%	36,600	30.15%	3,973	1.81%
	2	335,947	87.49%	84,785	69.85%	214,996	98.19%
Patterson city	3	4,325	72.92%	1,846	67.37%	2,166	80.70%
	6	1,606	27.08%	894	32.63%	518	19.30%
Plaquemine city	2	6,159	98.25%	2,792	97.15%	3,041	99.22%
	6	110	1.75%	82	2.85%	24	0.78%
Ponchatoula city	1	7,647	97.76%	4,684	97.60%	2,339	98.32%
	5	175	2.24%	115	2.40%	40	1.68%
Port Allen city	2	4,315	87.37%	1,327	79.94%	2,812	91.81%
	6	624	12.63%	333	20.06%	251	8.19%
White Castle town	2	1,722	100.00%	125	100.00%	1,572	100.00%
	6	0	0.00%	0	0.00%	0	0.00%

B. Robinson Illustrative Plan Place Splits

Place Name	District	Total	Total %	white	white %	Black	Black %
Alexandria city	3	13,740	30.35%	9,302	56.25%	2,796	10.87%
	5	31,535	69.65%	7,235	43.75%	22,935	89.13%
Baton Rouge city	2	34,805	15.30%	15,737	20.22%	14,148	11.22%
	5	101,118	44.45%	8,671	11.14%	86,314	68.45%
	6	91,547	40.25%	53,421	68.64%	25,635	20.33%
Breaux Bridge city	3	5,165	68.75%	3,128	86.19%	1,718	49.25%
	5	2,348	31.25%	501	13.81%	1,770	50.75%
Central city	5	2,135	7.22%	1,884	8.07%	119	3.20%
	6	27,430	92.78%	21,450	91.93%	3,604	96.80%
Eunice city	3	302	3.21%	252	4.63%	31	0.88%
	5	9,120	96.79%	5,196	95.37%	3,487	99.12%
Gonzales city	2	12,209	99.82%	4,418	99.68%	5,989	99.93%
	6	22	0.18%	14	0.32%	4	0.07%
Independence town	5	1,619	99.02%	718	98.09%	796	100.00%
	6	16	0.98%	14	1.91%	0	0.00%
Kenner city	1	54,578	82.14%	24,616	92.59%	9,187	58.06%
	2	11,870	17.86%	1,970	7.41%	6,637	41.94%
Lafayette city	3	84,924	69.97%	60,719	87.85%	13,028	33.10%
	5	36,450	30.03%	8,398	12.15%	26,326	66.90%
Leesville city	3	1,979	35.03%	1,047	39.78%	625	29.12%
	4	3,670	64.97%	1,585	60.22%	1,521	70.88%
Monroe city	4	10,565	22.15%	8,456	58.73%	1,370	4.41%
	5	37,137	77.85%	5,942	41.27%	29,687	95.59%
New Iberia city	1	28,033	98.17%	12,460	98.13%	13,099	98.56%
	3	522	1.83%	237	1.87%	191	1.44%
New Llano town	3	634	28.65%	273	32.62%	233	24.66%
	4	1,579	71.35%	564	67.38%	712	75.34%
New Orleans city	1	75,419	19.64%	55,537	45.75%	8,578	3.92%
	2	308,578	80.36%	65,848	54.25%	210,391	96.08%
Pineville city	3	4,753	33.04%	3,376	42.13%	846	16.48%
	5	9,631	66.96%	4,637	57.87%	4,287	83.52%
Plaquemine city	1	110	1.75%	82	2.85%	24	0.78%
	5	6,159	98.25%	2,792	97.15%	3,041	99.22%
Scott city	3	7,224	88.98%	4,955	88.70%	1,287	88.27%
	5	895	11.02%	631	11.30%	171	11.73%
Slidell city	1	28,664	99.59%	17,336	99.64%	7,593	99.50%
	6	117	0.41%	62	0.36%	38	0.50%
Ville Platte city	3	962	15.26%	730	39.16%	190	4.44%
	5	5,341	84.74%	1,134	60.84%	4,092	95.56%
West Monroe city	4	7,824	59.71%	5,508	77.77%	1,616	32.97%
	5	5,279	40.29%	1,574	22.23%	3,285	67.03%
White Castle town	1	0	0.00%	0	0.00%	0	0.00%
	2	1,722	100.00%	125	100.00%	1,572	100.00%

C. Galmon Illustrative 1 Plan Place Splits

Place Name	District	Total	Total %	white	white %	Black	Black %
Alexandria city	4	16,205	35.79%	10,837	65.53%	3,525	13.70%
	5	29,070	64.21%	5,700	34.47%	22,206	86.30%
Arnaudville town	1	39	3.87%	29	3.43%	5	3.79%
	5	970	96.13%	816	96.57%	127	96.21%
Ball town	4	0	0.00%	0	0.00%	0	0.00%
	5	3,961	100.00%	3,058	100.00%	522	100.00%
Baton Rouge city	5	143,972	63.29%	25,896	33.27%	105,549	83.70%
	6	83,498	36.71%	51,933	66.73%	20,548	16.30%
Broussard city	1	190	1.42%	153	1.57%	25	1.06%
	3	13,227	98.58%	9,617	98.43%	2,323	98.94%
Eunice city	3	302	3.21%	252	4.63%	31	0.88%
	5	9,120	96.79%	5,196	95.37%	3,487	99.12%
Kenner city	1	56,858	85.57%	25,661	96.52%	9,803	61.95%
	2	9,590	14.43%	925	3.48%	6,021	38.05%
Lafayette city	3	84,954	69.99%	60,738	87.88%	13,036	33.12%
	5	36,420	30.01%	8,379	12.12%	26,318	66.88%
Mandeville city	1	5,043	38.23%	4,000	37.54%	352	49.79%
	6	8,149	61.77%	6,654	62.46%	355	50.21%
Morgan City city	1	0	0.00%	0	0.00%	0	0.00%
	3	11,472	100.00%	6,640	100.00%	2,766	100.00%
New Iberia city	1	27,435	96.08%	11,971	94.28%	13,024	98.00%
	3	1,120	3.92%	726	5.72%	266	2.00%
New Orleans city	1	33,047	8.61%	25,500	21.01%	2,459	1.12%
	2	350,950	91.39%	95,885	78.99%	216,510	98.88%
West Monroe city	4	8,395	64.07%	5,879	83.01%	1,769	36.09%
	5	4,708	35.93%	1,203	16.99%	3,132	63.91%

D. Galmon Illustrative 2 Plan Place Splits

Place Name	District	Total	Total %	white	white %	Black	Black %
Alexandria city	4	15,160	33.48%	10,204	61.70%	3,220	12.51%
	5	30,115	66.52%	6,333	38.30%	22,511	87.49%
Arnaudville town	2	39	3.87%	29	3.43%	5	3.79%
	5	970	96.13%	816	96.57%	127	96.21%
Baton Rouge city	5	130,936	57.56%	17,643	22.67%	102,087	80.96%
	6	96,534	42.44%	60,186	77.33%	24,010	19.04%
Broussard city	2	190	1.42%	153	1.57%	25	1.06%
	3	13,227	98.58%	9,617	98.43%	2,323	98.94%
Carencro city	2	821	8.85%	234	5.85%	476	10.43%
	3	8,451	91.15%	3,768	94.15%	4,088	89.57%
Central city	5	1,266	4.28%	619	2.65%	568	15.26%
	6	28,299	95.72%	22,715	97.35%	3,155	84.74%
DeRidder city	3	9,198	93.36%	5,086	94.03%	3,147	93.13%
	4	654	6.64%	323	5.97%	232	6.87%
Eunice city	3	302	3.21%	252	4.63%	31	0.88%
	5	9,120	96.79%	5,196	95.37%	3,487	99.12%
Forest Hill village	4	605	100.00%	346	100.00%	17	100.00%
	5	0	0.00%	0	0.00%	0	0.00%
Lafayette city	2	38,408	31.64%	10,758	15.56%	25,615	65.09%
	3	82,966	68.36%	58,359	84.44%	13,739	34.91%
Monroe city	4	7,734	16.21%	6,448	44.78%	766	2.47%
	5	39,968	83.79%	7,950	55.22%	30,291	97.53%
Morgan City city	1	0	0.00%	0	0.00%	0	0.00%
	2	0	0.00%	0	0.00%	0	0.00%
	3	11,472	100.00%	6,640	100.00%	2,766	100.00%
New Orleans city	1	28,740	7.48%	22,401	18.45%	1,852	0.85%
	2	355,257	92.52%	98,984	81.55%	217,117	99.15%
Pineville city	4	7,724	53.70%	5,155	64.33%	1,759	34.27%
	5	6,660	46.30%	2,858	35.67%	3,374	65.73%
West Monroe city	4	8,264	63.07%	5,785	81.69%	1,737	35.44%
	5	4,839	36.93%	1,297	18.31%	3,164	64.56%
Zachary city	5	19,303	99.93%	9,012	99.93%	9,040	100.00%
	6	13	0.07%	6	0.07%	0	0.00%

E. Galmon Illustrative 3 Plan Place Splits

Place Name	District	Total	Total %	white	white %	Black	Black %
Alexandria city	3	15,163	33.49%	10,207	61.72%	3,217	12.50%
	5	30,112	66.51%	6,330	38.28%	22,514	87.50%
Arnaudville town	1	39	3.87%	29	3.43%	5	3.79%
	5	970	96.13%	816	96.57%	127	96.21%
Baton Rouge city	5	124,663	54.80%	14,103	18.12%	100,237	79.49%
	6	102,807	45.20%	63,726	81.88%	25,860	20.51%
Broussard city	1	190	1.42%	153	1.57%	25	1.06%
	3	13,227	98.58%	9,617	98.43%	2,323	98.94%
Eunice city	3	302	3.21%	252	4.63%	31	0.88%
	5	9,120	96.79%	5,196	95.37%	3,487	99.12%
Kenner city	1	56,858	85.57%	25,661	96.52%	9,803	61.95%
	2	9,590	14.43%	925	3.48%	6,021	38.05%
Lafayette city	3	84,924	69.97%	60,719	87.85%	13,028	33%
	5	36,450	30.03%	8,398	12.15%	26,326	67%
Mandeville city	1	13,192	100.00%	10,654	100.00%	707	100.00%
	6	0	0.00%	0	0.00%	0	0.00%
Monroe city	4	10,521	22.06%	7,972	55.37%	1,745	5.62%
	5	37,181	77.94%	6,426	44.63%	29,312	94.38%
New Iberia city	1	27,148	95.07%	11,810	93.01%	12,939	97.36%
	3	1,407	4.93%	887	6.99%	351	2.64%
New Orleans city	1	33,047	8.61%	25,500	21.01%	2,459	1.12%
	2	350,950	91.39%	95,885	78.99%	216,510	98.88%
Pineville city	3	8,141	56.60%	5,240	65.39%	2,162	42.12%
	5	6,243	43.40%	2,773	34.61%	2,971	57.88%
Scott city	3	7,224	88.98%	4,955	88.70%	1,287	88.27%
	5	895	11.02%	631	11.30%	171	11.73%
Slidell city	1	0	0.00%	0	0.00%	0	0.00%
	6	28,781	100.00%	17,398	100.00%	7,631	100.00%
Tickfaw village	5	0	0.00%	0	0.00%	0	0.00%
	6	635	100.00%	425	100.00%	121	100.00%
West Monroe city	4	8,828	67.37%	5,940	83.87%	2,095	42.75%
	5	4,275	32.63%	1,142	16.13%	2,806	57.25%

Appendix 3 Detailed Parish Splits Analysis

A. HB1 / SB5 Enrolled Parish Splits

Parish Name	District	Total	Total %	white	white %	Black	Black %
Ascension Parish	2	20,892	16.52%	5,452	6.85%	13,842	42.97%
	6	105,608	83.48%	74,193	93.15%	18,374	57.03%
Assumption Parish	2	6,710	31.89%	2,838	20.90%	3,622	58.23%
	6	14,329	68.11%	10,742	79.10%	2,598	41.77%
East Baton Rouge Parish	2	94,325	20.65%	5,351	2.80%	85,793	40.20%
	6	362,456	79.35%	186,004	97.20%	127,605	59.80%
Grant Parish	4	7,473	33.71%	5,567	33.38%	1,563	46.87%
	5	14,696	66.29%	11,111	66.62%	1,772	53.13%
Iberville Parish	2	21,073	69.68%	8,306	56.77%	11,316	82.42%
	6	9,168	30.32%	6,326	43.23%	2,414	17.58%
Jefferson Parish	1	245,132	55.61%	149,694	71.84%	32,307	25.60%
	2	195,649	44.39%	58,691	28.16%	93,910	74.40%
Lafourche Parish	1	43,701	44.80%	34,951	49.42%	1,903	12.00%
	6	53,856	55.20%	35,771	50.58%	13,952	88.00%
Orleans Parish	1	48,050	12.51%	36,600	30.15%	3,973	1.81%
	2	335,947	87.49%	84,785	69.85%	214,996	98.19%
St. Charles Parish	2	34,943	66.50%	20,529	62.76%	11,091	79.63%
	6	17,606	33.50%	12,179	37.24%	2,837	20.37%
St. John the Baptist Parish	2	32,678	76.93%	8,484	63.56%	21,557	85.56%
	6	9,799	23.07%	4,864	36.44%	3,639	14.44%
St. Martin Parish	3	50,399	97.36%	31,649	96.14%	15,908	99.92%
	6	1,368	2.64%	1,270	3.86%	13	0.08%
St. Mary Parish	3	44,607	90.29%	24,046	91.31%	15,198	95.04%
	6	4,799	9.71%	2,288	8.69%	793	4.96%
Tangipahoa Parish	1	39,681	29.80%	28,681	35.93%	7,152	17.08%
	5	93,476	70.20%	51,144	64.07%	34,727	82.92%
Terrebonne Parish	1	67,855	61.92%	41,238	59.94%	14,123	61.01%
	6	41,725	38.08%	27,564	40.06%	9,024	38.99%
West Baton Rouge Parish	2	13,908	51.13%	5,642	39.97%	7,347	65.77%
	6	13,291	48.87%	8,472	60.03%	3,823	34.23%

B. Robinson Illustrative Plan Parish Splits

Parish Name	District	Total	Total %	white	white %	Black	Black %
Ascension Parish	2	38,845	30.71%	15,739	19.76%	19,119	59.35%
	6	87,655	69.29%	63,906	80.24%	13,097	40.65%
East Baton Rouge Parish	2	78,676	17.22%	38,120	19.92%	27,030	12.67%
	5	177,263	38.81%	31,001	16.20%	136,262	63.85%
	6	200,842	43.97%	122,234	63.88%	50,106	23.48%
Evangeline Parish	3	23,988	74.15%	18,390	86.90%	3,854	41.73%
	5	8,362	25.85%	2,772	13.10%	5,381	58.27%
Iberia Parish	1	57,438	82.14%	30,224	78.36%	22,346	91.00%
	3	12,491	17.86%	8,348	21.64%	2,210	9.00%
Iberville Parish	1	5,187	17.15%	4,001	27.34%	886	6.45%
	2	10,224	33.81%	3,777	25.81%	5,529	40.27%
	5	14,830	49.04%	6,854	46.84%	7,315	53.28%
Jefferson Parish	1	237,070	53.78%	143,738	68.98%	30,464	24.14%
	2	203,711	46.22%	64,647	31.02%	95,753	75.86%
Lafayette Parish	3	172,780	71.47%	125,084	83.13%	26,466	40.63%
	5	68,973	28.53%	25,391	16.87%	38,670	59.37%
Orleans Parish	1	75,419	19.64%	55,537	45.75%	8,578	3.92%
	2	308,578	80.36%	65,848	54.25%	210,391	96.08%
Ouachita Parish	4	90,953	56.72%	72,160	82.54%	11,272	18.41%
	5	69,415	43.28%	15,266	17.46%	49,945	81.59%
Rapides Parish	3	69,584	53.52%	53,437	70.01%	8,596	20.18%
	5	60,439	46.48%	22,886	29.99%	33,996	79.82%
St. Martin Parish	1	1,368	2.64%	1,270	3.86%	13	0.08%
	3	35,420	68.42%	22,773	69.18%	10,468	65.75%
	5	14,979	28.94%	8,876	26.96%	5,440	34.17%
St. Tammany Parish	1	75,982	28.72%	44,884	23.36%	21,121	54.66%
	6	188,588	71.28%	147,260	76.64%	17,522	45.34%
Tangipahoa Parish	5	21,698	16.30%	9,297	11.65%	11,351	27.10%
	6	111,459	83.70%	70,528	88.35%	30,528	72.90%
Vernon Parish	3	33,131	67.96%	22,486	66.92%	4,986	65.51%
	4	15,619	32.04%	11,113	33.08%	2,625	34.49%

C. Galmon Illustrative 1 Plan Parish Splits

Parish Name	District	Total	Total %	white	white %	Black	Black %
Ascension Parish	2	48,562	38.39%	22,545	28.31%	20,750	64.41%
	6	77,938	61.61%	57,100	71.69%	11,466	35.59%
East Baton Rouge Parish	5	221,639	48.52%	45,966	24.02%	157,991	74.04%
	6	235,142	51.48%	145,389	75.98%	55,407	25.96%
Iberia Parish	1	37,106	53.06%	19,198	49.77%	14,793	60.24%
	3	32,823	46.94%	19,374	50.23%	9,763	39.76%
Jefferson Parish	1	236,658	53.69%	143,244	68.74%	30,583	24.23%
	2	204,123	46.31%	65,141	31.26%	95,634	75.77%
Lafayette Parish	3	176,829	73.14%	126,139	83.83%	28,505	43.76%
	5	64,924	26.86%	24,336	16.17%	36,631	56.24%
Orleans Parish	1	33,047	8.61%	25,500	21.01%	2,459	1.12%
	2	350,950	91.39%	95,885	78.99%	216,510	98.88%
Ouachita Parish	4	65,317	40.73%	53,190	60.84%	6,327	10.34%
	5	95,051	59.27%	34,236	39.16%	54,890	89.66%
Rapides Parish	4	48,517	37.31%	35,732	46.82%	7,350	17.26%
	5	81,506	62.69%	40,591	53.18%	35,242	82.74%
Sabine Parish	3	7,249	32.72%	5,842	39.34%	521	13.49%
	4	14,906	67.28%	9,008	60.66%	3,340	86.51%
St. Tammany Parish	1	122,259	46.21%	77,744	40.46%	28,640	74.11%
	6	142,311	53.79%	114,400	59.54%	10,003	25.89%

D. Galmon Illustrative 2 Plan Parish Splits

Parish Name	District	Total	Total %	white	white %	Black	Black %
Ascension Parish	2	9,737	7.70%	2,377	2.98%	6,971	21.64%
	6	116,763	92.30%	77,268	97.02%	25,245	78.36%
Beauregard Parish	3	32,682	89.42%	25,880	89.12%	4,305	92.60%
	4	3,867	10.58%	3,159	10.88%	344	7.40%
East Baton Rouge Parish	5	210,418	46.07%	38,523	20.13%	155,305	72.78%
	6	246,363	53.93%	152,832	79.87%	58,093	27.22%
Jefferson Parish	1	264,196	59.94%	152,348	73.11%	43,262	34.28%
	2	176,585	40.06%	56,037	26.89%	82,955	65.72%
Lafayette Parish	2	41,605	17.21%	12,051	8.01%	27,238	41.82%
	3	200,148	82.79%	138,424	91.99%	37,898	58.18%
Orleans Parish	1	28,740	7.48%	22,401	18.45%	1,852	0.85%
	2	355,257	92.52%	98,984	81.55%	217,117	99.15%
Ouachita Parish	4	72,964	45.50%	59,574	68.14%	7,068	11.55%
	5	87,404	54.50%	27,852	31.86%	54,149	88.45%
Rapides Parish	4	77,658	59.73%	59,498	77.96%	10,114	23.75%
	5	52,365	40.27%	16,825	22.04%	32,478	76.25%
St. Charles Parish	1	25,156	47.87%	15,374	47.00%	6,457	46.36%
	2	27,393	52.13%	17,334	53.00%	7,471	53.64%
St. Mary Parish	1	559	1.13%	216	0.82%	288	1.80%
	3	48,847	98.87%	26,118	99.18%	15,703	98.20%
St. Tammany Parish	1	183,226	69.25%	127,434	66.32%	31,736	82.13%
	6	81,344	30.75%	64,710	33.68%	6,907	17.87%

E. Galmon Illustrative 3 Plan Parish Splits

Parish Name	District	Total	Total %	white	white %	Black	Black %
Ascension Parish	2	48,562	38.39%	22,545	28.31%	20,750	64.41%
	6	77,938	61.61%	57,100	71.69%	11,466	35.59%
East Baton Rouge Parish	5	202,333	44.30%	34,185	17.86%	152,661	71.54%
	6	254,448	55.70%	157,170	82.14%	60,737	28.46%
Iberia Parish	1	48,334	69.12%	24,213	62.77%	20,296	82.65%
	3	21,595	30.88%	14,359	37.23%	4,260	17.35%
Jefferson Parish	1	236,658	53.69%	143,244	68.74%	30,583	24.23%
	2	204,123	46.31%	65,141	31.26%	95,634	75.77%
Lafayette Parish	3	170,269	70.43%	123,202	81.88%	25,986	39.89%
	5	71,484	29.57%	27,273	18.12%	39,150	60.11%
Orleans Parish	1	33,047	8.61%	25,500	21.01%	2,459	1.12%
	2	350,950	91.39%	95,885	78.99%	216,510	98.88%
Ouachita Parish	4	80,956	50.48%	64,061	73.27%	9,924	16.21%
	5	79,412	49.52%	23,365	26.73%	51,293	83.79%
Rapides Parish	3	74,443	57.25%	56,235	73.68%	10,344	24.29%
	5	55,580	42.75%	20,088	26.32%	32,248	75.71%
St. Tammany Parish	1	61,626	23.29%	43,926	22.86%	9,129	23.62%
	6	202,944	76.71%	148,218	77.14%	29,514	76.38%
Tangipahoa Parish	5	79,940	60.03%	38,617	48.38%	34,432	82.22%
	6	53,217	39.97%	41,208	51.62%	7,447	17.78%

Appendix 4 Louisiana Maps

Congressional Plans:

- Louisiana Enrolled HB1 / SB5
- Robinson Illustrative Plan
- Galmon Illustrative 1 Plan
- Galmon Illustrative 2 Plan
- Galmon Illustrative 3 Plan

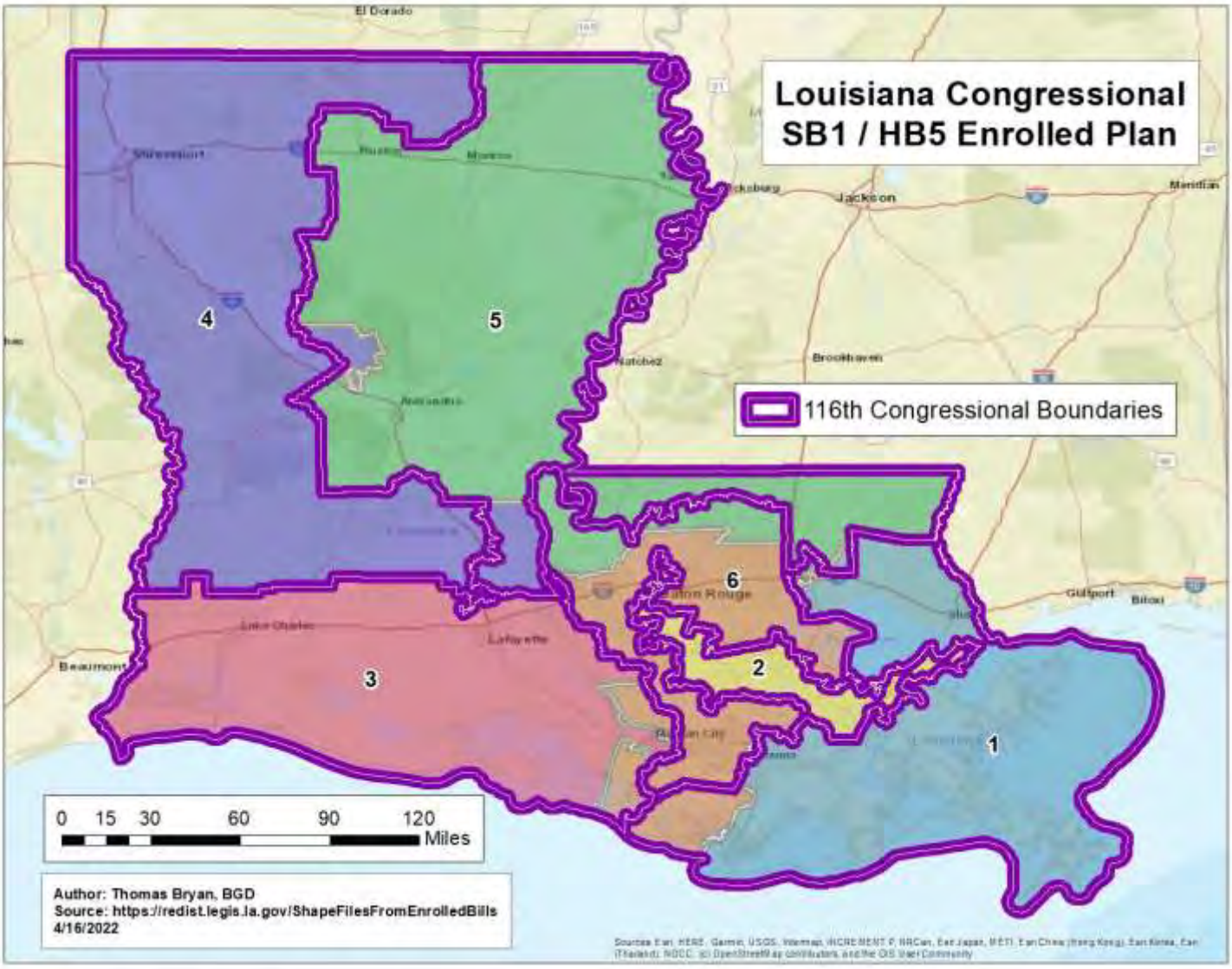
Place Splits by Plan:

- Baton Rouge
- New Orleans
- Lafayette
- Alexandria
- Monroe

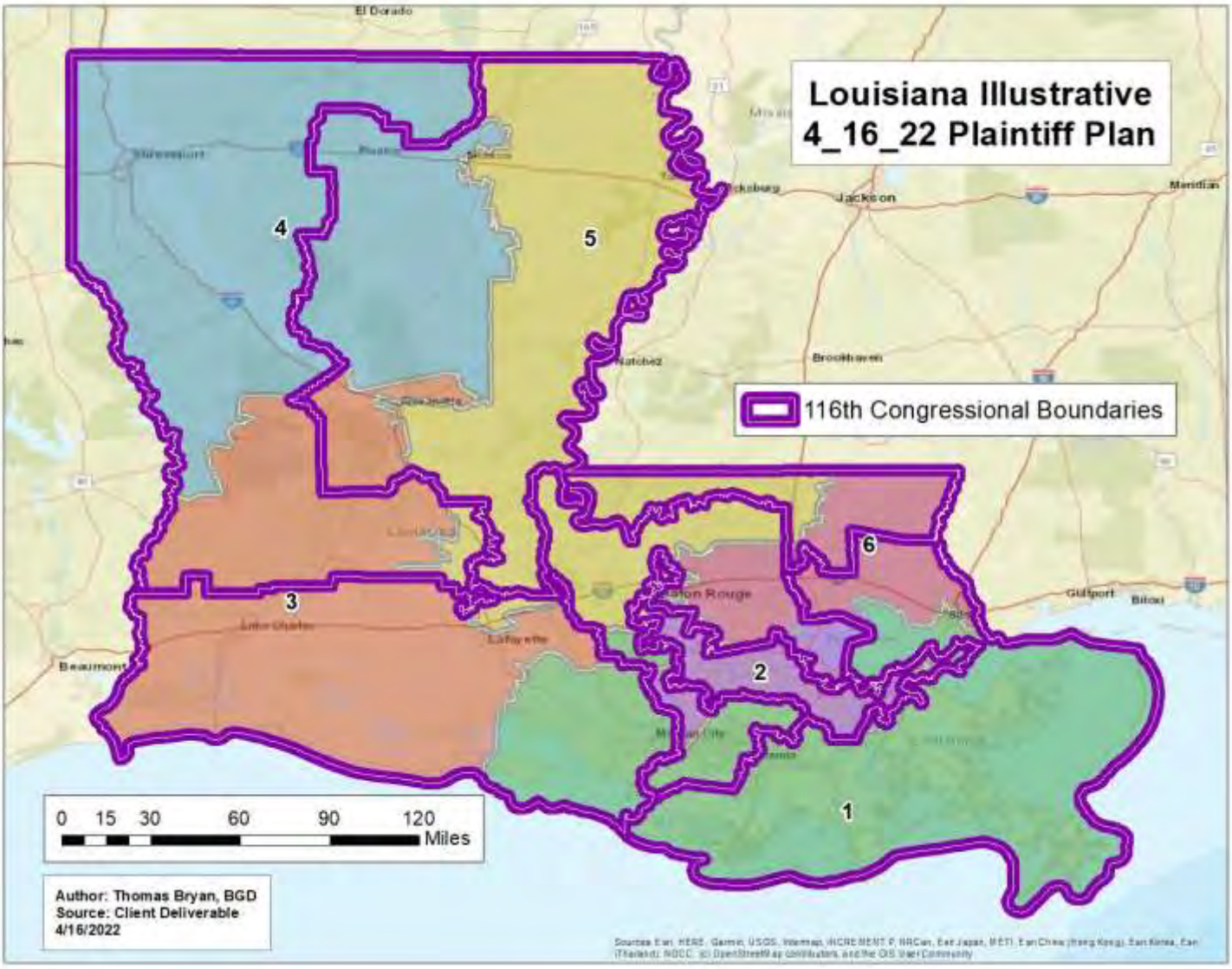
Place Splits by Plan by Race:

- Baton Rouge
- New Orleans
- Lafayette
- Alexandria
- Monroe

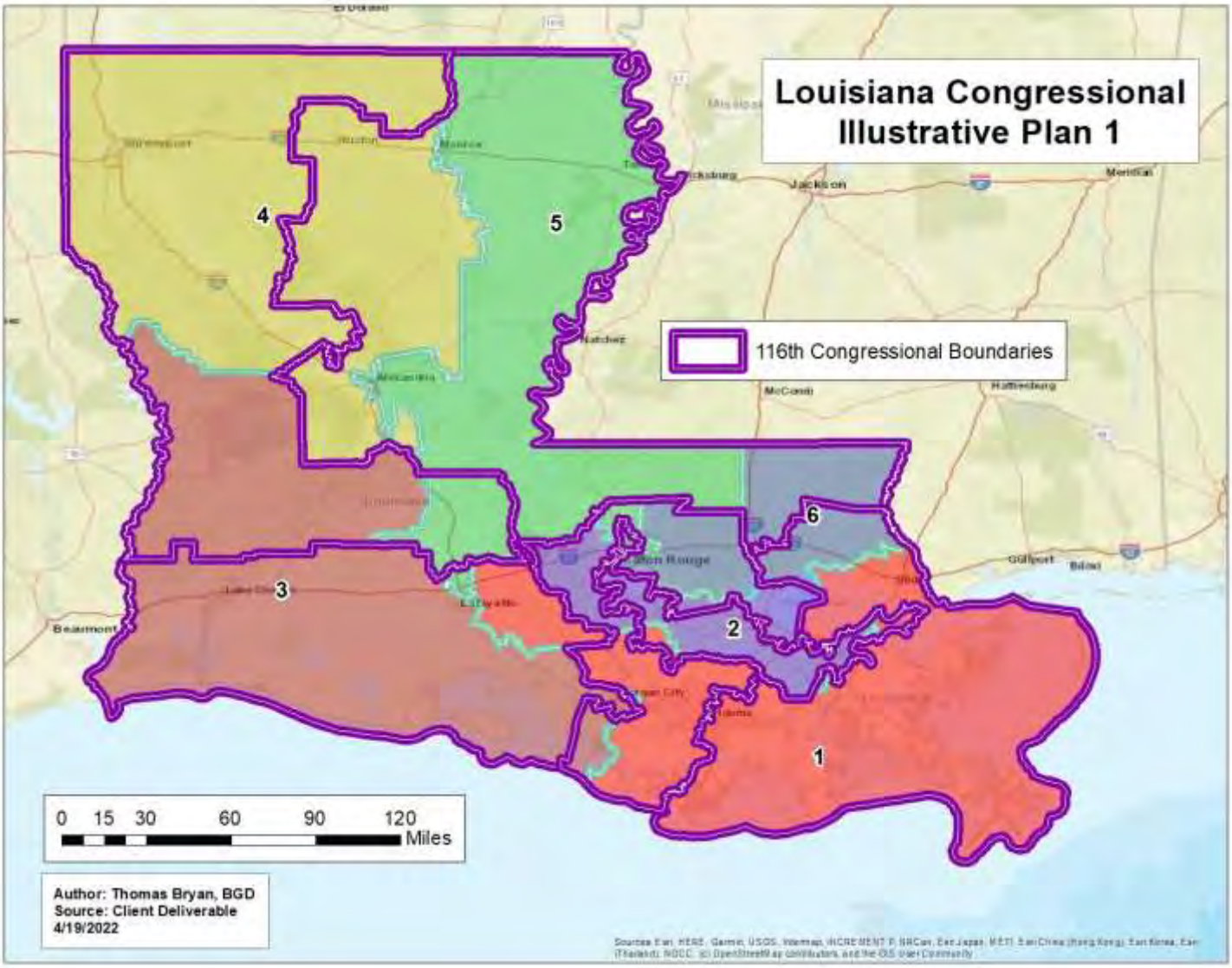
A. Louisiana HB1 / SB5 Enrolled Plan and Existing Plan



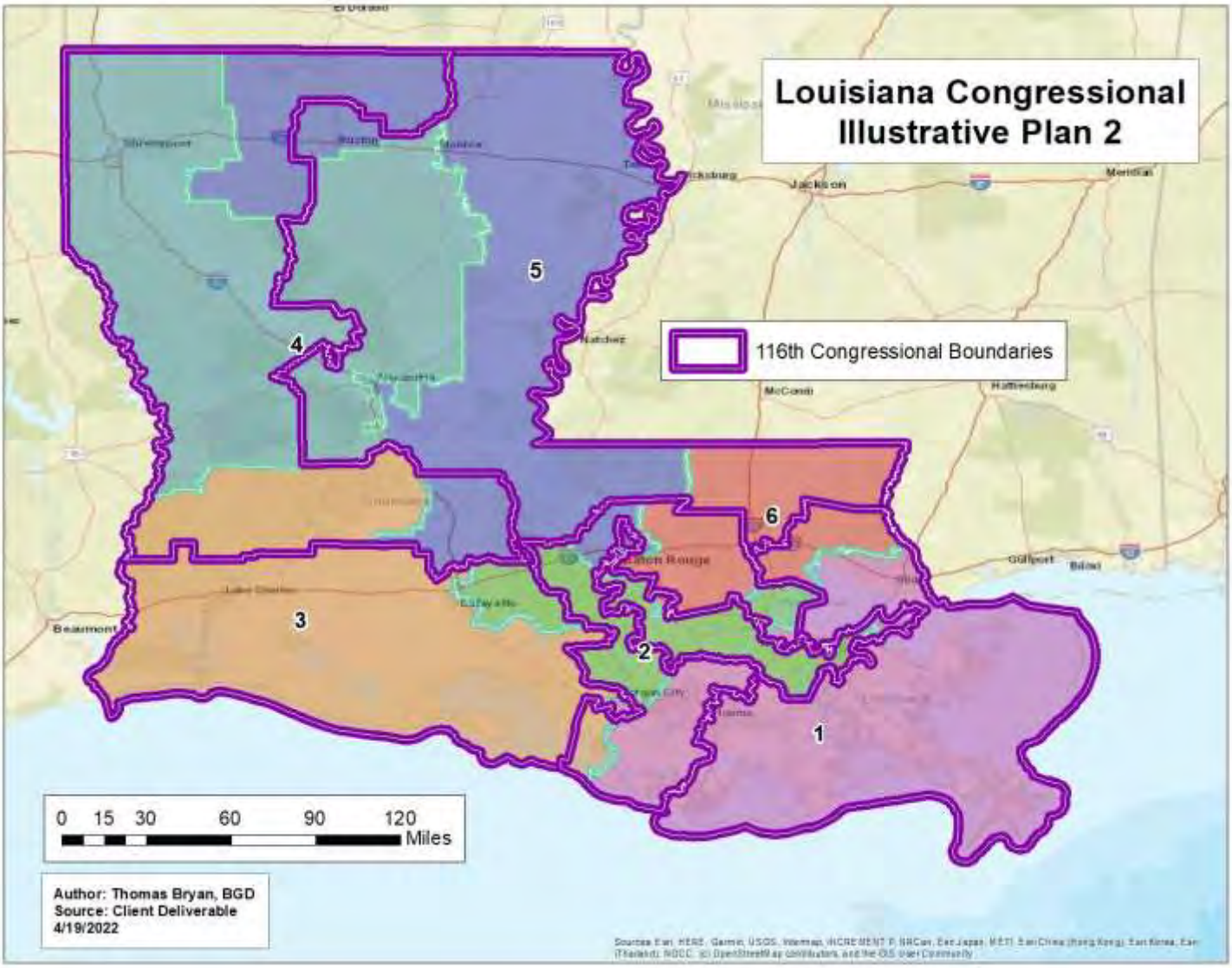
B. Robinson Illustrative Plan and Existing Plan



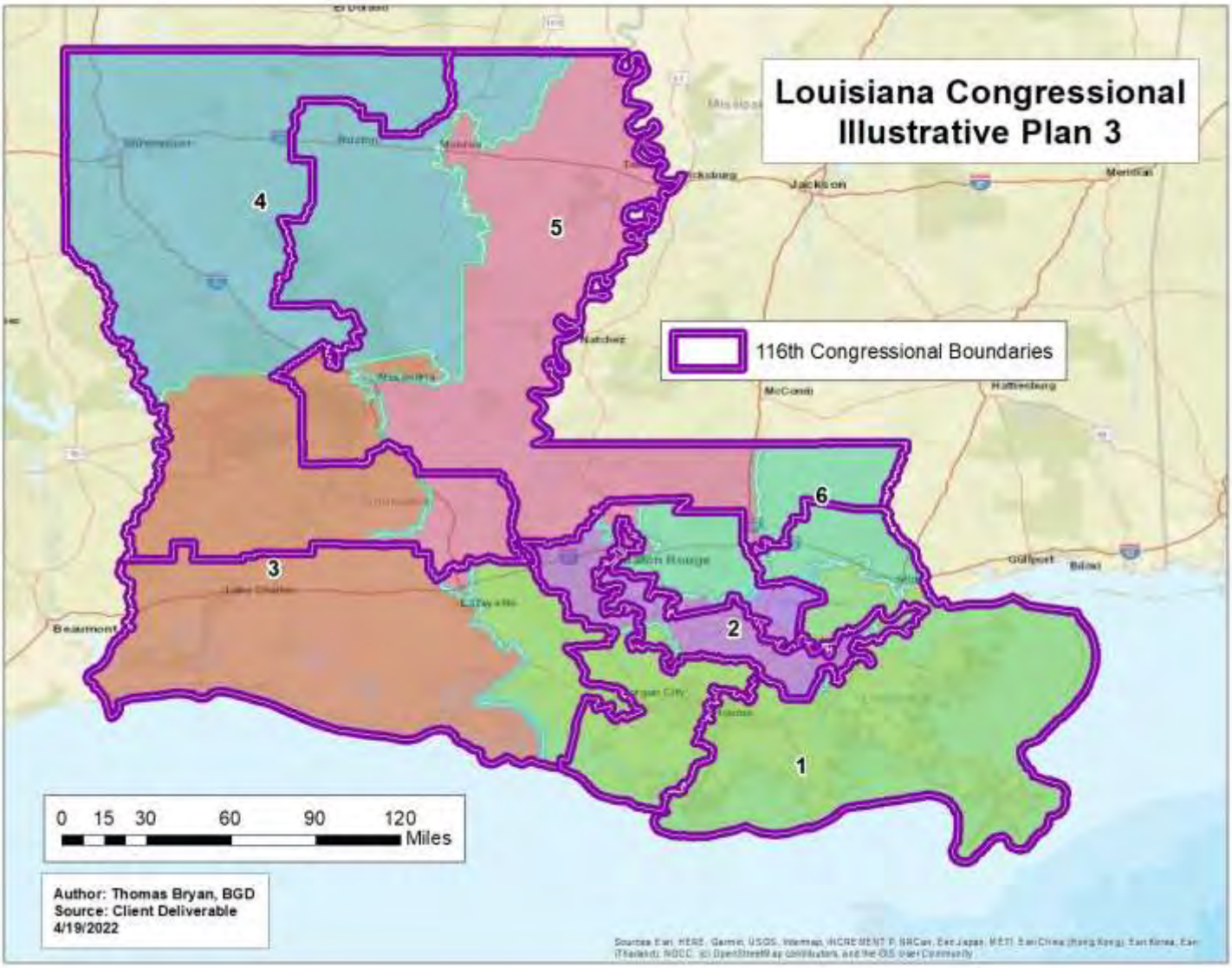
C. Galmon Illustrative 1 Plan and Existing Plan



D. Galmon Illustrative 2 Plan and Existing Plan



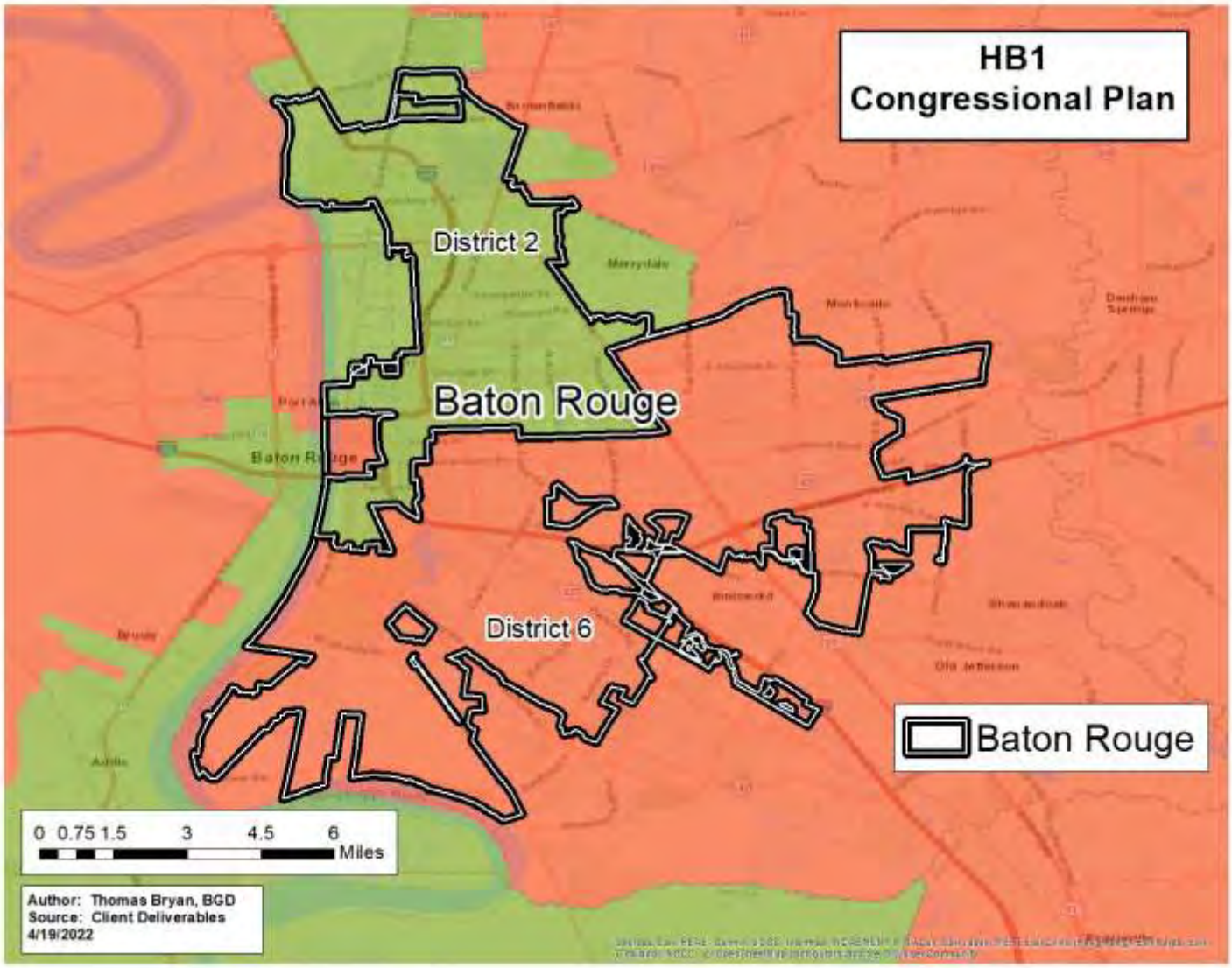
E. Galmon Illustrative 3 Plan and Existing Plan



Baton Rouge

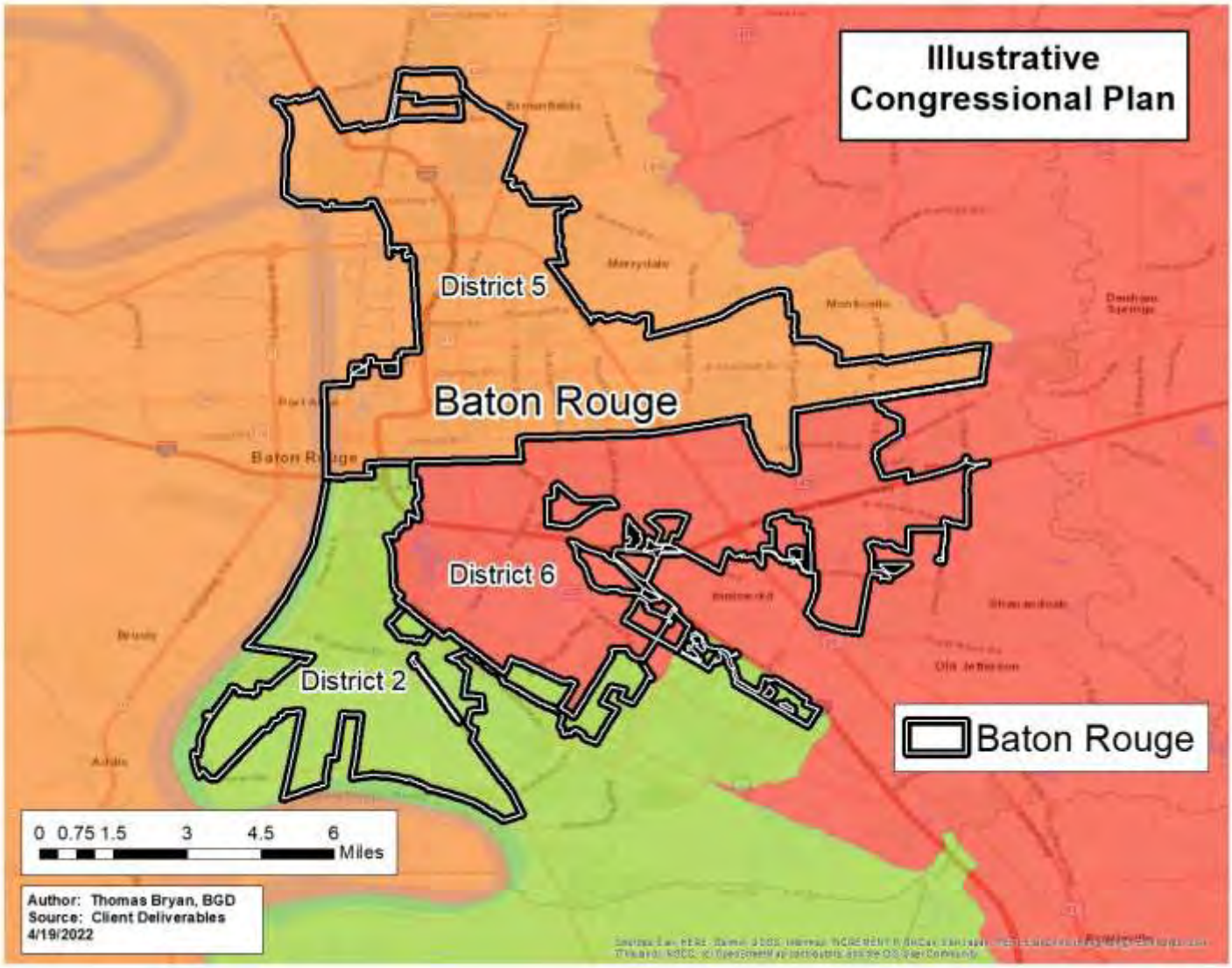
City Splits by Plan

F. Baton Rouge HB1 / SB5 Enrolled Plan Split



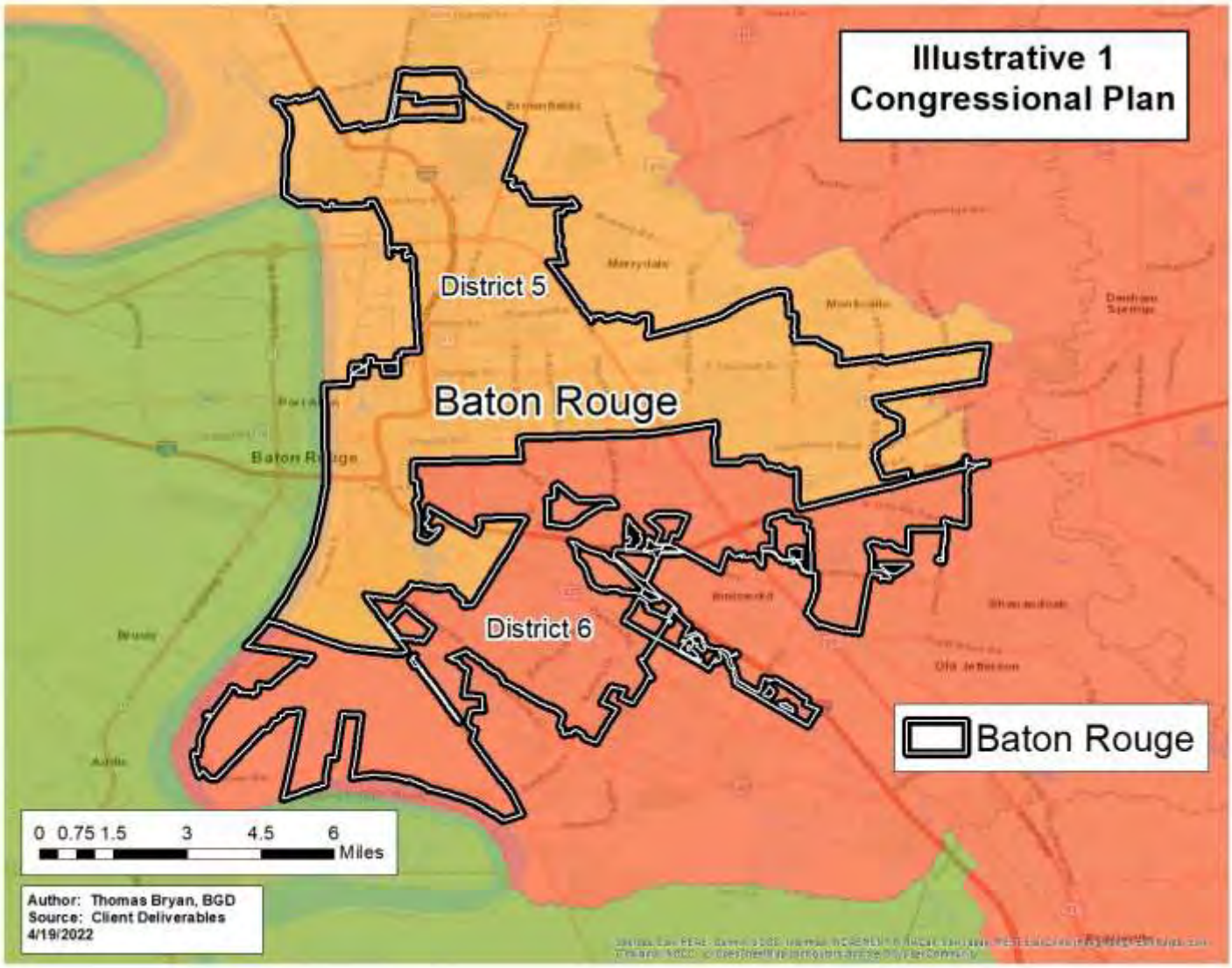
Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

G. Baton Rouge Robinson Illustrative Plan Split



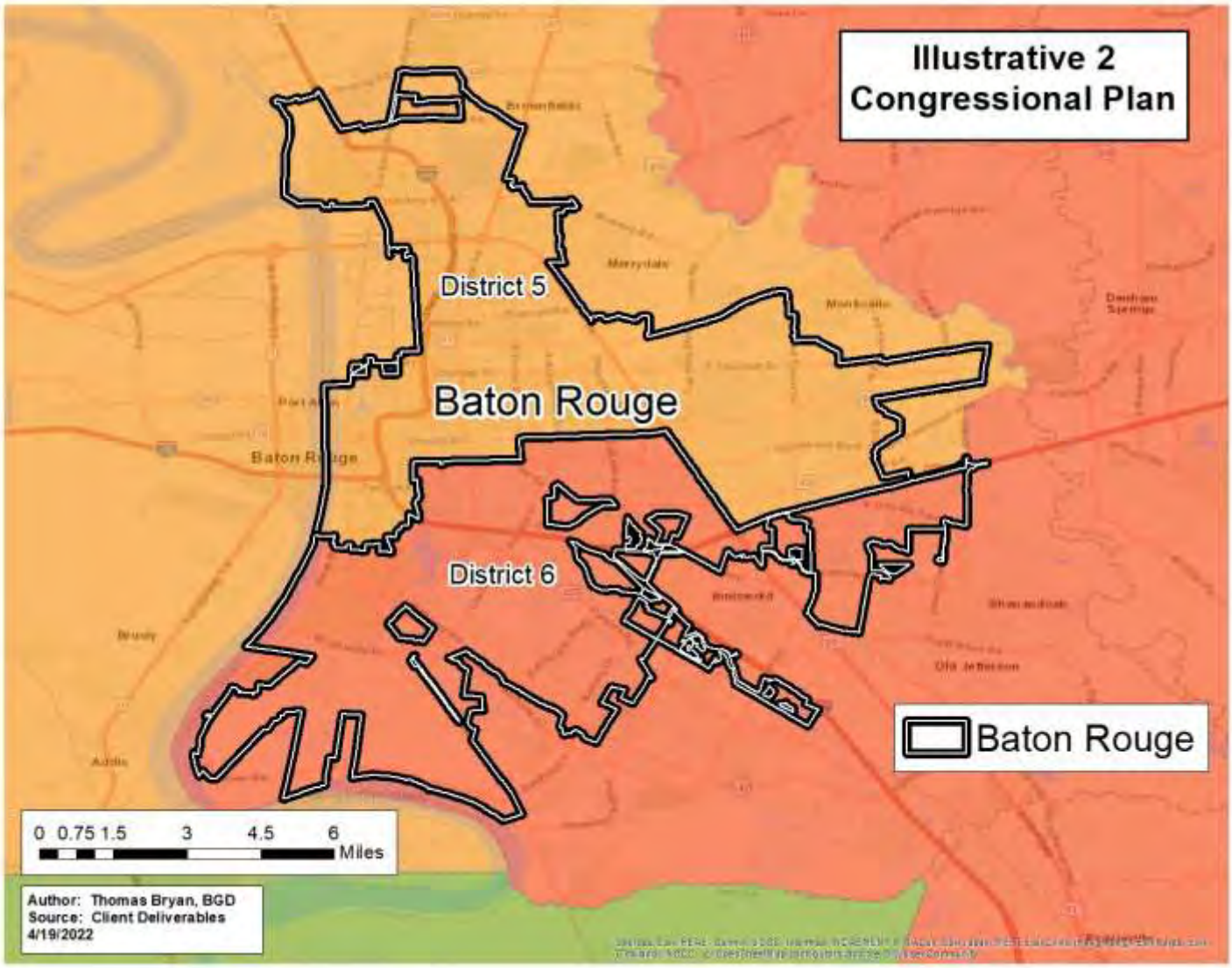
Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

H. Baton Rouge Galmon Illustrative 1 Plan Split



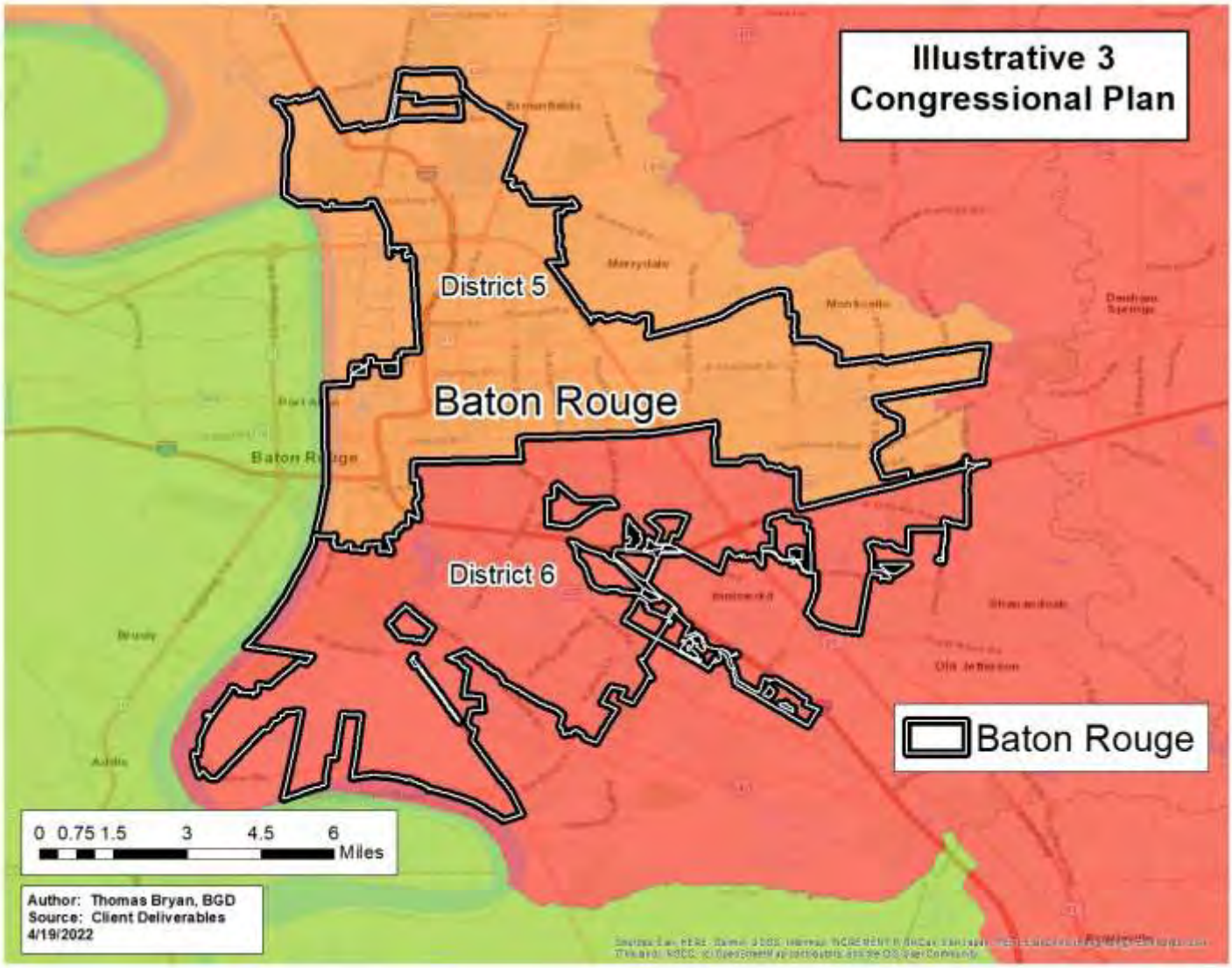
Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

I. Baton Rouge Galmon Illustrative 2 Plan Split



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

J. Baton Rouge Galmon Illustrative 3 Plan Split

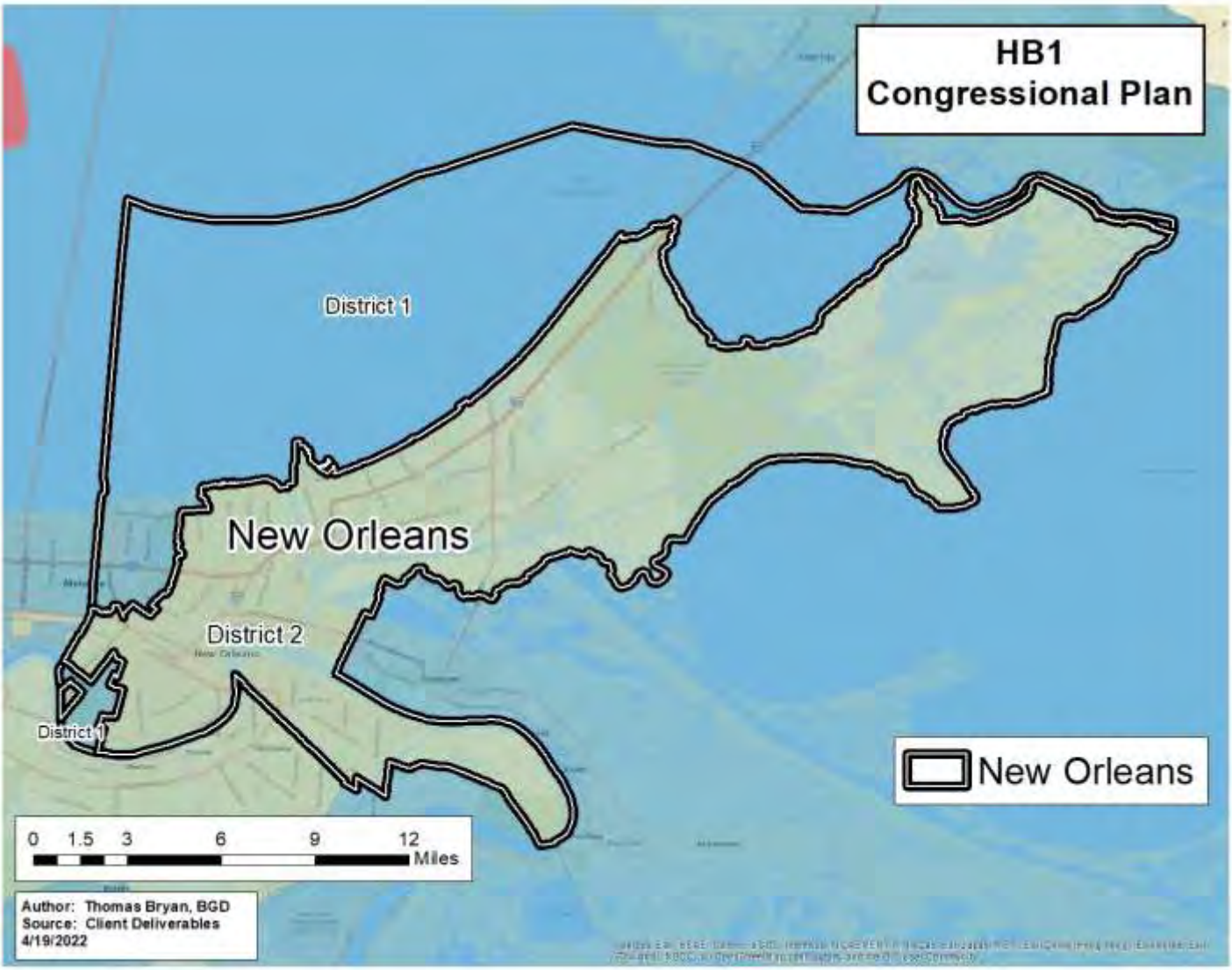


Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

New Orleans

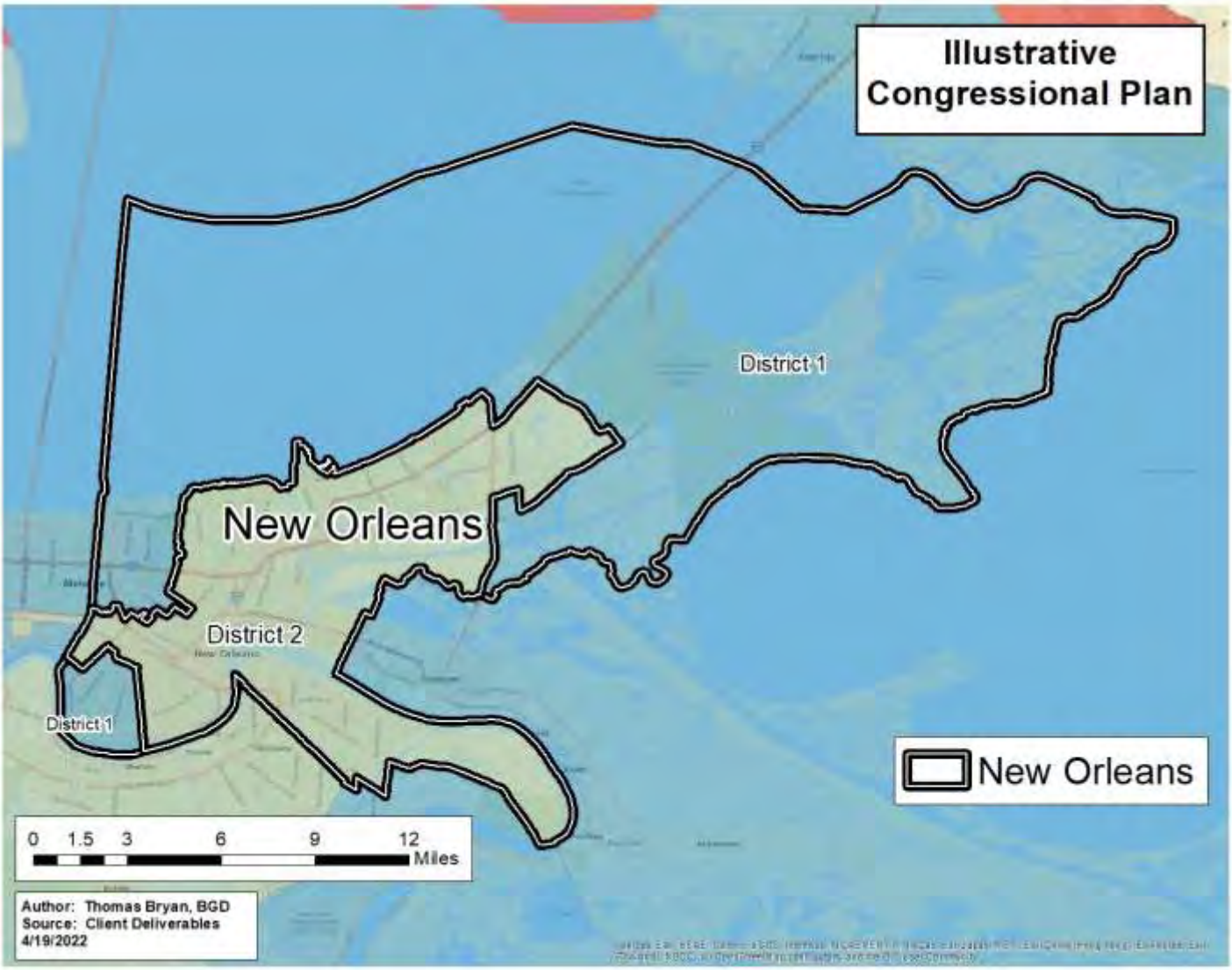
Place Splits by Plan

K. New Orleans HB1 / SB5 Enrolled Plan Split



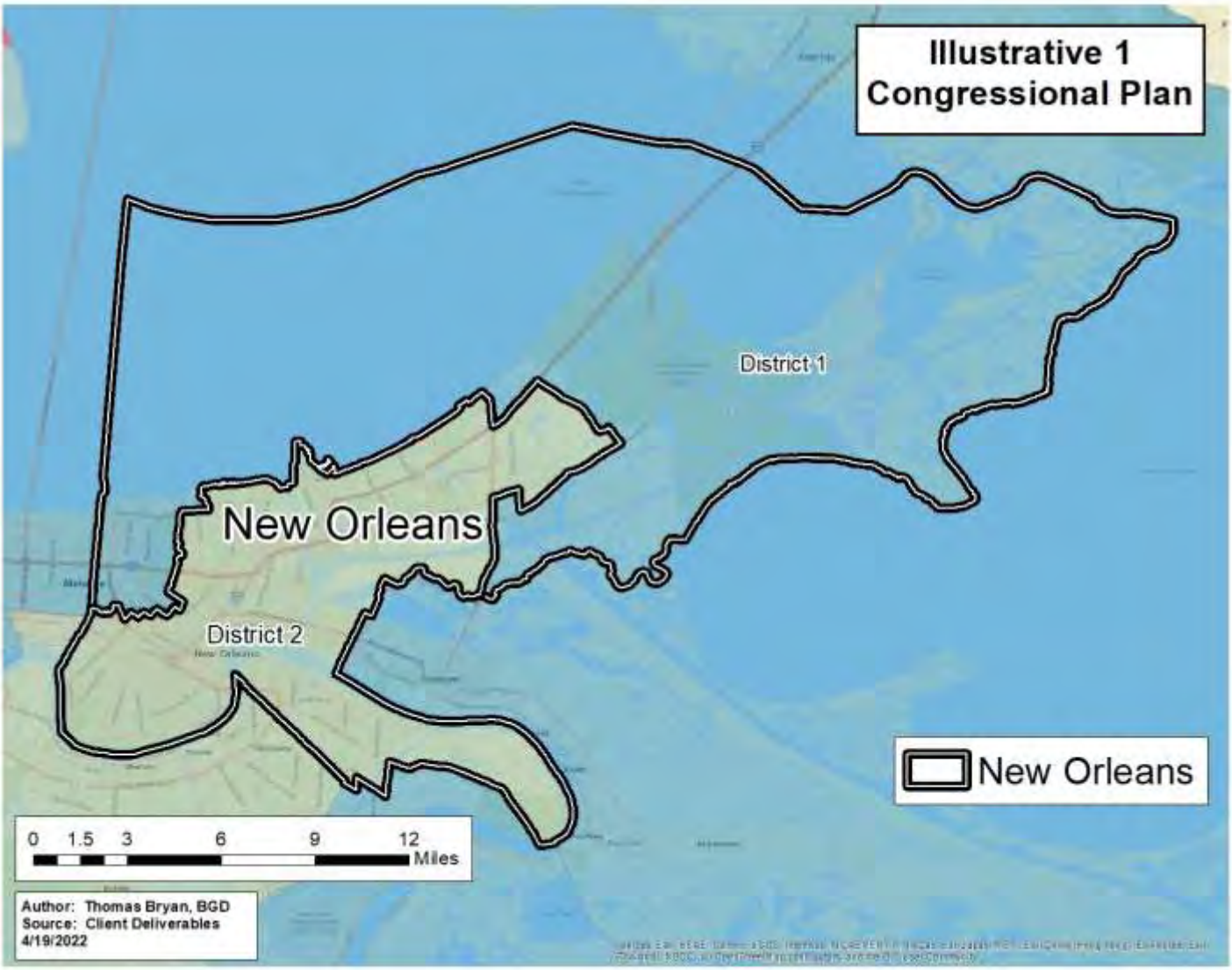
Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

L. New Orleans Robinson Illustrative Plan Split



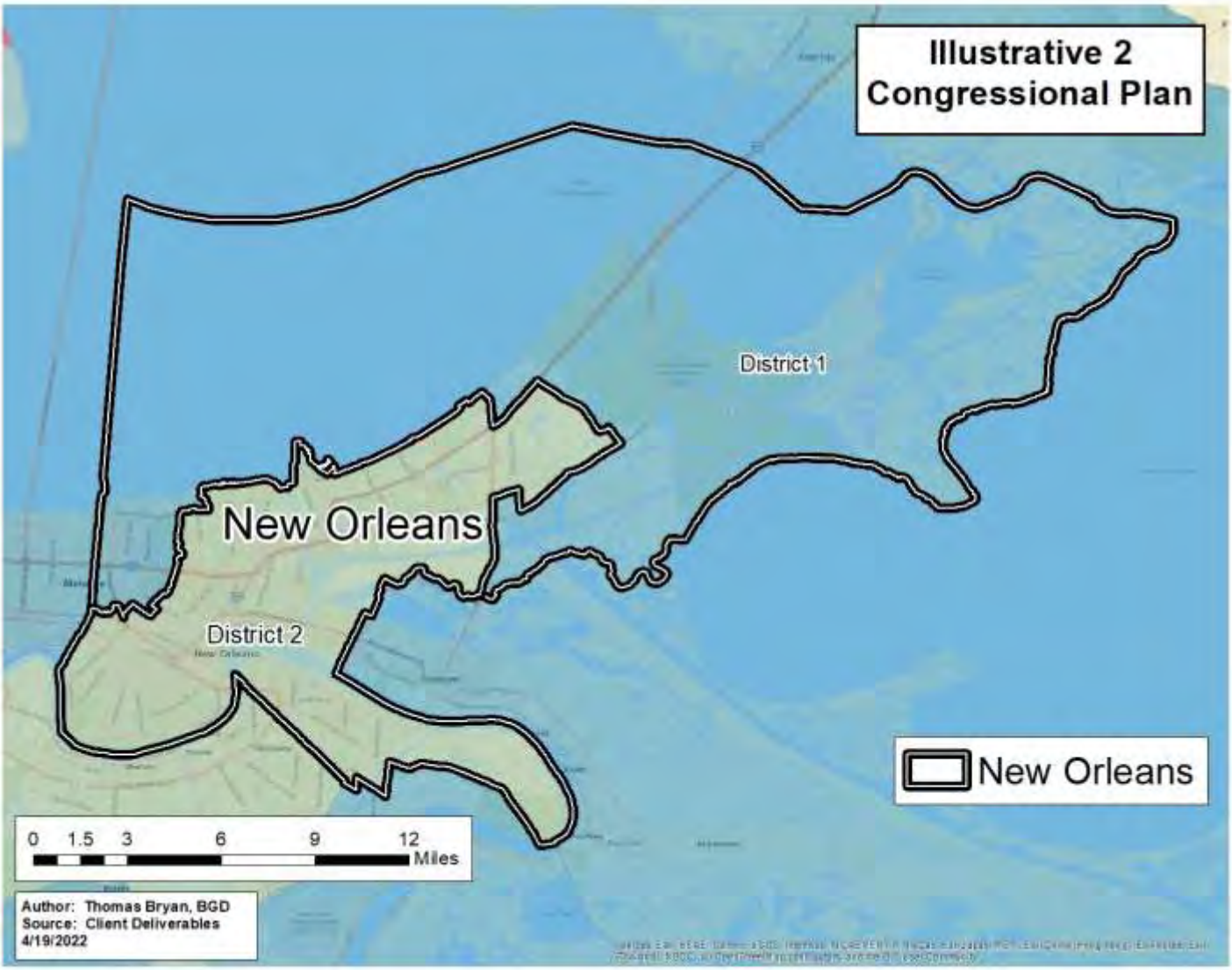
Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

M. New Orleans Galmon Illustrative 1 Plan Split



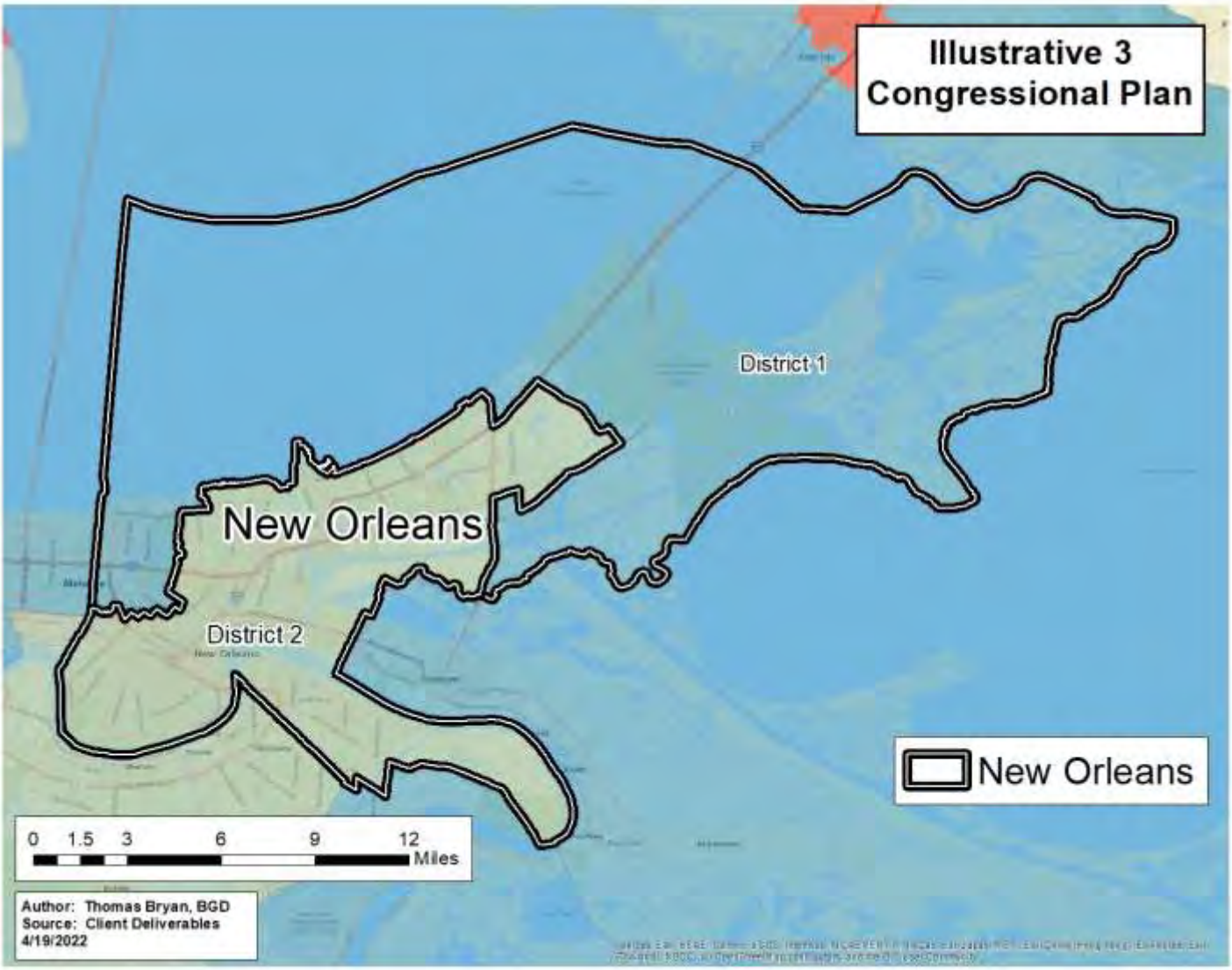
Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

N. New Orleans Galmon Illustrative 2 Plan Split



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

O. New Orleans Galmon Illustrative 3 Plan Split

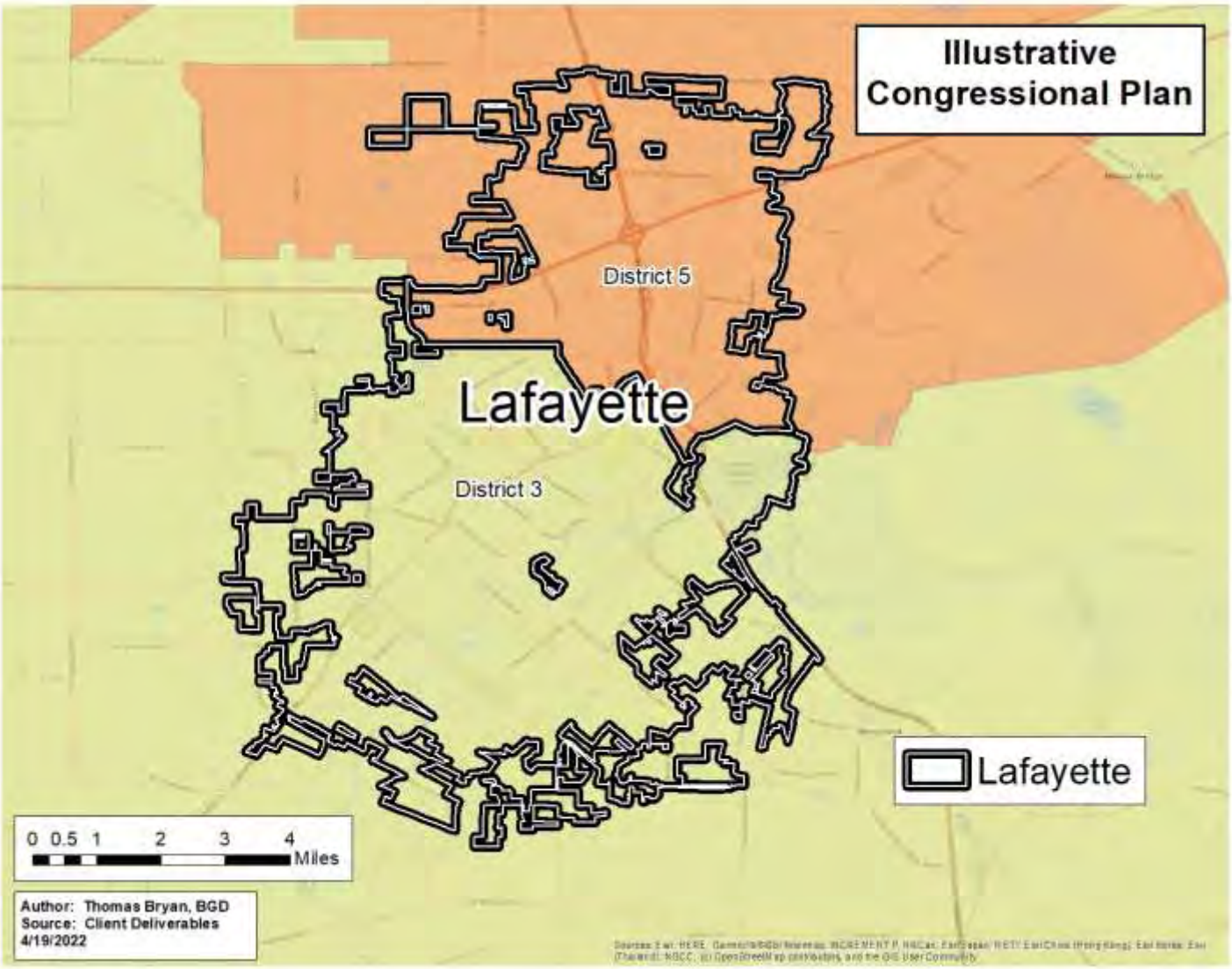


Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Lafayette

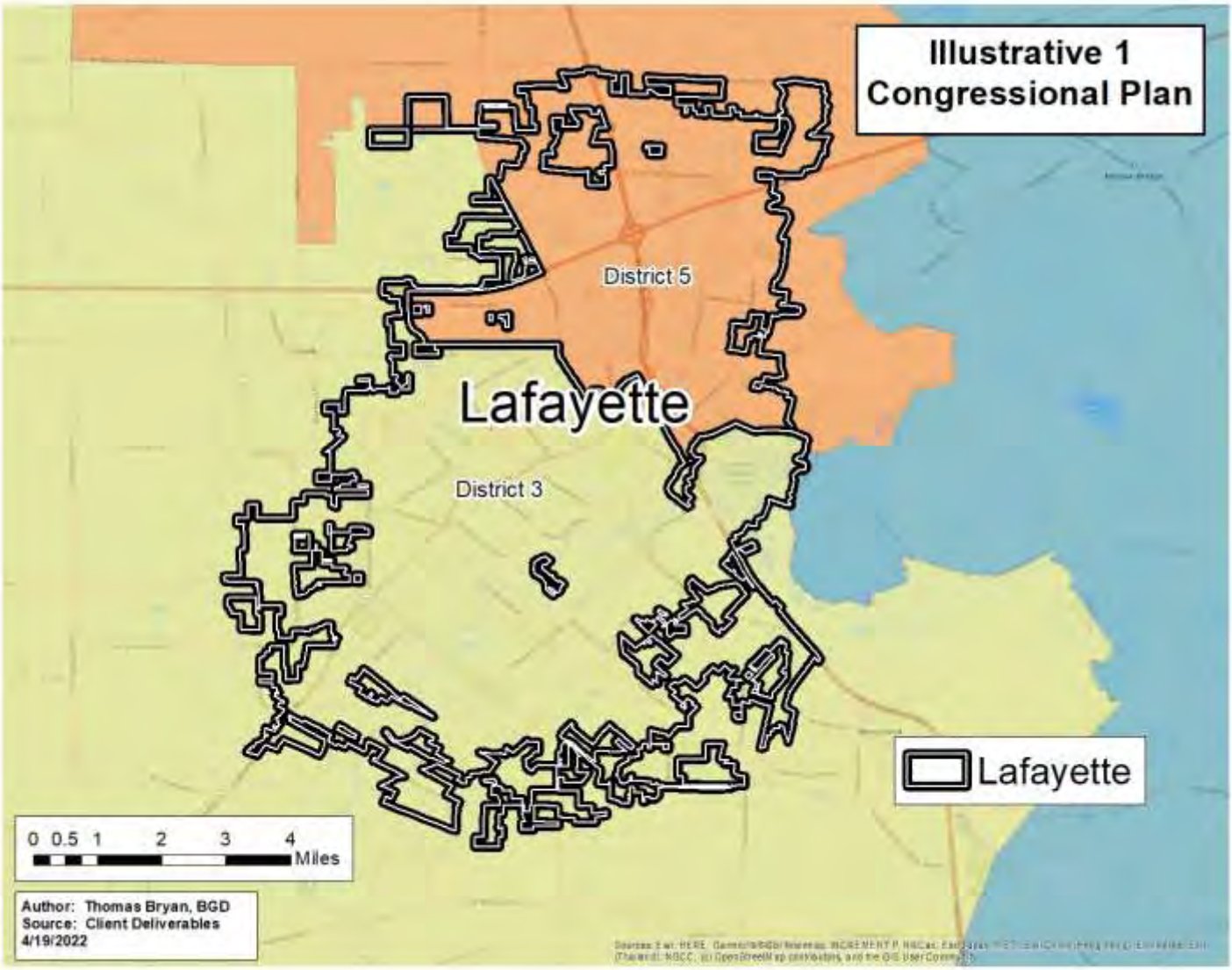
City Splits by Plan

P. Lafayette Robinson Illustrative Plan Split (the Enrolled Plan does not split Lafayette)



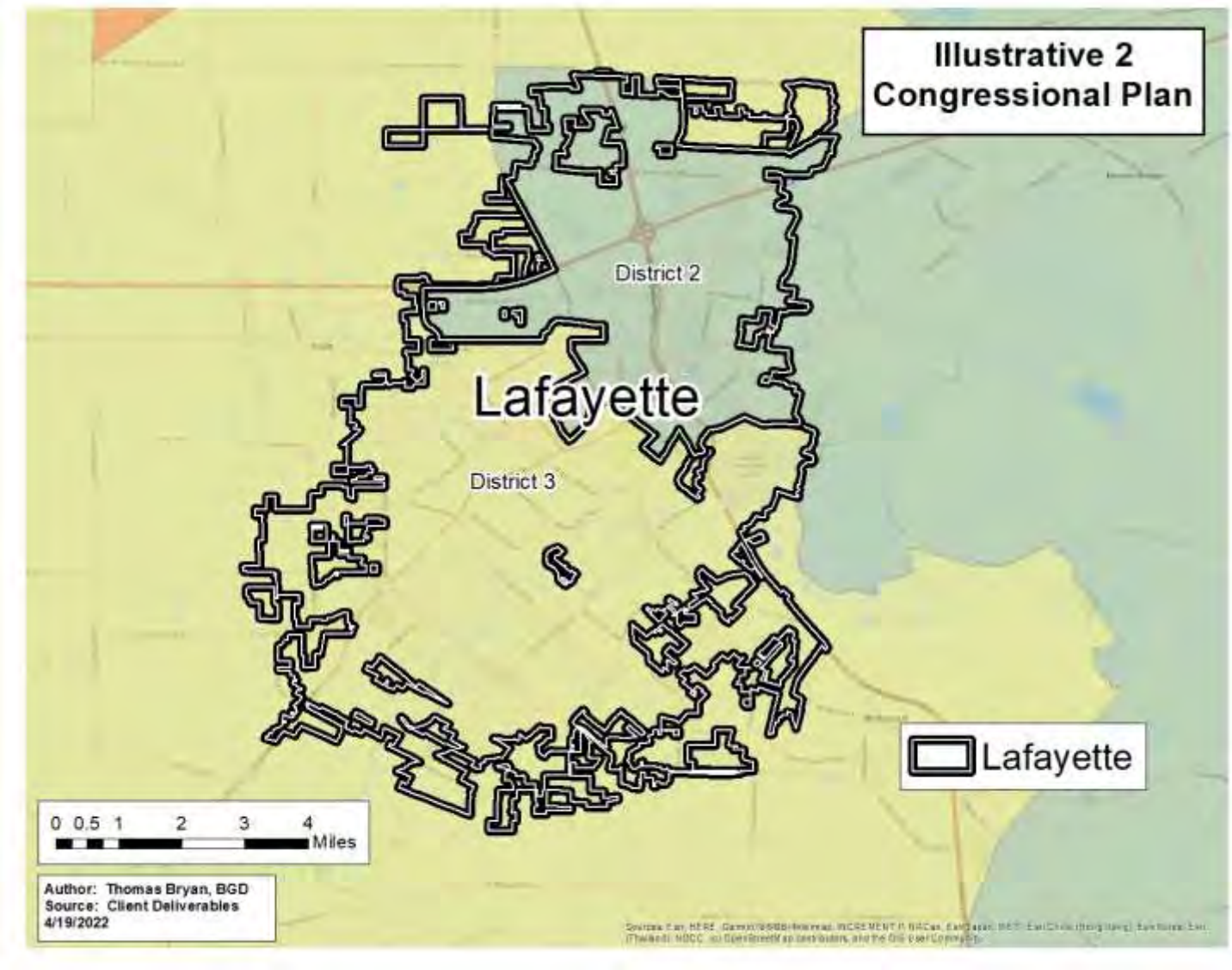
Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Q. Lafayette Galmon Illustrative 1 Plan Split



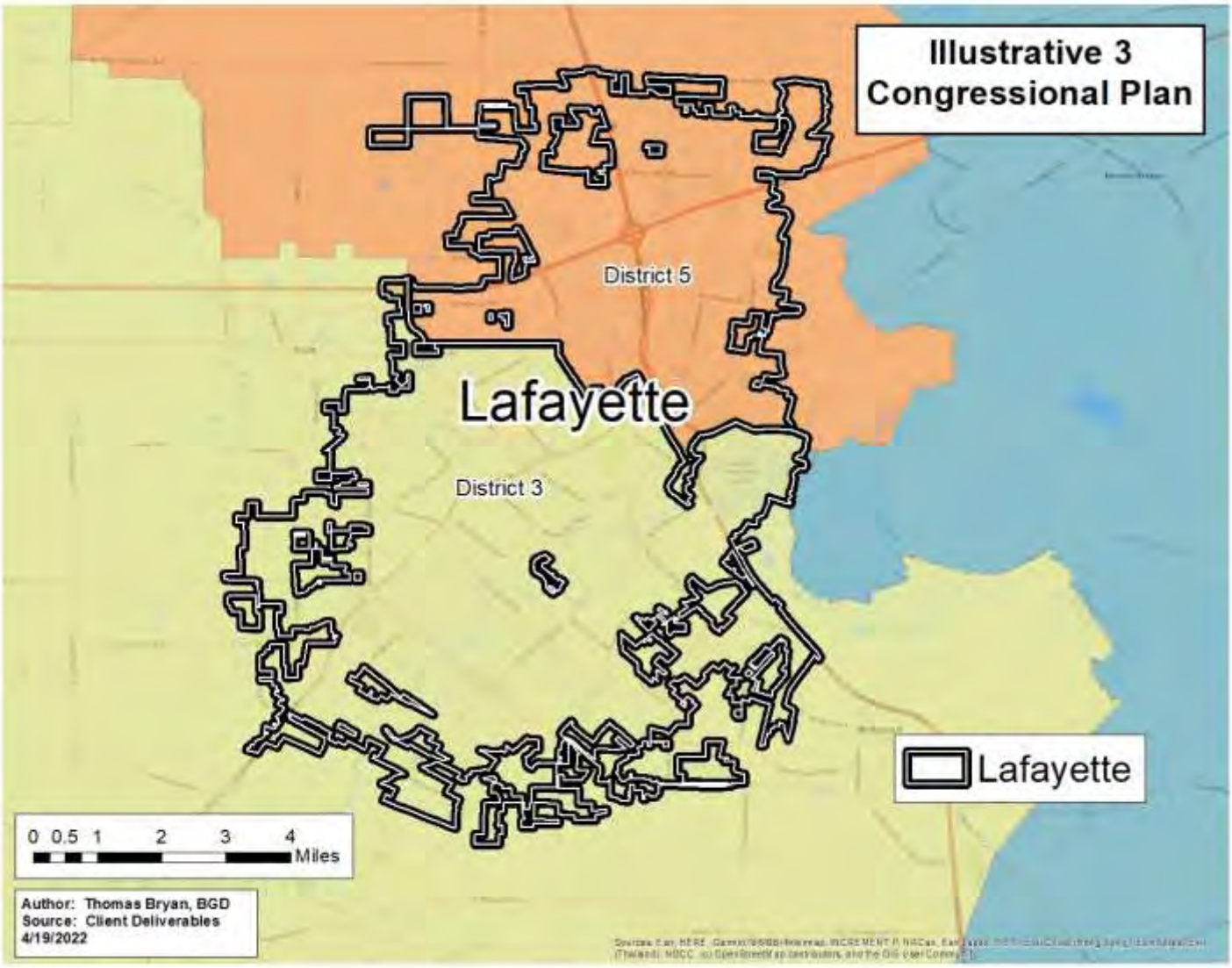
Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

R. Lafayette Galmon Illustrative 2 Plan Split



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

S. Lafayette Galmon Illustrative 3 Plan Split

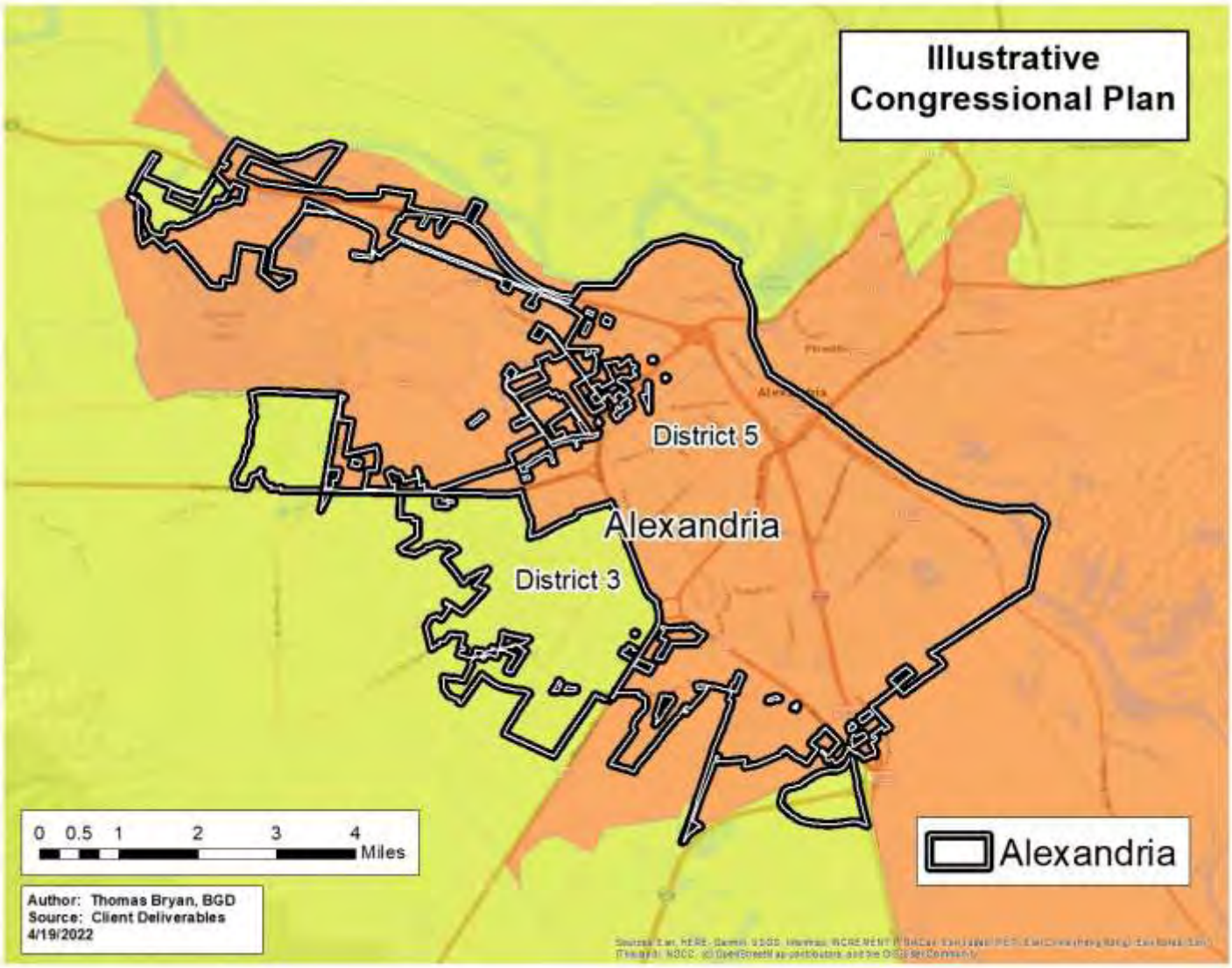


Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Alexandria

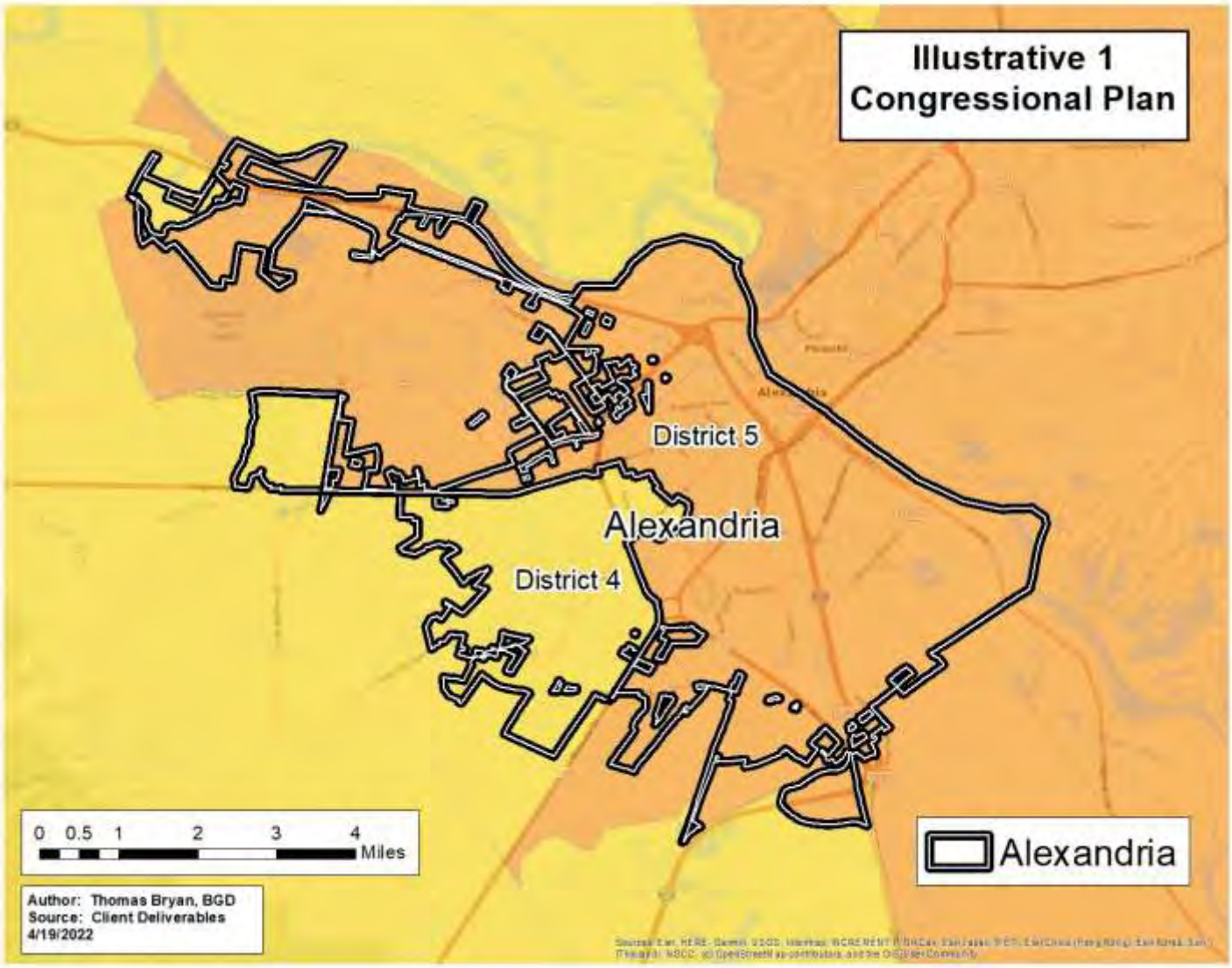
City Splits by Plan

T. Alexandria Robinson Illustrative Plan Split (the Enrolled Plan does not Split Alexandria)



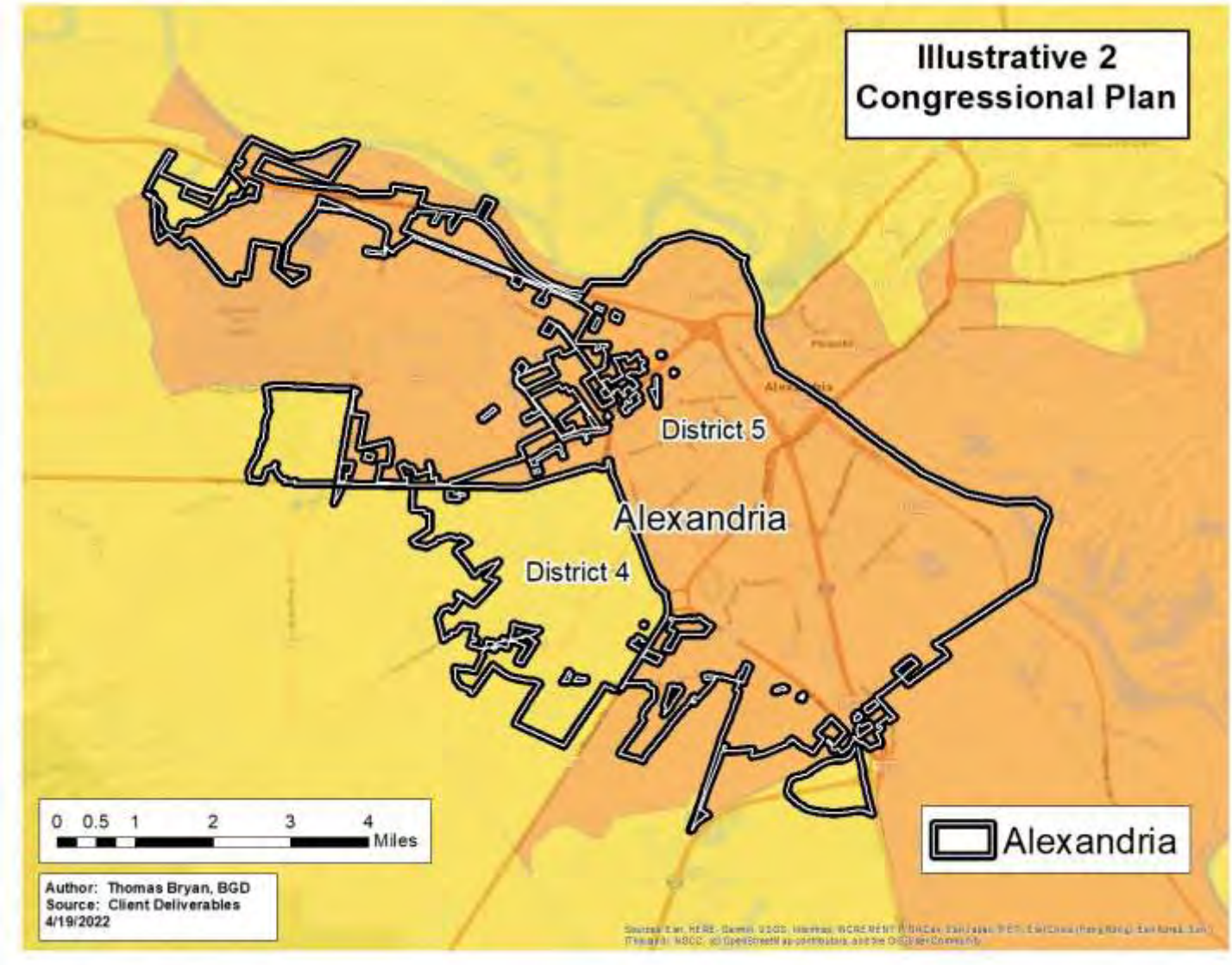
Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

U. Alexandria Galmon Illustrative 1 Plan Split



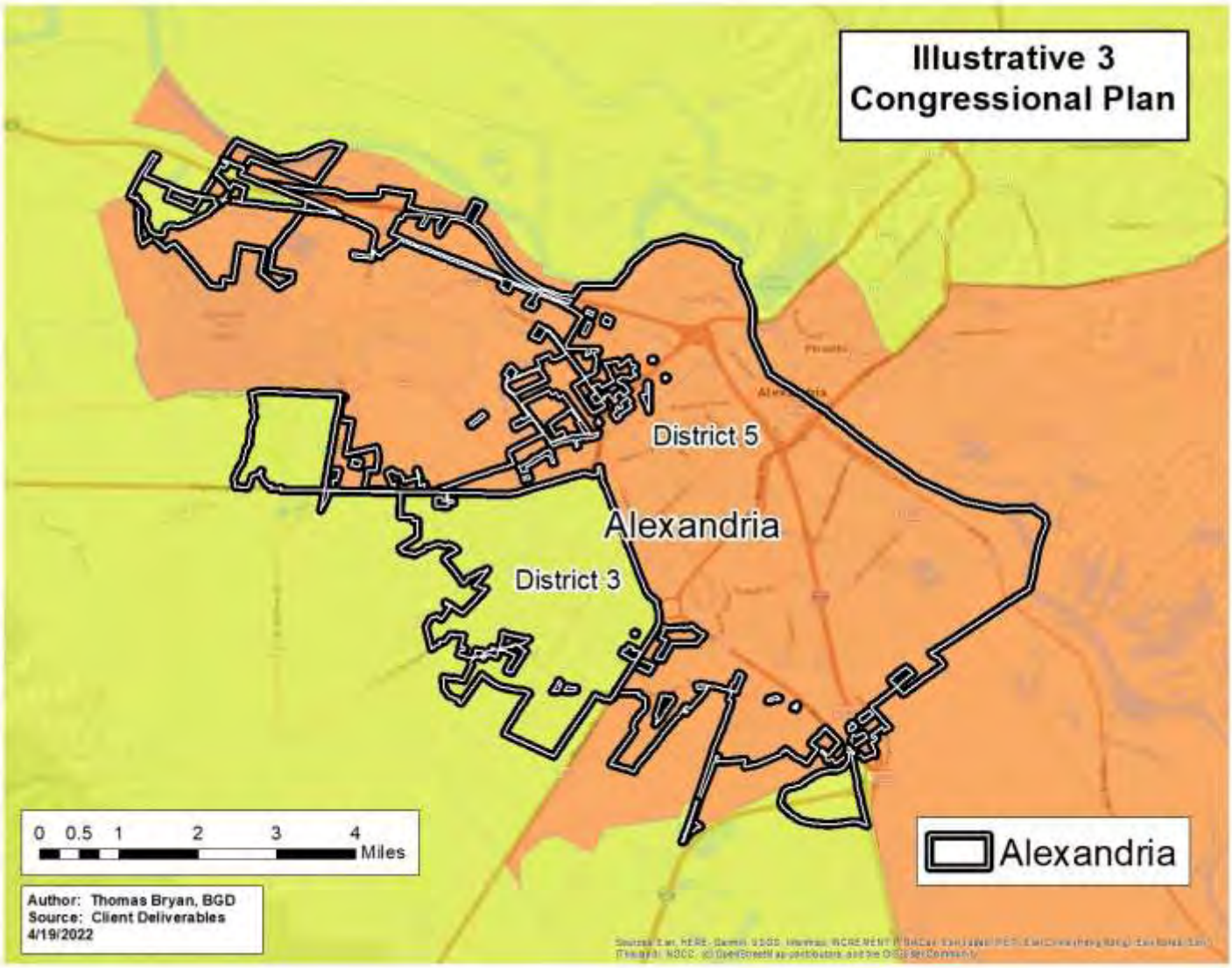
Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

V. Alexandria Galmon Illustrative 2 Plan Split



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

W. Alexandria Galmon Illustrative 3 Plan Split

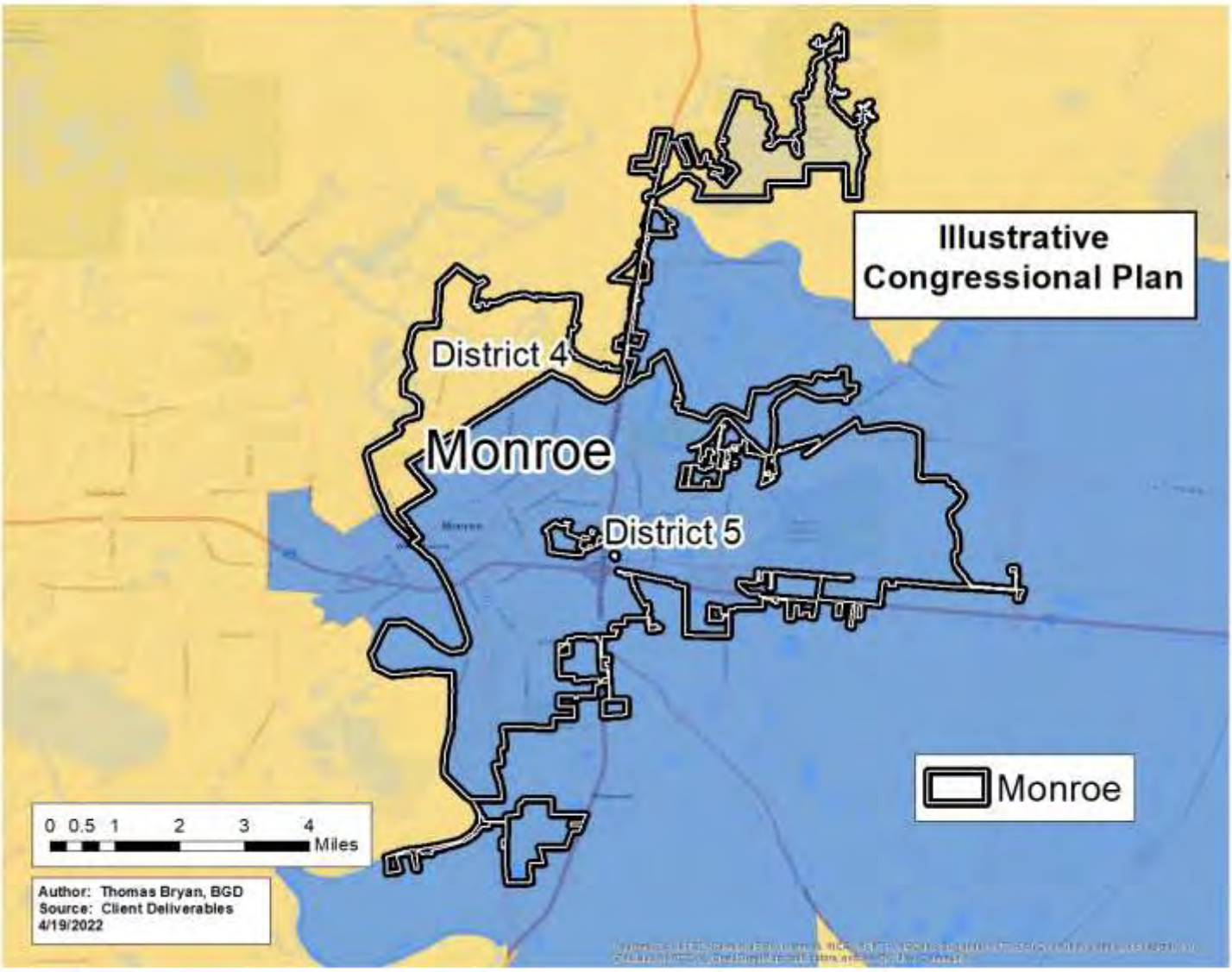


Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Monroe

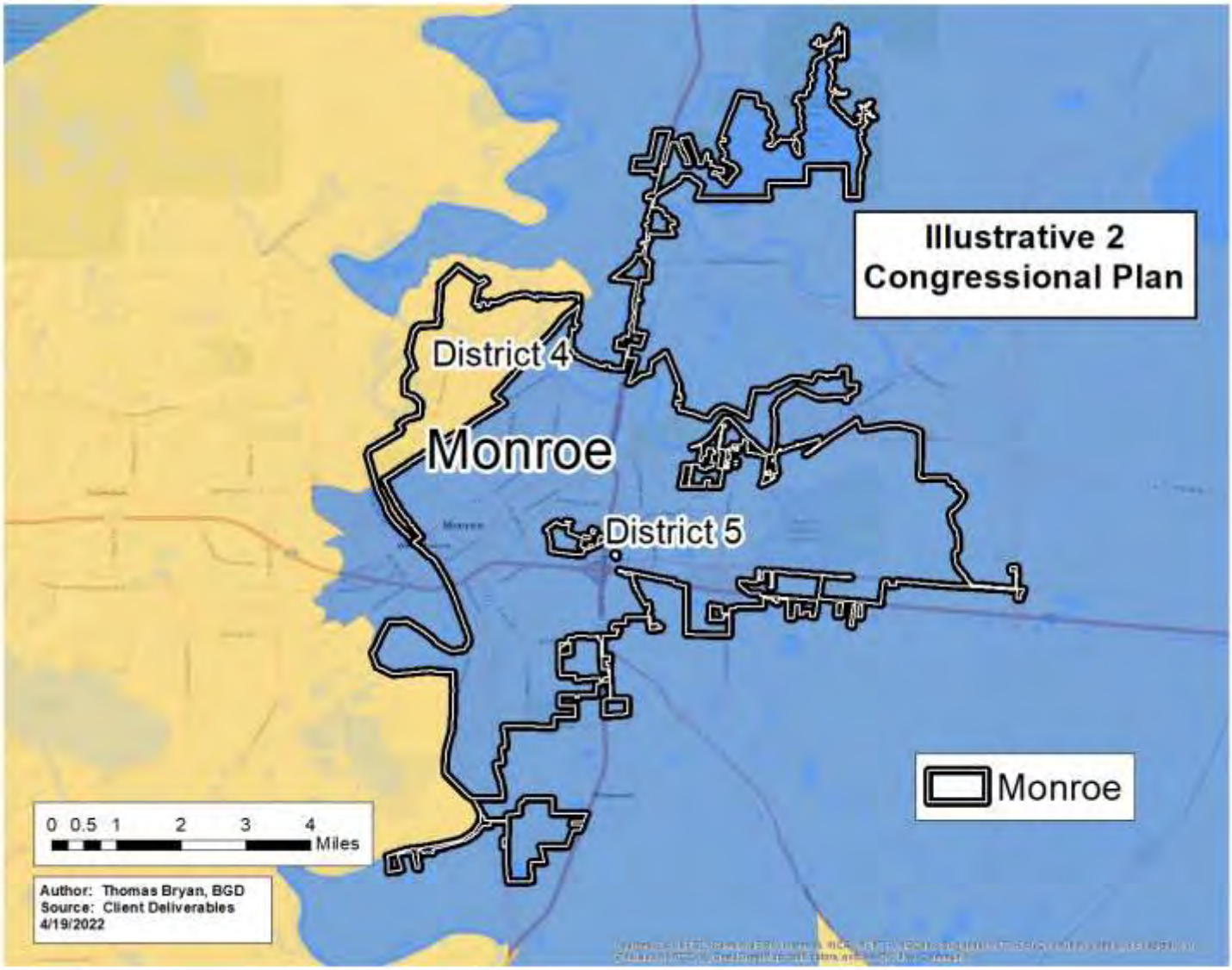
City Splits by Plan

X. Monroe Robinson Illustrative Plan Split (the Enrolled Plan and Galmon Illustrative 1 Plan do not split Monroe)



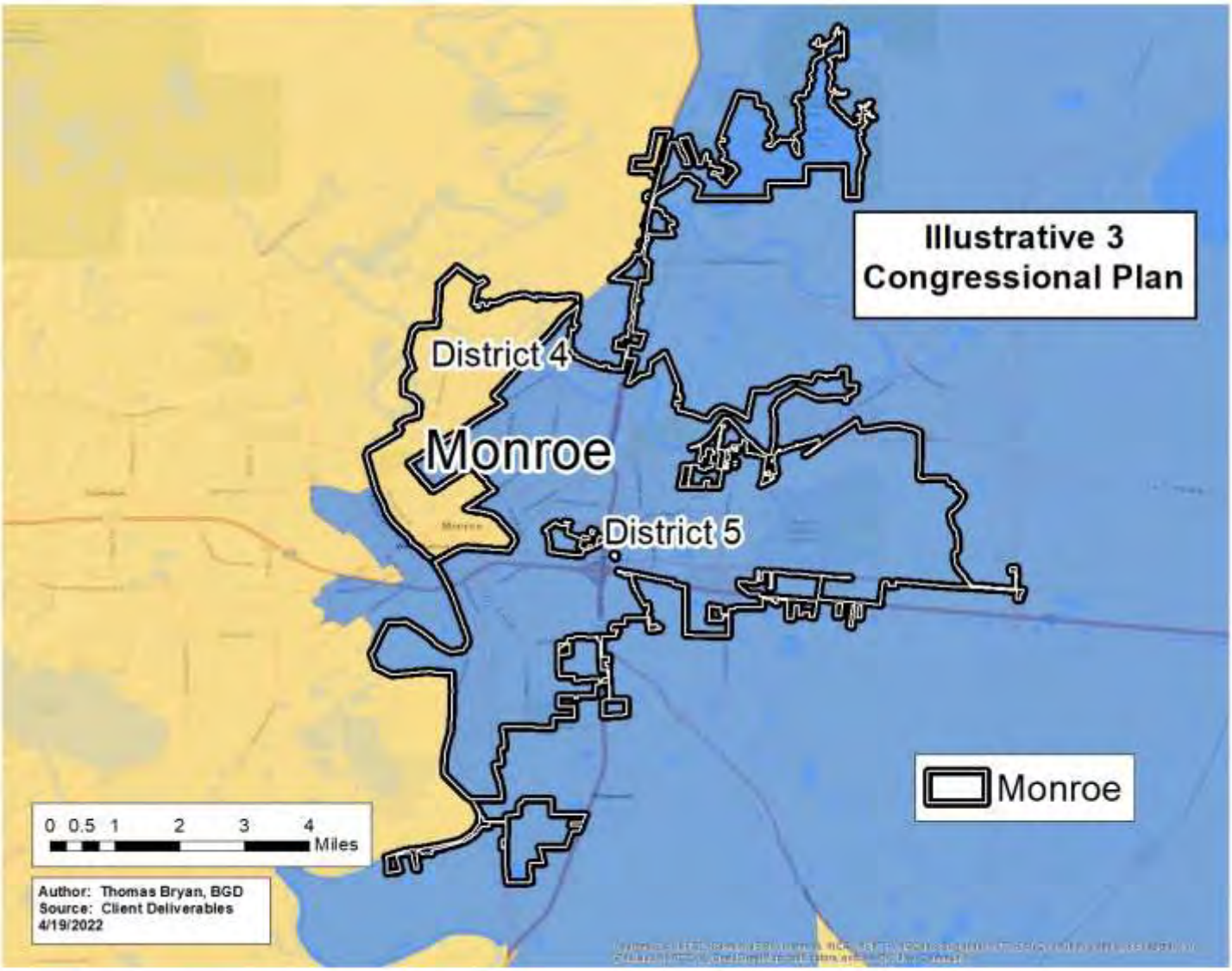
Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Y. Monroe Galmon Illustrative 2 Plan Split



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

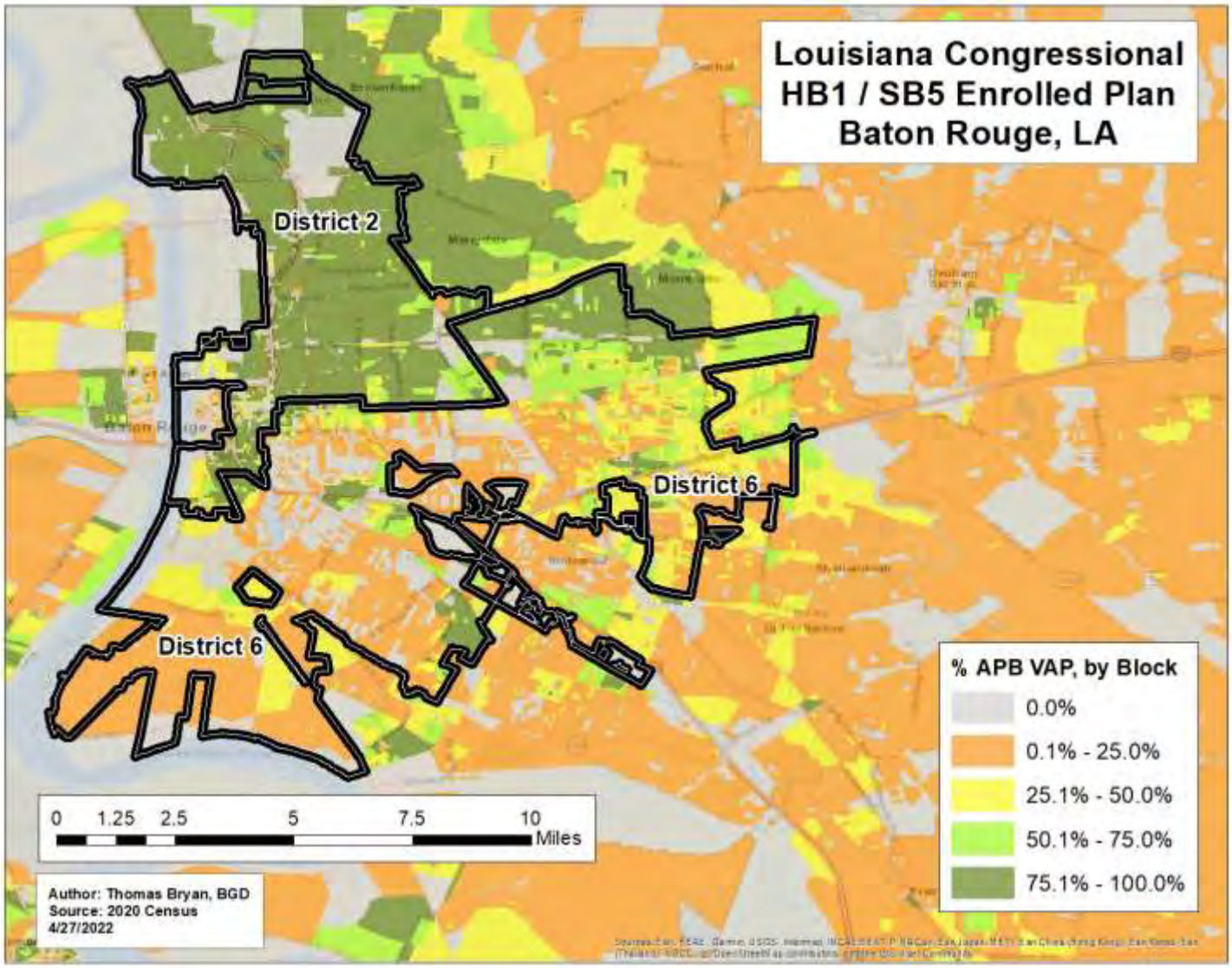
Z. Monroe Galmon Illustrative 3 Plan Split



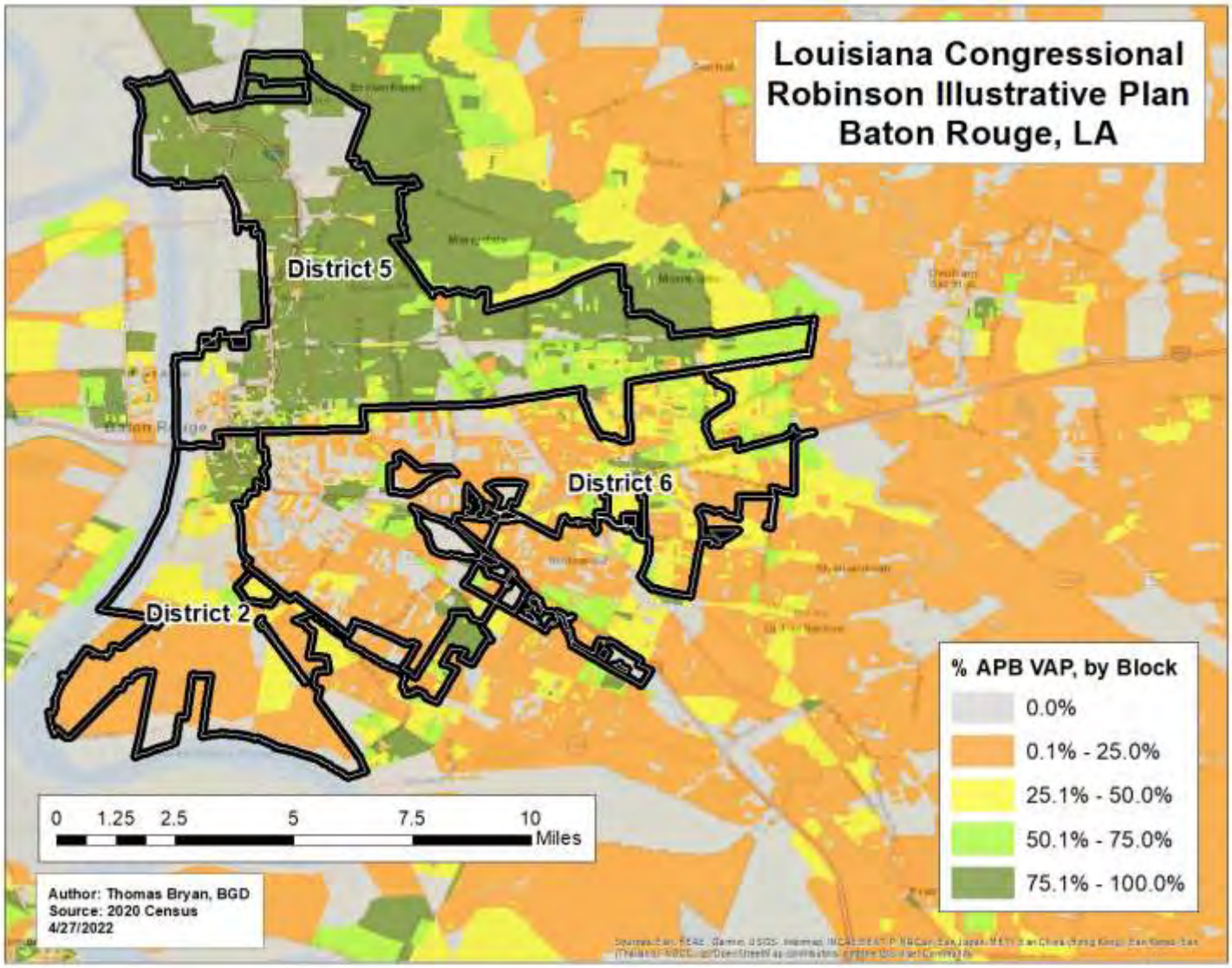
Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Baton Rouge
City Splits by Race
by Plan

AA. Baton Rouge HB1 / SB5 Enrolled Plan Split by % Any Part Black VAP



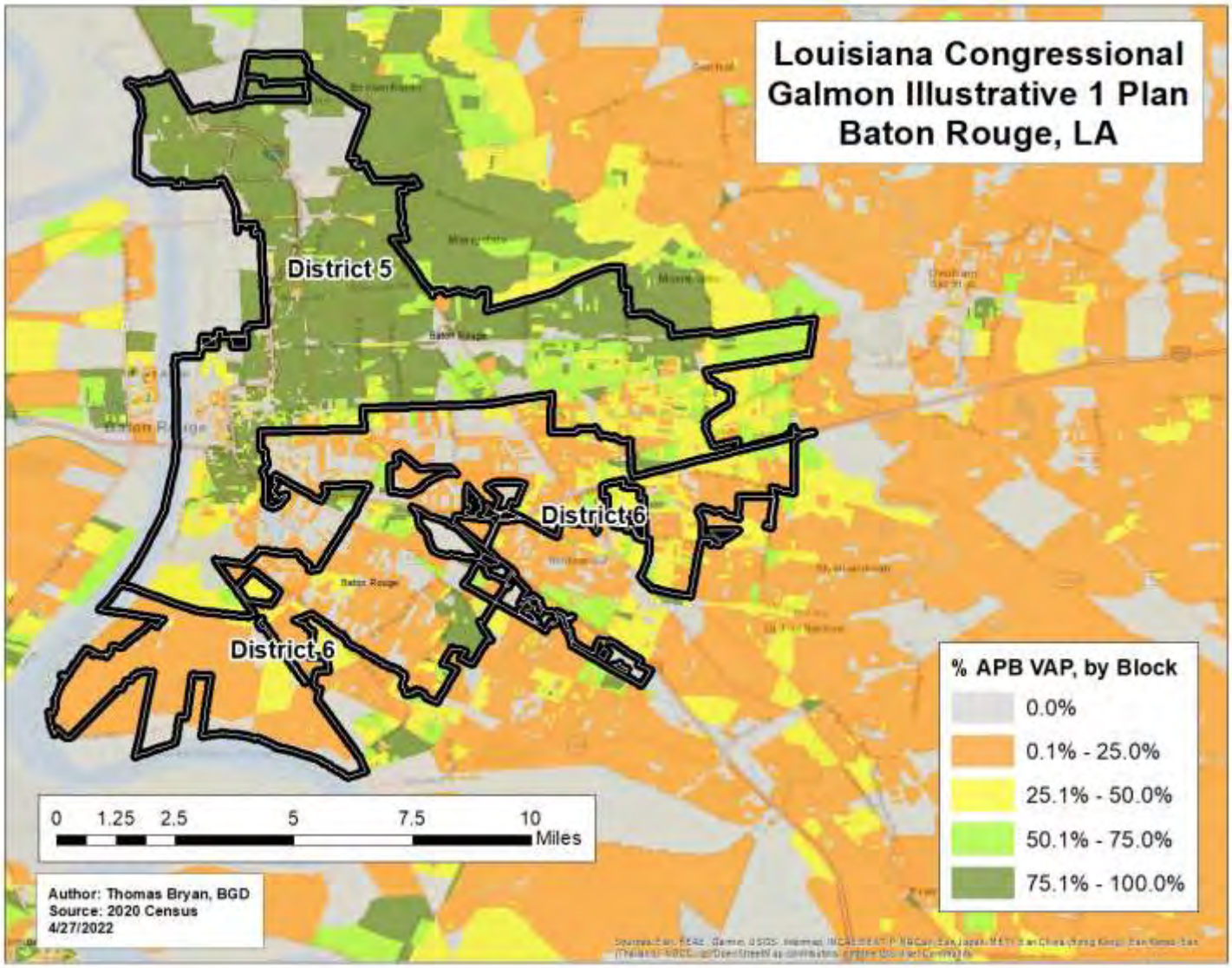
BB. Baton Rouge Robinson Illustrative Plan Split by % Any Part Black VAP



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

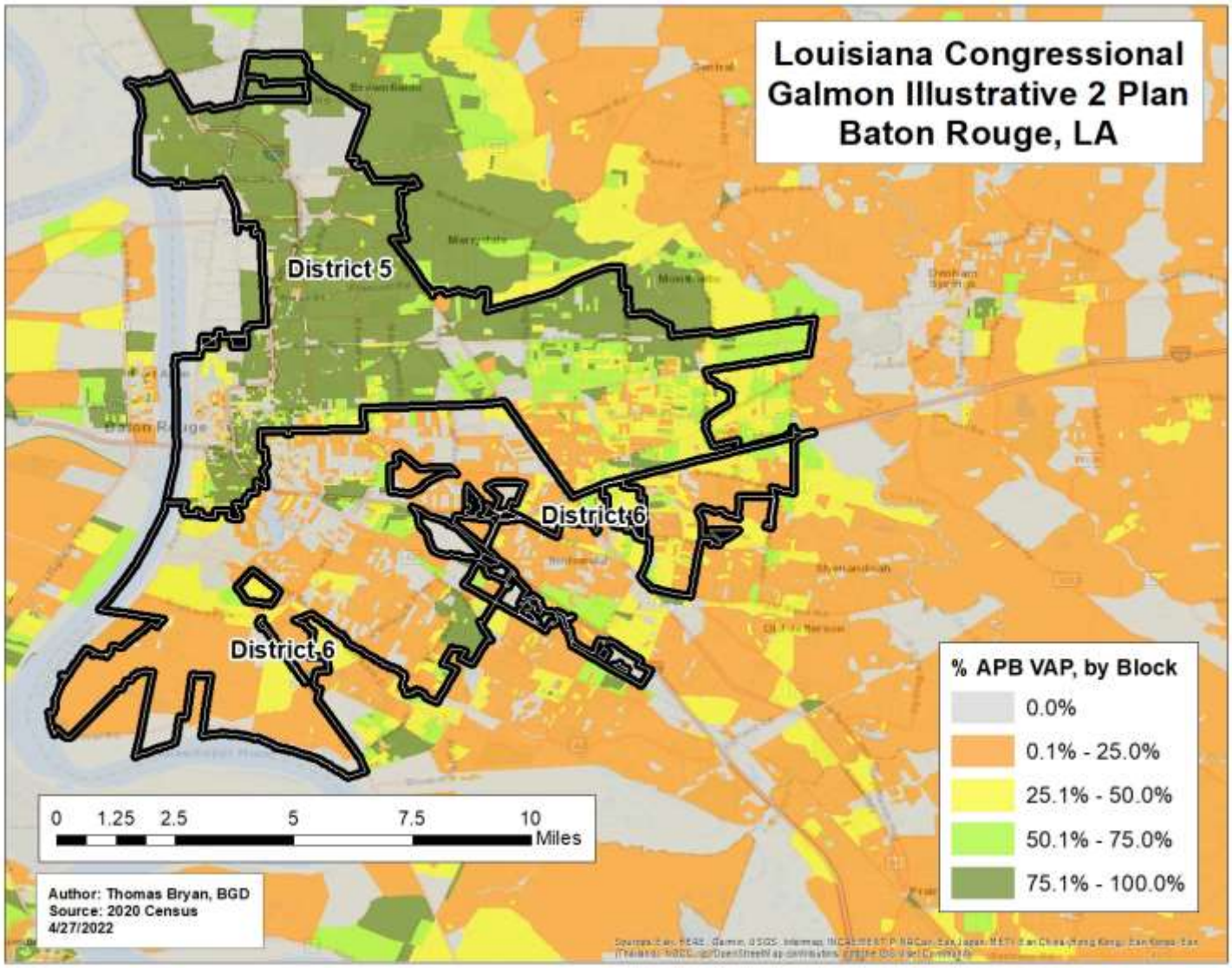
CC. Baton Rouge Galmon Illustrative 1 Plan Split by % Any Part Black VAP



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

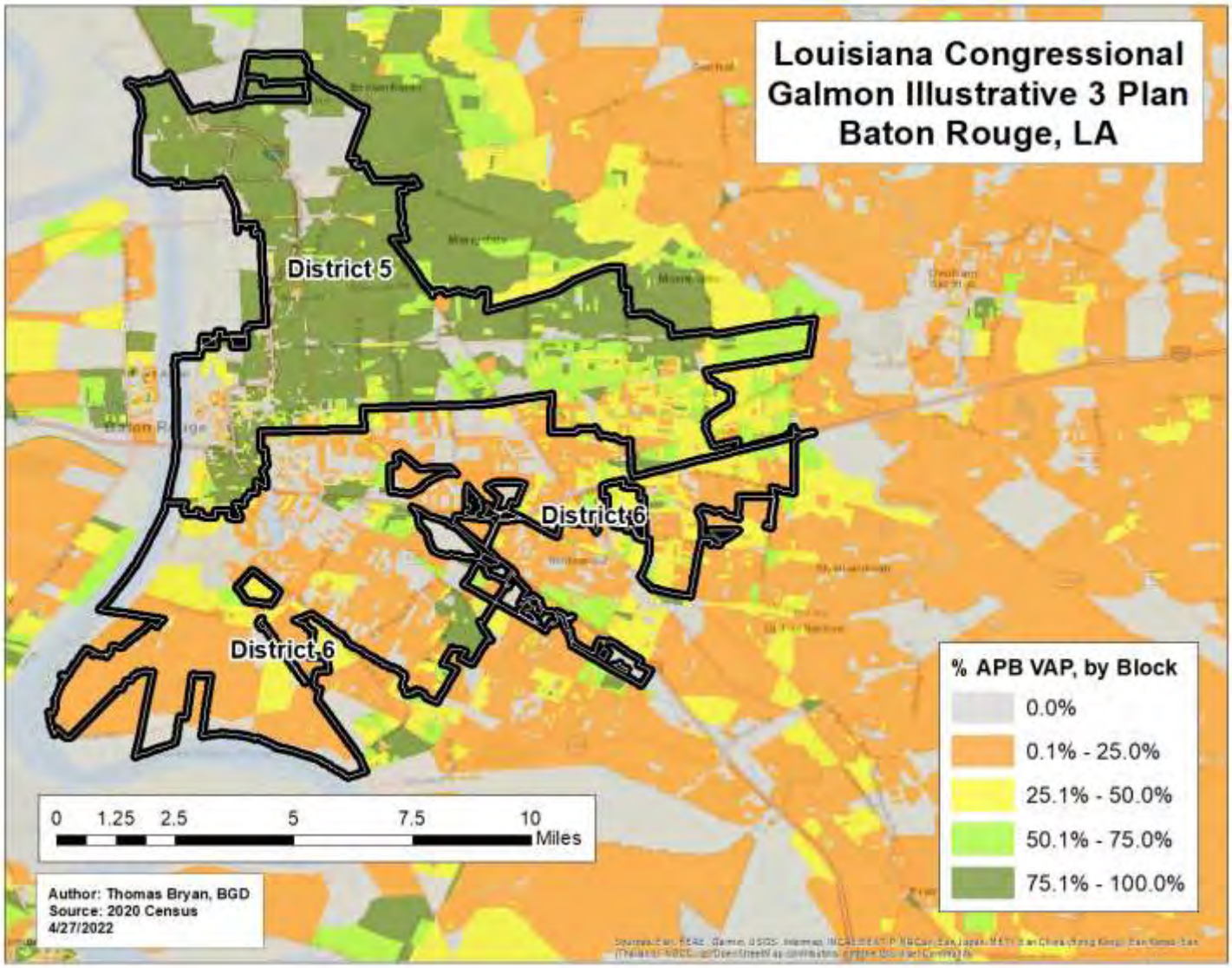
DD. Baton Rouge Galmon Illustrative 2 Plan Split by % Any Part Black VAP



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

EE. Baton Rouge Galmon Illustrative 3 Plan Split by % Any Part Black VAP

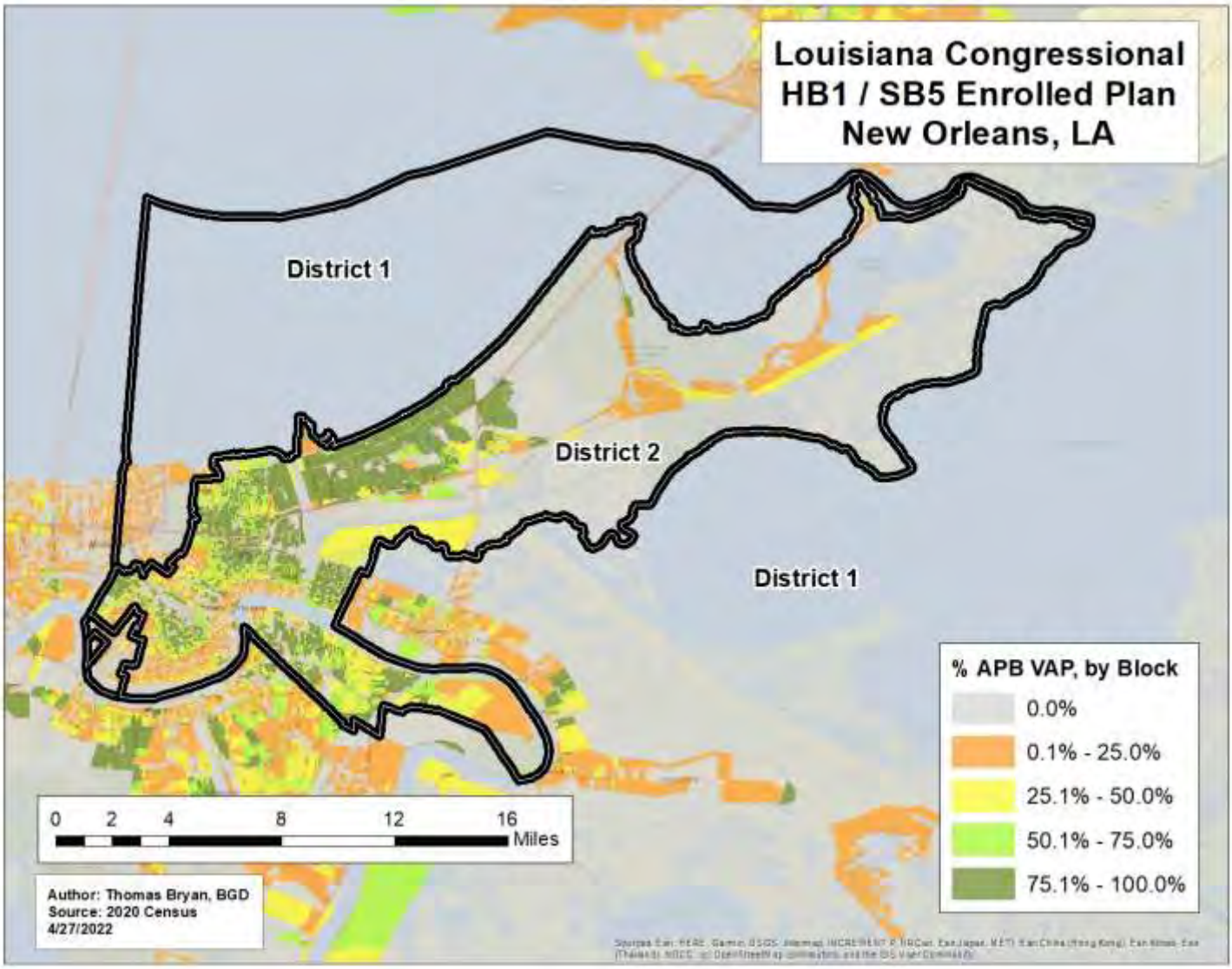


Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

New Orleans
City Splits by Race
by Plan

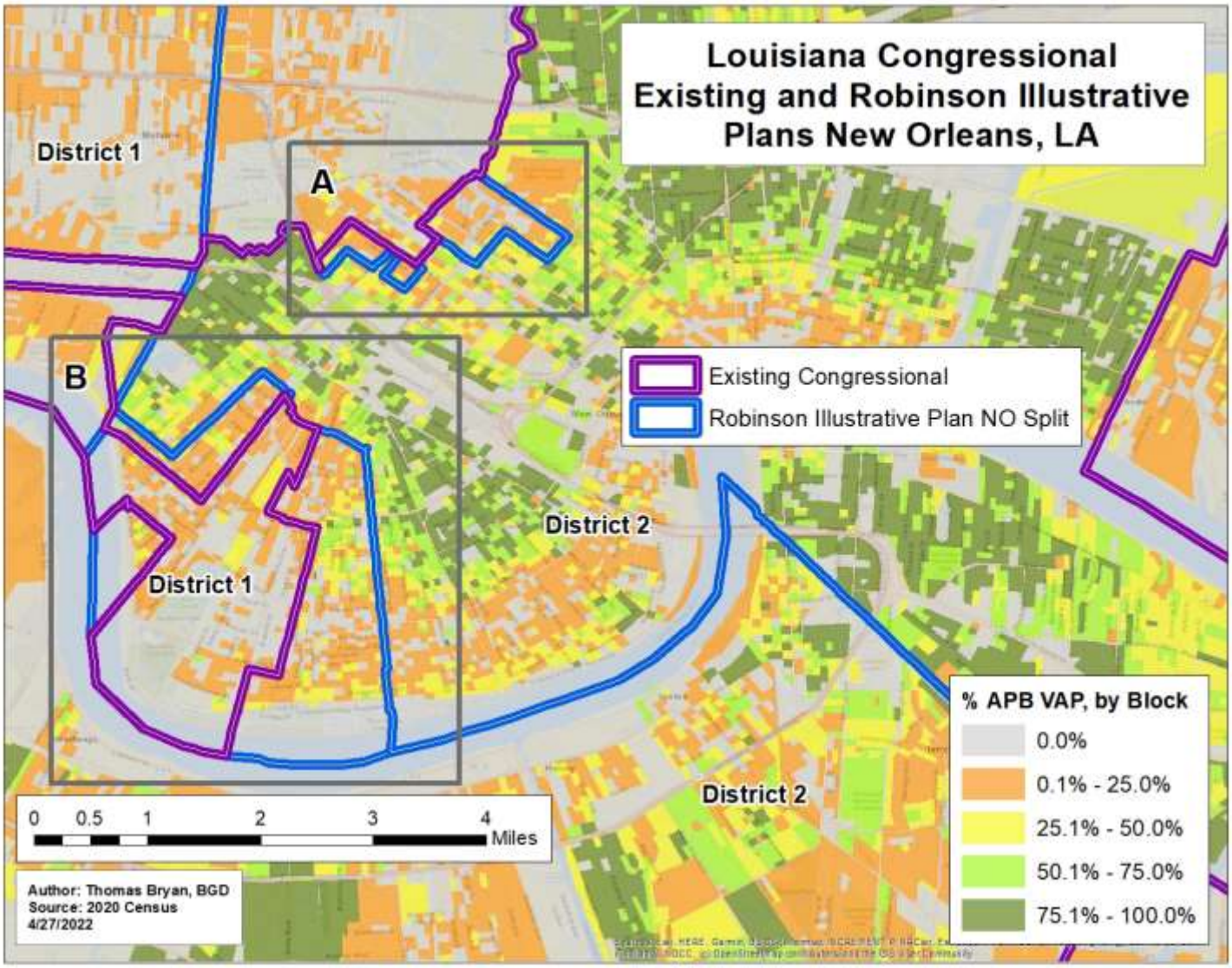
FF. New Orleans HB1 / SB5 Enrolled Plan Split by % Any Part Black VAP



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

GG. New Orleans Existing Plan and Robinson Illustrative Plan by % Any Part Black VAP

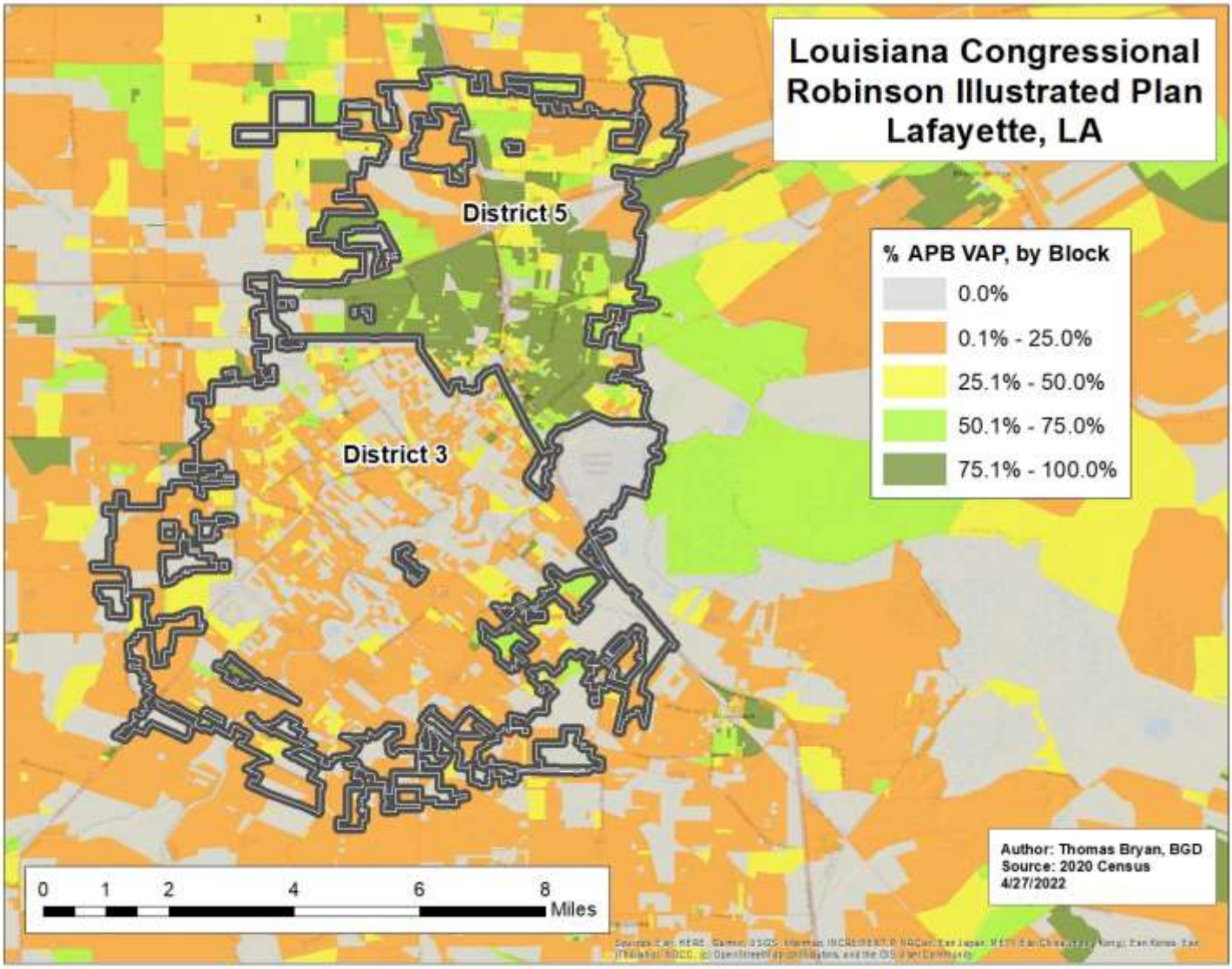


Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

Lafayette
City Splits by Race
by Plan

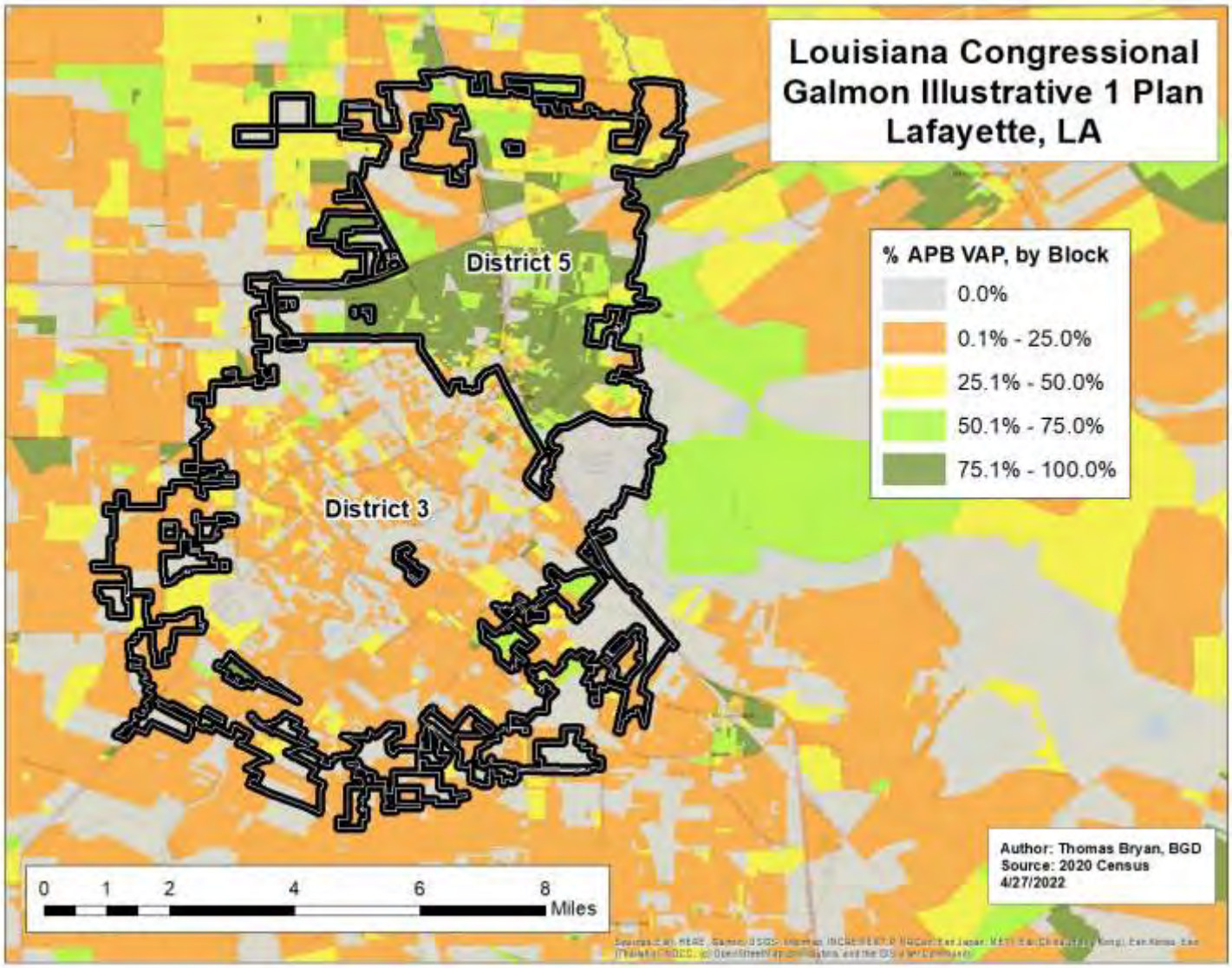
HH. Lafayette Robinson Illustrative Plan Split by % Any Part Black VAP (the Enrolled Plan does not split Lafayette)



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

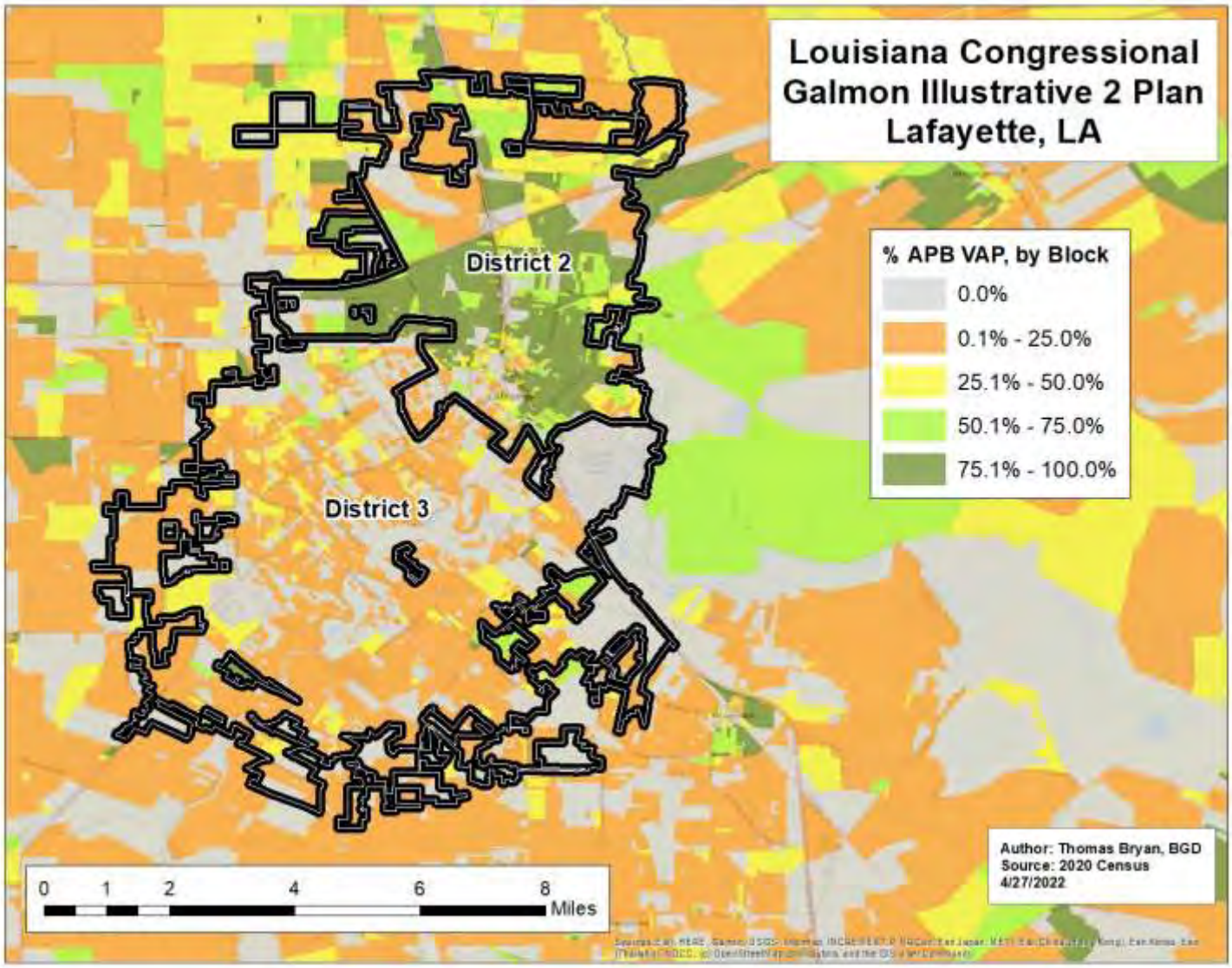
II. Lafayette Galmon Illustrative 1 Plan Split by % Any Part Black VAP



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

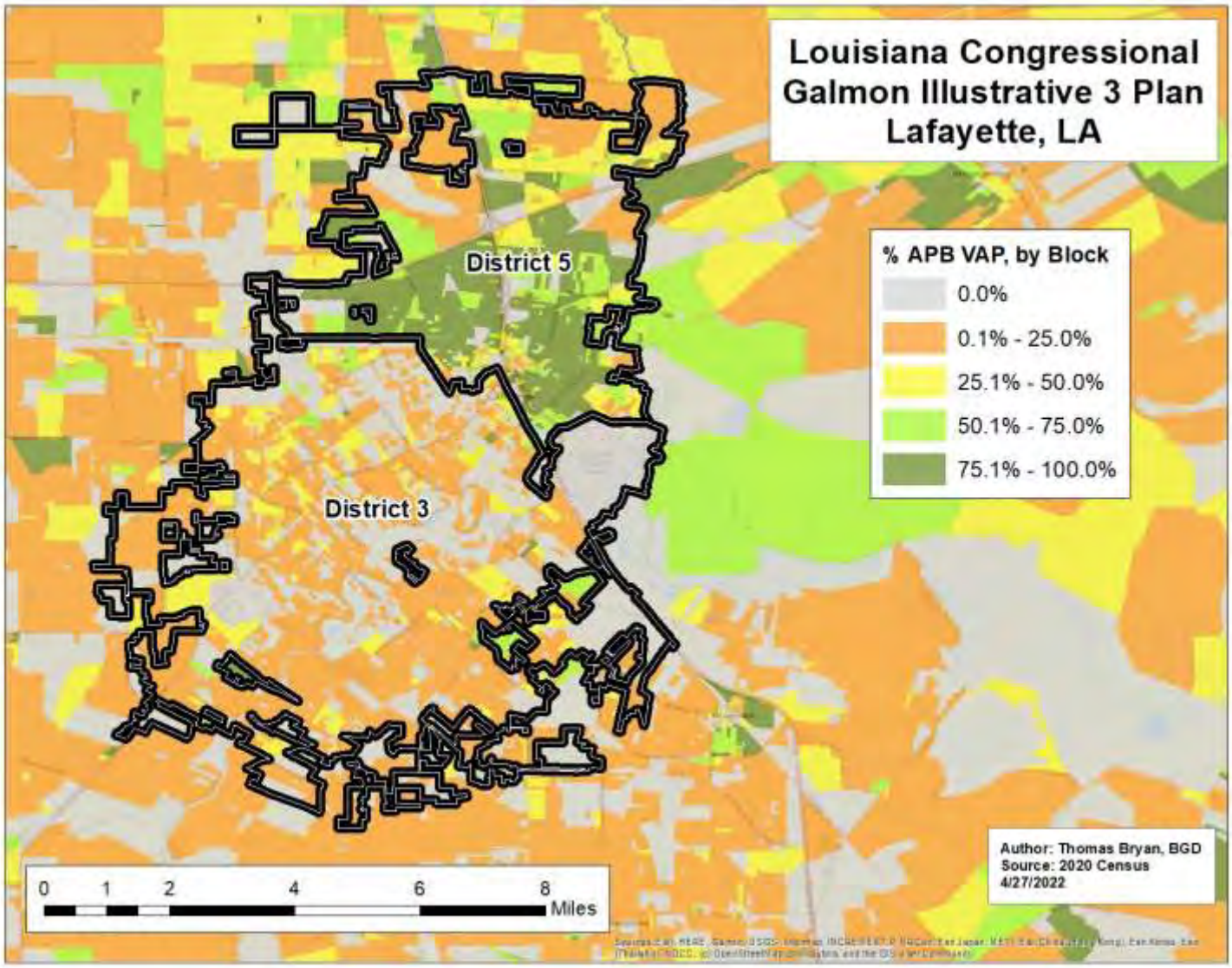
JJ. Lafayette Galmon Illustrative 2 Plan Split by % Any Part Black VAP



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

KK. Lafayette Galmon Illustrative 3 Plan Split by % Any Part Black VAP

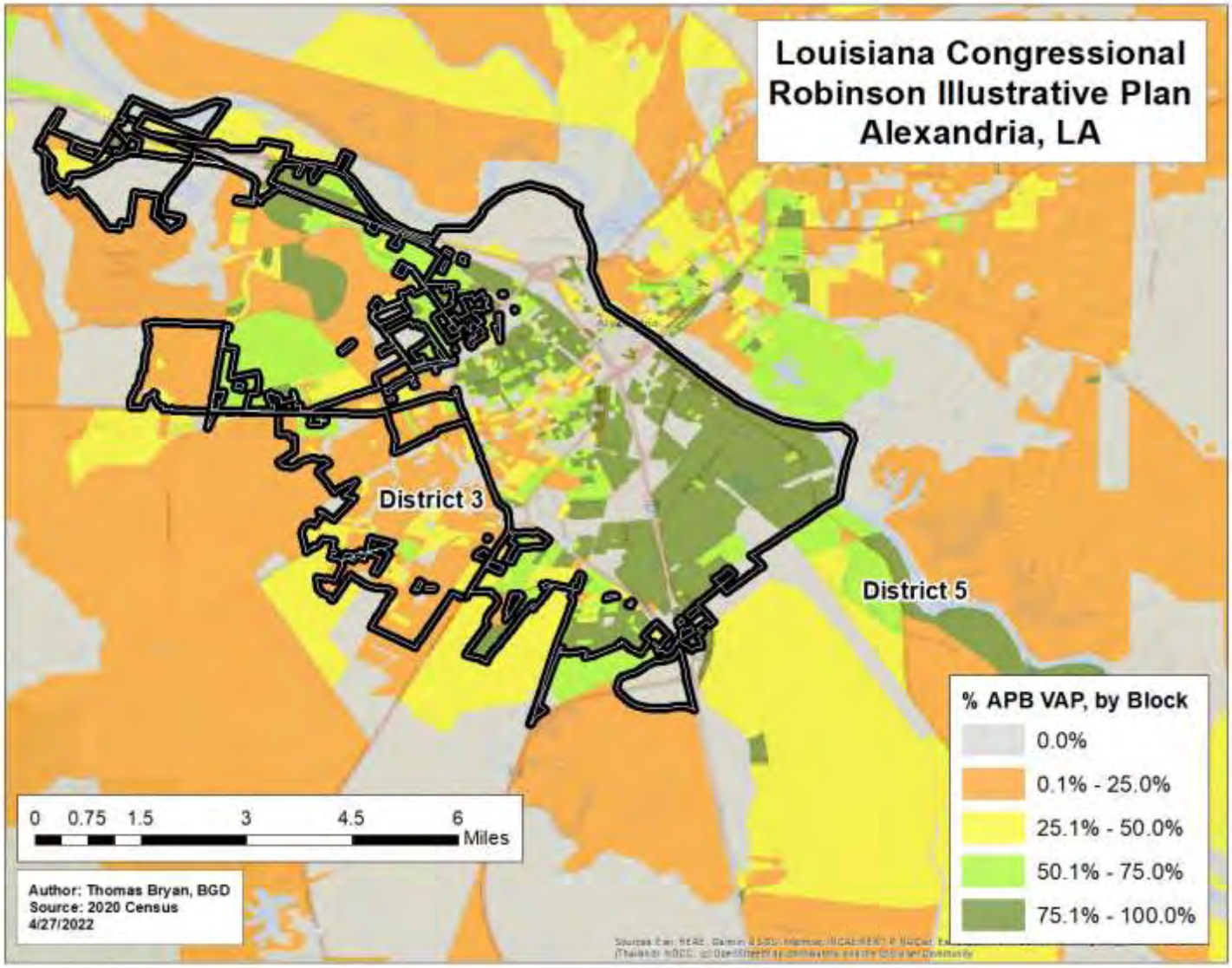


Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

Alexandria
City Splits by Race
by Plan

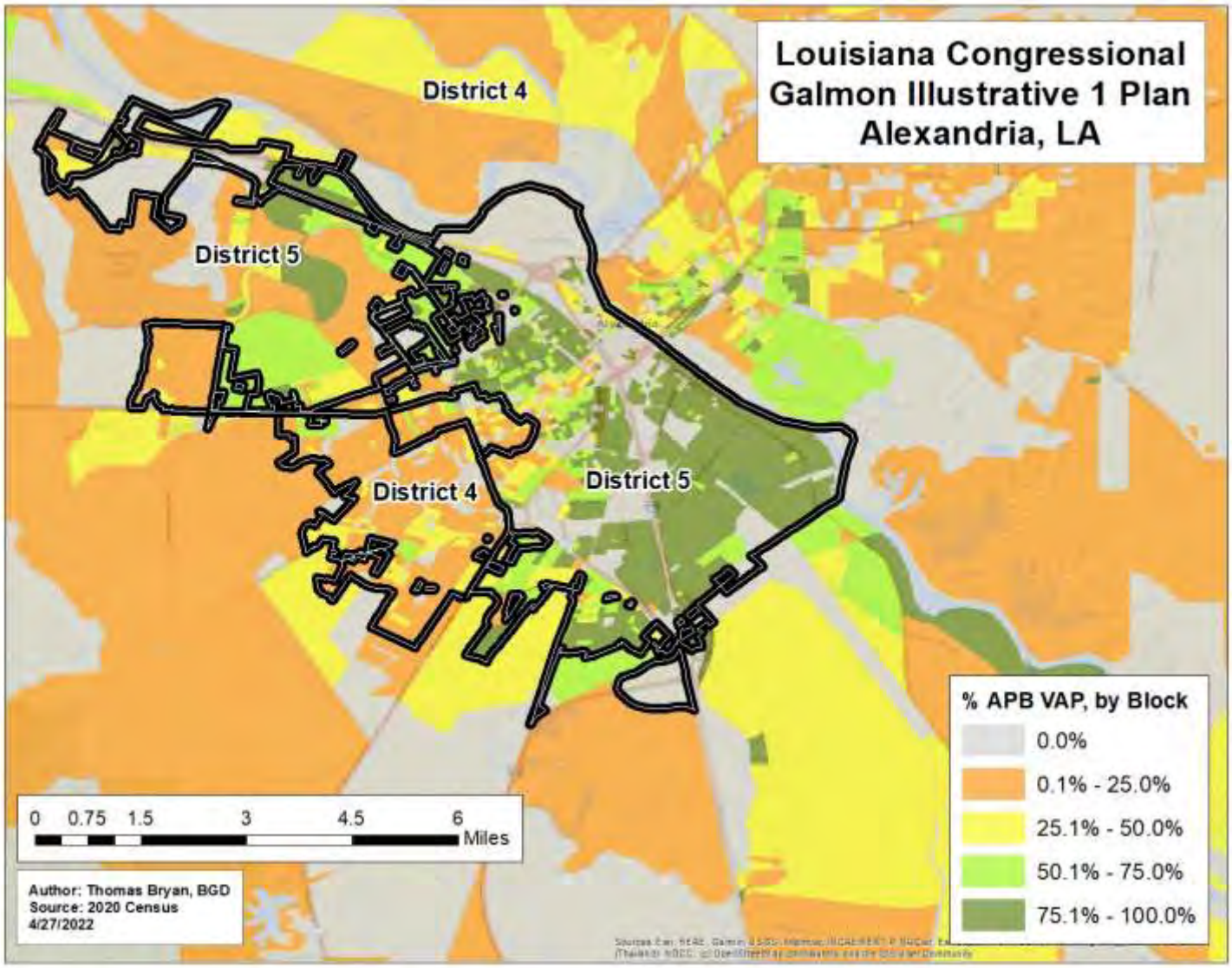
LL. Alexandria Robinson Illustrative Plan Split by % Any Part Black VAP (the Enrolled Plan does not split Alexandria)



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

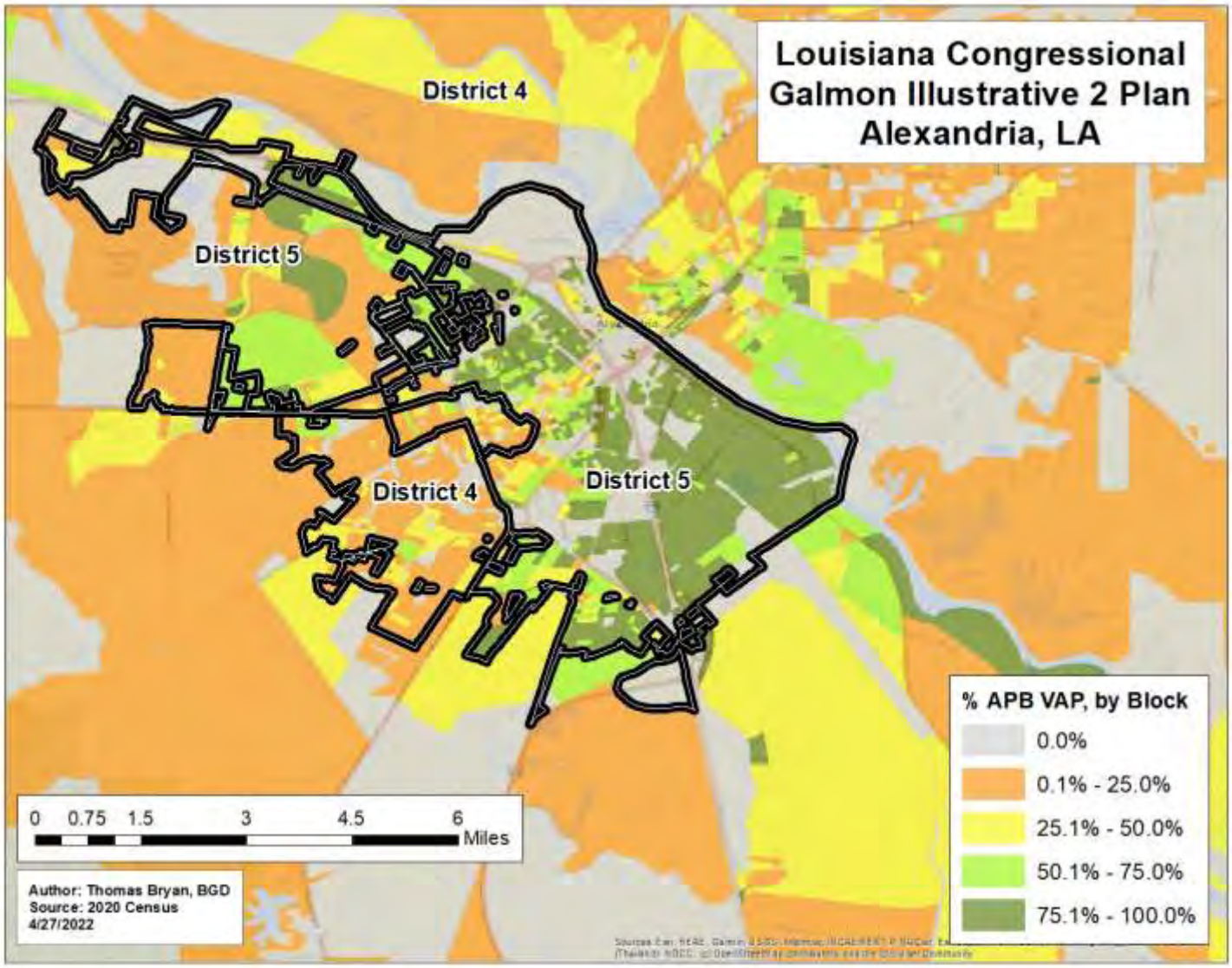
MM. Alexandria Galmon Illustrative 1 Plan Split by % Any Part Black VAP



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

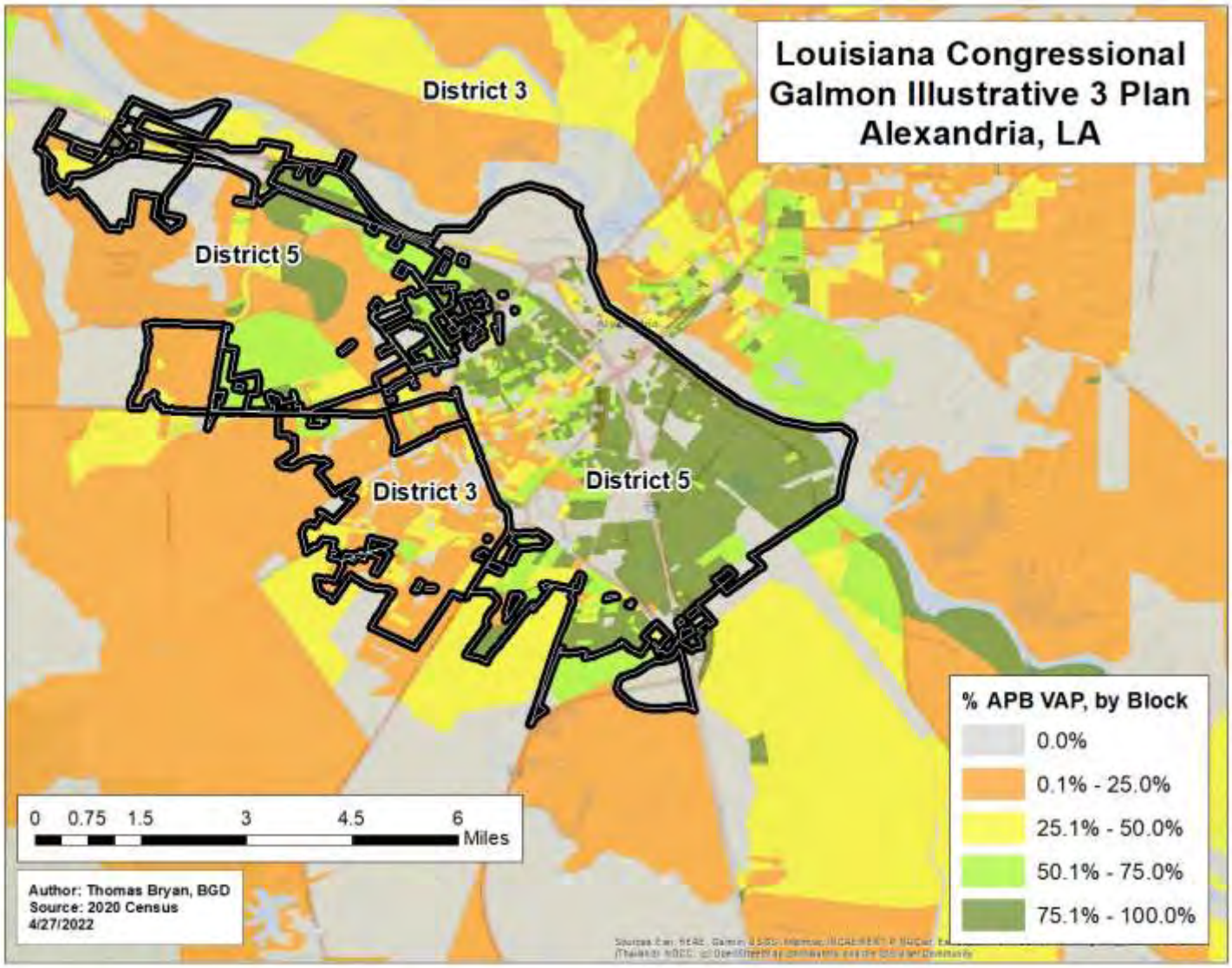
NN. Alexandria Galmon Illustrative 2 Plan Split by % Any Part Black VAP



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

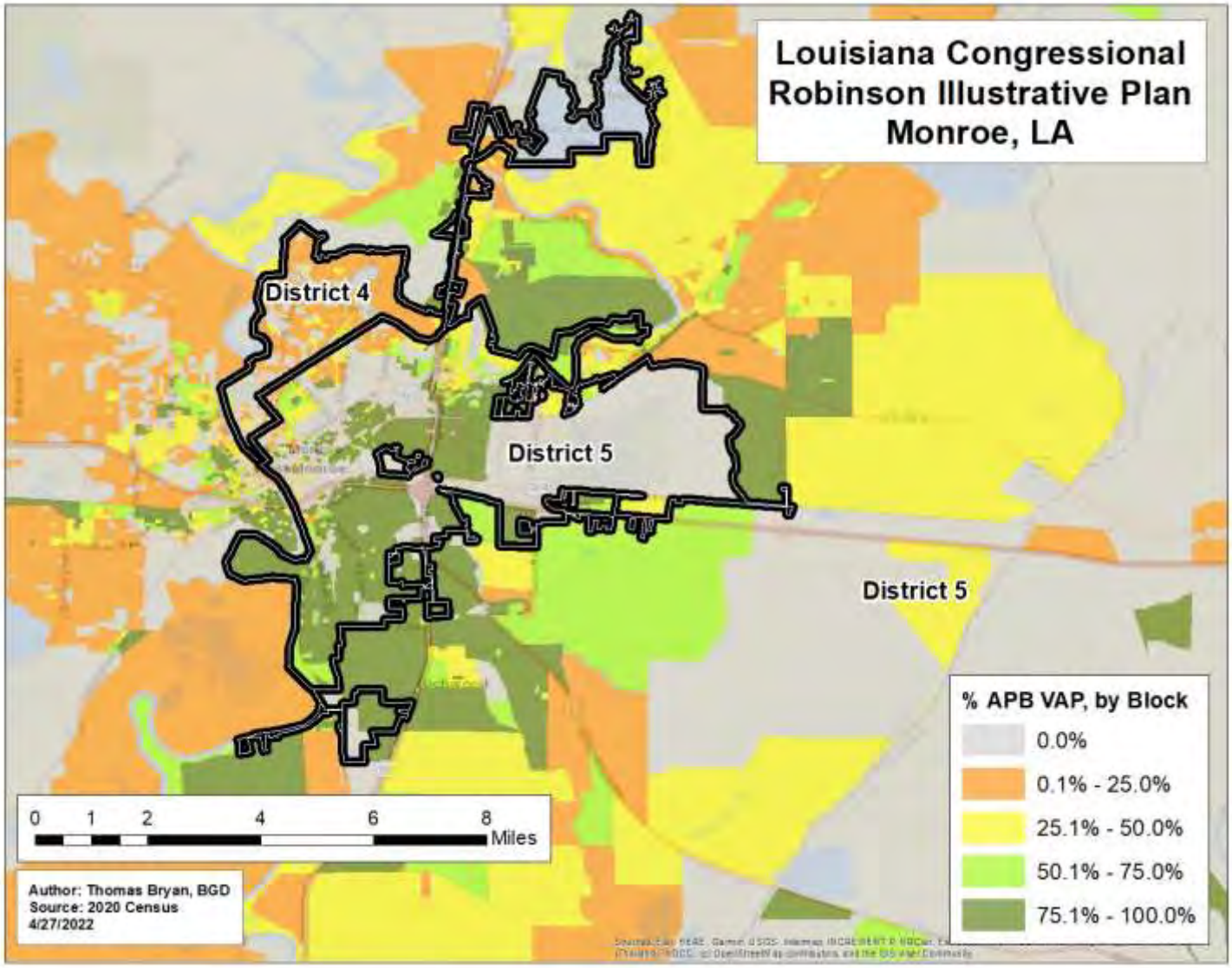
OO. Alexandria Galmon Illustrative 3 Plan Split by % Any Part Black VAP



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

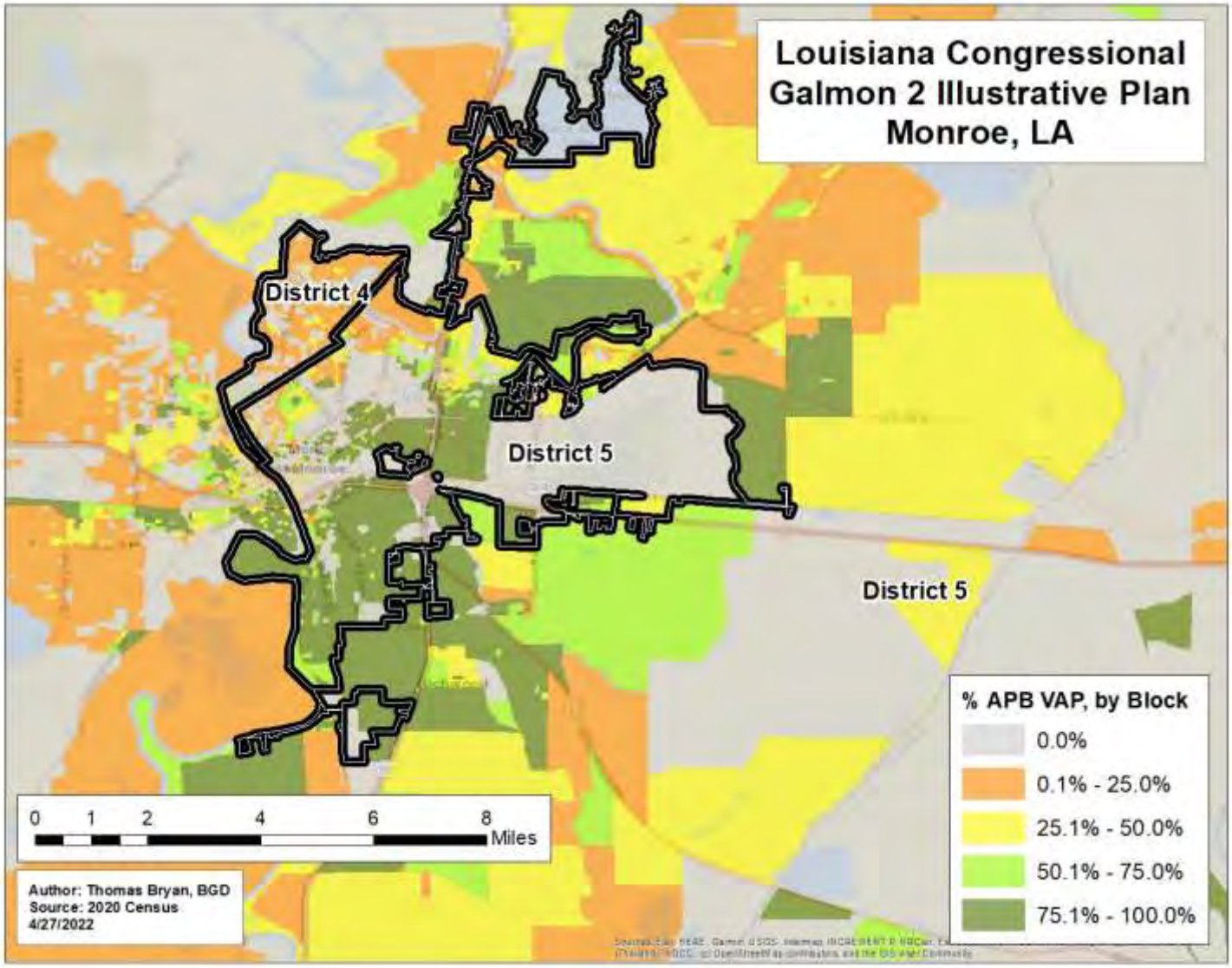
PP. Monroe Robinson Illustrative Plan Split by % Any Part Black VAP (the Enrolled Plan and Galmon Illustrative 1 Plan do not split Monroe)



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

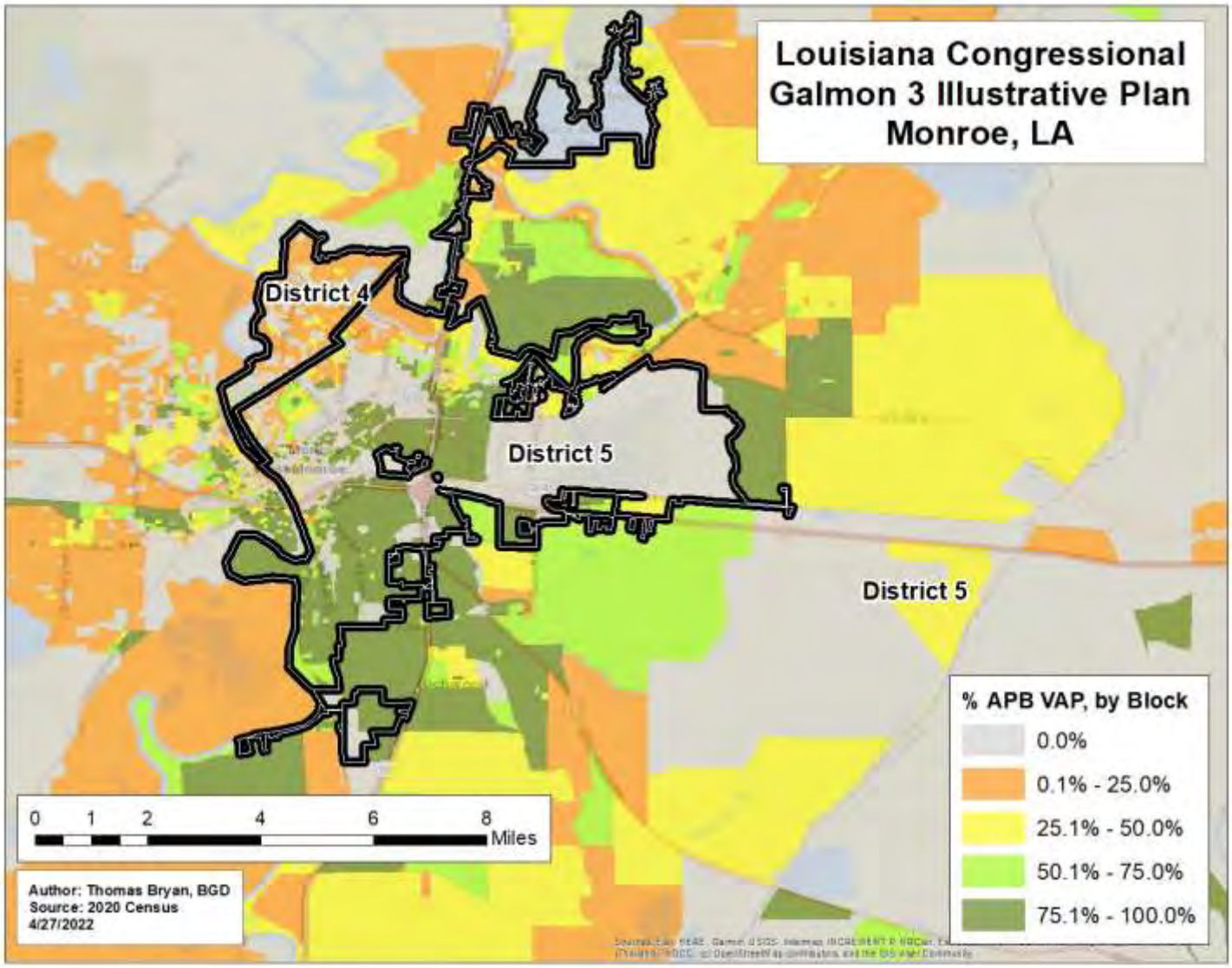
QQ. Monroe Galmon Illustrative 2 Plan Split by % Any Part Black VAP (the Galmon 1 Illustrative Plan does not split Monroe)



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

RR. Monroe Galmon Illustrative 3 Plan Split by % Any Part Black VAP



Note: The city boundary is extended through the middle of the city - following its division by the boundaries of the new plan. The line dividing the city is not an administrative boundary.

Shown by 2020 Census Block

Appendix 5 Thomas Bryan CV

Thomas M. Bryan

425-466-9749
tom@bryangeodemo.com

Introduction

I am an applied demographic, analytic and research professional who leads a team of experts in state and local redistricting cases. I have subject matter expertise in political and school redistricting and Voting Rights Act related litigation, US Census Bureau data, geographic information systems (GIS), applied demographic techniques and advanced analytics.

Education & Academic Honors

2002 MS, Management and Information Systems - George Washington University

2002 GSA CIO University graduate* - George Washington University

1997 Graduate credit courses taken at University of Nevada at Las Vegas

1996 MUS (Master of Urban Studies) Demography and Statistics core - Portland State University

1992 BS, History - Portland State University

Bryan GeoDemographics, January 2001-Current: Founder and Principal

I founded Bryan GeoDemographics (BGD) in 2001 as a demographic and analytic consultancy to meet the expanding demand for advanced analytic expertise in applied demographic research and analysis. Since then, my consultancy has broadened to include litigation support, state and local redistricting, school redistricting, and municipal infrastructure initiatives. Since 2001, BGD has undertaken over 150 such engagements in three broad areas:

1) state and local redistricting,
2) applied demographic studies, and
3) school redistricting and municipal Infrastructure analysis.

The core of the BGD consultancy has been in state and local redistricting and expert witness support of litigation. Engagements include:

Granted by the General Services Administration (GSA) and the Federal IT Workforce Committee of the CIO Council. http://www.gwu.edu/~mastergw/programs/mis/pr.html

State and Local Redistricting

- 2021: Retained as demographic and redistricting expert for the Wisconsin Legislature in *Johnson v. Wisconsin Elections Commission*, No. 2021AP001450-OA (Wis. Supreme Court) and related Wisconsin redistricting litigation. Offering opinions on demography and redistricting for redistricting plans proposed as remedies in impasse suit. The Wisconsin Supreme Court decided in favor of the Democratic Governor's plan on March 2, 2022. This decision was appealed to SCOTUS. On March 25, 2022 - SCOTUS returned the case to the Wisconsin Supreme Court. On April 16, 2022, the Wisconsin Supreme Court found in favor of the Wisconsin Legislative plan and the case was resolved.
    - https://www.wpr.org/us-supreme-court-rejects-legislative-map-drawn-evers-was-endorsed-wisconsin-supreme-court
    - https://www.nytimes.com/2022/04/15/us/wisconsin-districts-gerrymander-supreme-court.html

- 2021: Retained as demographic and redistricting expert by the State of Alabama Attorney General's office. Currently serving as the State's demographic and redistricting expert witness in the matters of *Milligan v. Merrill*, *Thomas v. Merrill* and *Singleton v. Merrill* over Alabama's Congressional redistricting initiatives. On January 24, 2022, a 3-judge district court found against the State of Alabama. The State of Alabama subsequently appealed to SCOTUS. On February 7, 2022 - SCOTUS put the lower courts decision on hold and agreed to hear the case. Outcome is pending.
    - https://www.nytimes.com/2022/02/07/us/politics/supreme-court-alabama-redistricting-congressional-map.html

- 2021: Retained as nonpartisan demographic and redistricting expert by counsel in the State of North Carolina to prepare commissioner redistricting plans for Granville County, Harnett County, Jones County and Nash County. Each proposed plan was approved and successfully adopted.

- 2021: Served as Consultant to the Arizona Independent Redistricting Commission, presenting "Pros and Cons of (Census data) Differential Privacy". July 13, 2021.
    - https://irc.az.gov/sites/default/files/meeting-agendas/Agenda%207.13.21.pdf

- 2021: Retained as demographic and redistricting expert by Democratic Counsel for the State of Illinois in the case of *McConchie v. State Board of Elections*. Prepared expert report in defense of using the American Community Survey to comply with state constitutional requirements in the absence of the (then) delayed Census 2020 data.
    - https://redistricting.lls.edu/case/mcconchie-v-ill-state-board-of-elections/.

- 2021: Retained by counsel for the Chairman and staff of the Texas House Committee on Redistricting as a consulting demographic expert. Texas House Bill 1 subsequently passed by the Legislature 83-63.
    - https://capitol.texas.gov/BillLookup/History.aspx?LegSess=873&Bill=HB1

- 2021: In the matter of the *State of Alabama, Representative Robert Aderholt, William Green and Camaran Williams v. the US Department of Commerce; Gina Raimondo; the US Census Bureau and Ron Jarmin* in US District Court of Alabama Eastern Division. Prepared a demographic report for Plaintiffs analyzing the effects of using Differential Privacy on Census Data in Alabama and was certified as an expert witness by the Court.
    - https://www.alabamaag.gov/Documents/news/Census%20Data%20Manipulation%20Lawsuit.pdf
    - https://redistricting.lls.edu/case/alabama-v-u-s-dept-of-commerce-ii/

- 2020: In the matter of The Christian Ministerial Alliance (CMA), *Arkansas Community Institute v. the State of Arkansas.* In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Providing demographic and analytic litigation support.
    - https://www.naacpldf.org/wp-content/uploads/CMA-v.-Arkansas_FILED-without-stamp.pdf

- 2020: In the matter of *Aguilar, Gutierrez, Montes, Palmer and OneAmerica v. Yakima County* in Superior Court of Washington under the Washington Voting Rights Act ("WVRA" Wash. Rev. Code § 29A.92.60). In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Providing demographic and analytic litigation support.
    - https://bloximages.newyork1.vip.townnews.com/yakimaherald.com/content/tncms/assets/v3/editorial/a/4e/a4e86167-95a2-5186-a86c-bb251bf535f1/5f0d01eec8234.pdf.pdf

- 2018-2020: In the matter of *Flores, Rene Flores, Maria Magdalena Hernandez, Magali Roman, Make the Road New York, and New York Communities for Change v. Town of Islip, Islip Town Board, Suffolk County Board of Elections* in US District Court. On behalf of Defendants - provided a critical analysis of plaintiff's demographic and environmental justice analysis. The critique revealed numerous flaws in both the demographic analysis as well as the tenets of their environmental justice argument, which were upheld by the court. Ultimately developed mutually agreed upon plan for districting.
    - https://nyelectionsnews.wordpress.com/2018/06/20/islip-faces-section-2-voting-rights-act-challenge/
    - https://www.courthousenews.com/wp-content/uploads/2018/06/islip-voting.pdf

- 2017-2020 In the matter of *NAACP, Spring Valley Branch; Julio Clerveaux; Chevon Dos Reis; Eric Goodwin; Jose Vitelio Gregorio; Dorothy Miller; and Hillary Moreau v East Ramapo Central School District (Defendant)* in United States District Court Southern District Of New York (original decision May 25, 2020), later the U.S. Second Circuit Court of Appeals. On behalf of Defendants, developed mutually agreed upon district plan and provided demographic and analytic litigation support.
    - https://www.lohud.com/story/news/education/2020/05/26/federal-judge-sides-naacp-east-ramapo-voting-rights-case/5259198002/

- 2017-2020: In the matter of *Pico Neighborhood Association et al v. City of Santa Monica* brought under the California VRA. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Providing demographic and analytic litigation support. Executed geospatial analysis to identify concentrations of Hispanic and Black CVAP to determine the impossibility of creating a majority minority district, and demographic analysis to show the dilution of Hispanic and Black voting strength in a district (vs at-large) system. Work contributed to Defendants prevailing in landmark ruling in the State of California Court of Appeal, Second Appellate District.
    - https://www.santamonica.gov/press/2020/07/09/santa-monica-s-at-large-election-system-affirmed-in-court-of-appeal-decision

- 2019: In the matter of *Johnson v. Ardoin / the State of Louisiana* in United States District Court. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Provided expert demographic and analytic litigation support.
    - https://www.brennancenter.org/sites/default/files/2019-10/2019-10-16-Johnson%20v_%20Ardoin-132-Brief%20in%20Opposition%20to%20MTS.pdf

- 2019: In the matter of *Suresh Kumar v. Frisco Independent School District et al*. in United States District Court. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Provided expert demographic and analytic litigation support. Successfully defended.
    - https://www.friscoisd.org/news/district-headlines/2020/08/04/frisco-isd-wins-voting-rights-lawsuit
    - https://www.courthousenews.com/wp-content/uploads/2020/08/texas-schools.pdf

- 2019: At the request of the City of Frisco, TX in collaboration with demographic testifying expert Dr. Peter Morrison. Provided expert demographic assessment of the City's potential liability regarding a potential Section 2 Voting Rights challenge.

- 2019: In the matter of *NAACP v. East Ramapo Central School District* in US District Court Southern District of NY. In collaboration with demographic testifying expert Dr. Peter

Morrison, on behalf of Defendants. Provided expert demographic and analytic litigation support.

- 2019: In the matter of *Johnson v. Ardoin* in United States District Court. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Provided expert demographic and analytic litigation support. Prepared analysis of institutionalized prison population versus noninstitutionalized eligible to vote population.
  - https://casetext.com/case/johnson-v-ardoin

- 2019: In the matter of *Vaughan v. Lewisville Independent School District et al.* in United States District Court. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Provided expert demographic and analytic litigation support.
  - https://www.nbcdfw.com/news/local/lawsuit-filed-against-lewisville-independent-school-district/1125/

- 2019: In the matter of *Holloway, et al. v. City of Virginia Beach in* United States District Court, Eastern District of Virginia. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Provided expert demographic and analytic litigation support.
  - https://campaignlegal.org/cases-actions/holloway-et-al-v-city-virginia-beach

- 2018: At the request of Kirkland City, Washington in collaboration with demographic testifying expert Dr. Peter Morrison. Performed demographic studies to inform the City's governing board's deliberations on whether to change from at-large to single-member district elections following enactment of the Washington Voting Rights Act. Analyses included gauging the voting strength of the City's Asian voters and forming an illustrative district concentrating Asians; and compared minority population concentration in pre- and post-annexation city territory.
  - https://www.kirklandwa.gov/Assets/City+Council/Council+Packets/021919/8b_SpecialPresentations.pdf#:~:text=RECOMMENDATION%3A%20It%20is%20recommended%20that%20City%20Council%20receive,its%20Councilmembers%20on%20a%20citywide%2C%20at-%20large%20basis

- 2018: At the request of Tacoma WA Public Schools in collaboration with demographic testifying expert Dr. Peter Morrison. Created draft concept redistricting plans that would optimize minority population concentrations while respecting incumbency. Client will use this plan as a point of departure for negotiating final boundaries among incumbent elected officials.

- 2018: At the request of the City of Mount Vernon, Washington., in collaboration with demographic testifying expert Dr. Peter Morrison. Prepared a numerous draft concept plans

that preserves Hispanics' CVAP concentration. Client utilized draft concept redistricting plans to work with elected officials and community to agree upon the boundaries of six other districts to establish a proposed new seven-district single-member district plan.

- 2017: In the matter of *Pico Neighborhood Association v. City of Santa Monica*. In collaboration with demographic testifying expert Dr. Peter Morrison. Worked to create draft district concept plans that would satisfy Plaintiff's claim of being able to create a majority-minority district to satisfy Gingles prong 1. Such district was not possible, and the Plaintiffs case ultimately failed in California State Court of Appeals Second Appellate District.
  - https://law.justia.com/cases/california/court-of-appeal/2020/b295935.html

- 2017: In the matter of *John Hall, Elaine Robinson-Strayhorn, Lindora Toudle, Thomas Jerkins, v. Jones County Board of Commissioners*. In collaboration with demographic testifying expert Dr. Peter Morrison. Worked to create draft district concept plans to resolve claims of discrimination against African Americans attributable to the existing at-large voting system.
  - http://jonescountync.gov/vertical/sites/%7B9E2432B0-642B-4C2F-A31B-CDE7082E88E9%7D/uploads/2017-02-13-Jones-County-Complaint.pdf

- 2017: In the matter of *Harding v. County of Dallas* in U.S. District Court. In collaboration with demographic testifying expert Dr. Peter Morrison. In a novel case alleging discrimination *against* white, non-Hispanics under the VRA, I was retained by plaintiffs to create redistricting scenarios with different balances of white-non-Hispanics, Blacks and Hispanics. Deposed and provided expert testimony on the case.
  - https://www.courthousenews.com/wp-content/uploads/2018/08/DallasVoters.pdf

- 2016: Retained by The Equal Voting Rights Institute to evaluate the Dallas County Commissioner existing enacted redistricting plan. In collaboration with demographic testifying expert Dr. Peter Morrison, the focus of our evaluation was twofold: (1) assess the failure of the Enacted Plan (EP) to meet established legal standards and its disregard of traditional redistricting criteria; (2) the possibility of drawing an alternative Remedial Plan (RP) that did meet established legal standards and balance traditional redistricting criteria.
  - http://equalvotingrights.org/wp-content/uploads/2015/01/Complaint.pdf

- 2016: In the matter of *Jain v. Coppell ISD et al* in US District Court. In collaboration with demographic testifying expert Dr. Peter Morrison. Consulted in defense of Coppell Independent School District (Dallas County, TX) to resolve claims of discriminatory at-large voting system affecting Asian Americans. While Asians were shown to be sufficiently numerous, I was able to demonstrate that they were not geographically concentrated - thus successfully proving the Gingles 1 precondition could not be met resulting the complaint being withdrawn.
  - https://dockets.justia.com/docket/texas/txndce/3:2016cv02702/279616

- 2016: In the matter of *Feldman et al v. Arizona Secretary of State's Office et al* in SCOTUS. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Provided analytics on the locations and proximal demographics of polling stations that had been closed subsequent to *Shelby County v. Holder* (2013) which eliminated the requirement of state and local governments to obtain federal preclearance before implementing any changes to their voting laws or practices. Subsequently provided expert point of view on disparate impact as a result of H.B. 2023. Advised Maricopa County officials and lead counsel on remediation options for primary polling place closures in preparation for 2016 elections.
    - https://arizonadailyindependent.com/2016/04/05/doj-wants-information-on-maricopa-county-election-day-disaster/
    - https://www.supremecourt.gov/DocketPDF/19/19-1257/142431/20200427105601341_Brnovich%20Petition.pdf

- 2016: In the matter of *Glatt v. City of Pasco, et al.* in US District Court (Washington). In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Provided analytics and draft plans in defense of the City of Pasco. One draft plan was adopted, changing the Pasco electoral system from at-large to a six-district + one at large.
    - https://www.pasco-wa.gov/DocumentCenter/View/58084/Glatt-v-Pasco---Order---January-27-2017?bidId=
    - https://www.pasco-wa.gov/923/City-Council-Election-System

- 2015: In the matter of *The League of Women Voters et al. v. Ken Detzner et al* in the Florida Supreme Court. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Performed a critical review of Florida state redistricting plan and developed numerous draft concept plans.
    - http://www.miamiherald.com/news/politics-government/state-politics/article47576450.html
    - https://www.floridasupremecourt.org/content/download/322990/2897332/file/OP-SC14-1905_LEAGUE%20OF%20WOMEN%20VOTERS_JULY09.pdf

- 2015: In the matter of *Evenwel, et al. v. Abbott / State of Texas* in SCOTUS. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Plaintiffs. Successfully drew map for the State of Texas balancing both total population from the decennial census and citizen population from the ACS (thereby proving that this was possible). We believe this may be the first and still only time this technical accomplishment has been achieved in the nation at a state level. Coauthored SCOTUS Amicus Brief of Demographers.
    - https://www.supremecourt.gov/opinions/15pdf/14-940_ed9g.pdf

- https://www.scotusblog.com/wp-content/uploads/2015/08/Demographers-Amicus.pdf

- 2015: In the matter of *Ramos v. Carrollton-Farmers Branch Independent School District* in US District Court (Texas). In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Used 2009-2013 5-year ACS data to generate small-area estimates of minority citizen voting age populations and create a variety of draft concept redistricting plans. Case was settled decision in favor of a novel cumulative voting system.
  - https://starlocalmedia.com/carrolltonleader/c-fb-isd-approves-settlement-in-voting-rights-lawsuit/article_92c256b2-6e51-11e5-adde-a70cbe6f9491.html

- 2015: In the matter of *Glatt v. City of Pasco et al.* in US District Court (Washington). In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Consulted on forming new redistricting plan for city council review. One draft concept plan was agreed to and adopted.
  - https://www.pasco-wa.gov/923/City-Council-Election-System

- 2015: At the request of Waterbury, Connecticut, in collaboration with demographic testifying expert Dr. Peter Morrison. As a result of a successful ballot measure to convert Waterbury from an at-large to a 5-district representative system, consulted an extensive public outreach and drafted numerous concept plans. The Waterbury Public Commission considered alternatives and recommended one of our plans, which the City adopted.
  - http://www.waterburyobserver.org/wod7/node/4124

- 2014-15: In the matter of *Montes v. City of Yakima* in US District Court (Washington). In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Analytics later used to support the Amicus Brief of the City of Yakima, Washington in the U.S. Supreme Court in *Evenwel v. Abbott*.
  - https://casetext.com/case/montes-v-city-of-yakima-3

- 2014: In the matter of *Harding v. County of Dallas* in the US Court of Appeals Fifth Circuit. In the novel case of Anglo plaintiffs attempting to claim relief as protected minorities under the VRA. Served as demographic expert in the sole and limited capacity of proving Plaintiff claim under Gingles prong 1. Claim was proven. Gingles prongs 2 and 3 were not and the case failed.
  - https://electionlawblog.org/wp-content/uploads/Dallas-opinion.pdf

- 2014: At the request of Gulf County, Florida in collaboration with demographic testifying expert Dr. Peter Morrison. Upon the decision of the Florida Attorney General to force inclusion of prisoners in redistricting plans – drafted numerous concept plans for the Gulf County Board of County Commissioners, one of which was adopted.

- http://myfloridalegal.com/ago.nsf/Opinions/B640990E9817C5AB85256A9C00631387

- 2012-2015: In the matter of *GALEO and the City of Gainesville* in Georgia. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants -consulted on defense of existing at-large city council election system.
    - http://atlantaprogressivenews.com/2015/06/06/galeo-challenges-at-large-voting-in-city-of-gainesville/

- 2012-: Confidential. Consulted (through Morrison & Associates) to support plan evaluation, litigation, and outreach to city and elected officials (1990s - mid-2000s). Executed first statistical analysis of the American Community Survey to determine probabilities of minority-majority populations in split statistical/administrative units of geography, as well as the cumulative probabilities of a "false-negative" minority-majority reading among multiple districts.

- 2011-: Confidential. Consulted on behalf of plaintiffs in Committee (Private) vs. State Board of Elections pertaining to citizen voting-age population. Evaluated testimony of defense expert, which included a statistical evaluation of Hispanic estimates based on American Community Survey (ACS) estimates. Analysis discredited the defendant's expert's analysis and interpretation of the ACS.

School Redistricting and Municipal Infrastructure Projects

BGD worked with McKibben Demographics from 2004-2012 providing expert demographic and analytic support. These engagements involved developing demographic profiles of small areas to assist in building fertility, mortality and migration models used to support long-range population forecasts and infrastructure analysis in the following communities:

Fargo, ND 10/2012
Columbia, SC 3/2012
Madison, MS 9/2011
Rockwood, MO 3/2011
Carthage, NY 3/2011
NW Allen, IN 9/2010
Fayetteville, AR 7/2010
Atlanta, GA 2/2010
Caston School Corp., IN 12/09
Rochester, IN 12/09
Urbana, IL 11/09
Dekalb, IL 11/09
Union County, NC 11/09
South Bend, IN 8/09
Lafayette, LA 8/09
Fayetteville, AR 4/09
New Orleans, LA 4/09
Wilmington New Hanover 3/09
New Berry, SC 12/08
Corning, NY 11/08
McLean, IL 11/08
Lakota 11/08
Greensboro, NC 11/08
Charleston, SC 8/08
Woodland, IL 7/08
White County, IN 6/08
Gurnee District 56, IL 5/08
Central Noble, IN 4/08
Charleston First Baptist, SC 4/08
Edmond, OK 4/08
East Noble, IN 3/08
Mill Creek, IN 5/06
Rhode Island 5/06
Garrett, IN 3/08
Meridian, MS 3/08
Madison County, MS 3/08
Charleston 12/07
Champaign, IL 11/07
Richland County, SC 11/07
Lake Central, IN 11/07
Columbia, SC 11/07
Duneland, IN 10/07
Union County, NC 9/07
Griffith, IN 9/07
Rensselaer, IN 7/07
Hobart, IN 7/07

Guilford 9/08

Lexington, SC 9/08

Plymouth, IN 9/08

Buffalo, NY 7/07

Oak Ridge, TN 5/07

Westerville, OH 4/07

Projects Continued

Baton Rouge, LA 4/07

Cobb County, GA 4/07

Charleston, SC District 20 4/07

McDowell County, NC 4/07

East Allen, IN 3/07

Mt. Pleasant, SC District 2 2/07

Peach County, GA 2/07

North Charleston, SC District 4 2/07

Madison County, MS revisions 1/07

Portage County, IN 1/07

Marietta, GA 1/07

Porter, IN 12/06

Harrison County, MS 9/06

New Albany/Floyd County, IN 9/06

North Charleston, SC 9/06

Fairfax, VA 9/06

Coleman 8/06

DeKalb, GA 8/06

LaPorte, IN 7/06

NW Allen, IN 7/06

Brunswick, NC 7/06

Carmel Clay, IN 7/06

Calhoun, SC 5/06

Hamilton Community Schools, IN 4/06

Dilworth, MN 4/06

Hamilton, OH 2/06

Allen County 11/05

Bremen, IN 11/05

Smith Green, IN 11/05

Steuben, IN 11/05

Plymouth, IN 11/05

North Charleston, SC 11/05

Huntsville, AL 10/05

Dekalb, IN 9/05

East Noble, IN 9/05

Valparaiso, IN 6/05

Penn-Harris-Madison, IN 7/05

Elmira, NY 7/05

South Porter/Merriville, IN 7/05

Fargo, ND 6/05

Washington, IL 5/05

Addison, NY 5/05

Kershaw, SC 5/05

Porter Township, IN 3/05

Portage, WI 1/05

East Stroudsburg, PA 12/04

North Hendricks, IN 12/04

Sampson/Clinton, NC 11/04

Carmel Clay Township, IN 9/04

SW Allen County, IN 9/04

East Porter, IN 9/04

Allen County, IN 9/04

Duplin, NC 9/04

West Noble, IN 2/06

New Orleans, LA 2/06

Norwell, IN 2/06

Middletown, OH 12/05

West Noble, IN 11/05

Madison, MS 11/05

Fremont, IN 11/05

Concord, IN 11/05

Hamilton County / Clay TSP, IN 9/04

Hamilton County / Fall Creek TSP, IN 9/04

Decatur, IN 9/04

Chatham County / Savannah, GA 8/04

Evansville, IN 7/04

Madison, MS 7/04

Vanderburgh, IN 7/04

New Albany, IN 6/04

Publications

- In the matter of *Banerian v. Benson*, No. 1:22-CV-00054-RMK-JTN-PLM, in US District Court of the Western District of Michigan. Assessing the performance of plaintiff and defendant plans against the Michigan Constitution and traditional redistricting principles.

- In the matter of *Johnson v. Wisconsin Elections Commission*, No. 2021AP001450OA, in the Supreme Court of Wisconsin. Assessing the features of proposed redistricting plans by the Wisconsin Legislature and other parties to the litigation. December 2021.

- In the matters of *Caster v. Merrill* and *Milligan v. Merrill* in US District Court of the Northern District of Alabama. Civil Action NOs. 2:21-cv-01536-AMM; 2:21-cv-01530-AMM. Declaration of Thomas Bryan. Assessing the compliance and performance of the demonstrative VRA congressional plans of Dr. Moon Duchin and Mr. William Cooper. December 2021.

- In the matter of *Milligan v. Merrill* in US District Court of the Northern District of Alabama. Civil Action NO. 2:21-cv-01530-AMM. Declaration of Thomas Bryan. Assessing the compliance and performance of the Milligan and State of Alabama congressional redistricting plans. December 2021.

- In the matter of *Singleton v. Merrill* in US District Court of the Northern District of Alabama. Civil Action NO. 2:21-cv-01291-AMM. Declaration of Thomas Bryan. Assessing the compliance and performance of the Singleton and State of Alabama congressional redistricting plans. December 2021.

- "The Effect of the Differential Privacy Disclosure Avoidance System Proposed by the Census Bureau on 2020 Census Products: Four Case Studies of Census Blocks in Alaska" PAA Affairs, (with D. Swanson and Richard Sewell, Alaska Department of Transportation and Public Facilities). March 2021.
    - https://www.populationassociation.org/blogs/paa-web1/2021/03/30/the-effect-of-the-differential-privacy-disclosure?CommunityKey=a7bf5d77-d09b-4907-9e17-468af4bdf4a6 .
    - https://redistrictingonline.org/2021/03/31/study-census-bureaus-differential-privacy-disclosure-avoidance-system-produces-produces-concerning-results-for-local-jurisdictions/
    - https://www.ncsl.org/research/redistricting/differential-privacy-for-census-data-explained.aspx

- In the matter of the *State of Alabama, Representative Robert Aderholt, William Green and Camaran Williams v. the US Department of Commerce; Gina Raimondo; the US Census Bureau*

and Ron Jarmin in US District Court of Alabama Eastern Division. Declaration of Thomas Bryan, Exhibit 6. Civil Action NO. 3:21-CV-211, United States District Court for Middle Alabama, Eastern Division. Assessing the impact of the U.S. Census Bureau's approach to ensuring respondent privacy and Title XIII compliance by using a disclosure avoidance system involving differential privacy. March 2021.

- https://redistricting.lls.edu/wp-content/uploads/AL-commerce2-20210311-PI.zip

- Peter A. Morrison and Thomas M. Bryan, Redistricting: A Manual for Analysts, Practitioners, and Citizens (2019). Springer Press: Cham Switzerland.

- "Small Area Business Demography." in D. Poston (editor) Handbook of Population, 2nd Edition. (2019). Springer Press: London (with P. Morrison and S. Smith).

- "From Legal Theory to Practical Application: A How-To for Performing Vote Dilution Analyses." *Social Science Quarterly*. (with M.V. Hood III and Peter Morrison). March 2017
  - http://onlinelibrary.wiley.com/doi/10.1111/ssqu.12405/abstract

- In the Supreme Court of the United States Sue Evenwel, Et Al., *Appellants,* V. Greg Abbott, in his official capacity as Governor of Texas, et al., *Appellees. On appeal from the United States District Court for the Western District of Texas*. Amicus *Brief of Demographers Peter A. Morrison, Thomas M. Bryan, William A. V. Clark, Jacob S. Siegel, David A. Swanson, and The Pacific Research Institute* - As *amici curiae* in support of Appellants. August 2015.
  - www.scotusblog.com/wp-content/uploads/2015/08/Demographers-Amicus.pdf)

- Workshop on the Benefits (and Burdens) of the American Community Survey, Case Studies/Agenda Book 6 "Gauging Hispanics' Effective Voting Strength in Proposed Redistricting Plans: Lessons Learned Using ACS Data." June 14–15, 2012
  - http://docplayer.net/8501224-Case-studies-and-user-profiles.html

- "Internal and Short Distance Migration" by Bryan, Thomas in J. Siegel and D. Swanson (eds.) The Methods and Materials of Demography, Condensed Edition, Revised. (2004). Academic/Elsevier Press: Los Angeles (with D. Swanson and P. Morrison).

- "Population Estimates" by Bryan, Thomas in J. Siegel and D. Swanson (eds.) The Methods and Materials of Demography, Condensed Edition, Revised. (2004). Academic/Elsevier Press: Los Angeles (with D. Swanson and P. Morrison).

- Bryan, T. (2000). U.S. Census Bureau Population estimates and evaluation with loss functions. *Statistics in Transition,* 4, 537–549.

Professional Presentations and Conference Participation

- "Redistricting 101: A Tutorial" 2022 Population Association of America Applied Demography Conference, February 2022. With Dr. Peter Morrison.

- Session Chairman on Invited Session "Assessing the Quality of the 2020 Census", including Census Director Ron Jarmin at the 2020 Population Association of America meeting May 5, 2021.
    - https://paa2021.secure-platform.com/a/organizations/main/home

- "The Effect of the Differential Privacy Disclosure Avoidance System Proposed by the Census Bureau on 2020 Census Products: Four Case Studies of Census Blocks in Alaska". 2021 American Statistical Association - Symposium on Data Science and Statistics (ASA-SDSS). With Dr. David Swanson.
    - https://ww2.amstat.org/meetings/sdss/2021/index.cfm

- "New Technical Challenges in Post-2020 Redistricting" 2020 Population Association of America Applied Demography Conference, 2020 Census Related Issues, February 2021. With Dr. Peter Morrison.
    - https://www.youtube.com/watch?v=ETvvoECt9sc&feature=youtu.be

- "Tutorial on Local Redistricting" 2020 Population Association of America Applied Demography Conference, February 2021. With Dr. Peter Morrison.
    - https://www.youtube.com/watch?v=ETvvoECt9sc&feature=youtu.be

- "Demographic Constraints on Minority Voting Strength in Local Redistricting Contexts" 2019 Southern Demographic Association meetings (coauthored with Dr. Peter Morrison) New Orleans, LA, October 2019. Winner of annual E. Walter Terrie award for best state and local demography presentation.
    - http://sda-demography.org/2019-new-orleans

- "Applications of Big Demographic Data in Running Local Elections" 2017 Population and Public Policy Conference, Houston, TX.

- "Distinguishing 'False Positives' Among Majority-Minority Election Districts in Statewide Congressional Redistricting," 2017 Southern Demographic Association meetings (coauthored with Dr. Peter Morrison) Morgantown, WV.

- "Devising a Demographic Accounting Model for Class Action Litigation: An Instructional Case" 2016 Southern Demographic Association (with Peter Morrison), Athens, GA.

- "Gauging Hispanics' Effective Voting Strength in Proposed Redistricting Plans: Lessons Learned Using ACS Data." 2012 Conference of the Southern Demographic Association, Williamsburg, VA.
- "Characteristics of the Arab-American Population from Census 2000 and 1990: Detailed Findings from PUMS." 2004 Conference of the Southern Demographic Association, (with Samia El-Badry) Hilton Head, SC.
- "Small-Area Identification of Arab American Populations," 2004 Conference of the Southern Demographic Association, Hilton Head, SC.
- "Applied Demography in Action: A Case Study of Population Identification." 2002 Conference of the Population Association of America, Atlanta, GA.

Primary Software Competencies

ESRI ArcGIS: advanced

SAS: intermediate

Microsoft Office: advanced

Professional Affiliations

International Association of Applied Demographers (Member and Board of Directors)

American Statistical Association (Member)

Population Association of America (Member)

Southern Demographic Association (Member)

American BAR Association (Affiliated Professional: Solo, Small Firm and General Practice Division)

Relevant Work Experience

January 2001- April 2003 ESRI Business Information Solutions / Demographer

Responsibilities included demographic data management, small-area population forecasting, IS management and software product and specification development. Additional responsibilities included developing GIS-based models of business and population forecasting, and analysis of emerging technology and R&D / testing of new GIS and geostatistical software.

May 1998-January 2001 U.S. Census Bureau / Statistician

Responsibilities: developed and refined small area population and housing unit estimates and innovative statistical error measurement techniques, such as Loss Functions and MAPE-R.

Service

Eagle Scout, 1988, Boy Scouts of America. Member of the National Eagle Scout Association. Involved in leadership of the Boy Scouts of America Heart of Virginia Council.

References

Dr. David Swanson	Dr. Peter Morrison
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